APPENDIX F: PROPEL US 30 WEST FINAL LEVEL 2 SCREENING REPORT

PROPEL US 30

Smarter Transportation. Stronger Communities.

US 30 WEST
LEVEL 2 SCREENING REPORT
FINAL

November 12, 2024

Prepared By

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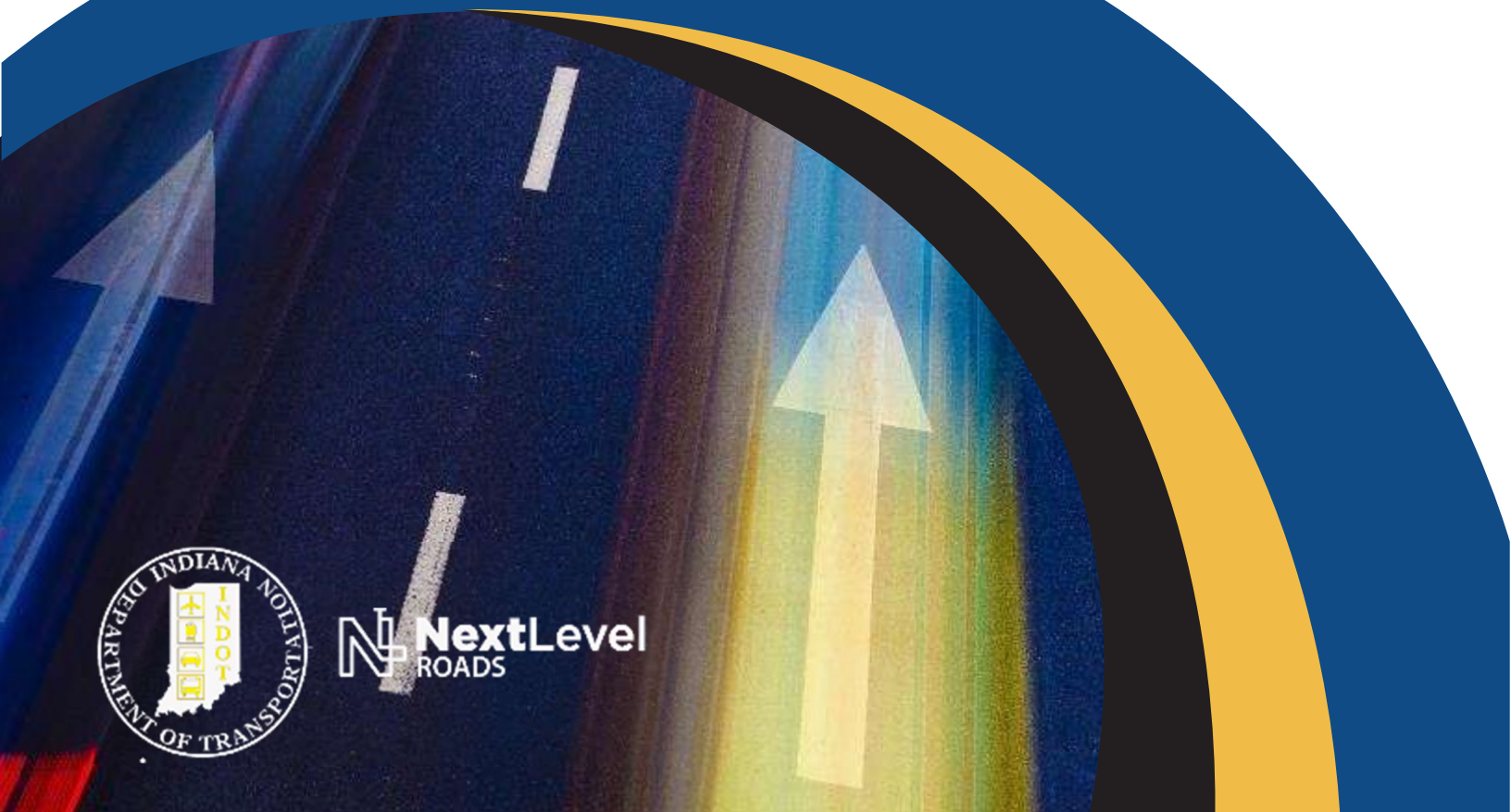
This report was finalized prior to the issuance of several Executive Orders (EOs) and one United States Department of Transportation (USDOT) order, including:

- *Federal EOs: EO 14154, EO 14148, EO 14173, and EO 14281;*
- *State EOs: EO 25-49, EO 25-37, and EO 25-14;*
- *USDOT Order 2100.7*



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EXECUTIVE SUMMARY

ProPEL is an Indiana Department of Transportation (INDOT) initiative for transportation planning that uses collaborative planning and environment linkages (PEL) studies to consider environmental, community, and economic goals. The ProPEL US 30/31 studies are utilizing 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 2 screening evaluates concepts advancing from the Level 1 screening at the primary intersections within the study area.

Figure ES-1: ProPEL US 30 West Alternatives Development and Screening Process

This *ProPEL US 30 West Level 2 Screening Report*, which details the Level 2 screening methodology and results, has been prepared for the ProPEL US 30 West study and is based on existing conditions, current plans and past studies, public comments, stakeholder input as well as social, economic, and environmental constraints. The ProPEL US 30 West study area includes US 30 from SR 49 in Valparaiso to South Beech Road in Marshall County (approximately 53.2 miles). The US 30 West study area also includes US 31 from the US 30 interchange in Marshall County south to west CR 700 North in Fulton County (approximately 13.9 miles).

This Level 2 screening report provides a comparative evaluation of the feasibility and impacts of transportation improvement concepts and identifies alternatives to further evaluate in Level 3.

LEVEL 2 SCREENING METHODOLOGY

OVERVIEW

The purpose of the Level 2 screening analysis is to qualitatively evaluate location-specific improvements identified in the Universe of Alternatives (Level 1) Report for reasonability and potential impacts. As part of the Universe of Alternatives (Level 1) screening, fifty-five (55) transportation improvement concepts, including the No-Build concept, were considered for the ProPEL US 30 West study area. These concepts were qualitatively evaluated against the study area purpose and need, as well as practicality. Of the 55 concepts, for US 30 nine (9) Primary Concepts, seventeen (17) Complimentary Concepts, and nine (9) Design Elements were identified to move forward in the study. For US 31, eight (8) Primary concepts, twelve (12) Complementary Concepts, and nine (9) Design Elements were identified to move forward in the study. More information on the concepts that moved forward is available in the Universe of Alternatives Report online at ProPELUS30.com.

In Level 2, the potential solutions that were identified as Primary and Complimentary Concepts are being qualitatively evaluated at the primary intersections in the study area. Primary intersections are locations where US 30 or US 31 intersects with a roadway that is designated as a Major Collector or higher, or they are roadways within the study areas that were identified during outreach as important to the surrounding community, such as being an access point for a school. These primary intersections largely control roadway operations in the study area, Therefore, alternatives selected at the primary intersections influence what can be constructed upstream or downstream of the primary intersection and set the foundation for improvements between them. Thus, the Level 2 screening will identify the building blocks for the Level 3 screening.

While the Level 2 screening focuses on alternatives at the primary intersections, the Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will include improvements at the primary intersections, the secondary intersections, as well as the roadway sections between them. Each of the primary intersection improvement alternatives advancing from the Level 2 screening will be included in at least one of the improvement packages considered in the Level 3 screening. The Level 3 screening include both qualitative and quantitative factors to enable an assessment of costs, benefits, and impacts. The Design Elements will again be evaluated as part of the Level 3 screening.

A four-step evaluation process was applied to each of the 29 primary intersections within the ProPEL US 30 West study area. This process is summarized as follows:

Step 1 – Decision Tree

A decision tree assessment tool was developed to identify the scale of improvement needed at each primary intersection based on safety and operational data, as well as input from both the public and stakeholders. More information is provided in **Section 4.1.1.**

Step 2 – Operational Analysis

Various concepts or intersection types were evaluated at each primary intersection. Concepts that are expected to produce poor operating conditions were eliminated from further consideration. More information is provided in **Section 4.1.2.**

Step 3 – Evaluation Matrix

A matrix was prepared for each primary intersection to assess the following attributes for all concepts advancing from Step 2:

- Ability to meet purpose and need.
- Social, economic, and environmental impacts.
- Relative cost.

As part of the PEL study, the study team analyzed a range of improvement alternatives. These alternatives include improvements that could address transportation needs at a specific location (i.e., a primary intersection), as well as those that could address study corridor needs (e.g., access management). For example, the signalized intersections within the study area have substantive safety issues. As a result, alternatives that address those safety issues could be part of a solution for a planning segment or they could be a stand-alone solution at a specific location. In either instance, the improvement alternative would address a substantive identified transportation need.

Some concepts were eliminated in this step due to high impacts and/or low benefits. Further details on this process are provided in **Section 4.1.3.**

Step 4 – Conceptual Footprint Comparison

Concepts advancing from Step 3 were developed into intersection alternatives by preparing conceptual designs to establish a high-level estimation of the improvement limits (i.e., a footprint). These footprints were then used to assess impacts and screen out alternatives with high impacts. Avoidance and minimization of adverse impacts to the human and natural environment were incorporated to the extent feasible in a planning study. Further details on this process are provided in **Section 4.1.4.**

LEVEL 2 SCREENING RESULTS

The Level 2 screening has identified a wide range of alternatives to improve operations and safety at the 29 primary intersections. The alternatives passing the Level 2 screening are listed in **Table ES-1**.

Table ES-1: List of Alternatives Passing Level 2 Screening

Location	Advanced to Level 3 Screening
US 30 and SR 49	• Add/Extend Acceleration/Deceleration Lanes
US 30 and Industrial Drive	• Median Safety Improvements • Add or Lengthen Turn Lanes • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and Porter CR 325 E	• Median Safety Improvements • Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and Porter CR 400 E	• Median Safety Improvements • Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass • Convert to Interchange • Unsignalized Intersection Improvements
US 30 and County Line Road	• Median Safety Improvements • Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass • Unsignalized Intersection Improvements

Location	Advanced to Level 3 Screening
US 30 and Main Street	• Access Management • Add or Lengthen Turn Lanes
US 30 and US 421	• Access Management • Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Convert to Interchange • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and LaPorte CR 600 W	• Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass
US 30 and Thompson Street	• Add or Lengthen Turn Lanes • Unsignalized Intersection Improvements
Us 30 and Old US 30 West	• Add or Lengthen Turn Lanes • Convert to Interchange • Limit Access
US 30 and Laporte CR 300 W	• Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass
US 30 and SR 39	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Convert to Interchange • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and US 35	• Add/Extend Acceleration/Deceleration Lanes
US 30 and Starke CR 750 E	• Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass
US 30 and SR 23	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Convert to Interchange • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and Queen Road	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Cross Road Overpass/Underpass • Convert to Interchange • Signalized Intersection Improvements • Unsignalized Intersection Improvements

Location	Advanced to Level 3 Screening
US 30 and Pioneer Drive	• Add/Extend Acceleration/Deceleration Lanes • Cross Road Overpass/Underpass • Convert to Interchange • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and Oak Drive	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Cross Road Overpass/Underpass • Signalized Intersection Improvements
US 30 and Michigan Street	• Add/Extend Acceleration/Deceleration Lanes
US 30 and Plymouth Goshen Trail	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Cross Road Overpass/Underpass • Unsignalized Intersection Improvements
US 30 and US 31	• Add/Extend Acceleration/Deceleration Lanes
US 30 and King Road	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Cross Road Overpass/Underpass • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and Fir Road	• Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass
US 30 and SR 331	• No Intersection Alternatives
US 31 and 9A Road	• Cross Road Overpass/Underpass
US 31 and Michigan Road	• Add or Lengthen Turn Lanes • Convert to Interchange
US 31 and 13th Road	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Cross Road Overpass/Underpass • Convert to Interchange • Unsignalized Intersection Improvements
US 31 and SR 10	• Interchange Project Already Planned
US 31 and SR 110	• Interchange Project Already Planned

1. INTRODUCTION

1.1. PURPOSE OF THIS REPORT

This report documents the Level 2 screening of concepts that advanced from the Level 1 screening process. These concepts address the transportation needs identified in the *ProPEL US 30 West Purpose and Need Report* (https://propelus30.com/30doclibrary/) and are practical.

The Level 2 screening represents the second step in a three level alternatives development and screening process, as depicted in **Figure 1-1**. Concepts advanced from the Level 1 screening process were evaluated at specific locations in the Level 2 screening process to assess reasonability and potential impacts as intersection alternatives. Public and stakeholder input received to date was considered as part of Level 2 screening. The ability of each concept to meet the study purpose and needs is also analyzed in the Level 2 screening.

As part of the Level 2 screening process, location-specific intersection alternatives will be identified and evaluated qualitatively based on study needs, costs, and social, economic, and environmental impacts. The results of this process will be made available for public comment and any feedback received will be considered before advancing to the Level 3 screening process.

Figure 1-1: ProPEL US 30 West Alternatives Development and Screening Process

A stated goal of this PEL study is to identify the reasonable range of alternatives for the study area. 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. Depending on multiple factors, including statewide priorities and funding availability, improvements considered as part of this PEL study could be combined in different ways to address the identified transportation needs and support the goals of the study area.

The Level 2 screening process focuses on the primary intersections within the study area and identifies the location-specific alternatives that are reasonable at each of these intersections. Primary intersections are those locations where US 30 or US 31 intersects with a roadway with classification of *Major Collector* or higher, or they are roadways within the study areas that were identified during outreach as important to the surrounding community, such as being an access point for a school. These primary intersections largely control roadway operations in the study area, Therefore, alternatives selected at the primary intersections influence what can be constructed upstream or downstream of the primary intersection and set the foundation for improvements between them. Thus, the Level 2 screening will identify the building blocks for the Level 3 screening.

The Level 2 screening for the ProPEL US 30 West study was developed utilizing information from the following reports which are available at the project website (https://propelus30.com/30doclibrary/):

- ProPEL US 30 West Existing Transportation Conditions Report (May 05, 2023)
- ProPEL US 30 West Final Environmental Constraints Report (September 07, 2023)
- ProPEL US 30 West Final Purpose and Need Report (December 07, 2023)
- ProPEL US 30 West Resource Agency, Stakeholder & Public Involvement (RASPI) Summary Reports
    - *RASPI #1* (May 12, 2023)
    - *RASPI #2* (August 15, 2023)
- ProPEL US 30 West Universe of Alternatives (Level 1) Screening Technical Memorandum (November 13, 2023)

Additional inputs to this screening process include previous studies, current plans, and input received from both the public and study stakeholders.

The following information is provided in this report:

- A summary of the study area's purpose and needs and goals.
- A summary of the Level 1 Screening and the concepts advanced.
- The methodology applied in the Level 2 screening process.
- Details of how alternatives were identified, developed, and evaluated at each primary intersection during the Level 2 screening.
- An overview of the next steps in this PEL study.

1.2. STUDY INTERSECTIONS

The study area contains 86 intersections with crossroads. These intersections were designated as "primary" or "secondary" intersections, based on the functional classification of the crossroad[1]. 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 roadways[2]. US 30 and US 31 within the study area are classified as Principal Arterials (Other). These intersections may be stop controlled, signalized, or have existing interchanges. The crossroads of these intersections collectively carry the majority of the north-south traffic flow through the study area across US 30 or east-west across US 31. Therefore, they largely control the operations of the corridor. Intersections within the US 30 West study area are listed in **Table 1-1**.
- **Secondary Intersections** – Intersections where the crossroad has a classification of *Minor* Collector or *Local Road,* which are the lowest classifications of roadways[3]. These intersections are typically two-way stop controlled and have crossroads that carry low traffic volumes. These intersections have minor influence on the operations of US 30 and US 31 within the study area.

Secondary intersections were considered in the Level 2 screening process only when directly impacted by alternatives at adjacent primary intersections. All secondary intersections will be addressed in the Level 3 screening.

[1] 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.
[2] https://www.fhwa.dot.gov/planning/processes/statewide/related/hwy-functional-classification-2023.pdf
[3] https://www.fhwa.dot.gov/planning/processes/statewide/related/hwy-functional-classification-2023.pdf

Table 1-1: List of Primary Intersections

County	Main Road	Cross Road	Cross Road Functional Classification
Porter	US 30	SR 49	Principal Arterial
		Industrial Drive	Major Collector
		CR 325 E	Major Collector
		CR 400 E	Major Collector
		County Line Road	Major Collector
LaPorte		Main Street	Major Collector
		US 421	Principal Arterial
		CR 600 W	Major Collector
		Thompson Road	Major Collector / Minor Collector
		US 30 Alt Rte	Major Collector
		CR 300 W	Major Collector
		SR 39	Minor Arterial
Starke		US 35	Principal Arterial
		CR 750 E	Major Collector
		SR 23	Major Collector
Marshall		Queen Road	Major Collector
		Pioneer Drive	Major Collector
		Oak Road	Minor Arterial
		Michigan Street	Minor Arterial
		Plymouth Goshen Trail	Major Collector
		US 31	Principal Arterial
		9A Road	Major Collector
		Fir Road	Major Collector
		SR 331	Minor Arterial
	US 31	9A Road	Minor Arterial
		Michigan Road	Major Arterial
		13th Road	Major Collector
		SR 10	Major Collector
		SR 110	Major Collector

INDOT has programmed two (2) new interchanges, and overpass, and access control on US 31 between SR 10 and SR110 within the US 30 West PEL study area. These projects are advancing through project development independent of the PEL study. The projects include:

- US 31 at SR 10 – New Interchange (Des. No. 1802052)
- US 31 from SR 110 to SR 10 – Access Control (Des. No. 2200482)
- US 31 at SR 110 – New Interchange (Des. No. 2200483)
- US 31 at CR 700 N – New Bridge (Overpass) (Des. No. 2200484)

Each of the projects are included in the INDOT 2024-2028 State Transportation Improvement Program (STIP) and are programmed for construction in 2027Some other programmed projects located within the US 30 West PEL study area were postponed pending the conclusion of the PEL study, however, due to safety concerns at these locations, these projects were determined to be individually important enough to continue design and development independent of the PEL study. Projects that perform maintenance and preservation of existing assets were not postponed. Because projects are already programmed at these SR 10, SR 110, and CR 700, the PEL study will not analyze the US 31 intersections with SR10, SR110, or CR700 or evaluate the access between these intersections. However, the US30 West PEL study will consider the improvements planned at these locations and overall corridor recommendations resulting from the PEL study will factor in these future projects.

1.3. PURPOSE AND NEED

The needs, goals, and purpose identified in the *ProPEL US 30 West Purpose and Need Report* are summarized below.

1.3.1. TRANSPORTATION NEEDS

The following transportation needs have been identified for the ProPEL US 30 West study area:

- Safe, high-quality mobility for long-distance passenger and freight trips through the study corridor
- Safety concerns due to high crash frequencies and/or high crash severities within the study area
- Lack of consistency with INDOT's Access Management Guidelines
- Roadway deficiencies such as median widths and acceleration/deceleration lanes

1.3.2. PURPOSE

As defined by, and to address the needs identified above, the purpose of the ProPEL US 30 West study is to improve regional mobility and safety along US 30 and US 31 and preserve both as vital statewide transportation corridors for moving people and goods.

- Enhance the efficiency and reliability of US 30 and US 31 as regional and statewide corridors.
- Improve safety by reducing the frequency and severity of crashes within the study area.
- Improve access control through implementation of INDOT's Access Management Guidelines.
- Improve existing roadway deficiencies.

For more detail, see the ProPEL US 30 West Final Purpose and Need Report available on the study website (https://propelus30.com/30doclibrary/).

1.3.3. GOALS

The following goals have been identified for the ProPEL US 30 West study area:

- **Economic Development** – Provide transportation infrastructure to support local economies and economic development goals.
- **Equity In Transportation** – Provide equitable access and mobility for underserved communities.
- **Multimodal Access & Connections** – Accommodate non-motorized, transit, and active modes of travel in and across the study corridor.
- **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.
- **Corridor Character –** Maintain character of local communities within the corridor.
- **Local Access –** Balance transportation improvements with maintaining and improving local access.

2. PUBLIC INVOLVEMENT AND AGENCY COORDINATION

2.1. PUBLIC INVOLVEMENT

The concept development and screening for the Level 2 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 prior to the alternatives screening phase of the study (including comments received) can be found in the Resource Agency, Stakeholder & Public Involvement Summary (RASPI) #1 and RASPI #2. Both documents are available on the study website (https://propelus30.com/30doclibrary/).

The Level 2 analysis also takes into consideration the public involvement and agency coordination associated with the publication of the *Draft Universe of Alternatives (Level 1) Screening Report*. A final copy of this report, including responses to all public, agency, and tribal nation comments received during the formal comment period can be found on the study website.

The *Draft Level 2 Screening Report* was published on the study website on March 27, 2024. Public notices were also published in two local newspapers on the same day announcing the availability of the draft report and the start of the public comment period. Over 8,700 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 to April 30, 2024.

During the public comment period on the *Draft Level 2 Screening Report*, several additional outreach activities were completed by the study team. These activities are listed in **Table 2-1**. Note that some coordination activities occurred after the official closure of the public comment period due to the logistics of scheduling.

Table 2-1: Level 2 Screening Outreach Efforts

Level 2 Screening Outreach Efforts		Date(s)
Indiana Legislators Briefing	Virtual meeting	3/18/2024
Media Alert	ProPEL US 30 West media outlets	3/27/2024
Website Information	ProPELUS30.com	3/27/2024
Media Briefing	Virtual meeting	3/27/2024
GovDelivery E-bulletin	38% open rate and 11,200 recipients	3/27/2024
US 30 & 31 Coalitions	Virtual meetings	4/9/2024; 4/10/2024
Stakeholder Advisory Committee	Virtual meetings	4/10/2024
Farm Bureau	Porter County Farm Bureau Annual Meeting	6/18/2024
Resource Agency Coordination	Email	3/28/2024
Tribal Nations	Email	3/28/2024
Direct Mail	Level 2 postcard to residents, businesses (8,772 postcards mailed)	4/1/2024

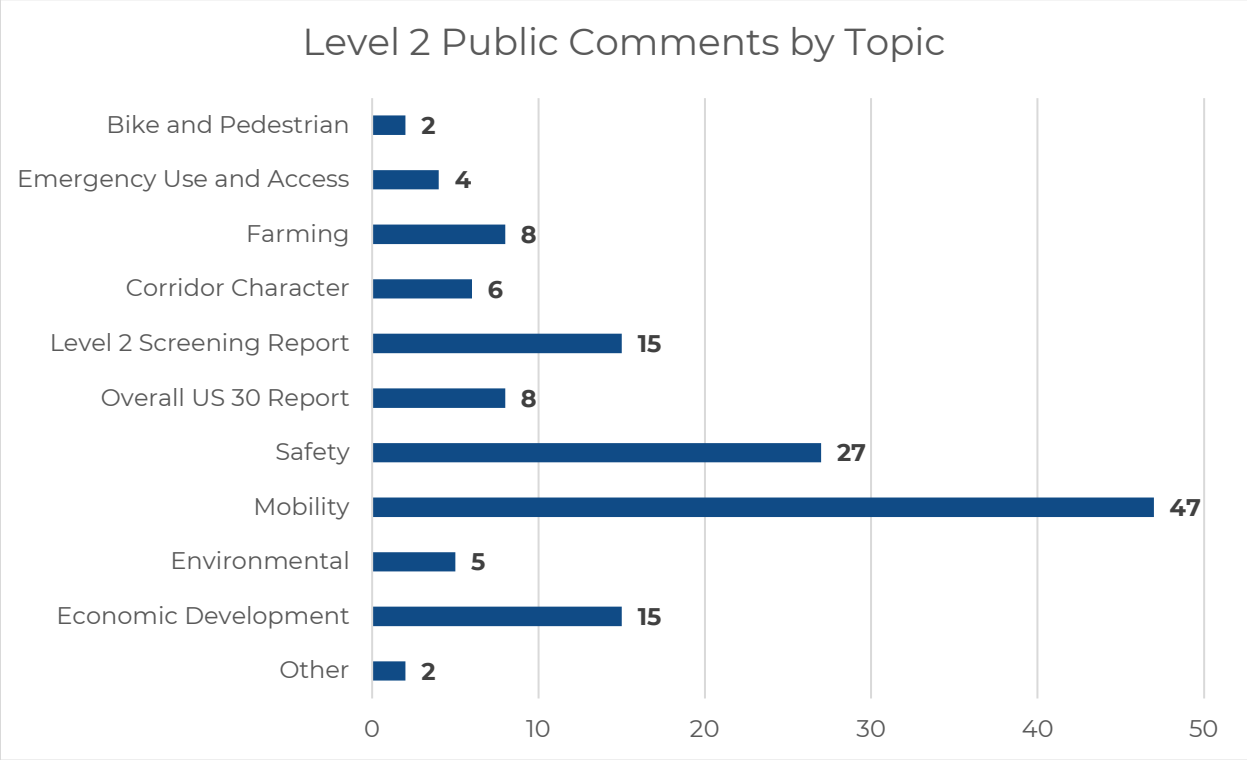
Level 2 Screening Outreach Efforts		Date(s)
Hard Copy of Level 2 Screening Reports and Comment Forms	Argos Public Library	3/27/2024 – 4/30/2024
	Bourbon Public Library	3/27/2024 – 4/30/2024
	Christopher Center Library, Valparaiso University	3/27/2024 – 4/30/2024
	Hanna Branch of the Public Library	3/27/2024 – 4/30/2024
	Knox Branch of the Starke County Library	3/27/2024 – 4/30/2024
	Marian University's Ancilla College Library	3/27/2024 – 4/30/2024
	Plymouth Public Library	3/27/2024 – 4/30/2024
	Porter County Public Library	3/27/2024 – 4/30/2024
	Valparaiso Public Library	3/27/2024 – 4/30/2024
	Wanatah Public Library	3/27/2024 – 4/30/2024
Stakeholder Email Blasts	51% open rate and 532 recipients	3/28/2024
	43% open rate and 520 recipients	4/29/2024
Public Notices	The Pilot News	3/28/2024
	The Times of Northwest Indiana	4/01/2024
Local Elected Officials	Plymouth Common Council	5/13/2024
	Starke County Commissioners	5/205/2024
	Marshall County Commissioners	5/20/2024
	Hamlet Town Council	5/22/2024
	LaPorte County Council	5/29/2024
	Wanatah Town Council	6/06/2024
	Bourbon Town Council	4/22/2024
	Argos Town Council	4/30/2024
Social Media Posts	Public comment period open	3/27/2024
	Level 2 Explainer Video	3/29/2024
	Level 2 Report Locations	4/2/2024
	Distracted Driving Awareness Month promotion	4/3/2024
	Community Office Hours promotion	4/7/2024
	Level 2 stakeholder video	4/15/2024
	Community Office Hours promotion	4/15/2024
	Level 2 screening process explainer	4/16/2024
	Level 2 comment period reminder	4/18/2024
	Happy Earth Day	4/22/2024
	Level 2 stakeholder video	4/22/2024
	Level 2 comment period reminder	4/25/2024
	Level 2 stakeholder video	4/26/2024
	Level 2 improvement concepts explainer video	4/29/2024
	Level 2 comment period closing reminder	4/30/2024

Level 2 Screening Outreach Efforts		Date(s)
Community Office Hours	Hanna United Methodist Church	4/09/2024
	Wanatah Public Library	4/10/2024
	Hamlet Fire/Davis Township Community Center	4/16/2024
	Stockman Youth Center	4/17/2024

2.1.1 SUMMARY OF PUBLIC COMMENTS

During the *Draft Level 2 Screening Report* comment period, the US 30 West study team received 61 public comments. **Figure 2-1** below provides a summary of those comments. A list of all comments received, and their responses are included in **Appendix D**.

Figure 2-1: Level 2 Screening Comment Summary



Note: Some public comments addressed multiple topics.

2.2. AGENCY COORDINATION

As indicated in **Table 2-1**, the Draft Level 2 Screening Report was also distributed via email on March 28, 2024 to federal, state, and local resource agencies, as well as tribal nations, for review and comment. A response from the Turtle Mountain Band was received regarding the Level 2 Screening Report.

2.3. LEVEL 2 SCREENING REPORT

Based on the public comments and agency feedback received, there were no substantive changes to the *Draft Level 2 Screening Report*, including the screening results and the alternatives recommended to be carried forward for further analysis in the Level 3 screening. Location-specific feedback, such as suggested improvements at a certain property or crossroad, will be carried forward for consideration in the Level 3 analysis for the ProPEL US 30 West Study, as appropriate.

In this finalized report, this section (i.e., Section 2) summarizing comments received and Appendix D were added.

3. CONCEPTS EVALUATED

3.1. SUMMARY OF LEVEL 1 SCREENING

The Level 1 screening process considered 55 transportation improvement concepts, including the No-Build concept, for the ProPEL US 30 West study area. These concepts were qualitatively evaluated against the study area purpose and need and evaluated for practicality. The purpose and need statement for the ProPEL US 30 West study applies to both US 30 and US 31 within the study area; however, for the purposes of alternatives screening, these two roadways were evaluated separately since the routes are unique and have different existing infrastructure and conditions.

The US 30 screening process identified 27 concepts which were found to meet one or more of the study area's needs and are considered practical. Nine of these concepts met a majority of the transportation needs. These concepts were designated as Primary Concepts and were evaluated as stand-alone alternatives in the Level 2 screening process. Seventeen of these concepts addressed some of the transportation needs. These concepts were designated as Complementary Concepts. Complementary Concepts were evaluated in the Level 2 screening process as location-specific application(s) as part of a Primary Concept. The US 30 screening process also identified nine Design Elements that did not meet any of the study area needs but were considered practical as they provided some benefit to the study area. These concepts were incorporated, where applicable, into concepts developed in the Level 2 and will be incorporated in the future Level 3 screening processes.

The US 31 screening process identified 20 concepts which were found to meet one or more of the study area's needs and are considered practical. Seven of these concepts met majority of the transportation needs and were designated as Primary Concepts. Twelve of these concepts addressed some of the transportation needs. and were designated as Complementary Concepts. The US 31 screening process also identified nine Design Elements and were incorporated, where applicable, into concepts developed in the Level 2 and will be incorporated in the future Level 3 screening processes.

The No-Build alternative meets two transportation needs of the study area and will be advanced throughout the PEL study and throughout any ensuing NEPA analyses to serve as a baseline for comparison to build alternatives.

Table 3-1 and **Table 3-2** lists the practical concepts advanced from the Level 1 screening process.

Table 3-1: Level 1 Screening: Practical Concepts (US 30)

Primary Concepts (9)	Complementary Concepts (17)	Design Elements (9)
• Access Management • Freeway (Free Flow Facility with Full Control of Access) • Median Safety Improvements • Add or Lengthen Turn Lanes • Add or Extend Acceleration/Deceleration Lanes • Cross Road Overpass/ Underpasses • Convert to Interchange • Signalized Intersection Improvements • Unsignalized Intersection Improvements	• Realign Skewed Intersections • Intersection Sight Distance Improvements • Auxiliary Lanes • Bypass • Signal Timing Updates/Coordination • Add Capacity to Movements • Ramp Terminal Intersection Improvements • Wildlife Crossings • Railroad Crossing Improvement • Spot Roadway Lighting • Warning Systems • Roadside Assistance • Incident Management • Freight Priority System • Traveler Information Systems • Bike/Pedestrian Facilities • Non-Motorized User Accommodations	• Collector-Distributor System • Adjacent Intersection Improvements • Traffic control Visibility Upgrades • Pavement Marking Improvements • Roadway Signage Improvements • Roadway Drainage Improvements • Gateway/Corridor Treatments • Speed Management • Alternative Fuel/Electric Vehicle Considerations

Table 3-2: Level 1 Screening: Practical Concepts (US 31)

Primary Concepts (7)	Complementary Concepts (12)	Design Elements (9)
• Access Management • Freeway (Free Flow Facility with Full Control of Access) • Add or Lengthen Turn Lanes • Add or Extend Acceleration/Deceleration Lanes • Cross Road Overpass/ Underpasses • Convert to Interchange • Unsignalized Intersection Improvements	• Realign Skewed Intersections • Intersection sight distance Improvements • Auxiliary Lanes • Median Safety Improvements • Wildlife Crossings • Spot Roadway Lighting • Warning Systems • Roadside Assistance • Incident Management • Traveler Information Systems • Bike/Pedestrian Facilities • Non-Motorized User Accommodations	• Collector-Distributor System • Adjacent Intersection Improvements • Traffic Control Visibility Upgrades • Pavement Marking Improvements • Roadway Signage Improvements • Roadway Drainage Improvement • Gateway/Corridor Treatments • Speed Management • Alternative Fuel/Vehicle Considerations

3.2. PRIMARY CONCEPTS

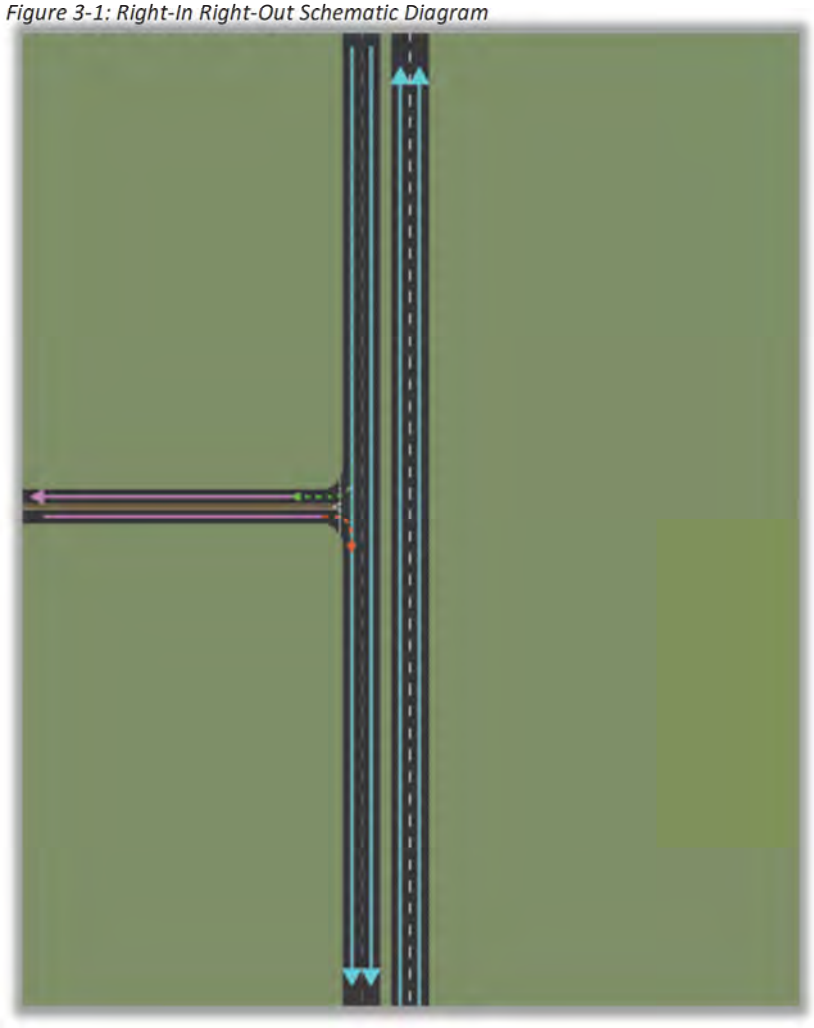
For US 30, nine primary concepts were carried forward from the Level 1 screening for further evaluation in the Level 2 screening. For US 31, seven primary concepts were carried forward from the Level 1 screening for further evaluation in the Level 2 screening. These concepts will define how the study corridor operates, such as whether it provides for free flow along the US 30/31 corridors (US 31 is already free flow) or requires intermittent stops.

3.2.1. ACCESS MANAGEMENT

Access management includes various modifications that could be implemented at primary and secondary intersections as well as on the segments between intersections, to improve safety and operations by eliminating conflict points and restricting access, whereas improvements listed later in this chapter are intended to maintain access while improving safety and operations. Access management will be considered in the Level 2 screening mostly with respect to changes to locations immediately upstream or downstream, if warranted, by improvements analyzed at primary intersections. Access management improvements considered in the Level 2 screening include the following:

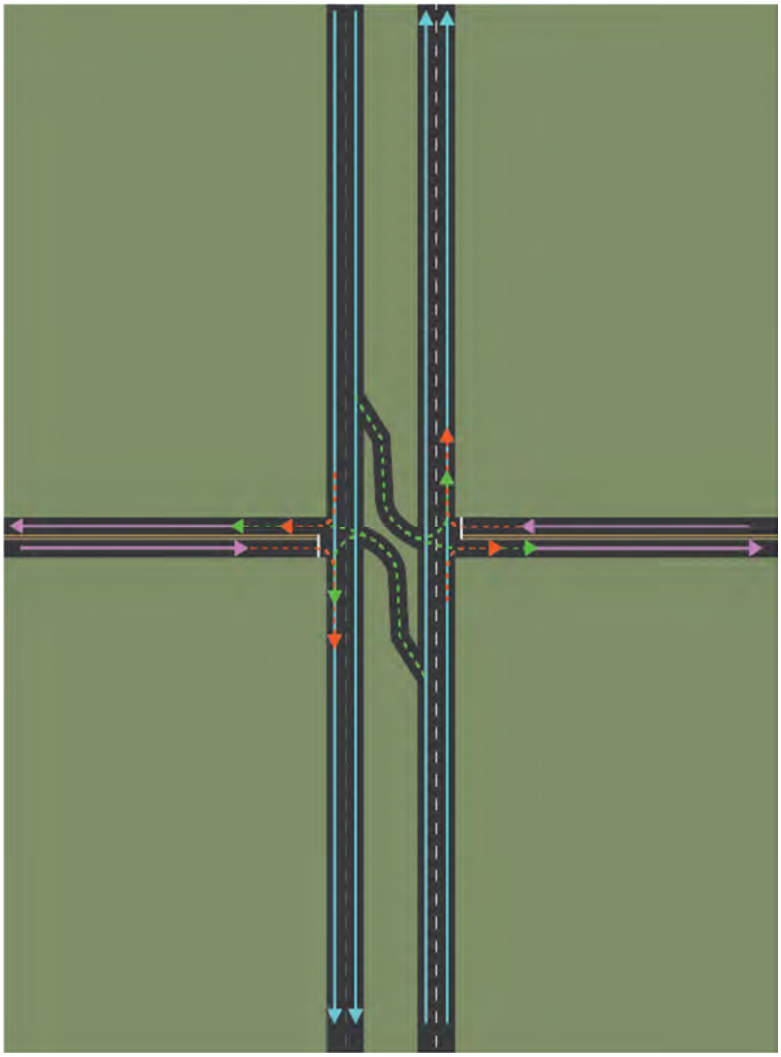
- A **right-in / right-out (RIRO)** intersection configuration, shown in **Figure 3-1**, can be applied to a crossroad or a driveway. This configuration allows only right turns to/from the minor road (green and red arrows) or driveway. The major roadway (blue arrows) is not required to stop at this intersection type. This solution is also considered an unsignalized intersection improvement in this study.
- Closure and/or consolidation of driveways within the intersection footprint.
- **Closure of an intersection** occurs when all connections between US 30 or US 31 and a crossroad are severed. Closures typically include construction of cul-de-sacs on the crossroad.

Figure 3-1: Right-In Right-Out Schematic Diagram



- **Directional median openings** as shown in **Figure 3-2**, where through movements on the cross road (purple arrows) and left turn movements from the crossroad are prohibited. The major roadway (blue arrows) is not required to stop at this intersection type. This solution is also considered an unsignalized intersection improvement in this study.

Figure 3-2: Directional Median Schematic Diagram



3.2.2. FREE FLOW FACILITIES (FULL AND PARTIAL CONTROL OF ACCESS)

A free-flow facility is road that has no traffic signals, stop signs, or yield signs on the mainline. 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.

Freeway (Free-Flow Facility with Full Access Control)

A freeway is one example of a free-flow facility. A freeway concept was advanced from the Universe of Alternatives (Level 1) screening for further study. A freeway also includes full control of access, which means that access to/from the facility is restricted to select crossroads at interchanges. The US 31 bypass around Kokomo is a freeway with full control of access.

Free-Flow Facility with Partial Control of Access (Expressway and/or Unsignalized Arterial)

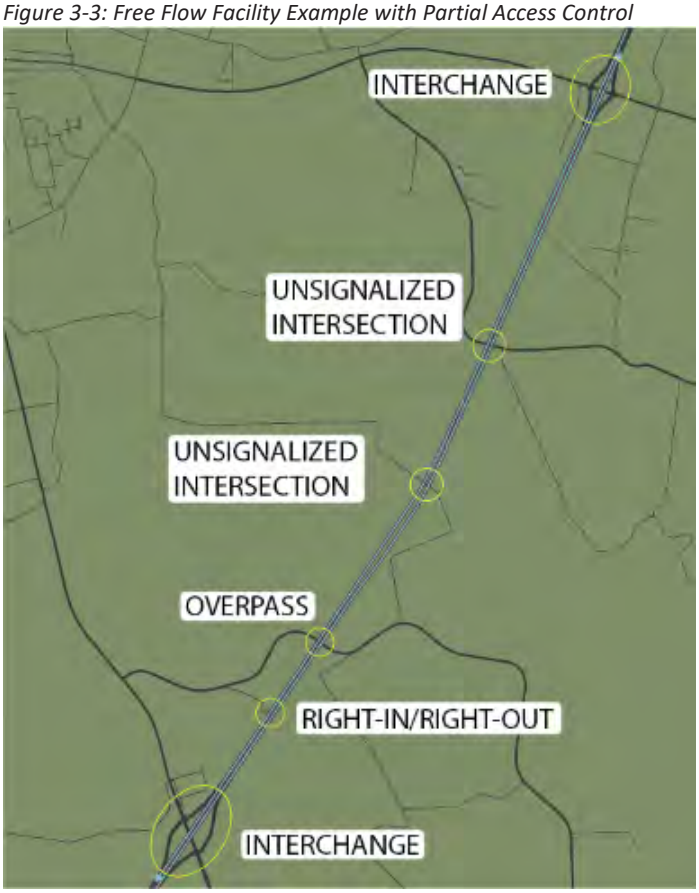
A free-flow facility can also have partial access control, which means that access to/from the facility may be provided via at-grade intersections, interchanges, and/or major commercial driveways. The number of driveway connections (residential and commercial) may be reduced in number and/or limited to right-in/right-out movements. The number of median openings may also be reduced. An example of a free flow facility with partial control of access is depicted in **Figure 3-3**. US 31 within the ProPEL US 30 West study area is a free-flow facility with partial control of access; however, several areas do not meet INDOT's access management guidelines.

Note: A common theme of the public comments received to date is that facility types beyond a freeway (i.e., those that provide more access to/from US 30 or US 31) should be considered as part of the PEL study. As a result, the Level 2 alternatives screening will focus on Primary Intersection improvements. The options for potential facility types in the US 30 West study area will be evaluated in the Level 3 alternatives screening.

Because it is possible to have varying facility types within the study area, the ProPEL US 30 West study area may be divided into smaller pieces or focus areas as part of the Level 3 screening. This approach will enable maximum flexibility to combine improvements in different ways to address the identified transportation needs, support study area goals, as well as to reflect community-specific context regarding fit and function.

Alternatives passing the Level 2 screening will be combined in different ways during the Level 3 screening to create different types of non-free-flow and free-flow facilities for evaluation. The specific characteristics (e.g., the level of access control) may vary in different sections or focus areas of the US 30 West study area.

Figure 3-3: Free Flow Facility Example with Partial Access Control



3.2.3. MEDIAN SAFETY IMPROVEMENTS

This concept identifies one or more areas in the study corridor where medians would be added, widened, removed, or otherwise improved (e.g., adding barriers where justified). Medians were evaluated at each primary intersection as part of this Level 2 report. Medians in the remainder of the study corridor will be evaluated in the Level 3 screening. Closure of median openings are covered under Access Management. Median improvements are only a consideration on US 30 since the medians on US 31 already meet nominal design criteria width requirements.

3.2.4. ADD OR LENGTHEN TURN LANES

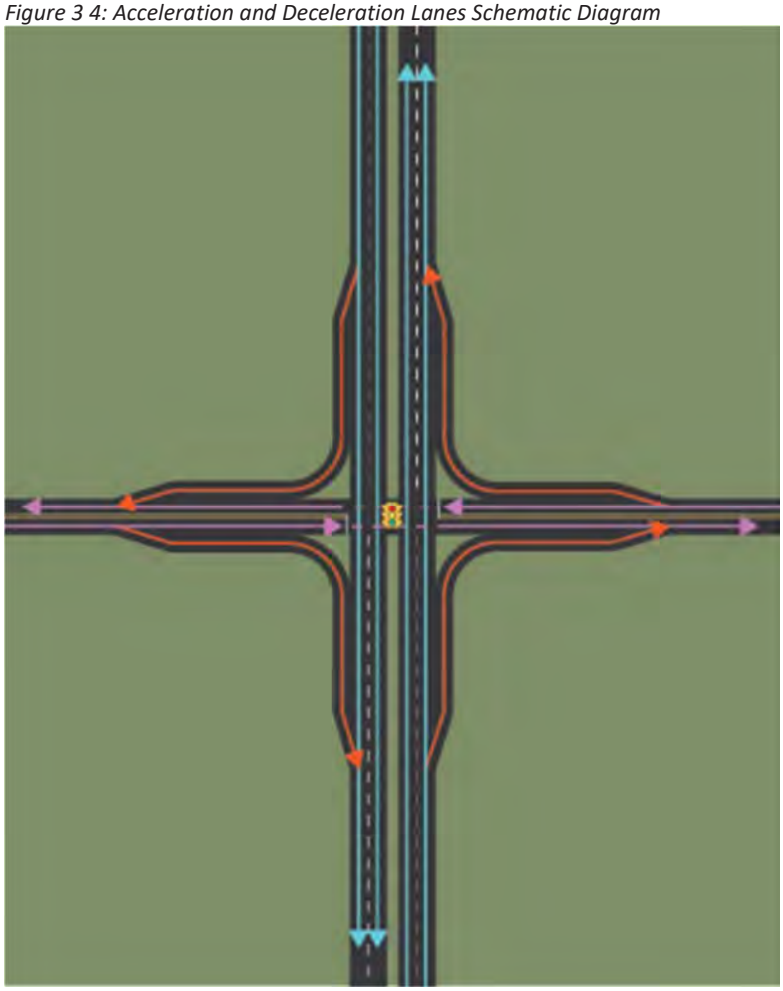
Add or Lengthen Turn Lanes involves adding left and/or right turn lanes to existing intersections in the study corridor, as needed, to separate turning vehicles from through traffic. In locations where they currently exist, turn lanes would be evaluated to determine if adequate deceleration and storage lengths are provided. Depending on the volume of traffic served, dual turn lanes may be appropriate for some intersections.

3.2.5. ADD/EXTEND ACCELERATION/DECELERATION LANES

Acceleration and deceleration lanes are components of highways and roads that allow motorists to enter and exit mainline travel lanes at or near the same speed of through traffic. An acceleration lane is an additional lane on a roadway (red arrows), often found at on-ramps or entrances to highways or freeways. Its purpose is to allow vehicles entering the main road to accelerate and match the speed of the traffic already on the road before merging. An acceleration lane can also be applied at an at-grade intersection. By having this separate lane, drivers

can safely and smoothly merge into the flow of traffic minimizing disruptions or hazards to other vehicles. A deceleration lane is a designated lane that allows vehicles to pull out of the mainline lanes before slowing to exit the facility. This alternative would add or extend acceleration or deceleration lanes for vehicles entering or exiting US 30/US 31. Depending on the site specifics, this alternative may require acquisition of additional ROW.

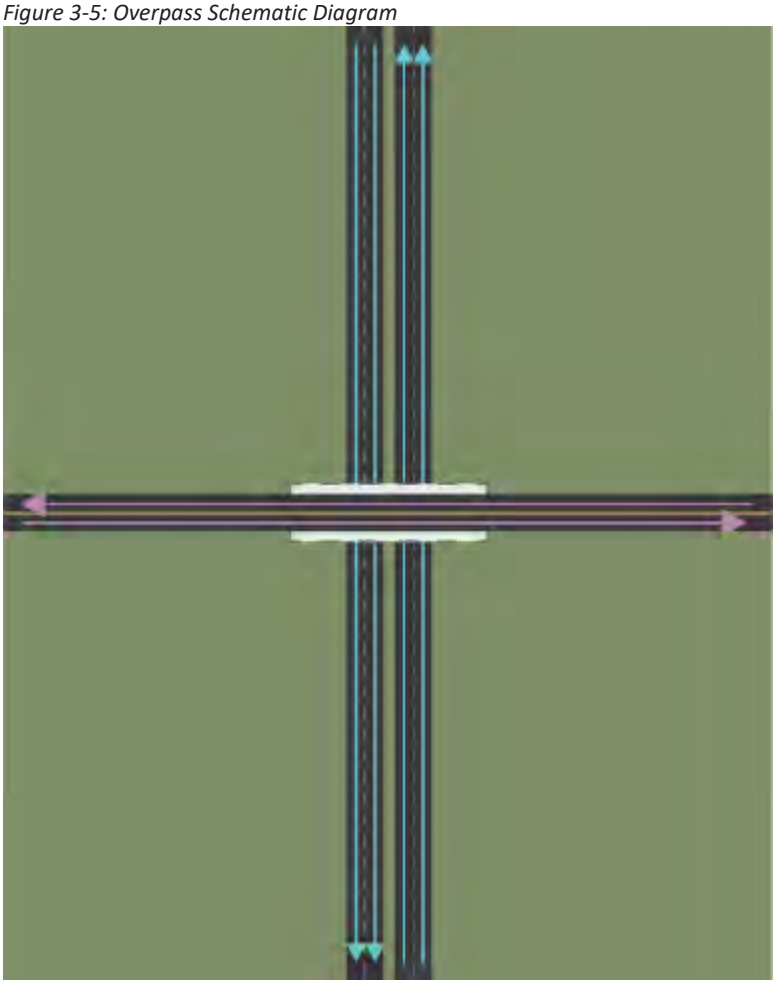
Figure 3 4: Acceleration and Deceleration Lanes Schematic Diagram



3.2.6. CROSS ROAD OVERPASS/UNDERPASS

Overpasses and underpasses allow for free flow conditions by grade separating the major roadway (blue arrows) from the crossroad (purple arrows), which allows both roadways to be free flowing. The decision whether the major roadway or the crossroad should be carried over the other is made by examining impacts of each option. Both options sever all connections between the major roadway and the crossroad. A schematic of a crossroad overpass is provided in **Figure 3-5**.

Figure 3-5: Overpass Schematic Diagram



3.2.7. INTERCHANGES

An **interchange** is a junction where the major roadway and the crossroad are grade separated to provide free flow conditions on the major roadway. Access to/from the major roadway is provided via a series of entrance and exit ramps. All interchanges fall into one of two categories:

System interchanges provide connections between multiple controlled access highways and provide for free-flowing movements between roadways. The US 30 & US 31 interchange is an example of a system interchange.

Service interchanges connect access-controlled highways to roadways of a lower classification and commonly do not provide for free-flowing movements between roadways. The US 30 & SR 17/Michigan St. interchange is an example of a service interchange.

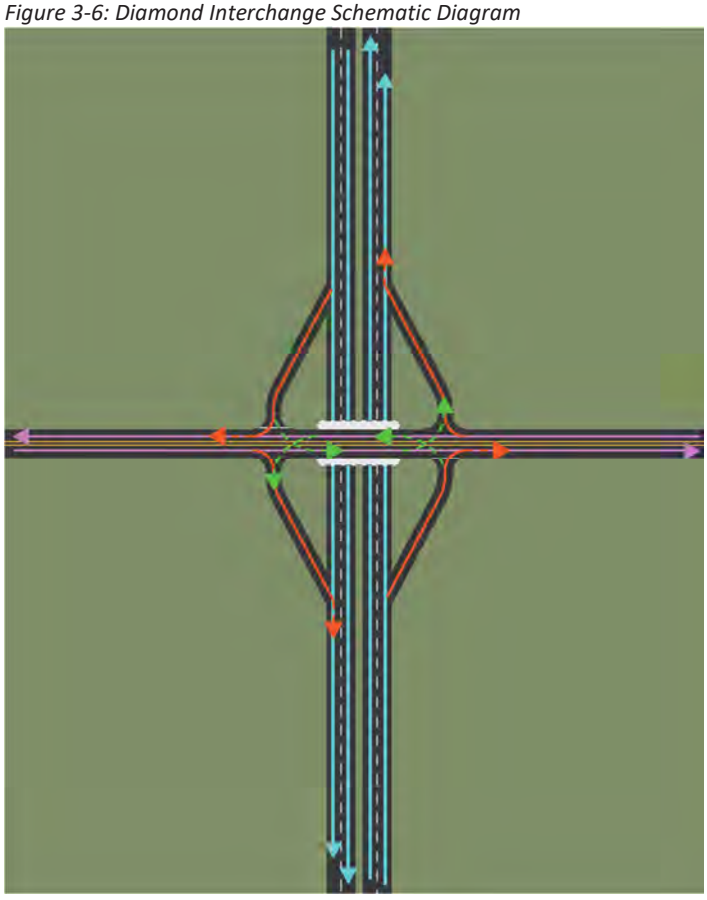
Interchanges typically require substantial amounts of right-of-way and have higher construction costs than at-grade intersection improvements. Location specific solutions may be developed that achieve the safety, operational, and mobility benefits comparable to the benefits of an interchange at reduced costs and/or fewer impacts.

Should interchanges be identified as potential solutions, they will be service interchanges as none of the crossroads without existing interchanges in the study area are controlled access facilities While multiple concepts exist for service interchanges, one concept had to be chosen to provide a high-level estimation of the

improvement limits (i.e., a footprint). A diamond interchange was selected as the starting point as it is the simplest interchange type, and it is expected to accommodate the 2045 traffic forecasts for the study area., Using the diamond interchange as a starting point for interchanges in this PEL study does not preclude other interchange alternatives from consideration during subsequent studies or project development. In some cases, alternative/innovative interchange configurations will be considered to provide equivalent access, mobility, and safety benefits while minimizing costs and adverse impacts.

Diamond interchanges, as depicted in **Figure 3-6**, are typically the starting point in an interchange selection process. Diamond interchanges provide for free-flowing traffic on the mainline (blue arrows). Traffic moves to/from the mainline through a series of ramps (red and green arrows). Traffic on the crossroad (purple arrows) may be free-flowing or signal controlled, depending on traffic volumes on the ramps.

Figure 3-6: Diamond Interchange Schematic Diagram



Folded Diamond Interchanges, depicted in **Figure 3-7**, are applicable when a barrier, such as a railroad, river, or other constraint prevents implementation of a diamond interchange without excessive costs to avoid the barrier. Like diamond interchanges, folded diamond interchanges provide for free-flowing traffic on the mainline (blue arrows). Ramps are provided on only one side of the crossroad (purple arrows) to avoid the constraint or barrier. Ramps (red and green arrows) are provided to connect the mainline to the crossroad. Ramp terminal intersections of this interchange type are typically roundabouts, which discourage wrong-way driving.

Figure 3-7: Folded Diamond Interchange Schematic Diagram

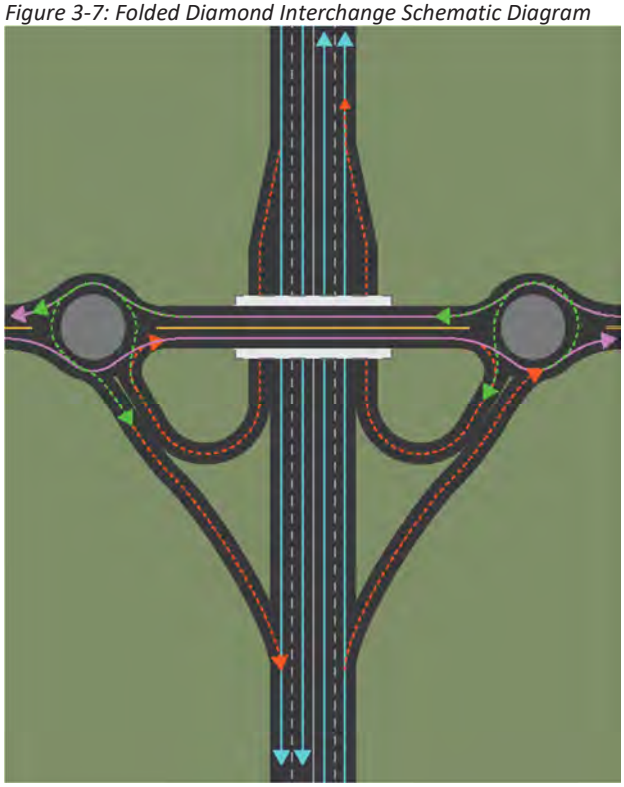
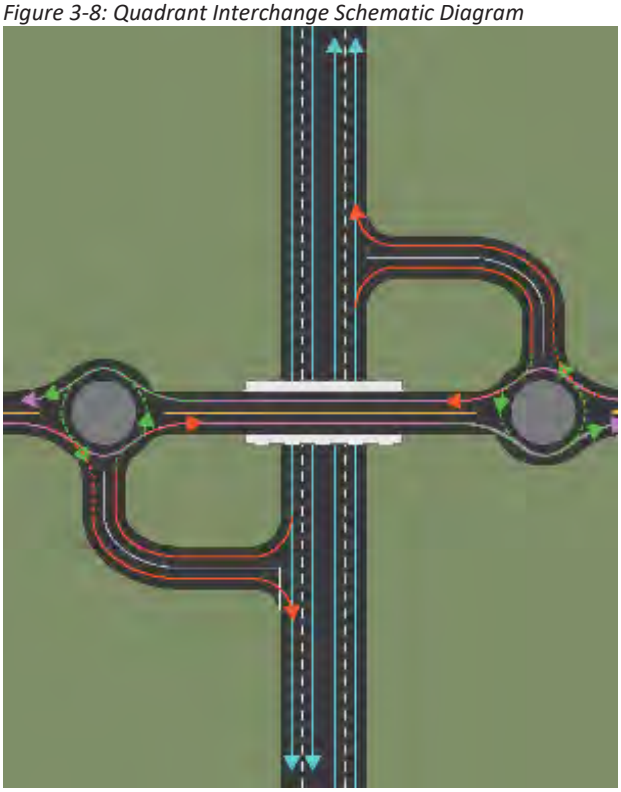


Figure 3-8: Quadrant Interchange Schematic Diagram



Site specific factors may require alternative/innovative interchange or grade separated intersection configurations to address the need for access, to preserve mobility on US 30 or US 31, while working within identified engineering, environmental, and cost constraints.

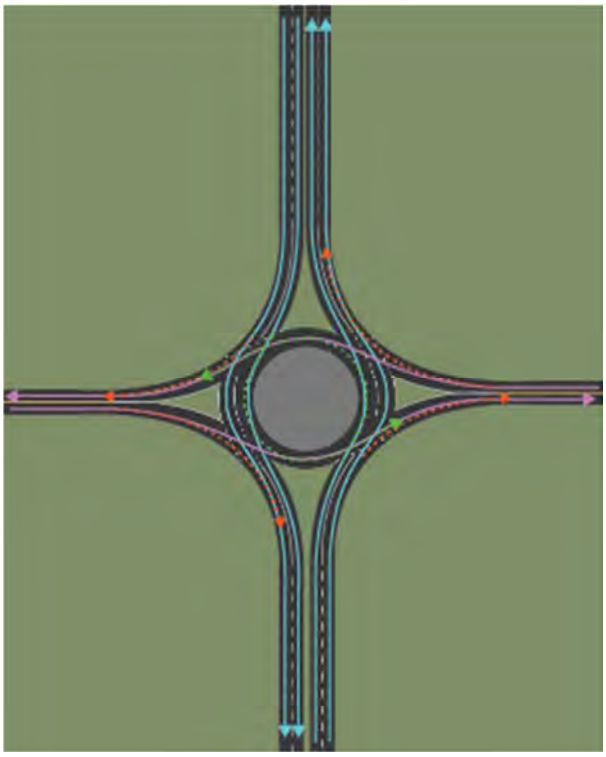
A variation of the folded diamond interchange, depicted in **Figure 3-8**, and known as a quadrant interchange, replaces the merge conditions at the ends of the ramps with right-in/right out configurations. This often results in a lower cost and lower impact solution than a traditional interchange and can provide operational and safety conditions similar to those of a folded diamond interchange.

3.2.8. SIGNALIZED AND UNSIGNALIZED IMPROVEMENTS

The *INDOT Intersection Decision Guide*[4] identifies multiple at-grade intersection types that may improve operations, safety, and/or mobility at primary intersections. These include the following:

A **roundabout** is a circular intersection or junction in which road traffic flows almost continuously in one direction around a central island, as illustrated in **Figure 3-9**. Roundabouts are commonly used to improve safety and operations. While roundabouts can be designed for high-speed roadways, roundabouts are not being considered for US 31 in the ProPEL US 30 West study area as introducing a roundabout in this corridor and the associated potential for a stop situation along US 31 where none currently exist, would likely violate driver expectations, and may result in safety concerns. However, it may be considered along US 30 where stop conditions do currently exist.

Figure 3-9: Roundabout Schematic Diagram



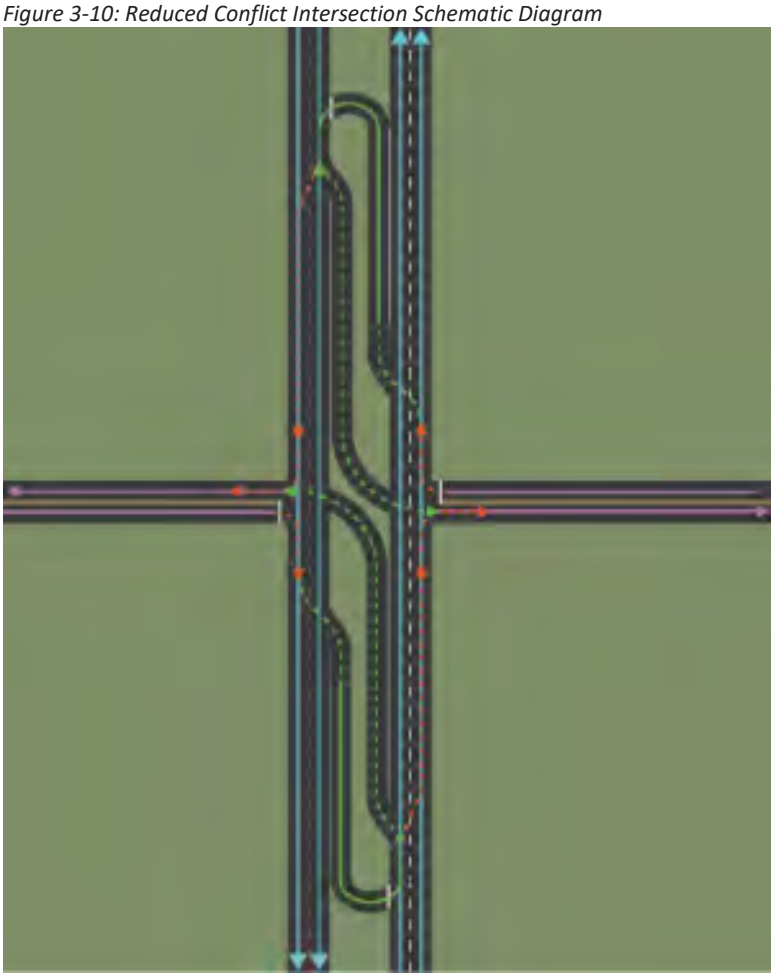
A **signalized intersection** is an intersection where a traffic signal assigns the right-of-way to all movements, which can improve the efficiency and safety of the intersection. The decision to signalize an intersection is based on the outcome of a needs study which determines if a traffic signal is expected to improve conditions. These needs studies are conducted based on national guidelines[5] established by the Federal Highway Administration (FHWA). No figure is provided for this intersection concept.

A **Reduced Conflict Intersection (RCI),** as shown in **Figure 3-10**, is an intersection type where left turn and through movements from the crossroad are facilitated by turning right (red arrows) onto the major road (blue arrows), making a U-turn movement (green arrows) provided along the major roadway and proceeding past or turning right onto the minor road. Left turn movements from the major roadway (green arrows) are typically permitted at the crossroad (green dashed arrows).

[4] https://www.in.gov/indot/files/ROP_IntersectionDecisionGuide.pdf
[5] https://mutcd.fhwa.dot.gov/htm/2009r1r2r3/part4/part4c.htm

This intersection type is commonly used to improve safety on the major roadway by rerouting left turn and through movements from the crossroad as crashes associated with these movements are typically severe. Additionally, this intersection type provides or maintains free flow conditions on the major roadway.

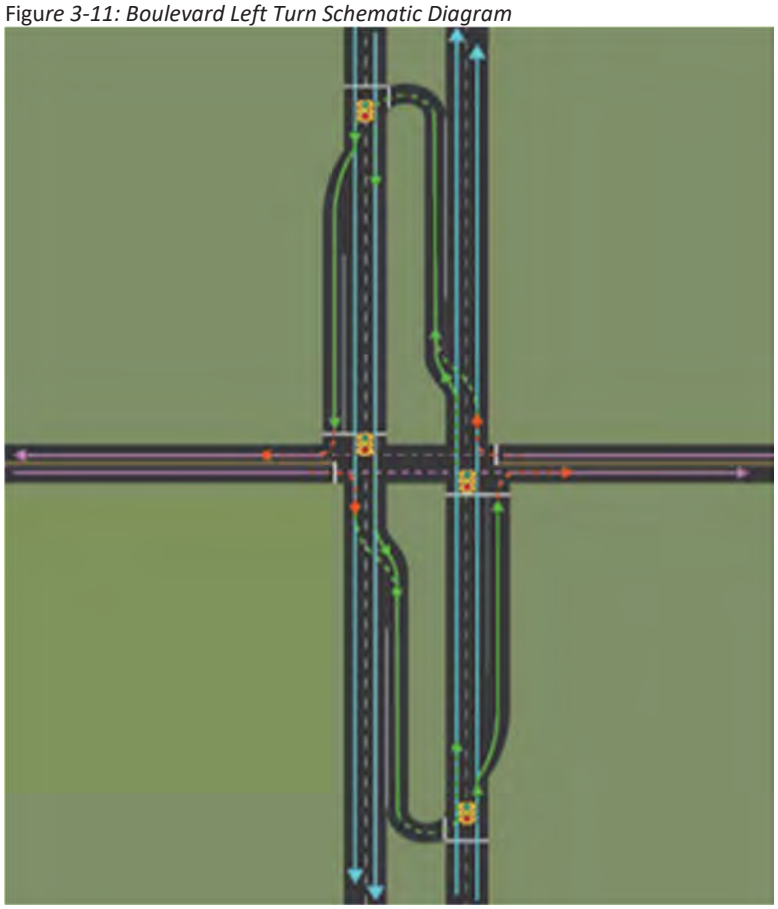
Figure 3-10: Reduced Conflict Intersection Schematic Diagram



A **Restricted Crossing U-Turn** (RCUT) functions very similarly to a Reduced Conflict Intersection (RCI). The key difference is in traffic control. While an RCI is typically stop- or yield-controlled, an RCUT utilizes traffic signals at the main intersection and U-turn locations to provide gaps in mainline traffic for side street and u-turning traffic to complete movements through the intersection. RCUTS are typically installed at locations where traffic volumes warrant the need for traffic signals. This intersection type is commonly used to improve operations by eliminating signal phases and improve safety by reducing conflict points.

A **Boulevard Left Turn Intersection** is an intersection type in which all left turns occur via U-turn movements (green arrows) provided on either side of the intersection. Through (purple and blue arrows) and right turn movements are allowed at the intersection, as illustrated in **Figure 3-11**. This intersection type is commonly used to improve operations by eliminating signal phases and improve safety by reducing conflict points. Boulevard left turn intersections are best suited for high volume intersections were left turn phases cause poor signal operations.

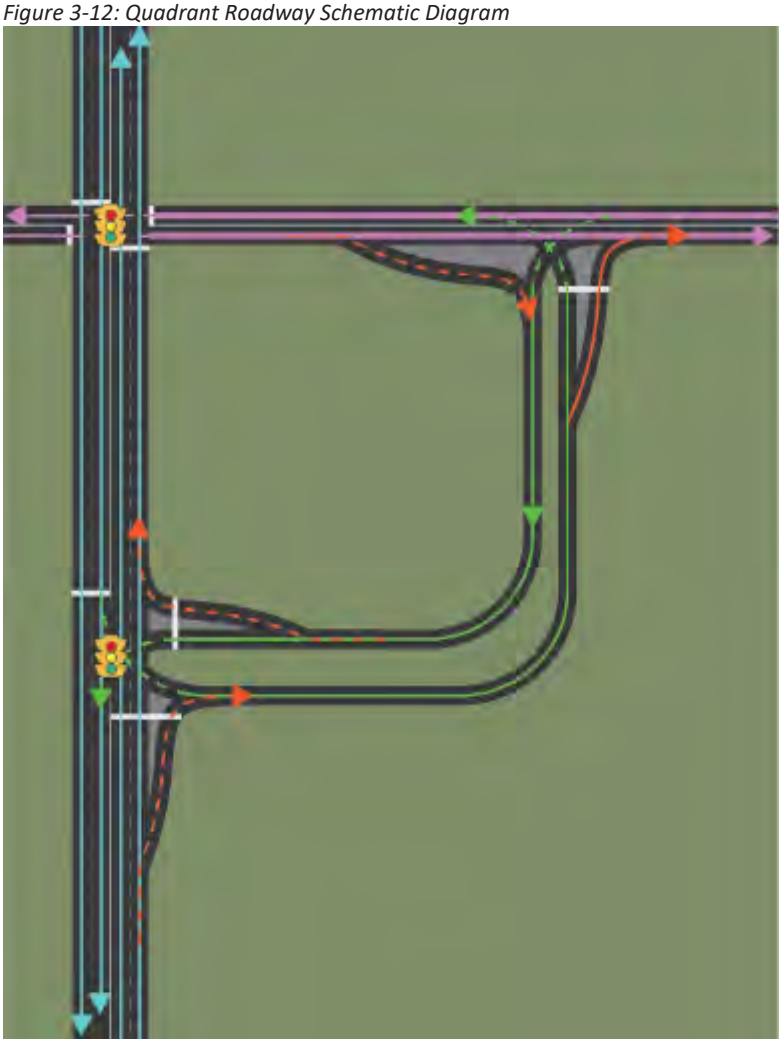
Figure *3-11: Boulevard Left Turn Schematic Diagram*



A Quadrant Roadway Intersection is an intersection in which a new roadway (green arrows) is constructed in one quadrant and all turn movements (dashed red and green arrows) are displaced to this new roadway. The main or original intersection then serves only through movements for both the major roadway (blue arrows) and crossroad (purple arrows), as illustrated in **Figure 3-12**. The intersections at the ends of the quadrant roadway may be signalized or unsignalized, depending on traffic volumes.

Quadrant roadways improve operations by eliminating signal phases and improve safety by reducing conflict points on the major roadway.

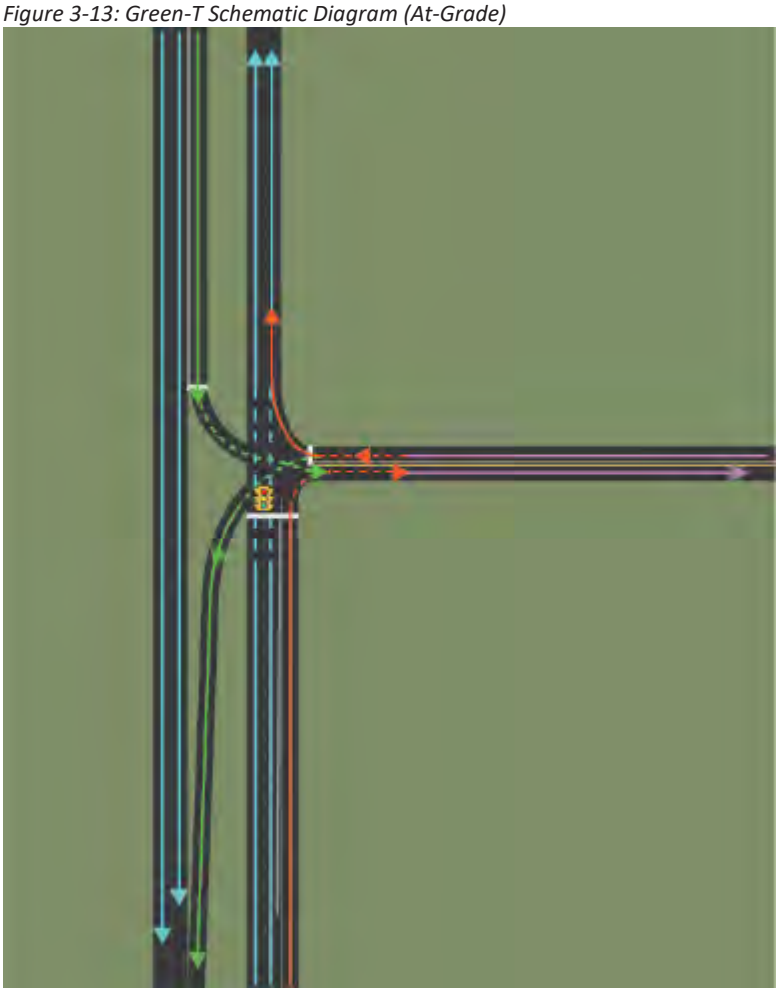
Figure 3-12: Quadrant Roadway Schematic Diagram



A **Green-T Intersection** is an at-grade three-legged intersection where the left turns (green arrows) to/ from the crossroad (purple arrows) are barrier separated from the major roadway (blue arrows) with acceleration and deceleration lanes provided for these movements. This concept provides for free flow movements on one or both directions of the major roadway and improves safety by reducing conflict points. Depending on traffic volumes, the left turn movements may require signalization, as shown in **Figure 3-13**, or grade separation.

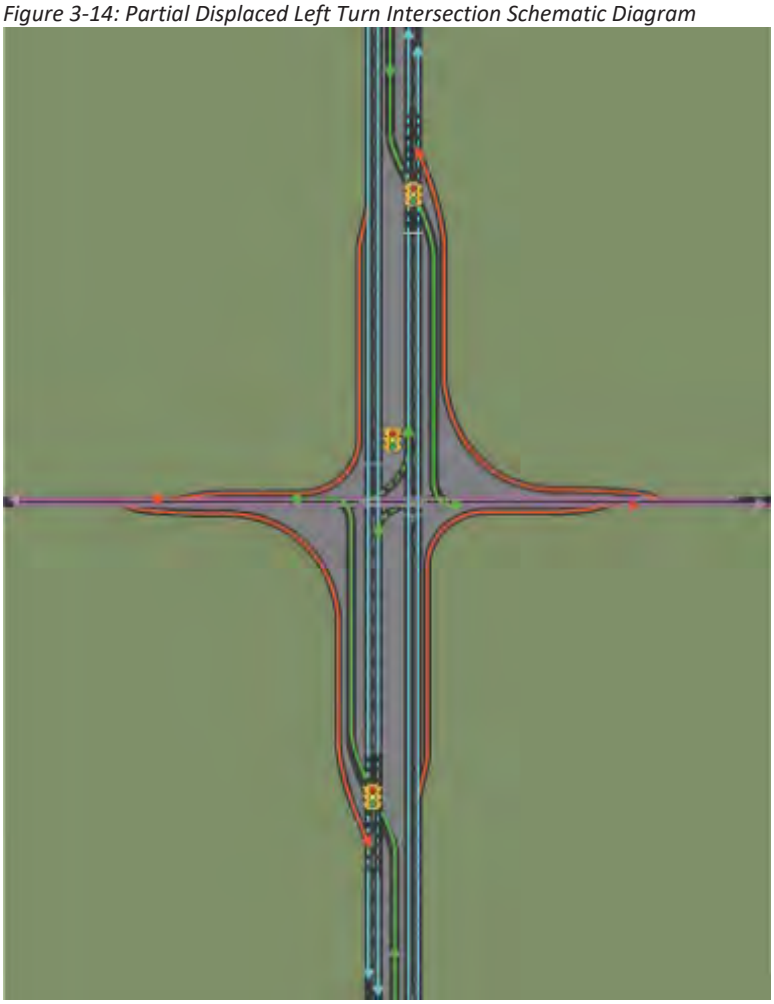
No locations to implement this concept were identified in the Level 2 screening, however it was considered in Step 2.

Figure 3-13: Green-T Schematic Diagram (At-Grade)



A **Displaced Left Turn Intersection** is an intersection in which left turn movements are displaced or offset to allow the left turn movements and the opposing through movements to operate in unison. This can be implemented on all approaches (a full displaced left turn intersection) or on select approaches (a partial displaced left turn intersection). The movements of a partial displaced left turn intersection are depicted in **Figure 3-14** This type of intersection is commonly used when left turn and through movement volumes are high.

Figure 3-14: Partial Displaced Left Turn Intersection Schematic Diagram



Other intersection types not considered for the US 30 West study area include offset-T intersections and jughandle intersections. More information on these intersection types can be found in the *INDOT Intersection Decision Guide*, which is available at https://www.in.gov/indot/files/ROP_IntersectionDecisionGuide.pdf.

3.3. COMPLEMENTARY CONCEPTS

The complementary concepts described below were considered in the development of Level 2 alternatives.

- Complementary concepts for both US 30 and US 31
  - Realign Skewed Intersections – Considered at locations where realignment of a crossroad skew could benefit the intersection.
  - Intersection Sight Distance Improvements – Considered at locations where improvement of sight distance could benefit the intersection.
  - Auxiliary Lanes – Considered between adjacent intersections or interchanges where added capacity is needed.
  - Accommodate Wildlife Crossing – Considered where bridges or culverts may allow for extra space for wildlife to cross the roadway without interfering with vehicular traffic. None of the primary intersections reviewed in Level 2 utilize this complementary concept as there were no bridges or culverts near the intersections. Further analysis will take place in Level 3.
  - Spot Roadway Lighting – Considered at all interchanges and intersections per INDOT lighting guidelines.
  - Warning Systems – Considered at all signalized intersection and all two-way stop-controlled intersections where left turns and through movements are allowed from the crossroad. Warning systems are expected to reduce the likelihood of right angle and left turning crash types, which often result in severe injuries.
  - Roadside Assistance – Considered systemwide.
  - Incident Management – Considered systemwide.
  - Traveler Information Systems – Considered systemwide.
  - Bike/Pedestrian Facilities – Considered where bicycle or pedestrian users are present or would benefit from the infrastructure being present, such as in towns and cities.
  - Non-Motorized User Accommodations – Considered where non-motorized users are present, such as Amish buggies. None of the primary intersections reviewed in Level 2 utilize this complementary concept at this stage. Secondary intersections are anticipated to be a relevant location of this concept to be reviewed in Level 3.
- Complementary Concepts for US 30
  - Bypass – Considered where impacts of bypass may be better than impacts of improvement in existing small town.
  - Signal Timing Updates/Coordination – Considered at all signalized intersections.
  - Add Capacity to Movements – Considered where additional capacity could benefit the movement and a need is known.
  - Ramp Terminal Intersection Improvements – Considered at all ramp terminals, which are the intersections where interchange ramps intersect the crossroad.
  - Railroad Crossing Improvements – Considered where at-grade railroad crossings exist on the corridor.
  - Freight Priority System – Considered at all signalized intersections as a means to reduce stops for freight traveling the US 30 corridor.
- Complementary Concepts for US 31
  - Median Safety Improvements – Considered when improvements to the median could benefit the intersection.

Roadside Assistance, Incident Management, and Traveler information Systems are to be considered as systemwide complementary concepts. Therefore, they are not individually screened as part of the Level 2 screening process.

3.4. DESIGN ELEMENTS

Design elements are defined as concepts that did not meet any of the study area needs but are considered practical and provide some benefit to the study area. Each of the design elements is listed in **Table 3-3**, along with an explanation of if and how a design element can be evaluated in this PEL study. Although they may not be able to be evaluated as part of this study, they will be carried forward as potential improvements as part of any projects that result from the study.

Table 3-3: Design Elements Evaluation Process

Design Element	Evaluate Further in this PEL Study	Explanation
Collector-Distributor System	Yes	Collector-distributor system will be considered at Level 3 for interchanges or intersections close enough to one another to benefit from a collector-distributor roadway.
Adjacent Intersection Improvements	Yes	Adjacent intersection improvements of roadways will be considered at all study intersections where the improvement stretches into the adjacent intersection. This consideration will occur during the Level 2 and Level 3 screenings.
Traffic Control Visibility Upgrades	Yes	Improvements to the visibility of traffic control devices will be considered in all alternatives where visibility concerns are identified. This consideration will occur during the Level 2 and Level 3 screenings.
Pavement Marking Improvements	No	Pavement markings are subject to change based on the final alternatives selected. Improvements will be addressed in the preliminary design phase of any project that follows this PEL study.
Roadway Signage Improvements	No	Roadway signage is subject to change based on the final alternatives selected. Improvements will be addressed in the preliminary design phase of any project that follows this PEL study.
Roadway Drainage Improvements	No	Roadway drainage is subject to change based on the final alternatives selected. The locations for improvements may be identified at a high level in this PEL study; however, details of the improvement should be addressed in the preliminary design phase of any project that follows this PEL study.
Gateway & Aesthetic Treatment	No	Gateway and corridor treatments are aesthetic improvements that would not address the study area purpose and need; however, they are considered in direct response to public input. Possible locations for such improvements will be identified in the Level 3 screening process; however, details of the treatment would be addressed in the preliminary design phase of any future projects in the study corridor.

Design Element	Evaluate Further in this PEL Study	Explanation
Speed Management	Yes	Techniques to manage speed that require changes to geometry or intersection types will be considered in the development concepts in the Level 2 and 3 screenings. Other speed management techniques are assumed to require policy changes and cannot be evaluated in this PEL study.
Alternative Fuel/Electric Vehicle Considerations	Yes	Provisions to support alternative fuel/electric vehicles are being implemented by INDOT through specific programs. The INDOT National Electric Vehicle Infrastructure (NEVI) Plan includes the US 30 corridor across Northern Indiana as an alternative fuel corridor. Further and more detailed consideration will occur in Level 3.

4. LEVEL 2 SCREENING PROCESS

Each of the primary and complementary concepts described in **Section 3** have been evaluated in the Level 2 screening process to identify alternatives for each primary intersection. The Level 2 screening process is described in detail in the following sub-sections.

4.1. STEP 1 – DECISION TREE

The first step in the decision-making process was to answer a series of questions that were intended to identify the potential primary concepts that were applicable at each study intersection. To standardize the process and document answers, the questions were arranged in the form of a decision tree. A different tree format was used for US 30 and US 31 since different questions are required due to the differences between the primary concepts carried forward from Level 1 for US 30 and US 31. However, the questions were the same for each concept used by both corridors. These questions, listed below, were oriented around the ideas as follows and led to the consideration of a particular primary concept as an intersection alternative:

- Questions regarding current design standards and guidance
    - At existing interchanges, are there substandard acceleration/deceleration lanes?
        - If yes, adding or extending acceleration/deceleration lanes was considered.
    - Is the intersection functional area inconsistent with INDOT Access Management Guidelines?
        - If yes, there other intersections or drives near to the primary intersection that do not meet the INDOT Access Management Guidelines, then access management was considered.
    - Does the median violate the Indiana Design Manual (IDM) requirements?
        - If yes, median safety improvements were considered.
    - Are turn lanes missing or do not include deceleration distance?
        - If yes, adding, or lengthening turn lanes was considered.
- Questions regarding intersection context
    - Are there crash patterns potentially due to not having acceleration lanes?
        - If yes, adding or extending acceleration lanes was considered.
    - Are there any other locations within around two miles with equal or better access?
        - If yes, cross road overpass or underpass was considered.
- Questions regarding intersection performance and operation
    - Is this intersection vital for access to/from US 30 or US 31?
        - If no, due to lack of usage or redundancy, limiting or removing access was considered.
        - If yes:
            - Do volumes or other factors support an interchange?
                - If yes, convert to interchange was considered.
            - Are there safety or operational concerns?
                - If yes, signalized and/or unsignalized intersection improvements were considered.

Data contained in the *ProPEL US 30 West Existing Conditions Report* was used to determine answers to the decision tree for each primary intersection and to identify primary and complementary concepts that should be further evaluated. Answers to these questions led to the identification of concepts that should be further evaluated at each primary intersection.

The complementary concepts that applied were listed next to the decision tree while the complementary concepts that do not apply were grayed out. The base decision trees used are provided in **Figure 4-1** and **Figure 4-2** while the completed decision trees are provided in **Appendix A**.

A key element of the decision tree is that all questions are answered for each primary intersection. This results in multiple concepts being identified as possible solutions at each intersection – even those where no transportation needs were identified. This is necessary to support the Level 3 screening, where the primary intersection improvements passing the Level 2 screening will be combined with secondary intersection improvements and access management improvements into improvement packages. While the Level 2 screening focused on alternatives at the Primary Intersections, the Level 3 screening will develop and analyze improvement packages for smaller pieces of the study area. These smaller pieces, which will be called planning segments, will include improvements at the primary intersections, the secondary intersections, as well as the roadway sections between them. This is to ensure the compatibility of alternatives along the corridor during the Level 3 screening.

When this bundling occurs, some primary intersections with no identified transportation needs may require modification or improvement to work within that overall context. Therefore, the Level 2 analysis was used to identify the reasonable range of potential improvements for all primary intersections – even those where no transportation needs were identified. This is to ensure the compatibility of alternatives along the corridor during the Level 3 screening.

The evaluation of the concepts in the decision tree was conducted with the assumptions as follows:

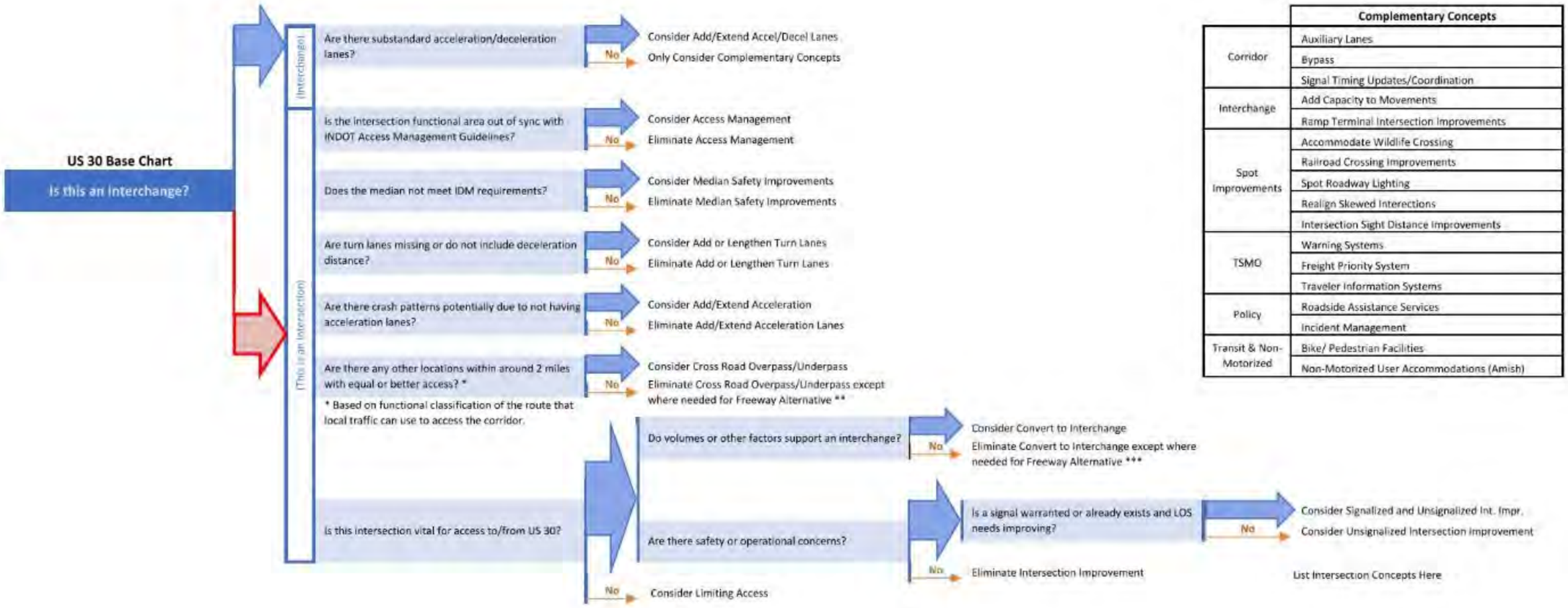
- If no improvements were necessary per the decision tree results, complementary concepts were still considered as a means of improving safety or operations and providing consistency and compatibility at different locations within the corridor for use during Level 3 screening.
- Similarly, even if no major safety or operational concerns exist, retaining the existing intersection configuration is considered, along with the results of the decision tree in order to carry forward alternatives for use during Level 3 screening and as a product of public or stakeholder input. Some alternatives may serve to further improve a safety or operational item that has not become a measurable concern at this time but would be to the benefit of the corridor, to be determined in Level 3, which may have safety concerns when reviewed in areas of improvements. Safety concerns are determined from recent year crash data while operational concerns are determined from design year (2045) traffic data.
- Access management outside of the primary intersection areas will be revisited when developing improvement packages in Level 3.
- Median improvements do not apply to US 31 since the median width meets the standard width throughout the study corridor.
- An overpass or underpass, known as grade separation, was evaluated as a potential solution based on whether a route of equal or better access based on functional classification would be available within 2 miles of the location being evaluated. This is a qualitative assessment of whether another nearby access point could potentially serve as the access point if the primary intersection being analyzed was converted to a grade separation. Overpass or underpass may also be considered in Level 3 as part of an improvement package that requires changes to access.
- Converting to an interchange was considered for intersections based on traffic operations and safety. Interchange placement and spacing was also considered holistically as part of a free flow facility type to be analyzed in the Level 3 screening. The effort in Level 3 may change the locations where interchange treatments are selected.
    - An interchange was considered to be a potential solution when traffic operational analysis projects unacceptable future delay or failing level of service (LOS) of the intersection, as documented in the *ProPEL US 30 West Existing Conditions Report* and if no at-grade intersection concepts would address

existing safety needs or concerns. There were no intersections that met this criterion in the study area.

- The Level 3 screening will be used to determine improvement packages.
- that will be made up of a few consecutive intersections and their alternatives as determined in Level 2. Therefore, analysis of interchanges was included in Level 2 screening with the following guides in mind.
    - The proximity of development to any given intersection was a factor in identification of an interchange as a potential solution. Intersections where development is in proximity and/or have higher roadway functional classifications or jurisdictions (i.e., state route or U.S. route) are more justifiable locations for interchanges than intersections with no surrounding development. On the contrary, more developed areas may require more impacts than desirable to place an interchange.
    - Public and/or stakeholder input has suggested the need for an interchange at various locations. Additionally, each county's comprehensive plan lists locations where interchanges are desired. This input was used to identify locations where interchanges could be a potential solution.

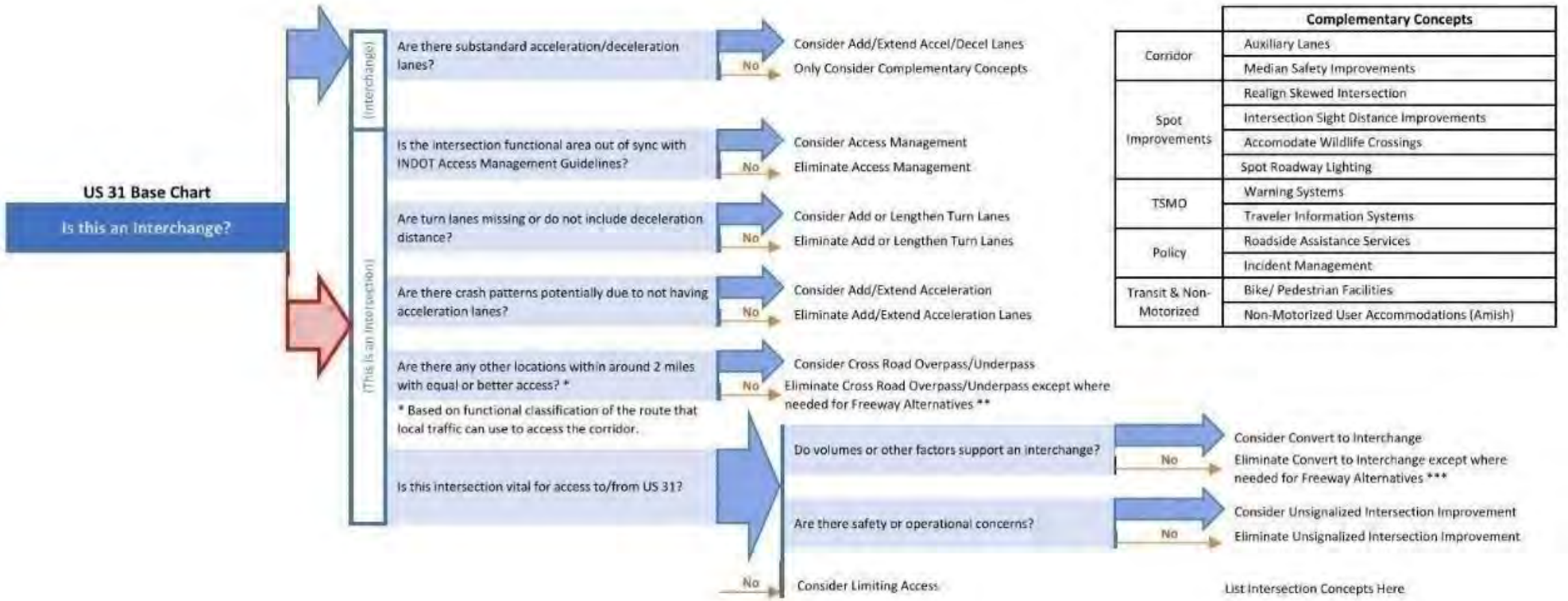
When at-grade intersections were identified as a potential solution, multiple intersection types were evaluated using the Federal Highway Administration (FHWA) Cap-X tool as described in Step 2.

Figure 4-1: US 30 Base Decision Tree



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
	Railroad Crossing Improvements
	Spot Roadway Lighting
	Realign Skewed Interections
	Intersection Sight Distance Improvements
TSMO	Warning Systems
	Freight Priority System
	Traveler Information Systems
Policy	Roadside Assistance Services
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

Figure 4-2: US 31 Base Decision Tree



	Complementary Concepts
Corridor	Auxiliary Lanes
	Median Safety Improvements
Spot Improvements	Realign Skewed Intersection
	Intersection Sight Distance Improvements
	Accomodate Wildlife Crossings
	Spot Roadway Lighting
TSMO	Warning Systems
	Traveler Information Systems
Policy	Roadside Assistance Services
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

4.2. STEP 2 – OPERATIONAL ANALYSIS

The decision tree of Step 1 identifies when at-grade intersection improvements should be evaluated as potential solutions. Each of these at-grade intersection types are described in **Section 2.2**.

Preliminary capacity analysis of these intersection types was conducted using the Federal Highway Administration (FHWA) Cap-X tool, which provides the ability to evaluate the operations of multiple intersection types and compare based on volume to capacity ratios. Design year no-build traffic volumes and lane configurations for each intersection were input into the analysis tool, which then provides ranking of intersection types based on volume to capacity (v/c) ratios. The design year no-build traffic volumes were obtained from the *ProPEL US 30 West Existing Transportation Conditions Report*.

The following intersection types were not considered for evaluation in the preliminary capacity analysis:

- **Offset T Intersections** are not being considered for primary intersections evaluated in the Level 2 screening as no locations to implement this concept were identified. This concept may be applied to various secondary intersections in the Level 3 screening.
- **Jughandle intersections** are not being considered as left turning volumes in the study area can be accommodated by either conventional intersection type, Displaced Left Turn intersection, or a Quadrant Roadway intersection type.

A total of seven signalized intersection configurations were evaluated in Cap-X which included:

- Traditional traffic signal
- Partial Displaced Left Turns (DLT) and full versions of Displaced Left Turns (DLT)
- Full Displaced Left Turns (DLT)
- Partial Boulevard Left Turn
- Full Boulevard Left Turns
- Quadrant Roadway
- Restricted Crossing U-Turn (RCUT)

Similarly, two unsignalized intersection configurations were evaluated which include:

- Two Way Stop Control
- Reduced Conflict Intersection

As is documented in the *ProPEL US 30 West Purpose and Need Report*, there is a need to improve regional and statewide mobility in the study area and adding signalized intersection improvements would introduce delay, negatively impacting mobility. In addition, the Purpose and Need report identifies a safety need on both highways and introducing signals where none currently exist would create new conflict points and violate driver expectation, potentially contributing to a negative safety impact. Signalized intersection improvements are being considered on US 30 but not on US 31 since US 31 currently meets free-flow conditions within the study area. On US 30, signalized intersection improvements are considered in Level 2. Further analysis on the impacts on safety and mobility will be reviewed in Level 3.

Cap-X presents v/c results for all the possible intersection configuration types at each location. For signalized intersections, up to three out of the seven possible intersection types that had the most optimal v/c results compared to existing traffic control were considered in the evaluation matrix as described in Step 3. It should be noted that Cap-X results are a high-level metric, and v/c results for multiple intersection types at the same location could be similar. In such situations, engineering judgement was applied to select the appropriate intersection type

(e.g., Partial Displaced Left Turn vs. Full Displaced Left Turn) for consideration in the evaluation matrix. Since Cap-X provides the ranking for innovative intersection configurations based on v/c ratios (a lower v/c ratio is better), the impact of the new intersection design right-of-way requirements and cost are often overlooked in its ranked results. This results in intersection configurations such as displaced left turn (DLT) having better v/c ratios than RCUT for locations with very low left turn volumes. DLT is an innovative configuration which is a high-impact, high-cost solution for intersections with high turn volumes. In such instances, only the innovative intersection types corelating with the turn volumes were selected as improvements. An example of such an instance was at Queen Rd where there are low left turn volumes, but the Cap-X results showed a DLT intersection having the best v/c results. RCUT and Boulevard Left Turn intersections were considered instead of DLT for comparison in the evaluation matrix because they are more suitable to the intersection context.

The results of the preliminary capacity analyses, provided in **Appendix B**, were used to evaluate all concepts quantitatively based on their ability to yield acceptable operating conditions The intersection types selected to move to Step 3 for each primary intersection are listed on the decision trees in **Appendix A**.

4.3. STEP 3 – CONCEPTUAL DESIGN AND EVALUATION MATRIX

Concepts advancing to Step 3 of the evaluation process were evaluated qualitatively based on: Ability to meet purpose and need; Social, economic, and environmental impacts; and Relative cost.

This assessment is documented in an evaluation matrix prepared for each primary intersection. The goal of Step 3 is to identify those alternatives that have high impacts and few benefits that should be discarded before reaching the Level 3 screening for the ProPEL US 30 West Study.

The qualitative analysis was based on footprints created by preparing conceptual designs based on current design standards and assumptions that were coordinated with INDOT, which are provided in **Appendix C**. Figures of alternatives provided in this document show only the approximate footprint of each alternative and do not provide design detail. No design detail is provided as the safety and operational analysis of the Level 3 screening is expected to result in refinement of these conceptual designs.

During the conceptual design process, the environmental constraints present at each location were analyzed as part of the development of intersection alternatives with a particular focus on avoidance and minimization of adverse impacts to human and natural environment, when feasible. When avoidance was infeasible, minimization measures (e.g., retaining walls) were incorporated where possible to avoid impacts to environmentally sensitive areas (e.g., historic properties, churches, cemeteries, wetland, and water resources). The results of this analysis are shown in the screening tables at each location.

Conceptual designs were developed by using existing aerial photography and LiDAR data provided by the State of Indiana and/or available in *OpenRoads ConceptStation*. This information was used in the *OpenRoads ConceptStation* software to produce conceptual designs for each of the primary intersections. The *OpenRoads ConceptStation* platform was selected for use as it provided an efficient means to visualize intersection alternatives and associated impacts at a planning level, and because it provides the ability to interface with Geographic Information Systems (GIS), which improves both the quality of data utilized in the conceptual design and the ability to produce graphics.

After development of conceptual designs and footprints, all alternatives for a given intersection were compared in the evaluation matrix and only those with reasonable impacts were selected for advancement to the Level 3 screening process. The methodology used in the evaluation matrix is explained below.

4.3.1. ABILITY TO MEET PURPOSE & NEED

The intersection alternatives advancing from Step 3 must satisfy at least a portion of the purpose and need for the study. The ability of each alternative to address purpose and need at each primary intersection was determined by answering the questions listed in **Table 4-2.**

Table 4-1: Needs Assessment

Needs	Performance Measure
Regional and Statewide Mobility	Improve operations on US 30 or US 31 and not introduce delay.
Safety Along US 30 and US 31	Reduce conflict points or apply crash reduction measures to improve safety.
Corridor Access	Maintain or improve local access or meet INDOT Access Management guidelines or reduce non-compliant access points.
Roadway Deficiencies	Improve substandard elements of the corridor.

Table 4-2: Evaluation Criteria (Purpose and Need)

	Criteria	Performance Measure	Ratings and Definitions
Purpose and Need	Safety	Applies safety countermeasures to reduce crash rates and/or severity?	Yes = The concept applies safety countermeasures to address identified concerns.
			No = The concept does not apply safety countermeasures that address identified concerns, or no safety concerns have been identified.
			N/A = Not applicable.
	Traffic Operations	Reduces delay or improves intersection operations?	Yes = The concept reduces delay or improves operations.
			No = The concept does not reduce delay or improve operations.
			N/A = Not applicable.
	Access Management	Maintains or improve local access?	Yes = The concept maintains or improves local access on US 30 or US 31.
			No = The concept does not maintain or improve local access on US 30 or US 31.
			N/A = Not applicable.
		Meets access management guidelines?	Yes = The concept meets access management guidelines.
			No = The concept does not meet access management guidelines.
			N/A = Not applicable.
	Deficiencies	Improves substandard elements in the corridor?	Yes = The concept improves substandard elements in the corridor.
			No = The concept does not improve substandard elements in the corridor.
			N/A = Not applicable.

4.3.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL IMPACTS

The intersection alternatives developed for the US 30 West study area have a wide range of impacts on various social, economic, and environmental factors, which are listed in **Table 4-3**. These impacts were assessed qualitatively for each alternative to determine the relative impacts and better inform the decision-making process. The assessment of impacts was based on imagery analysis, Google maps (http://maps.google.com), and desktop GIS analysis.

Under community impacts, communities with environmental justice concerns were considered. Communities with environmental justice concerns were identified as environmental justice block groups if the population was more than 50 percent minority or low-income or if the percentage of minority or low-income is 25 percent higher than the percentage in the community of comparison (COC). The US 30 West study area was chosen as the COC so as not to artificially dilute or inflate the affected populations, as stated in Executive Order 12898.

Table 4-3: Social, Economic, and Environmental Factors

Natural Resources	Cultural Resources	Community Impacts	ROW/ Displacements	Railroad
• Wetlands • Streams • Floodplains • Lakes • Forests • Protected Species Habitat • INDOT Mitigation Sites	• Above-Ground Resources • Archaeological Resources • Potential Section 4(f) Resources	• Access to/from US 30 and US 31 corridors • Communities with Environmental Justice Concerns • Underserved Communities • Businesses • Farmland	• Right-of-way/ Relocations • Businesses • Farmland	• Railroad Crossings and/or Adjacent Tracks

4.3.3. RELATIVE COST

Approximate costs for all intersection alternatives evaluated in the Level 2 screening process were estimated from historical cost information or from high-level construction cost estimates when no historical cost information was available. These costs per location, provided in **Table 4-4**, were used to determine the relative cost of these alternatives.

Relative costs were estimated on a low/medium/high basis as follows:

- Low Cost: <$5M
- Medium Cost: $5M to $15M
- High Cost: >$15M

Table 4-4: Estimated Cost of Concepts

Improvement	Relative Cost
Do Nothing	Low
Access Modifications	Low
Unsignalized Intersection Improvements	
Reduced Conflict Intersection	Low
Roundabout	Medium
Signalized Intersection (New)	Low
Grade Separation	Medium
Convert to Interchange	High
Auxiliary Lane (1/2-mile length)	Low
Signal Timing Updates	Low
Add/Lengthen Turn Lanes (Per Lane)	Low
Add/Extend Acceleration/Deceleration Lanes (Per Lane)	Low
Signalized Intersection Improvements	
Quadrant Roadway	Medium
RCUT	Low
Boulevard Left	Low
Full/Partial Displaced Left Turn	High/Medium
Green-T Intersection	Low
Green-T Intersection with Overpass	High
Signal Timing Updates	Low
Add/Lengthen Turn Lanes (Per Lane)	Low
Add/Extend Acceleration/Deceleration Lanes (Per Lane)	Low
Median Safety Improvements	Low/High*
Ramp Terminal Intersection Improvements	Medium
Spot Roadway Lighting	Low
Warning Systems	Low
Bike/Pedestrian Facilities	Low
Add Capacity to Movement	Medium
Railroad Crossing Improvements	Medium
Intersection Sight Distance Improvements	Low
Freight Priority System	Low

*Low – For median cable barrier, High – For median widening

4.3.4. RATING AND COMPARISON OF INTERSECTION ALTERNATIVES

The assessments of each intersection alternative's safety and operational benefits, social, economic, and environmental impacts, and relative cost were assigned ratings as provided in **Table 4-5**, **Table 4-6**, and **Table 4-7**. The ability to meet safety, operations, access, and deficiency needs was rated on a Yes/No scale. The magnitude of environmental and right-of-way impacts was generally assessed on a low/medium/high scale, with impacts being assessed based on environmental constraints and the potential footprints of each intersection alternative as described in **Section 4**. The impacts to railroads were also assessed on a low/medium/high scale. The relative cost of each intersection alternative was also assessed on a low/medium/high scale, with ratings assigned based on historical costs.

Table 4-5: Evaluation Criteria (Environmental Impacts)

	Criteria	Performance Measure	Ratings and Definitions
Environmental Impacts	Natural Resources	Potential for adverse impacts to natural resources?	Low = The concept has the potential to result in no or relatively minor adverse impacts to documented natural resources, including wetlands, streams, floodplains, lakes, forests, protected species, and mitigation sites.
			Medium = The concept has the potential to result in relatively minor adverse impacts to documented natural resources, including wetlands, streams, floodplains, lakes, protected species, and mitigation sites.
			High = The concept has the potential to result in relatively high adverse impacts to documented natural resources, including wetlands, streams, floodplains, lakes, protected species, and mitigation sites.
	Cultural Resources	Potential for adverse impacts to cultural resources?	Low = The concept has the potential to result in no or relatively minor adverse impacts to documented above-ground and/or archaeological resources and/or cemeteries.
			Medium = The concept has the potential to result in relatively minor adverse impacts to documented above-ground and/or archaeological resources and/or cemeteries.
			High = The concept has the potential to result in relatively high adverse impacts to documented above-ground and/or archaeological resources and/or cemeteries.
	Community Impacts	Potential for adverse impacts to underserved communities with environmental justice (EJ) concerns and/or Disadvantaged Communities (DACs)?	No = The concept does not have the potential to result in adverse impacts to underserved communities with EJ concerns and/or DACs.
			Yes = The concept has the potential to result in adverse impacts to underserved communities with EJ concerns and/or DACs.
	Right-of-Way	Potential for right-of-way impacts?	Low = The concept has the potential for no or relatively minor right-of-way (ROW) acquisition acreage.
			Medium = The concept has the potential for relatively moderate right-of-way (ROW) acquisition acreage.
			High = The concept has potential for relatively substantive right-of-way (ROW) acquisition acreage.
		Potential for displacement impacts?	Low = The concept has the potential for no or minor right-of-way (ROW) displacements.
			Medium = The concept has the potential for relatively moderate right-of-way (ROW) acquisition displacements.
			High = The concept has potential for right-of-way (ROW) acquisition displacements.
	Railroad	Potential for railroad impacts?	Low = The concept has the potential for no or relatively minor railroad impacts.
			Medium = The concept has the potential for relatively moderate railroad impacts.
			High = The concept has potential for relatively substantive railroad impacts.

Table 4-6: Evaluation Criteria (Cost)

	Criteria	Performance Measure	Ratings and Definitions
Cost	Cost	Relative costs	Low = The concept would include relatively minor costs to implement.
			Medium = The concept would include relatively moderate costs to implement.
			High = The concept would include relatively high costs to implement.

The ratings were compiled into an evaluation matrix, as depicted in **Figure 4-3**, where a decision on whether to carry the intersection alternative forward could be made based on the ratings.

4.3.5. ADVANCEMENT TO LEVEL 3

The decision to advance an intersection alternative for further consideration in the Level 3 screening was based on the outcome of the needs, environmental impacts, and relative cost evaluation. Alternatives that did not significantly address needs, with high costs and high impacts were discarded. Alternatives that satisfied needs at a high level with reasonable impacts and costs were selected for advancement unless extenuating factors indicated the alternative should be discarded. These factors are listed in the evaluation matrix for documentation purposes.

Figure 4-3: Evaluation Matrix

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
Intersection	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build														
Primary Concepts														
Access Management														
Median Safety Improvements														
Add or Lengthen Turn Lanes														
Add/Extend Acceleration/ Decel Lanes														
Cross Road Overpass/ Underpass														
Convert to Interchange														
Signalized Intersection Improvements														
Unsignalized Intersection Improvements														
Complementary Concepts														
Realign Skewed Intersections														
Intersection Sight Distance Improvements														
Auxiliary Lanes														
Bypass														
Signal Timing Updates/ Coordination														
Add Capacity to Movements														
Ramp Terminal Intersection Improvements														
Wildlife Crossings														
Railroad Crossing Improvement														

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
Intersection	Applies Safety Counter-Measures	Reduces Delay or Improves Intersection Operations	Maintain or Improve Local Access	Meet Access Management Guidelines	Improves Substandard Elements	Potential for Adverse Impacts to Natural Resources?	Potential for Adverse Impacts to Cultural Resources?	Potential for Adverse Impacts to Underserved Populations?	Potential ROW Impacts	Potential Relocations	Impacts to Railroad	Relative Cost	Carry Forward?	Notes/ Comments
Spot Roadway Lighting														
Warning Systems														
Freight Priority System														
Roadside Assistance														
Incident Management														
Traveler Information Systems														
Bike/Pedestrian Facilities														
Non-Motorized User Accommodations														

4.3.6. STUDY AREA GOALS

Study area goals were developed for the ProPEL US 30 West study in conjunction with the INDOT project management team, resource agencies, and input from stakeholders and the public. The goals reflect both the local and regional planning documents and are aligned with the adjacent ProPEL US 30 East and ProPEL US 31 studies as applicable. Study area goals are useful as a guide to the development and review of potential concepts, but they do not take the place of the purpose and need statement. Goals will not be the sole basis for eliminating or carrying forward a solution or alternative; they will be considered alongside other factors such as transportation performance, benefits, impacts, and costs.

As part of the Level 2 screening, the study area goals were considered; however, the relative ability of each specific intersection alternative to address broader study area goals was difficult to assess given these improvements are at isolated locations. A more robust assessment of study area goals will occur once the improvement packages are developed and analyzed as part of the Level 3 screening. In the interim, the relative ability to support each of the seven stated goals was considered as part of the Level 2 screening criteria, as shown in **Table 4-7**.

Table 4-7: Study Area Goals

Study Area Goal	How Measured?	Where Considered in Level 2 Screening Criteria?		
		Relative Ability to Meet Purpose and Need	Relative Environmental Impacts	Relative Cost
Economic Development	Support the existing economy and/or planned economic development through improved safety, mobility and/or access.	X		
Equity in Transportation	Improve safety, mobility, or access for underserved communities.	X	X	
Multi-Modal Access and Connections	Include sidewalk, trails or other non-motorized methods of travel, and transit.	Level 3 will include additional alternative development, including identification of where bicycle/pedestrian infrastructure may be included. None of the Level 2 intersection alternatives preclude the incorporation of bicycle/pedestrian infrastructure.		
Emerging Technologies	Has the potential to interact with connected vehicles and/or support alternative fuel initiatives.	The INDOT National Electric Vehicle Infrastructure (NEVI) Plan includes the US 30 corridor across Northern Indiana as an alternative fuel corridor. Further and more detailed consideration will occur in Level 3.		
Fiscal & Environmental Practicality	Expected to have minimal negative environmental impacts (positive impacts in some cases) and are expected to have good returns on the investments.	X	X	X
Corridor Character	Preserve rural character and support agricultural activities.	X	X	
Local Access	Maintain local access for residents and businesses	X		X

5. INTERSECTION ALTERNATIVES

5.1. US 30 AND SR 49 IN PORTER COUNTY

5.1.1. OVERVIEW OF LOCATION

This partial cloverleaf (PARCLO) interchange is expected to operate acceptably through the design year of this study for all ramp and mainline movements. The crash cost index for all ramps and mainline are slightly elevated, indicating an opportunity for safety improvements at the interchange.

This interchange is located at the eastern limits of the city of Valparaiso. Valparaiso University is located just west of the interchange, the Porter County Municipal Regional Airport is in the northeast corner of the interchange, and an industrial park is located in the southeast corner of the interchange. There have been no specific public comments to date regarding concerns at this interchange.

The area surrounding the Porter County Regional Airport is located within the Porter County Airport Economic Development Zone. Future development and expansion of the industrial parks is expected as noted in the "Envision 2030 Valparaiso Comprehensive Plan". The Envision 2030 Valparaiso Comprehensive Plan indicates that a gateway into Valparaiso is desired at US 30 and SR 49.

5.1.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the US 30 and SR 49 interchange poses numerous constraints that were considered in the development of alternatives. The constraints are summarized as follows:

- A residential area is located just south of eastbound US 30 on-ramp.
- A railroad running east and west located south of US 30.
- Porter County Regional Airport is located directly east of the interchange.
- Several businesses are in a commercial area adjacent to northbound SR 49 on-ramp.
- Underserved populations are located near the interchange.
    - Family Income Below Poverty Level
    - Non-English Speaking Population
    - Minority Population
- A stream runs along the south side of eastbound US 30.

5.1.3. SCREENING OF ALTERNATIVES

The decision tree indicates that improvements to the existing interchange would be applicable, while new grade-separated and at-grade alternatives would be unnecessary. Alternatives were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-1**.

The primary alternatives that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Extend Acceleration/Deceleration Lanes – The existing US 30 eastbound acceleration lane is substandard and should be lengthened.

Complementary Concepts to be considered at this interchange are as follows:

- Add Capacity to Movements – Potential to improve mobility at the interchange.

The interchange alternatives advancing to the conceptual footprint comparison conceptual design stage are described below. The Complementary Concepts have been incorporated into these intersection interchange alternatives where applicable.

Extend Acceleration Lanes Alternative

At this interchange, the only substandard deceleration or acceleration lane identified was the SR 49 northbound to US 30 eastbound acceleration lane. This alternative would improve the safety at the interchange of US 30 and SR 49 by providing a longer dedicated lane for vehicles entering US 30 eastbound from SR 49 northbound to reach the design speed before merging with through traffic on US 30. This would decrease the risk of rear-end crashes. This alternative would also improve operations by reducing the differential speed between mainline and entering ramp traffic. The improvement limits for this alternative are shown in **Figure 5-1**.

The complementary concept, Add Capacity to Movements, could have impacts on the surrounding natural resources without adding much benefit as additional capacity for this facility is not needed. For this reason, this complementary concept will not be advanced for further evaluation in the Level 3 screening process.

This alternative would require minimal additional right-of-way and all property access would be maintained. This alternative could have impacts on the surrounding natural resources such as the stream running along the south side of eastbound US 30. This is considered a low-cost option due to the low potential for right-of-way acquisition impacts. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.1.4. INTERCHANGE ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

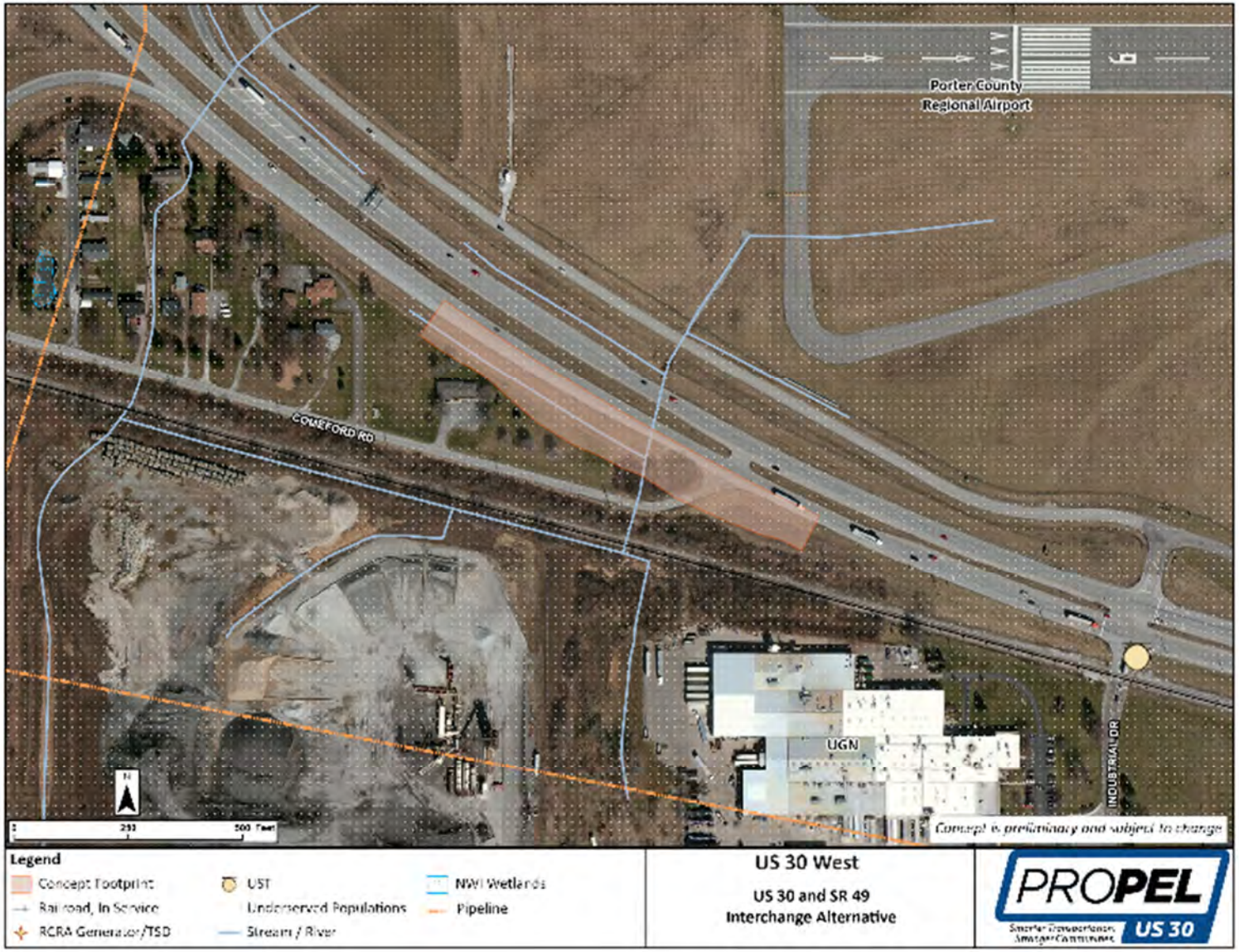
The following interchange alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives
- Extend Acceleration Lanes

Table 5-1: US 30 and SR 49 Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x SR 49	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential For Adverse Impacts to Natural Resources?**	**Potential For Adverse Impacts to Cultural Resources?**	**Potential For Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	Yes	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	**Yes**	
Primary Concepts														
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	Yes	Medium	Low	No	Low	Low	N/A	Low	Yes	Add acceleration lanes to east half of interchange.
Complementary Concepts														
Add Capacity to Movements	No	Yes	Yes	Yes	No	Medium	Low	No	Low	Low	N/A	Medium	No	Additional capacity for this facility is not needed. This concept will not be advanced for further evaluation.

Figure 5-1: US 30 and SR 49 – Interchange Improvement Alternative



5.2. US 30 AND INDUSTRIAL DRIVE IN PORTER COUNTY

5.2.1. OVERVIEW OF LOCATION

This signalized intersection is expected to operate acceptably through the design year of this study. The crash cost index is slightly elevated, indicating there are opportunities to improve safety.

This intersection is an entrance to the Porter County Regional Airport on the north side of the roadway and an industrial park south of the intersection. The Porter County Regional Airport recommended improving the quality of US 30 (i.e., condition of facilities) and including new airport signage as part of area improvements. No other public comments have been received to date regarding concerns at this intersection.

The area surrounding the Porter County Regional Airport is located within the Porter County Airport Economic Development Zone. Future development and expansion of the industrial parks is expected as noted in the "Envision 2030 Valparaiso Comprehensive Plan". The Envision 2030 Valparaiso Comprehensive Plan indicates that a gateway into Valparaiso is desired at US 30 and SR 49. A 2013 joint study conducted by the City of Valparaiso, the Porter County Regional Airport, and Porter County titled "In Plane View: A Clear Vision of the Future" notes a goal of reducing the number of curb cuts along US 30 as well as general recommendations of farmland preservation, sustainable development, and buffers and setbacks. "In Plane View: A Clear Vision of the Future" also recommends creating a new airport entrance at Industrial Drive and adding a traffic signal at the intersection. This plan also recommends a small gateway feature and planting treatment be constructed at this intersection.

5.2.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the US 30 and Industrial Drive intersection poses numerous constraints that were considered in the development of alternatives. The constraints are summarized as follows:

- Several businesses are located adjacent to the intersection, including UGN, Task Force Tips, and Top Fuel CrossFit.
- Pilot Travel Center is located 0.3 miles east of the intersection.
- The interchange of US 30 and SR 49 is located 0.5 miles west of the intersection.
- An at-grade railroad crossing is located on the south leg of the intersection, crossing Industrial Drive.
- 2 National Wetlands Inventory (NWI) wetlands are in the vicinity of the intersection.
- Hazardous material concerns are near the intersection, including 1 Underground Storage Tank (UST) and 3 Leaking Underground Storage Tank (LUST) sites located in the northeast quadrant of the intersection.
- Underserved populations are located near the intersection.
- Non-English Speaking Population

5.2.3. SCREENING OF ALTERNATIVES

The decision tree indicates that at-grade alternatives would be applicable, while grade-separated alternatives would be unnecessary. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative cost, with the results of this screening provided in **Table 5-2**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Median Safety Improvements – The existing median does not meet Indiana Design Manual requirements and should be widened. This alternative would maintain local access.
- Add or Lengthen Turn Lanes – Existing turn lanes do not provide sufficient deceleration length and should be lengthened. This alternative would maintain local access.

- Signalized and Unsignalized Intersection Improvements – This intersection is important for access to and from US 30 due to a regional airport to the north, industrial area to the south, and the interchange of US 30 and SR 49 to the east. This intersection is already signalized. The Cap-X analysis indicated that the following at-grade intersection types could produce acceptable operating conditions in the design year.
    - Partial Displaced Left Turn – This alternative would reduce delay and improve intersection operations along US 30.
    - Restricted Crossing U-Turn Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. It would also create free flow along Us 30 and meet access management guidelines.
    - Reduced Conflict Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Reduced Conflict Intersection would meet access management guidelines as well as create free-flow operations on US 30.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Add/Extend Acceleration Lanes – Crash patterns do not indicate a concern with missing acceleration lanes.
- Cross Road Overpass/Underpass – There are no other locations within approximately 2 miles with equal or better access than Industrial Drive, based on the functional classification of the route that local traffic can use to access the corridor.
- Convert to Interchange – There are no traffic volumes or other factors that support an interchange at this location as a standalone alternative. The proximity to the SR 49 interchange also precludes an interchange due to spacing constraints.
- Other signalized intersection types were eliminated through Cap-X tool analysis because their potential benefits were not substantial enough when compared to the existing conditions. Therefore, they were not further analyzed as part of this process. These intersection types included:
    - Green-T Intersection – This alternative is not applicable to a four-legged intersection.
    - Boulevard Left Turn Intersection – The Cap-X results indicate that this alternative cannot accommodate the high volume of eastbound left turning traffic projected at this intersection.

Complementary Concepts to be considered as part of intersection alternatives are as follows:

- Signal Timing Updates / Coordination – Signal timing updates and coordination have the potential to improve safety and relieve congestion, when applied to alternatives that retain a signal at this intersection and nearby signalized intersections.
- Spot Roadway Lighting – Provide lighting for all alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic.
- Freight Priority System – Potential to reduce delay for trucks.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Median Safety Improvement Alternative

Widening the existing median from 26 feet improves safety at the intersection of US 30 and Industrial Drive by reducing the likelihood of head-on crashes. This alternative would widen the median of US 30 while maintaining the existing left and right turn lanes. The improvement limits for this alternative are shown in **Figure 5-2**.

The widened median alternative includes right-of-way impacts to all quadrants due to grading, but there are no changes to property access. This alternative also includes widening of the existing railroad crossing located on the south leg of the intersection. This is considered a medium-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Lengthen Turn Lanes Alternative

Lengthened turn lanes would improve safety at the intersection by providing sufficient deceleration length and increased storage space, thereby reducing the chances of rear-end crashes. The lengthened turn lanes would meet Indiana Design Manual (IDM) standards. The improvement limits for this alternative are shown in **Figure 5-2**.

The lengthened turn lanes alternative's impacts would be limited to within the existing right-of-way with no impact to the existing at-grade railroad crossing at the south leg of the intersection. There are no changes to property access. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Partial Displaced Left Turn Alternative

The Partial Displaced Left Turn (DLT) alternative would reroute left turns from US 30 upstream of the main intersection, thereby eliminating the left turn signal phase for the mainline approach at the main intersection. This would improve operations and reduce delay at the intersection of US 30 and Industrial Drive. The improvement limits for this alternative are shown in **Figure 5-3**.

The Partial DLT alternative would include right-of-way impacts in all quadrants of the intersection and widening of the existing at-grade railroad crossing at the south leg of the intersection, as well as the potential relocation of one or more properties and impacts to underserved populations. This is a medium-cost option. This intersection alternative will not be advanced for further consideration in Level 3.

Restricted Crossing U-Turn Intersection Alternative

The RCUT alternative would reroute left turns from Industrial Drive to US 30. A truck loon has been included in the design of this alternative to assist with the completion of U-Turns. The improvement limits for this alternative are shown in **Figure 5-4**.

Impacts are expected in all quadrants of the intersection and widening of the existing at-grade railroad crossing at the south leg of the intersections. Additionally, the alternative requires realignment of the existing intersection of Murvihill Road and Industrial Drive to the north and potential relocation of one or more properties. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Reduced Conflict Intersection Alternative

The Reduced Conflict Intersection alternative would allow the free-flow of through traffic along US 30 while rerouting left turns from Industrial Drive to US 30 and minor road through movements. This would improve safety by reducing the risk of right-angle crashes and reduce delay at the intersection. The addition of truck loons was included in the conceptual alternative. The improvement limits for this alternative are identical to that of what is shown in **Figure 5-4.**

Impacts are expected in all quadrants of the intersection and widening of the existing at-grade railroad crossing at the south leg of the intersections. Additionally, the alternative requires realignment of the existing intersection of Murvihill Road and Industrial Drive to the north and the potential relocation of one or more properties. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.2.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Median Safety Improvements (Median Widening).
- Add or Lengthen Turn Lanes.
- Restricted Crossing U-Turn.
- Reduced Conflict Intersection.
- Signal Timing Updates/Coordination – May be incorporated into all alternatives.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.
- Freight Priority System – May be incorporated into all alternatives.

Table 5-2: US 30 and Industrial Drive – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroads	Cost	Advance	Notes/ Comments
US30 x Industrial Drive	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	
No build	N/A	N/A	Yes	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Median Safety Improvements	Yes	Yes	Yes	Yes	Yes	Low	Low	No	Low	Low	Medium	Medium	Yes	Widened Median would provide improved safety at the intersection by increasing separation between opposing travel lanes.
Add or Lengthen Turn Lanes	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Lengthened EB and WB right and left turn lanes would improve intersection safety by providing sufficient deceleration length to meet IDM Standards and reduce the risk of rear-end crashes.
Signalized Intersection Improvements														
Partial DLT E-W	Yes	Yes	Yes	Yes	No	Low	Low	Yes	Medium	Medium	Medium	Medium	No	Alternative eliminated because of the cost and right-of-way impacts.
Restricted Crossing U-Turn Intersection	Yes	Yes	Yes	Yes	No	Low	Low	No	Low	Low	Medium	Low	Yes	Improves safety by reducing conflicting movements and reduces delay by reducing the number of required signal phases.
Unsignalized Intersection Improvements														
Reduced Conflict Intersection	Yes	Yes	Yes	Yes	No	Low	Low	No	Low	Low	Medium	Low	Yes	Improves safety by reducing conflicting movements
Complementary Concepts														
Signal Timing Updates/Coordination	Yes	Yes	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Potential to improve safety and relieve congestion. Signal timings can be updated to be more efficient but there are currently no other signals close enough for coordination.
Spot Roadway Lighting	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Provide lighting for alternatives per INDOT guidelines
Warning Systems	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Raises awareness of approaching traffic to improve safety
Freight Priority System	No	Yes	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Can reduce delays for trucks by extending green time. Can be applied alongside signalized concepts.

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Figure 5-2: US 30 and Industrial Drive – Lengthened Turn Lanes and Median Safety Improvements Alternatives

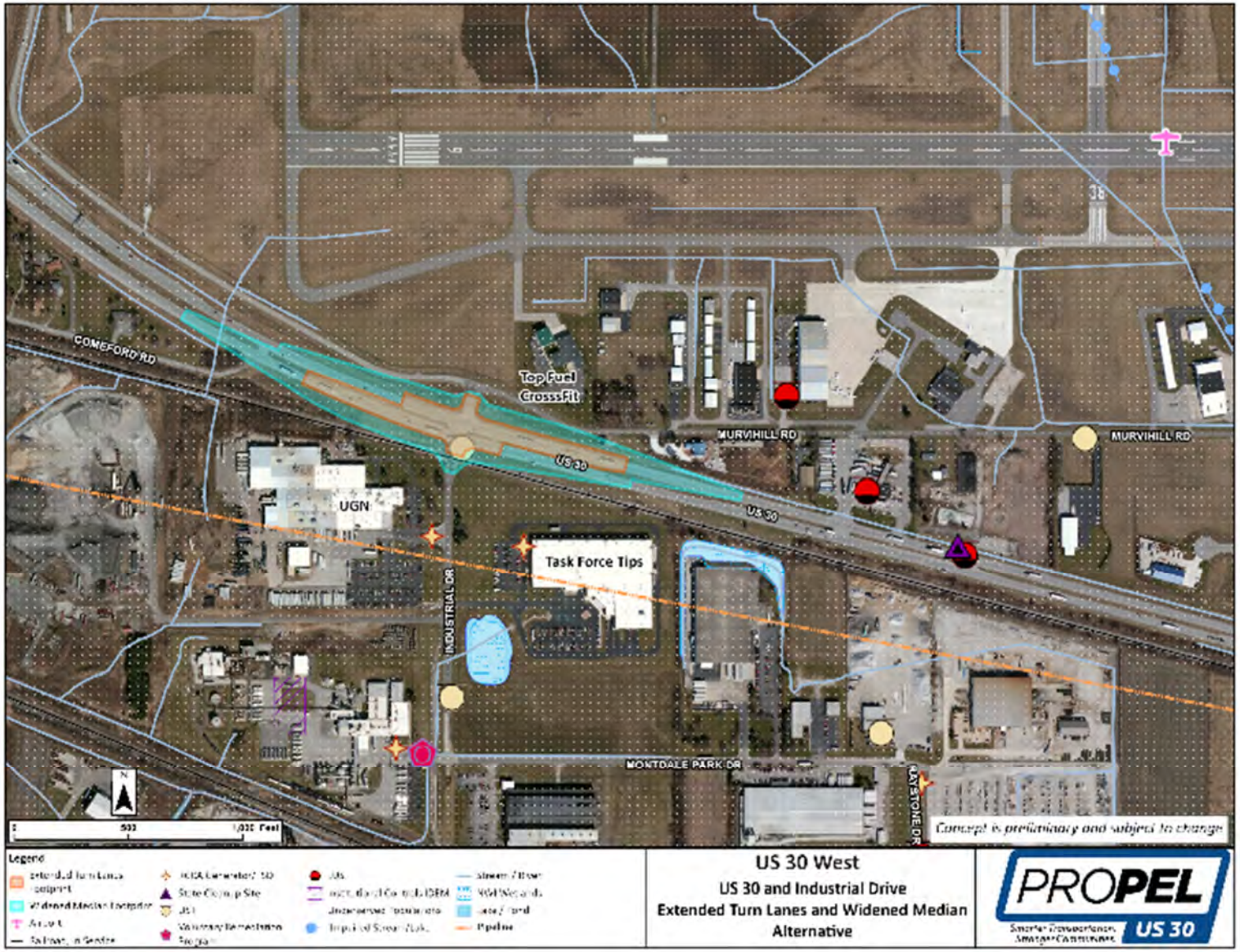


Figure 5-3: US 30 and Industrial Drive – Partial Displaced Left Turn Alternative

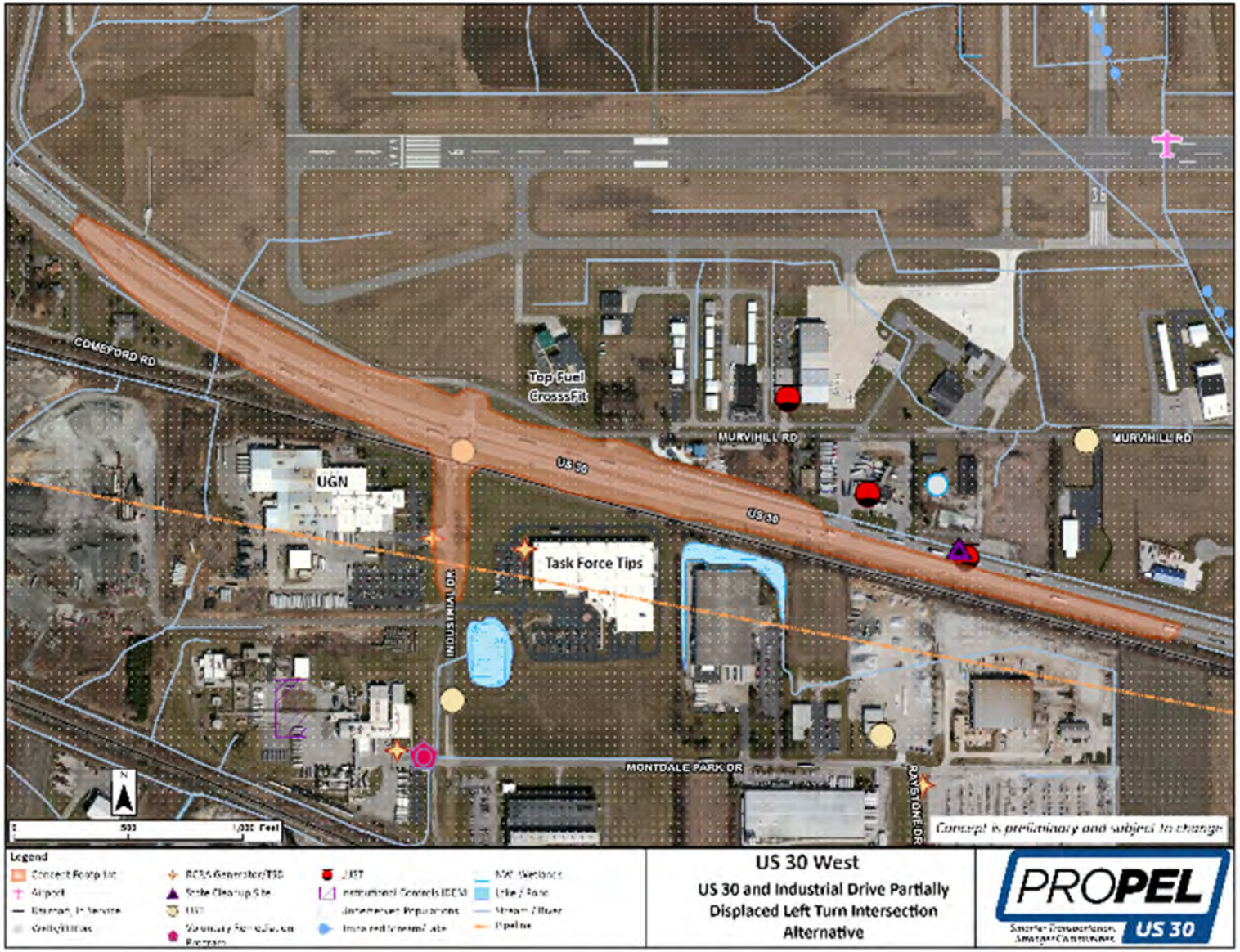
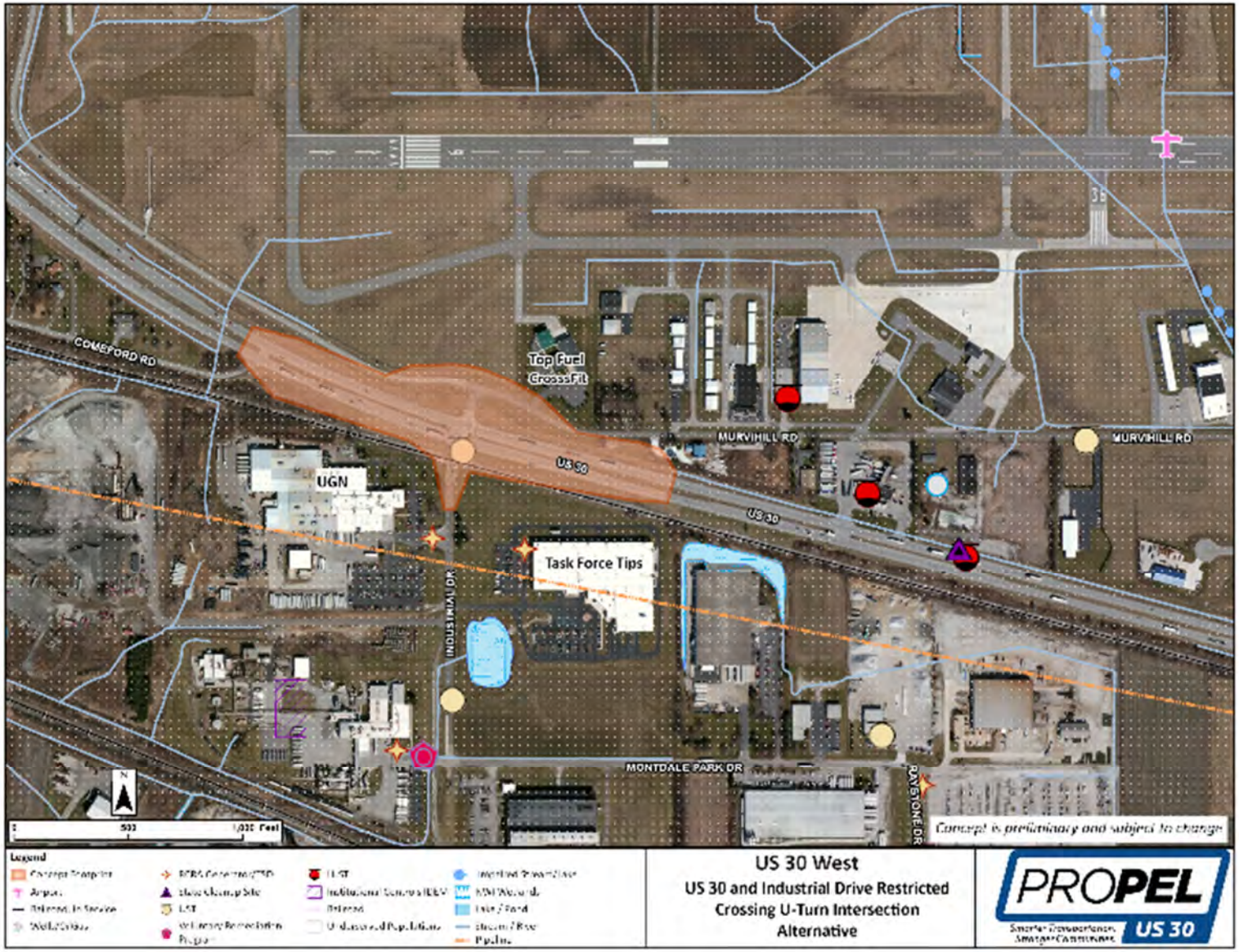


Figure 5-4: US 30 and Industrial Drive – Restricted Crossing U-Turn Intersection Alternative



5.3. US 30 AND CR 325 E IN PORTER COUNTY

5.3.1. OVERVIEW OF LOCATION

This intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices for the intersection are both slightly elevated, indicating there are opportunities for safety improvements at the intersection.

During collection of early plans and studies, the Porter County Airport forwarded the Conexus-Northwest Regional Logistics Council: Advancing Northwest Indiana's Logistics As The Gateway to the World Report (September 2015), which recommended grade separation at this intersection (*Project 6404: Porter County Airport Rail Road Grade Separations*).

5.3.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the US 30 and Porter CR 325 E intersection poses numerous constraints that were considered in the development of alternatives. These constraints are summarized as follows:

- Several businesses are located adjacent to the intersection, including Two Men and A Truck, H&T Electrical Services, Weed Man, White Cap, Culligan Water of Valparaiso, and Fastenal Fulfillment Center
- Pilot Travel Center is located 0.4 miles west of the intersection.
- The interchange of US 30 and SR 49 is located 1.4 miles west of the intersection.
- An at-grade railroad crossing is on the south leg of the intersection, crossing Porter CR 325 E.
- 1 NWI wetland is in the vicinity of the intersection.
- Hazardous material concerns are near the intersection, including 1 UST and 3 LUST sites located west of the intersection.
- A mobile home park is in the northeast quadrant of the intersection.
- Underserved populations are located near the intersection.
    - Non-English Speaking Population
- US 30 crosses an impaired stream just east of the intersection

5.3.3. SCREENING OF ALTERNATIVES

This intersection is important for access to and from US 30 due to an industrial area to the south and several businesses and a mobile home park to the north. The decision tree indicates that both at-grade and grade-separated alternatives would be applicable, while an interchange would be unnecessary. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-3**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Median Safety Improvements – The existing median does not meet IDM requirements and should be widened. This alternative would maintain local access.
- Add or Lengthen Turn Lanes – The existing left turn lanes do not provide sufficient deceleration lengths and right turn lanes are missing. The left turn lanes should be lengthened and right turn lanes should be added. This alternative would maintain local access.

- Cross Road Overpass/Underpass – There are other locations with approximately 2 miles of the intersection that provide equal or better access based on the functional classification of the route that local traffic can use to access the corridor. Therefore, a cross road overpass or underpass should be considered, especially in Level 3 as part of a limited access section.
- Signalized and Unsignalized Intersection Improvements – This intersection is important for access to and from US 30 due to the industrial area to the south and mobile home park in the northeast corner. The crash cost and crash frequency indices indicate there is opportunity for safety improvements. This intersection is currently two-way stop controlled and forecasted traffic volumes meet a signal warrant. The Cap-X analysis indicated that the following intersection types could produce acceptable operating conditions in the design year:

    - Restricted Crossing U-Turn Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. It would also meet access management guidelines and maintain local access.
    - Signalized Intersection – This alternative would improve safety, for some types of crashes (right-angle), but may introduce other types (rear-ends) as well. It would improve intersection operations. This alternative would maintain local access.
    - Roundabout– This alternative would reduce delay and improve intersection operations along US 30 while maintaining all local access. This alternative also improves safety at the intersection by reducing speeds and lowering the risk of right-angle crashes.
    - Reduced Conflict Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Reduced Conflict Intersection would meet access management guidelines and maintains local access as well as preserve free-flow operations on US 30.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Add/Extend Acceleration Lanes – Crash patterns do not indicate a concern with missing acceleration lanes.
- Convert to Interchange – There are no factors that support an interchange. The proximity to the SR 49 interchange also precludes an interchange due to spacing constraints.
- Other signalized intersection types were eliminated through Cap-X tool analysis because their potential benefits were not substantial enough when compared to the existing conditions. Therefore, they were not further analyzed as part of this process. These intersection types included:

    - Green-T Intersection – This alternative is not applicable to a four-legged intersection.
    - Displaced Left Turn Intersection – Based on low left turning volumes and the requirement of additional right-of-way for left turn crossovers, this alternative would become prohibitively expensive compared to other feasible intersection types such as an RCI.
    - Boulevard Left Turn Intersection – The Cap-X results indicate that this alternative would add additional delay to the mainline left turning traffic.

Complementary Concepts to be considered as part of Intersection Alternatives are as follows:

- Signal Timing Updates / Coordination – Signal timing updates and coordination have the potential to improve safety and relieve congestion.
- Intersection Sight Distance Improvements – Potential to improve safety.
- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic.
- Freight Priority System – Potential to reduce delay for trucks.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Median Safety Improvements Alternative

Widening the median from the existing 26-foot median increases safety at US 30 and Porter CR 325 E by reducing the likelihood of head on crashes. This alternative maintains the existing eastbound and westbound left turns while widening the median of US 30. The improvement limits of this alternative can be seen in **Figure 5-5**.

The widened median only has right-of-way impacts to the south of US 30 just before the railroad crossing and maintains all property access. It is considered a medium-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Add and Lengthen Turn Lanes Alternative

Adding eastbound and westbound right turn lanes improves the operations of the intersection. Both adding and lengthening turn lanes improves the safety of the intersection by providing adequate deceleration lengths and increasing storage space, reducing the likelihood of rear end collisions and meeting IDM standards. The improvement limits of this alternative can be seen in **Figure 5-5**.

With the addition of eastbound and westbound right turn lanes there are potential right-of-way impacts in both the northeast and southwest quadrants of the intersection with improvements not impacting the existing railroad crossing. No changes to property access are expected. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Crossroad Overpass / Underpass Alternative – Porter CR 325 E over US 30

Reconfiguring this intersection so that Porter CR 325 E goes over US 30 increases safety by eliminating access from Porter CR 325 E to US 30 and vice versa. In this alternative traffic would be routed over top of US 30 by use of a bridge. The improvement limits of this alternative can be seen in **Figure 5-6**.

By constructing an overpass to reach the allowed clearance over the railroad and US 30 the NWI-line wetland associated with the constructed ditch in the southeast quadrant would be impacted by grading. The potential right-of-way impacts of a minor road overpass at this intersection are along the east and west sides of Porter CR 325 E with the largest impacts coming closer to US 30. This is where the potential roadway is the highest before the bridge. Right-of-way impacts then taper back into the existing limits as the potential road profile ties back into the existing profile. With this alternative there are potential relocations in the northeast, northwest, and southwest quadrants. Included in the impacts to right-of-way would be impacts to the mobile home park to the north of US 30, this has the potential to be an environmental justice concern. It is considered a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with the limited access section, to be analyzed in Level 3. This grade-separated configuration was preliminarily selected as opposed to elevating US 30 over Porter CR 325 E due to the assumed lower impacts given the rural environment. This alternative will be advanced for further evaluation in the Level 3 screening process.

Restricted Crossing U-turn Intersection Alternative

The RCUT alternative keeps all existing movements for US 30 while rerouting left turns and through movements from Porter CR 325 E to US 30. A truck loon was included in the conceptual design. The improvement limits for this alternative are shown in **Figure 5-7**.

Potential right-of-way impacts are expected in all quadrants of the intersection. Widening of the existing at-grade railroad crossing at the south leg of the intersection is also expected. Additionally, the potential design impacts the existing wetland in the southeast quadrant of the intersection. This alternative has the potential for adverse impacts to underserved populations. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Signalized Intersection Alternative

Porter CR 325 E is an unsignalized intersection that meets the warrants of a signal. A signal can improve safety for some types of crashes (e.g., Right-angle) but may introduce other types (rear-ends) as well. The improvement limits would be limited to the existing footprint of the intersection and have not been drawn.

Converting to a signalized intersection requires no potential right-of-way impacts and does not encroach on the existing railroad crossing to the south, assuming turn lanes would not be added or lengthened, and the substandard median is not improved. This alternative is considered a low-cost. This alternative will be advanced for further evaluation in the Level 3 screening process.

Roundabout Alternative

Reconfiguring the US 30 and Porter CR 325 E intersection into a roundabout alternative would require the center of the roundabout to be northeast of the current intersection so railroad impacts can be limited. The roundabout alternative would increase safety by reducing travel speed and the chance for more severe right angle, left turn, and head on collisions, although additional rear-end crashes may occur. Speed management strategies would have to be paired with the roundabout alternative to mitigate the risk of rear-end crashes. The improvement limits of this alternative can be seen in **Figure 5-8**.

The potential right-of-way impacts for this alternative affects all quadrants of the intersection. Along with right-of-way impacts, this alternative would require the railroad crossing to shift to the east, because of this shift, the wetland in the southeast quadrant would be affected as well. Potential relocations of underserved populations exist in the northeast quadrant. It is considered a medium-cost option. Due to the high impacts, this alternative will not be advanced for further consideration in the Level 3 screening process.

Reduced Conflict Intersection Alternative

The RCI alternative would allow the free-flow of through traffic along US 30 while rerouting left turns and minor road through movements from Porter CR 325 E to US 30. This would improve safety by reducing the risk of right-angle crashes and reduce delay at the intersection. The addition of truck loons was included in the conceptual alternative. The improvement limits for this alternative are identical to that of what is shown in **Figure 5-7**.

Potential right-of-way impacts are expected in all quadrants of the intersection. Widening of the existing at-grade railroad crossing at the south leg of the intersection is also expected. This alternative has the potential for adverse impacts to underserved populations. Additionally, the potential alternative impacts the existing wetland in the southeast quadrant of the intersection. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.3.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Median Safety Improvements (Median Widening).
- Add or Lengthen Turn Lanes.
- Crossroad Overpass/Underpass.
- Restricted Crossing U-Turn Intersection.
- Signalized Intersection.
- Reduced Conflict Intersection.
- Signal Timing Updates/Coordination – May be incorporated into all alternatives involving signalization.
- Intersection Sight Distance Improvements – May be incorporated into all alternatives.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.
- Freight Priority Systems – May be incorporated into all alternatives involving signalization.

Table 5-3: US 30 and Porter CR 325 E – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Porter CR 325 E	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	Yes	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Median Safety Improvements	Yes	Yes	Yes	Yes	Yes	Low	Low	No	Medium	Low	Medium	Medium	Yes	Widened Median. Alternative carried forward due to improvements to intersection safety associated with more separation between opposing travel lanes.
Add or Lengthen Turn Lanes	Yes	Yes	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Lengthen WB EB Left Turn Lanes and Added WB EB Right Turn Lanes. Alternative carried forward due to improvements to safety and intersection operations associated with sufficient deceleration length, reducing the risk of rear-end crashes. The new turn lane lengths would meet IDM standards.
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	No	Medium	Low	Yes	High	High	Medium	Medium	Yes	Grading encroaches on mobile home park. Alternative carried forward due to its necessity for other alternatives being considered in Level 3.
Signalized Intersection Improvements														
Restricted Crossing U-Turn Intersection	Yes	Yes	Yes	Yes	No	Low	Low	Yes	Medium	Low	Medium	Low	Yes	Alternative carried forward due to positive impacts on intersection safety by reducing the number of conflicting movements
Signalized Intersection	No	Yes	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Alternatives carried forward because it would improve intersection operations.
Unsignalized Intersection Improvements														
Roundabout	Yes	Yes	Yes	Yes	No	Medium	Low	Yes	High	Medium	Medium	Medium	No	Alternative eliminated due to high impacts on nearby mobile home park and impacts to railroad.
Reduced Conflict Intersection	Yes	Yes	Yes	Yes	No	Low	Low	Yes	Medium	Low	Medium	Low	Yes	Carried forward because alternative would improve safety by reducing conflicting movements and improve operations by reducing delay associated with left turns onto US 30.

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Porter CR 325 E	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
Complementary Concepts														
Signal Timing Updates/Coordination	Yes	Yes	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Potential to improve safety and relieve congestion for Signalized Intersection alternatives. Currently, not other signals are close enough for coordination, but timings can be updated to improve operations.
Intersection Sight Distance Improvements	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Intersection is on a skew. Improvements to sight distance would increase safety.
Spot Roadway Lighting	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Provide lighting for Intersection Alternatives
Warning Systems	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Raises awareness of approaching traffic for intersection alternatives
Freight Priority System	No	Yes	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Can reduce delays for trucks for Signalized Intersection Improvements

Figure 5-5: US 30 and Porter CR 325 E – Add and Lengthen Turn Lanes and Median Safety Improvements Alternatives

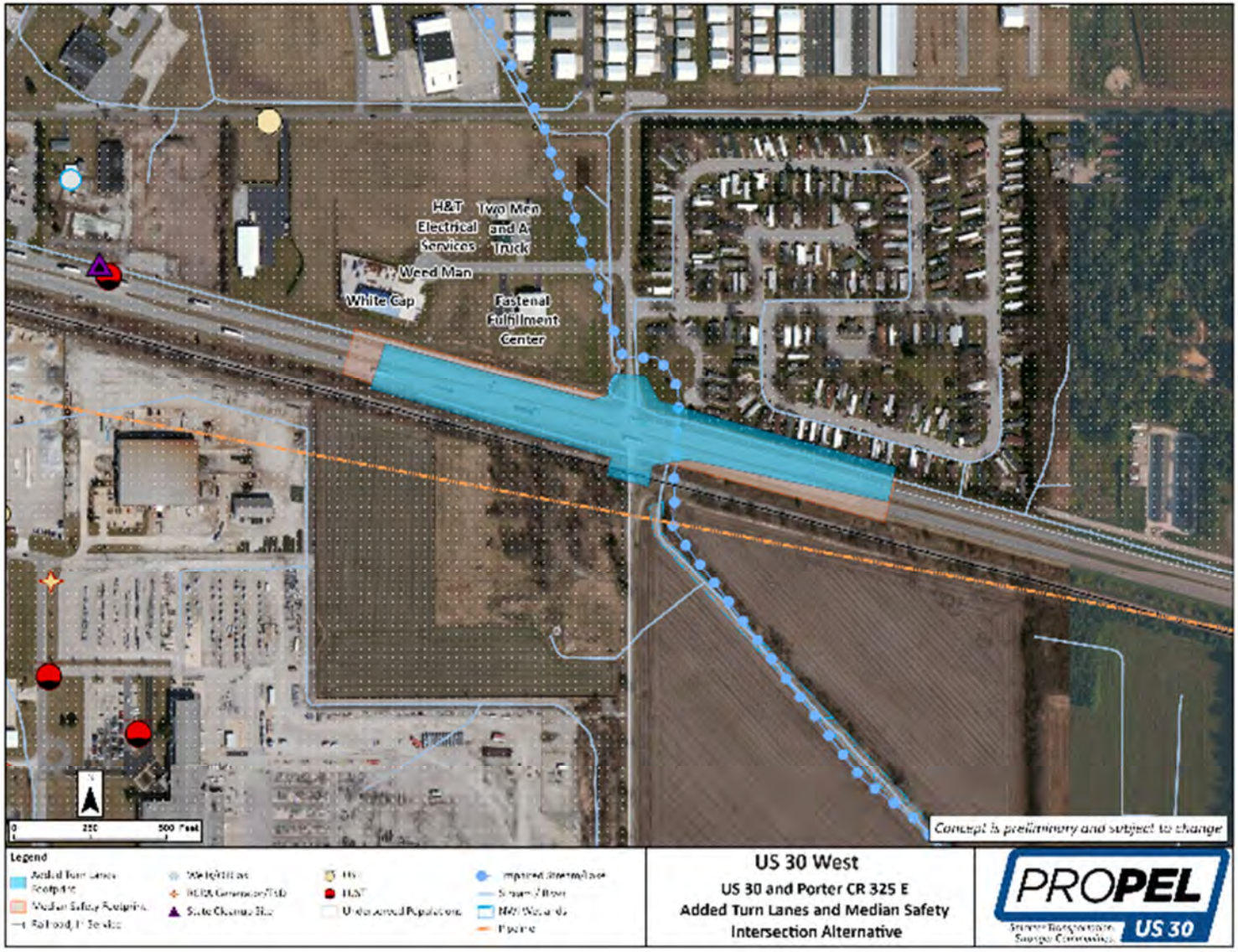


Figure 5-6: US 30 and Porter CR 325 E – Cross Road Overpass/Underpass Alternative – Porter CR 325 E Over US 30

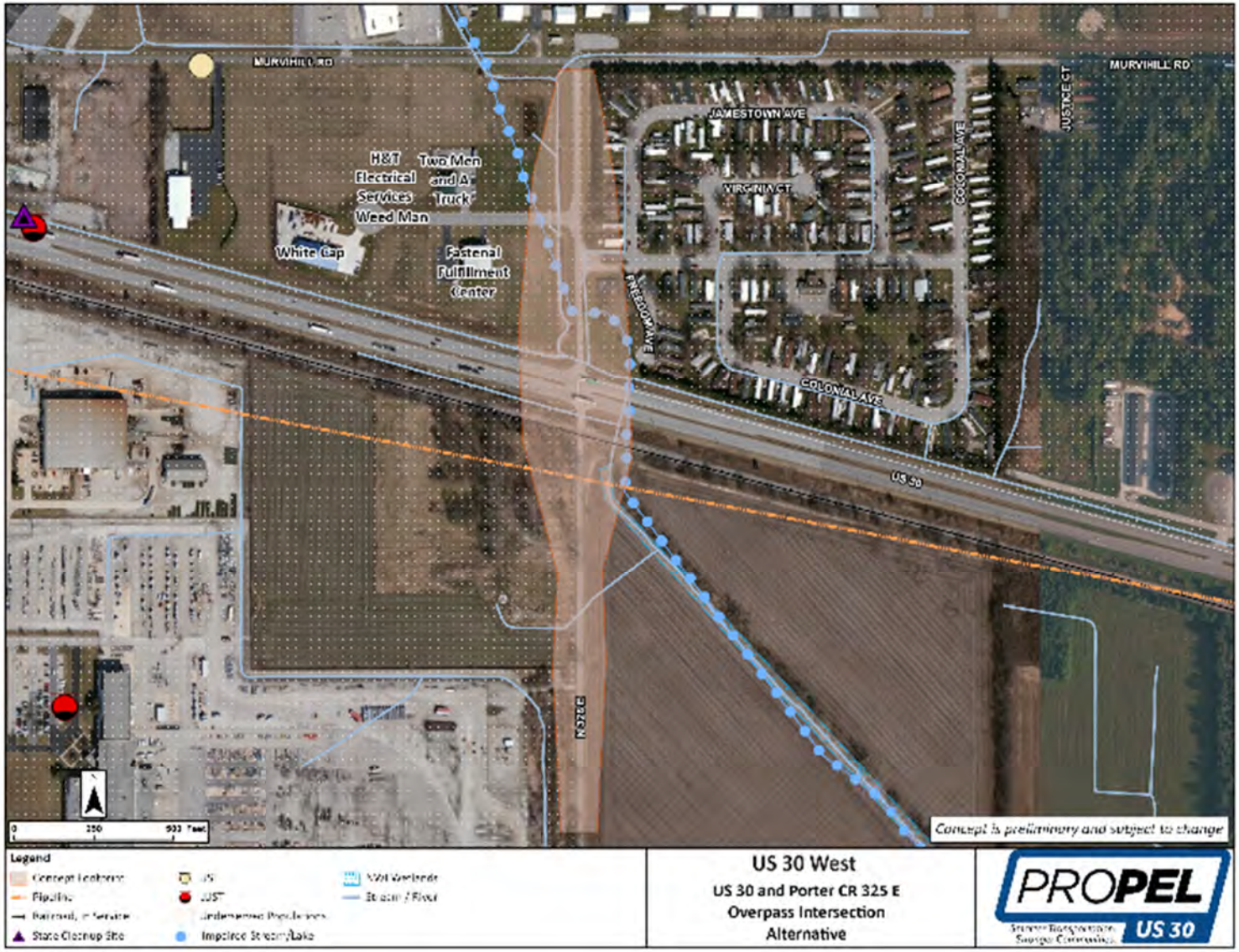


Figure 5-7: US 30 and Porter CR 325 E – Restricted Crossing U-Turn Intersection Alternative

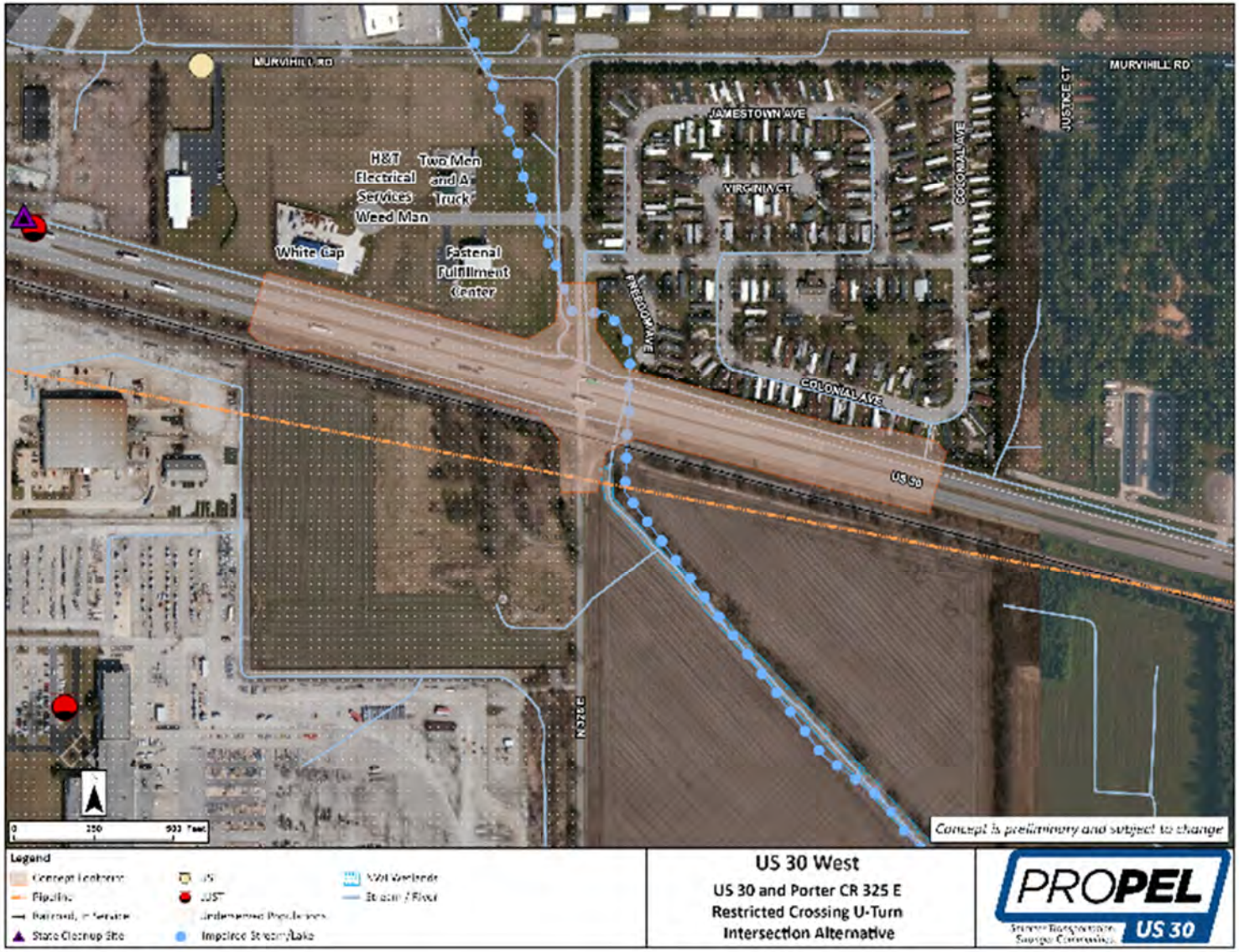
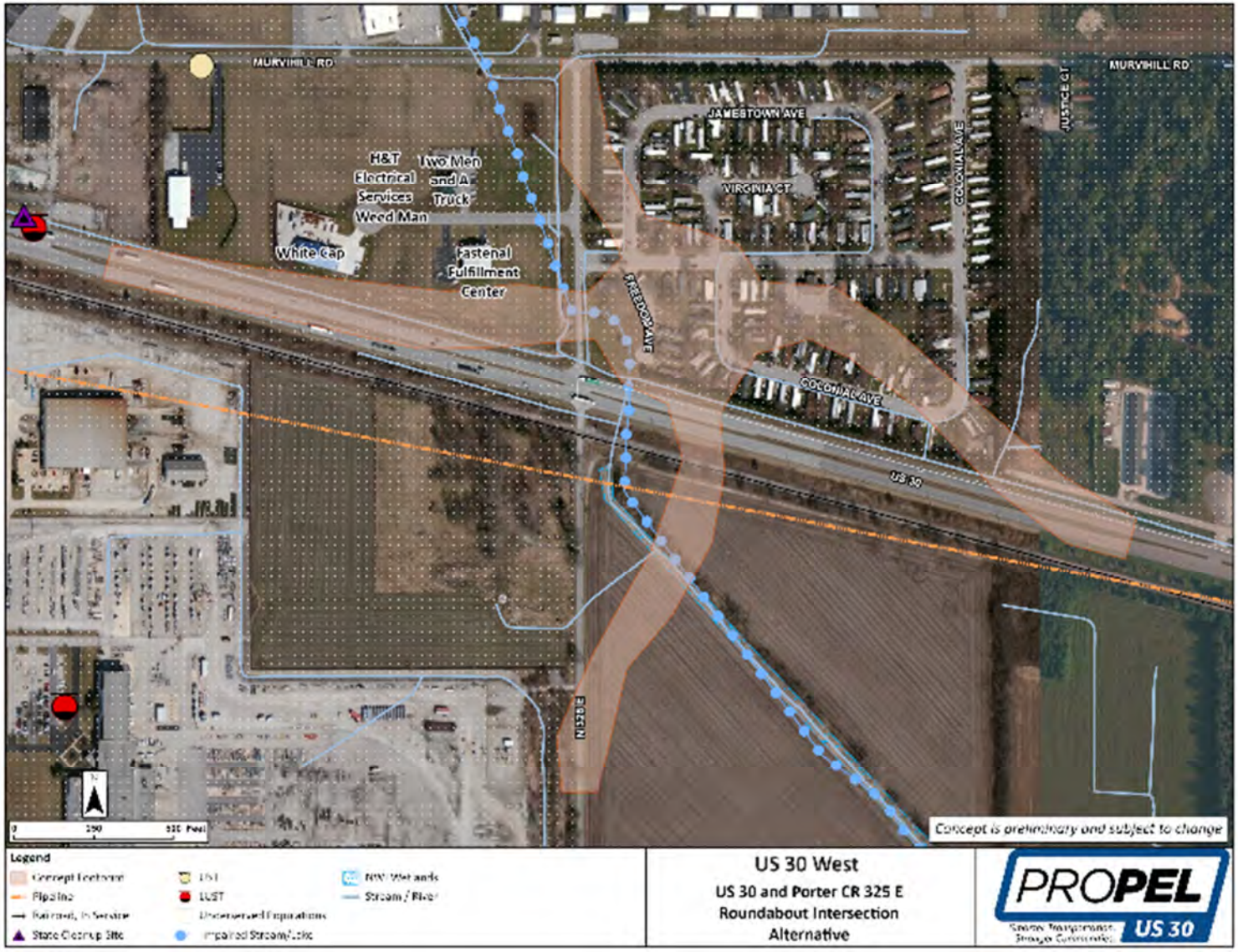


Figure 5-8: US 30 and Porter CR 325 E – Roundabout Alternative



5.4. US 30 AND CR 400 E IN PORTER COUNTY

5.4.1. OVERVIEW OF LOCATION

This intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices indicate that there are no major safety concerns at the intersection. Improvements were still considered at this intersection as a part of safety or operational improvements along this segment of US 30, to be further considered in the Level 3 screening.

There is existing commercial development surrounding the intersection with a residential development on the north side of the roadway. During collection of early plans and studies, the Porter County Airport forwarded the Conexus-Northwest Regional Logistics Council: Advancing Northwest Indiana's Logistics As The Gateway to the World Report (September 2015), which recommended grade separation at this intersection (*Project 6404: Porter County Airport Rail Road Grade Separations*).

5.4.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding US 30 and Porter CR 400 E poses numerous constraints that were considered in development of the alternatives. These constraints are summarized as follows:

- There are several businesses adjacent to the intersection, including: Illiana Industrial Electric Motor Service, Awards America, Tudor Floors & More Carpet One, Co Alliance, and Morgan Distributing, INC – Valparaiso
- Cain Ditch runs alongside US 30 along the east leg of the intersection.
- There is a pond and 2 NWI wetlands near the intersection.
- Multiple hazardous material concerns are located near the intersection, including 2 LUSTs; 1 located at the north leg of the intersection and 1 at the property of Co Alliance in the northeast quadrant; an Indiana Department of Environmental Management (IDEM) institutional control site is located in the southeast quadrant of the intersection.
- Underserved populations are located near the intersection.
    - Non-English Speaking Population
- There is a railroad parallel to US 30 on the south side, crossing Porter CR 400 E.

5.4.3. SCREENING OF ALTERNATIVES

The decision tree indicates that at-grade, grade-separated, and interchange alternatives are applicable. Complementary and at-grade intersection improvements can improve safety at this intersection. Grade separated alternatives were also considered due to the broader context of the area. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-4**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Median Safety Improvements – The existing median does not meet IDM requirements and should be widened.
- Add or Lengthen Turn Lanes – The existing left turn lanes do not provide sufficient deceleration length and right turn lanes are missing. The left turn lanes should be lengthened, and right turn lanes should be added. This alternative would maintain local access.
- Cross Road Overpass/Underpass– There are other locations within approximately 2 miles with equal or better access based on the functional classification of the route that local traffic would use to access the corridor. Therefore, a cross road overpass or underpass should be considered.
- Convert to Interchange – There are no factors that support an interchange at this location as a standalone alternative. However, given further bundled improvements anticipated to be analyzed in Level 3, this location was identified as a potential interchange due to the proximity of development and the city of Valparaiso and spacing from the SR 49 interchange. This alternative would maintain local access.
- Unsignalized Intersection Improvements – This intersection is important for access to/from US 30 due to the businesses in the surrounding area and overall usage of this intersection. While there are no major safety or operational concerns at this intersection, the following improvements were still considered as part of segment safety and operational improvements, to be further considered in Level 3. This intersection is two-way stop controlled and forecasted traffic volumes at this intersection do not warrant a signal. CAP-X analysis indicated that the following intersection types would operate acceptably in the design year.
    - Reduced Conflict Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Reduced Conflict Intersection would meet access management guidelines as well as preserve free-flow operations on US 30 and maintain local access.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Add/Extend Acceleration Lanes – Crash patterns do not indicate a concern with acceleration distances.
- Signalized Intersection Improvements – This intersection is currently two-way stop controlled and traffic volumes do not warrant a signal.

Complementary concepts to be considered as part of Intersection Alternatives include:

- Intersection Sight Distance Improvements – Potential to improve safety.
- Spot Roadway Lighting – Provide lighting for Intersection Alternatives.
- Warning Systems – Potential to raise awareness of approaching traffic.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Median Safety Improvements Alternative

Widening the median from the existing 26-foot median increases safety at the intersection of US 30 and Porter CR 400 E by reducing the likelihood of head on crashes. This alternative maintains the existing eastbound and westbound left turn lanes while widening the median of US 30. The improvement limits of this alternative can be seen in **Figure 5-9**.

The widened median has right-of-way impacts in all quadrants of the intersection due to grading but maintains all access to surrounding properties. This alternative also includes widening of the existing at-grade railroad crossing on the south leg of Porter CR 400 E. It is considered a medium-cost option due to the minimal potential right-of-way impacts. This alternative will be advanced for further evaluation in the Level 3 screening process.

Add or Lengthen Turn Lanes Alternative

This alternative would include the lengthening of existing eastbound and westbound left turn lanes and the addition of eastbound and westbound right turn lanes. Both adding and lengthening turn lanes improves safety at the intersection by providing sufficient deceleration lengths and increasing storage space which would reduce the likelihood of rear-end crashes. The proposed turn lanes would meet IDM standards. The addition of right turn lanes would improve the operations of the intersection. The improvement limits of this alternative can be seen in **Figure 5-9**.

The add or lengthen turn lanes alternative has right-of-way impacts in the northeast and southwest quadrants of the intersection, but property access is not affected. The improvement would not impact the railroad located south of the intersection. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Crossroad Overpass / Underpass Alternative – Porter CR 400 E over US 30

This alternative would make use of a bridge to elevate Porter CR 400 E over US 30 and the railroad. This alternative would eliminate the existing at-grade railroad crossing and remove all access to US 30 from Porter CR 400 E and vice versa. This alternative would improve safety by removing all conflict points of the existing intersection and improves operations by eliminating any delay caused by the existing two-way stop control at the intersection. The improvement limits can be seen in **Figure 5-10**.

Extensive right-of-way is required for this alternative with several potential relocations of adjacent properties required to accommodate the grading of the overpass. This alternative has the potential for adverse impacts to underserved populations. It is considered a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with a limited access section, to be analyzed in Level 3. This grade-separated configuration was preliminarily selected as opposed to elevating US 30 over Porter CR 400 E due to the assumed lower impacts given the rural environment. This alternative will be advanced for further evaluation in the Level 3 screening process.

Convert to Interchange Alternative

This alternative for the free-flow alternatives allows for US 30 traffic to move without interruption. US 30 would utilize two bridges over Porter CR 400 E and on and off ramps to allow access to and from US 30. The improvement limits for this alternative can be seen in **Figure 5-11**.

Extensive right-of-way is required for this alternative with several potential relocations of adjacent properties. Substantial impacts to the existing railroad along the southside of US 30 would occur. The interchange would impact natural resources east of the intersection. This alternative has the potential for adverse impacts to underserved populations. This is a high-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process for potential use with bundled improvements.

Reduced Conflict Intersection Alternative

This alternative allows for free-flow conditions along US 30 while rerouting left turns from Porter CR 400 E to US 30 and minor road through movements. This would improve safety by reducing the risk of right-angle crashes and reduce delay at the intersection. The addition of truck loons was included in the conceptual design. The improvement limits for this alternative can be seen in **Figure 5-12**.

Additional right-of-way is required for this alternative with potential relocations due to changes in the intersection geometry. Larger turning radii impact the frontage road in the northwest quadrant of the intersection requiring the frontage road to be realigned. This alternative would also include the widening of the existing at-grade rail crossing at the south end of the intersection. This alternative has the potential for adverse impacts to underserved populations. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.4.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Median Safety Improvements (Median Widening).
- Add or Lengthen Turn Lanes.
- Cross Road Overpass/Underpass.
- Convert to Interchange.
- Reduced Conflict Intersection.
- Intersection Sight Distance Improvements – May be incorporated into all alternatives.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.

Table 5-4: US 30 and Porter CR 400 E – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Porter CR 400E	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	N/A	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Median Safety Improvements	Yes	Yes	Yes	Yes	Yes	Low	Low	Yes	Medium	Medium	Medium	Medium	Yes	Widened median. Carried forward due to improved safety associated with increasing separation between opposing travel lanes.
Add or Lengthen Turn Lanes	Yes	Yes	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Added EB and WB right turn lanes, extended EB and WB left turn lanes to meet IDM standards. Carried forward due to safety improvements associated with appropriate deceleration lengths, reducing the risk of rear-end crashes.
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	No	Low	Low	Yes	High	High	High	Medium	Yes	Carried forward due to the safety and operation improvements associated with grade-separation.
Convert to Interchange	Yes	Yes	Yes	Yes	No	Medium	Low	Yes	High	High	High	High	Yes	Carried forward due to necessity for the limited access alternative. Not considered for other bundled improvements.
Unsignalized Intersection Improvements														
Reduced Conflict Intersection	Yes	Yes	Yes	Yes	No	Low	Low	Yes	Medium	Medium	Medium	Low	Yes	Carried forward due to improvements to intersection safety and operations associated with reducing conflicting movements.
Complementary Concepts														
Intersection Sight Distance Improvements	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Existing intersection is skewed. Improvements to sight distance will improve safety
Spot Roadway Lighting	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Provide lighting for intersection alternatives per INDOT guidelines
Warning Systems	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Raises awareness of approaching traffic to upcoming hazards, improving safety.

Figure 5-9: US 30 and Porter CR 400 E – Add or Lengthen Turn Lanes and Median Safety Improvements Alternatives

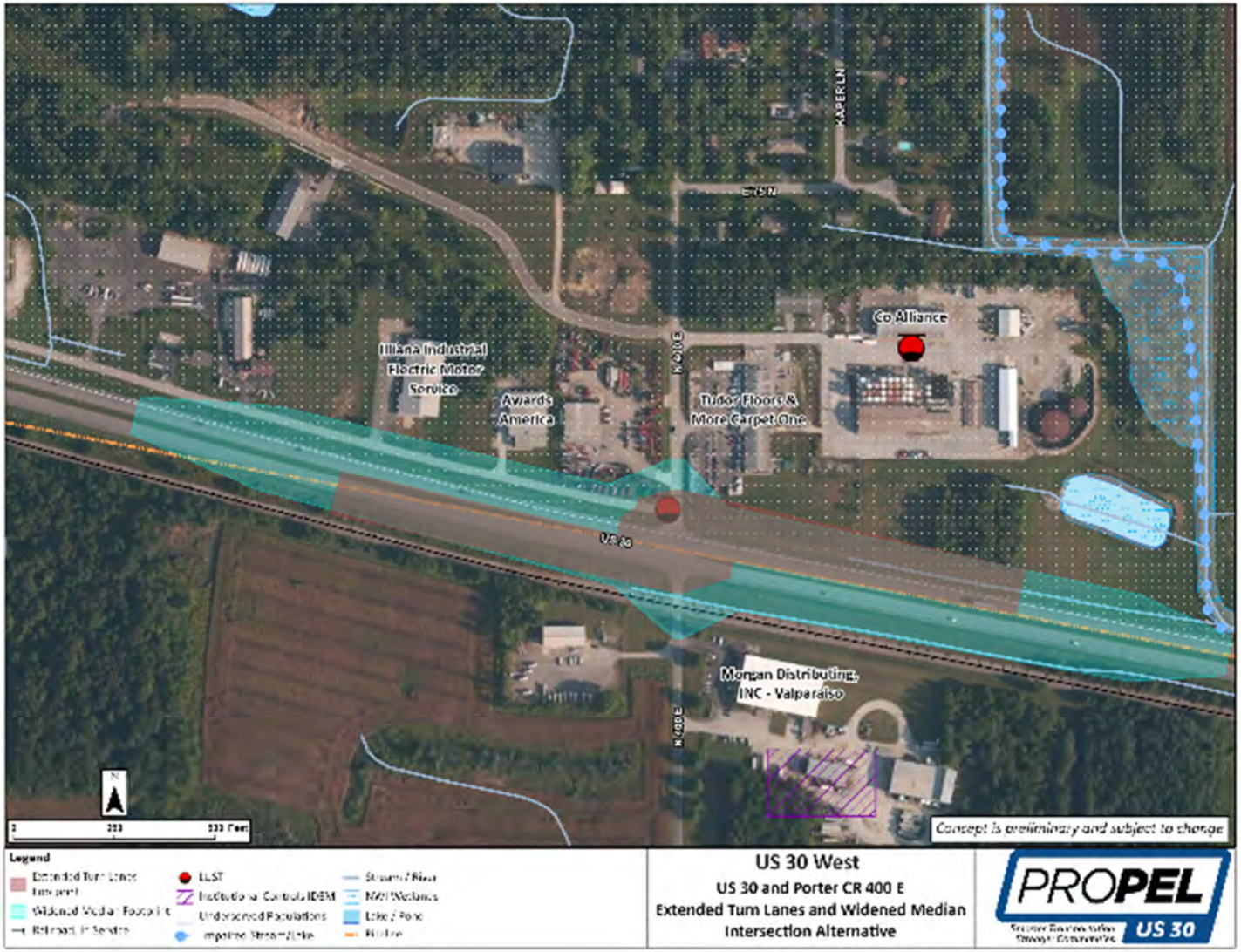


Figure 5-10: US 30 and Porter CR 400 E – Cross Road Overpass/Underpass Alternative – Porter CR 400 E Over US 30

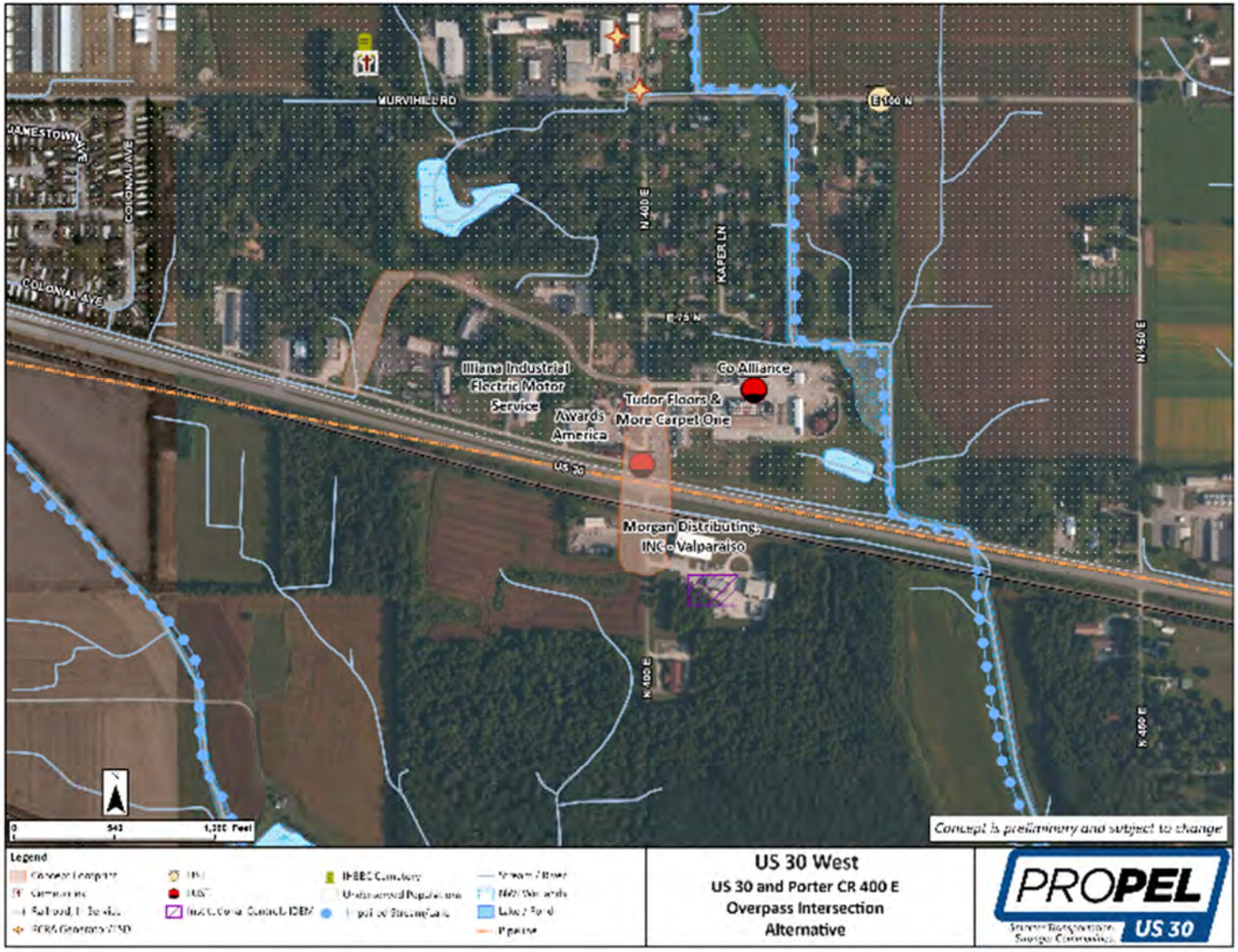


Figure 5-11: US 30 and Porter CR 400 E – Interchange Alternative

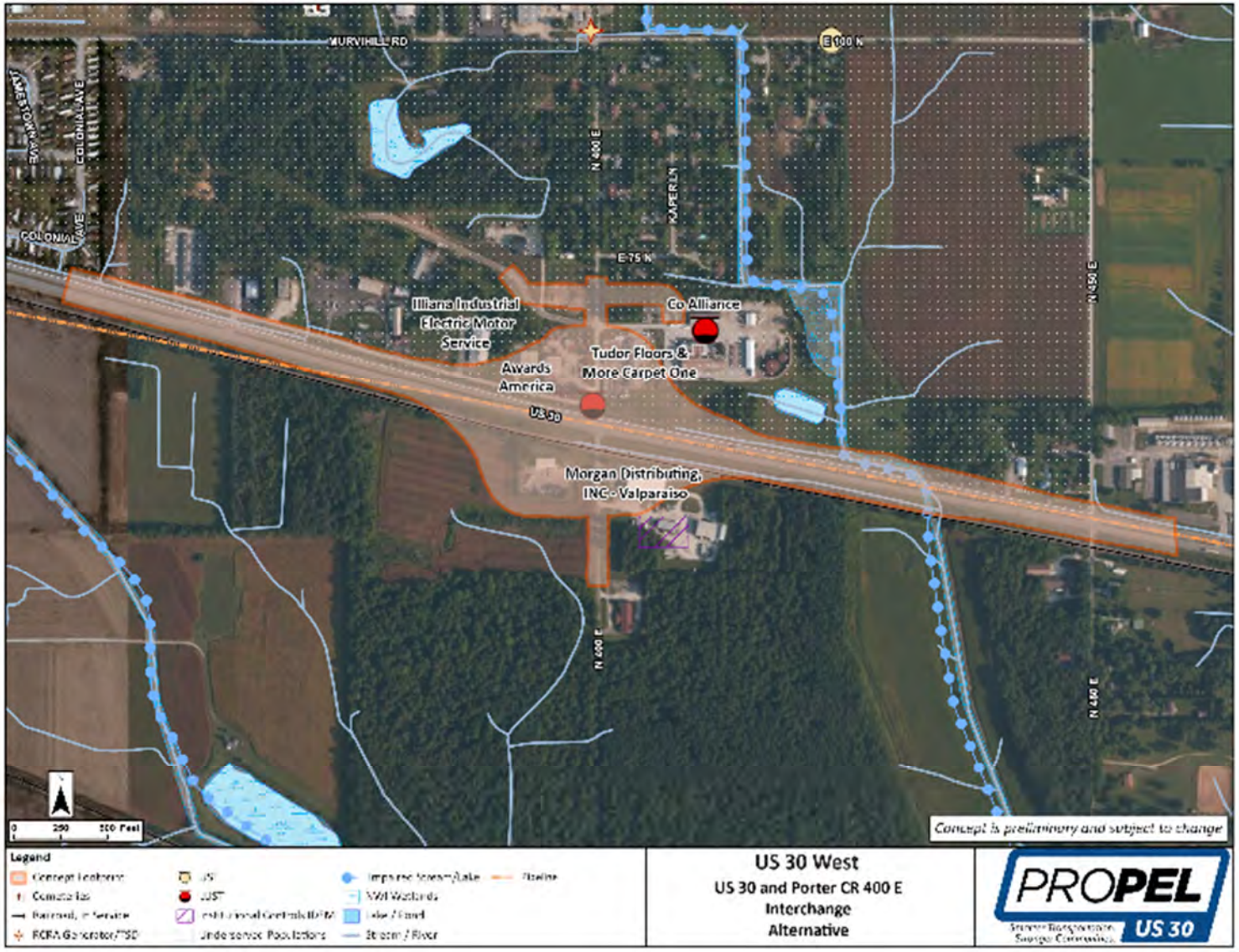
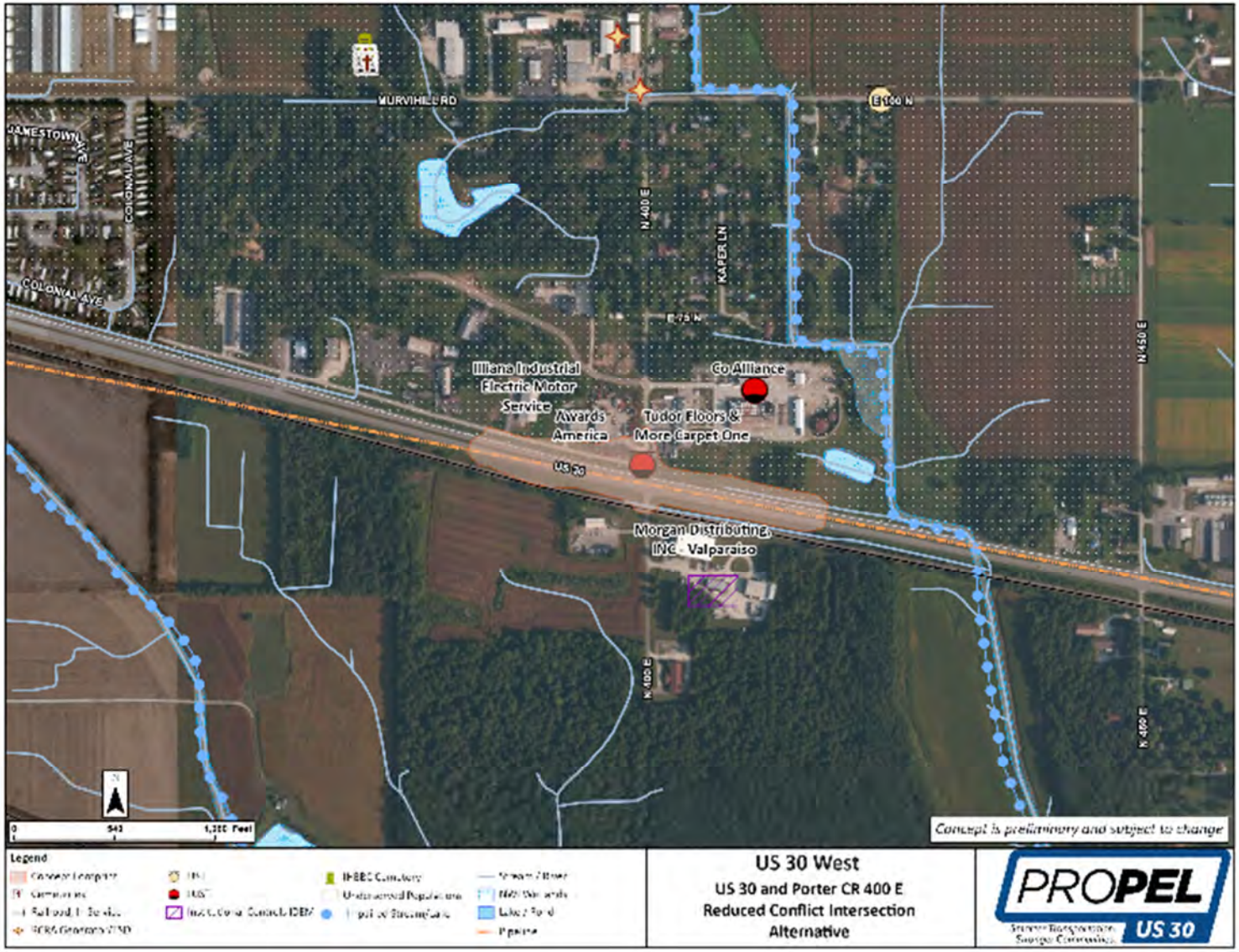


Figure 5-12: US 30 and Porter CR 400 E – Reduced Conflict Intersection Alternative



5.5. US 30 AND COUNTY LINE ROAD IN PORTER COUNTY

5.5.1. OVERVIEW OF LOCATION

This intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices indicate that there are no major safety concerns at the intersection. Improvements were still considered at this intersection as a part of safety or operational improvements along this segment of US 30, to be further considered in level 3.

There have been no specific public comments to date regarding concerns at this intersection.

5.5.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

This intersection is in a rural area at the edge of Porter and LaPorte counties. The land surrounding the US 30 and County Line Road intersection poses numerous constraints that were considered in the development of these alternatives. These constraints are summarized as follows:

- There are two UNTs running parallel to US 30 along the north side.
- There is a NWI wetland located southeast of the intersection.
- Sacred Heart Cemetery is located in the southwest quadrant of the intersection.
- There is an at-grade railroad crossing on County Line Road located approximately 0.12 miles south of the US 30 County Line Road intersection.
- Underserved populations are located near the intersection.
    - Non-English Speaking Population
    - Minority Populations

5.5.3. SCREENING OF ALTERNATIVES

The decision tree indicates that both at-grade and grade-separated alternatives would be applicable, while an interchange would be unnecessary. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-5**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Median Safety Improvements – The existing median does not meet IDM requirements and should be widened. This alternative would maintain local access.
- Add or Lengthen Turn Lanes – The existing left turn lanes do not provide sufficient deceleration length and right turn lanes are missing. The left turn lanes should be lengthened, and right turn lanes should be added. This alternative would maintain local access.
- Crossroad Overpass/Underpass – There are other locations within approximately 2 miles with equal or better access based on the functional classification of the route that local traffic would use to access the corridor. Therefore, a crossroad overpass or underpass should be considered.
- Unsignalized Intersection Improvements – The intersection is important for access to and from US 30 due to high usage of this intersection. While there are no major safety or operational concerns, the following improvements were still considered as a part of segment safety and operational improvements, to be further considered in level 3. This intersection is currently two-way stop controlled and forecasted traffic volumes do not warrant signalization. The Cap-X analysis indicated that the following at-grade intersection types could produce acceptable operating conditions in the design year.

- Reduced Conflict Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Reduced Conflict Intersection would meet access management guidelines as well as preserve free-flow operations on US 30 and maintain local access.

Primary Concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Add/Extend Acceleration Lanes – The crash patterns do not indicate concerns with acceleration distances.
- Convert to Interchange – While this intersection is important for access to and from US 30, there are no factors that support an interchange at this location.
- Signalized Intersection Improvements – This intersection is currently two-way stop controlled and traffic volumes do not warrant a signal.

Complementary concepts to be considered as part of intersection alternatives include:

- Intersection Sight Distance Improvements – Potential to improve safety.
- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic to hazards.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Median Safety Improvements Alternative

Widening of the existing median from 26 feet would improve safety at the intersection by reducing the risk of head-on crashes. This alternative maintains the existing eastbound and westbound left turn lanes. The improvement limits for this alternative can be seen in **Figure 5-13**.

This alternative would require additional right-of-way from all quadrants of the intersection due to grading, but property access would not be impacted. It is assumed a retaining wall would be used as needed along the southwest quadrant to avoid impacts to Sacred Heart Cemetery. It is considered a medium-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Add or Lengthen Turn Lanes Alternative

This alternative would extend the existing eastbound and westbound left turn lanes and adding eastbound and westbound right turn lanes. Adding right turn lanes would improve intersection operations. Both adding and lengthening turn lanes would improve safety by providing sufficient deceleration length and increasing storage space which would reduce the likelihood of rear-end crashes. The proposed turn lanes would meet IDM standards. The improvement limits for this alternative can be seen in **Figure 5-13**.

This alternative would require additional right-of-way from the northeast and southwest quadrants to accommodate the additional roadway width and grading due to the new right turn lanes. It is assumed a retaining wall would be used as needed in the southwest quadrant to avoid impacts to the Sacred Heart Cemetery. No property access would be impacted. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Cross Road Overpass / Underpass Alternative – County Line Road over US 30

This alternative would make use of a bridge to elevate County Line Road over US 30. This would improve safety and reduce delay by removing all movements between US 30 and County Line Road and vice versa. This alternative calls for County line road to be elevated starting at approximately 0.05 miles south of the intersection to maintain access to Sacred Heart Cemetery. To achieve the necessary clearance over US 30, the mainline would be lowered.

The elevation change would be graded in all quadrants except the southwest quadrant where a retaining wall would be used to avoid impacts to Sacred heart Cemetery. The improvement limits for this alternative can be seen in **Figure 5-14**.

Substantial additional right-of-way would be required in this alternative from all quadrants except the southwest quadrant. It is considered a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with a limited access section, to be analyzed in Level 3. This grade-separated configuration was preliminarily selected as opposed to elevating US 30 over County Line Road due to the assumed lower impacts given the rural environment. This alternative will be advanced for further evaluation in the Level 3 screening process.

Reduced Conflict Intersection Alternative

This alternative would retain free-flow conditions along US 30 while rerouting left turn movements from County Line Road to US 30 and minor road through movements. This would improve safety by reducing the risk of right-angle crashes and reduce delay at the intersection. Loons would be provided approximately 800 feet east and west of the intersection to assist large vehicles in the completion of the U-Turn movement. In this alternative, to avoid impacts to Sacred Heart Cemetery, the intersection would be shifted to the east and access would be provided from LaPorte CR 1200 S to US 30. At the north side of the intersection, access would be provided to County Line Road from US 30. The improvement limits for this alternative can be seen in **Figure 5-15**.

This alternative requires additional right-of-way from the northeast and southeast quadrants of the existing intersection. All property access would be maintained. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.5.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Median Safety Improvements (Median Widening).
- Add or Lengthen Turn Lanes.
- Cross Road Overpass/Underpass.
- Reduced Conflict Intersection.
- Intersection Sight Distance Improvements – May be incorporated into all alternatives.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.

Table 5-5: US 30 and County Line Road – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x County Line Road	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	N/A	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Median Safety Improvements	Yes	Yes	Yes	Yes	Yes	Low	Medium	No	Medium	Low	Low	Medium	Yes	Retaining Wall used in SW Corner to avoid impact to cemetery. Carried forward due to safety improvements associated with increased separation between opposing travel lanes.
Add or Lengthen Turn Lanes	Yes	Yes	Yes	Yes	No	Low	Medium	No	Low	Low	Low	Low	Yes	Added WB & EB Right Turn Lanes and Extended EB & WB Left Turn lanes to meet IDM requirements. Retaining wall used in SW Corner to avoid impact to cemetery. Carried forward due to improvements to safety due to sufficient deceleration distances, reducing the risk of rear-end crashes. The proposed turn lanes will meet IDM standards.
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	No	Low	Medium	No	Medium	Low	Low	Medium	Yes	Lower mainline to meet clearance and avoid impacts to railroad. Retaining wall used on SW side avoid grading impacts. Carried forward due to necessity for other alternatives being considered in level 3 and ease of construction when compared to the underpass alternative.
Unsignalized Intersection Improvements														
Reduced Conflict Intersection	Yes	Yes	Yes	Yes	No	Medium	Medium	No	Medium	Low	Low	Low	Yes	Carried forward due to potential improvements to safety and operations due to reduced conflicting movements.
Complementary Concepts														
Intersection Sight Distance Improvements	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Existing intersection is skewed. Sight distance improvements would increase safety.
Spot Roadway Lighting	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Provide lighting for intersection alternatives. Per INDOT guidelines
Warning Systems	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	Low	Low	Yes	Raises awareness of approaching traffic for intersection alternatives

Figure 5-13: US 30 and County Line Road – Add or Lengthen Turn Lanes and Median Safety Improvements Alternatives

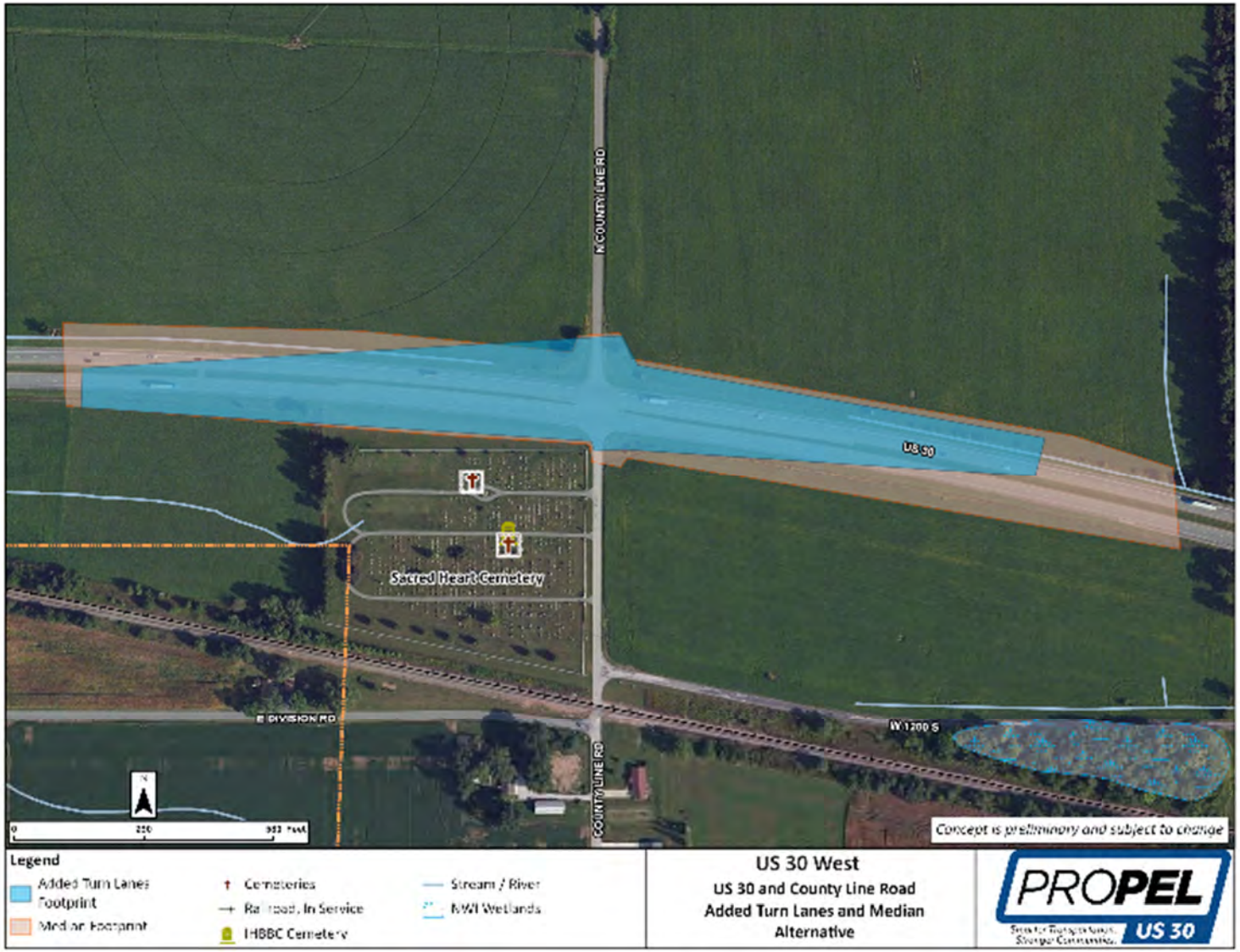


Figure 5-14: US 30 and County Line Road – Cross Road Overpass/Underpass Alternative – County Line Road Over US 30

Figure 5-15: US 30 and County Line Road – Reduced Conflict Intersection Alternative

5.6. US 30 AND MAIN STREET IN LAPORTE COUNTY

5.6.1. OVERVIEW OF LOCATION

This intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices indicate that there are no major safety concerns at the intersection. Improvements were still considered at this intersection as a part of safety or operational improvements along this segment of US 30, to be further considered in level 3.

This intersection is in the Town of Wanatah. There have been no specific public comments to date regarding concerns at this intersection.

5.6.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONCERNS

The land surrounding the US 30 and Main Street intersection poses numerous constraints considered in the development of alternatives. These constraints are summarized as follows:

- There are several businesses located near the intersection with several access points in the area, including: United Steelworkers, BP, Dewey's Auto Supply, and W Kendall & Sons.
- There is a bridge located approximately 0.17 miles west of the intersection which allows US 30 to cross over Slocum Ditch.
- The intersection of US 30 and US 421, another intersection being studied, is located 0.3 miles east of the intersection of US 30 and Main Street.
- There are residential neighborhoods located directly north and south of the intersection.
- There are 3 NWI wetlands located in the vicinity of the intersection, as well as several streams and a lake.
- There are several hazardous material concerns near the intersection. Including UST's and LUSTs located:
    - UST 0.02 miles west of the intersection
    - LUST 0.07 miles east of the intersection
    - LUST 0.17 miles west of the intersection
    - LUST 0.25 miles northwest of the intersection

5.6.3. SCREENING OF ALTERNATIVES

The decision tree indicates that at-grade alternatives would be applicable, while grade-separated alternatives would be unnecessary. The alternatives identified in the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-6**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Access Management – The intersection functional area is inconsistent with INDOT access management guidelines. Access points around the intersection should be closed.
- Median Safety Improvements – The existing median does not meet IDM requirements and should be widened. This alternative would maintain local access.
- Add or lengthen Turn Lanes – The existing turn lanes do not provide sufficient deceleration length. The turn lanes should be lengthened. This alternative would maintain local access.

Primary concepts eliminated from further consideration are as follows:

- Add/Extend Acceleration Lanes – Crash patterns do not indicate a concern with acceleration distance.
- Cross Road Overpass/Underpass – While there are other locations within approximately 2 miles with equal or better access based on functional classification of the route that local traffic can use to access the corridor, this is a 3-leg intersection, making an overpass unfeasible.
- Convert to Interchange – There are no factors supporting an interchange at this location.
- Signalized Intersection Improvements – This intersection is currently one-way stop controlled and traffic volumes do not warrant a signal.
- Unsignalized Intersection Improvements – There are no apparent safety or operational concerns at this intersection requiring improvements at this time. If conditions change in the future and there are safety or operational concerns, solutions such as a reduced conflict intersection should be considered at this location as it is known to reduce severe crashes at intersections with similar physical characteristics.

Complementary concepts to be considered as a part of intersection alternatives include:

- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic.
- Bike/Pedestrian Facilities – Urban environment indicates potential desire for bike and pedestrian facilities.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Access Management Alternative

This alternative would involve closing the median access at the intersection of US 30 and the other adjacent intersections. This alternative would require no additional right-of-way and would maintain property access from US 30. This alternative would reduce local access while meeting access management guidelines. No conceptual footprint was developed for this alternative as it would fit within the existing roadway. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Median Safety Improvements Alternative

This alternative would involve widening the median from the existing 26-foot width. This would involve maintaining the existing eastbound and westbound turn lanes and median openings. This alternative would improve safety by reducing the risk of head-on crashes. The improvement limits for this alternative can be seen in **Figure 5-16**.

This alternative would require additional right-of-way from all quadrants of the intersection as well as the potential relocation of several properties. This alternative would also impact the bridge on US 30, west of the intersection which crosses over Slocum Ditch. It is considered a medium-cost option due to the potentially substantial relocations associated with widening the median. Due to the high impacts on nearby properties and nearby natural resources, this alternative will not advance to Level 3 screening.

Add or Lengthen Turn Lanes Alternative

This alternative would close median access at the adjacent intersections of US 30 with N. Ohio Street and N. Illinois Street. The WB left turn lane would be removed west of Main Street. This would make the existing westbound left turn lane, which currently acts as a turn lane for the three intersections, to only serve left turns from US 30 to Main Street. This would improve safety for vehicles turning left from US 30 to Main Street by providing sufficient deceleration length and increasing storage space, reducing the likelihood of rear-end crashes. The proposed turn lane would meet IDM standards. The existing eastbound right turn lane would remain unaltered. Improvement limits for this alternative have not been drawn.

This alternative would require no additional right-of-way. There would be no potential relocations or wetland impacts. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.6.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Access Management.
- Add or Lengthen Turn Lanes.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.
- Bike/Pedestrian Facilities – May be incorporated into all alternatives.

Table 5-6: US 30 and Main Street - Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Main St	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward ?**	**Notes/ Comments**
No build	N/A	N/A	N/A	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Access Management	Yes	Yes	No	Yes	No	Low	Low	No	Low	Low	N/A	Low	Yes	Closed off median access at adjacent intersections. Carried forward due to potential improvements to safety and operations associated with meeting INDOT Access Management Guidelines.
Median Safety Improvements	Yes	Yes	Yes	Yes	Yes	Medium	Low	No	Low	High	N/A	Medium	No	Widened median. Not carried forward due to high potential relocations
Add or Lengthen Turn Lanes	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	N/A	Low	Yes	This alternative involves closing access to nearby side streets from the turn lane. Carried forward due to potential to improve intersection safety for a relatively low cost. The proposed turn lane would meet IDM standards.
Complementary Concepts														
Spot Roadway Lighting	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	N/A	Low	Yes	Provide lighting for intersection alternatives, per INDOT guidelines
Warning Systems	Yes	No	Yes	Yes	No	Low	Low	No	Low	Low	N/A	Low	Yes	Raises awareness of approaching traffic of upcoming hazards.
Bike/Pedestrian Facilities	Yes	Yes	Yes	Yes	No	Low	Low	No	Low	Low	N/A	Low	Yes	Potential to improve safety for bike users and pedestrians

Figure 5-16: US 30 and Main Street – Median Safety Improvements Alternative

5.7. US 30 AND US 421 IN LAPORTE COUNTY

5.7.1. OVERVIEW OF LOCATION

This signalized intersection experiences the most delay out of all of the intersections in the corridor but is expected to operate acceptably in the design year of the study. The crash cost index is slightly elevated, indicating an opportunity for safety improvements at the intersection. Of the intersection crashes occurring, the predominant crash type was rear-end crashes. These crashes may be related to vehicles pulling out in front of on-coming traffic or high-speed vehicle traffic not expecting to stop for the signal.

This intersection is located on the eastern boundary of the Town of Wanatah.

Public comments received specific to this location include the following:

- Concerns regarding noise pollution, drivers failing to follow traffic laws, improper signing resulting in increased traffic through the adjacent neighborhood, a lack of bike and pedestrian facilities, and safety concerns along US 30 West involving drivers ignoring speed reduction postings.

5.7.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the US 30 and US 421 intersection is urban and poses numerous constraints that were considered in the development of the alternatives. These constraints are summarized as follows:

- Multiple businesses are in the area of the intersection, including Dairy Queen, Burger King, Speedway and Casey's.
- There is a residential neighborhood in the northwest quadrant and homes located in the northeast quadrant.
- There are 5 NWI wetlands in the vicinity of the intersection. Also, numerous UNTs and ponds.
- There is a bridge located approximately 0.38 miles south of the intersection, along US 421, which overpasses a rail line.
- There are 3 outstanding Indiana Historic Sites and Structures Inventory (IHSSI) notable sites located approximately 0.47 miles southwest of the intersection.
- Several hazardous material concerns are located near the intersection, including 2 UST sites one northwest of the intersection and the other located west of the intersection; 2 LUST sites one located west of the intersection and one east of the intersection. An IDEM institutional control site is also located in the northeast quadrant.
- Wanatah Public School is located 0.6 miles south of the intersection.

5.7.3. SCREENING OF ALTERNATIVES

The decision tree indicates that both at-grade and grade-separated alternatives, including an interchange, as part of a free-flow bundle only, would be applicable. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-7**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Access Management – The intersection functional area is inconsistent with INDOT access management guidelines. Access points around the intersection should be closed.
- Add or Lengthen Turn Lanes – The existing turn lanes do not provide sufficient deceleration length. The turn lanes should be lengthened. This alternative would maintain local access.
- Add/Extend Acceleration Lanes – Crash patterns at the intersection are potentially due to not having acceleration lanes. Acceleration lanes should be added for vehicles turning onto US 30. This alternative would maintain local access.
- Convert to Interchange – There are no traffic volumes or other factors that support an interchange at this location as a standalone alternative. However, given further bundled improvements anticipated to be analyzed in Level 3, this location was identified as a potential interchange, based on the proximity to the town of Wanatah and the US highway status of US 421. Therefore, this alternative will be advanced for further evaluation in the Level 3 screening process for potential use with bundled improvements only, including a free-flow alternatives. This alternative would maintain local access.
- Signalized and Unsignalized Intersection Improvements – This intersection is important for access to and from US 30 due to the location in the town of Wanatah, as well as businesses located around the intersection. The crash cost index indicates the potential for safety improvements. This intersection is already signalized, and the signal is warranted. The CAP-X analysis indicated that the following at-grade intersection types could produce acceptable operating conditions in the design year.
    - Partial Displaced Left Turn – This alternative would improve safety at the intersection while also improving operations and maintaining local access.
    - Quadrant Roadway, Southwest – This alternative would improve safety at the intersection while also improving operations and maintaining local access.
    - Quadrant Roadway, Southeast – This alternative would improve safety at the intersection while also improving operations and maintaining local access.
    - Roundabout – This alternative would reduce delay and improve intersection operations along US 30 while maintaining all local access. This alternative also improves safety at the intersection by reducing speeds and lowering the risk of right-angle crashes.

Primary concepts eliminated from further consideration are as follows:

- Median Safety Improvements – The median at this intersection meets the Indiana Design Manual requirements.
- Cross Road Overpass / Underpass – There are no locations with approximately 2 miles with equal or better access based on the functional classification of the route that local traffic can use to access the corridor.
- Other signalized intersection types were eliminated through Cap-X tool analysis because their potential benefits were not substantial enough when compared to the existing conditions. Therefore, they were not further analyzed as part of this process. These intersection types included:
    - Green-T Intersection – This alternative is not applicable to a four-legged intersection.
    - Restricted Crossing U-Turn Intersection – The CAP-X results indicate that this alternative cannot accommodate the high volume of minor street through and left turning traffic projected at this intersection.
    - Boulevard Left Turn Intersection – The CAP-X results indicate that this alternative cannot accommodate the high volume of major street left turning traffic as well as minor street through and left turning traffic projected at this intersection.

Complementary Concepts to be considered as part of intersection alternatives include:

- Signal Timing Updates / Coordination – Potential to improve safety and relieve congestion.
- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness of approaching traffic.
- Freight Priority Systems – Potential to reduce delays for trucks.
- Bike/Pedestrian Facilities – Urban environment indicates potential desire for bike and pedestrian facilities.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Access Management Alternative

This alternative would involve closing the median access at the intersection of US 30 and N. Illinois Street, N. Main Street, N. Ohio Street, and Condon Street as well as median access directly adjacent to the east and west of the intersection. This alternative would require no additional right-of-way and would maintain property access from US 30. No conceptual footprint was developed for this alternative as it is believed the alternative would fit within the existing roadway. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Add or Lengthen Turn Lanes Alternative

This alternative would involve lengthening the existing eastbound and westbound left and right turn lanes. Lengthening the existing turn lanes would improve safety by providing sufficient deceleration length and increasing storage space, thereby reducing the likelihood of rear-end crashes. The proposed turn lanes would meet IDM standards. The improvement limits for this alternative are shown in **Figure 5-17**.

This alternative would have no additional right-of-way impacts and would have minimal impacts on the natural resources in the area. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Add/Extend Acceleration Lanes Alternative

This alternative would improve the safety at the intersection of US 30 and US 421 by providing a dedicated lane for vehicles turning from US 421 onto US 30 to reach the design speed before merging with through traffic on US 30. This would decrease the risk of rear-end crashes. This alternative would also improve intersection operations by reducing the differential speed between mainline traffic and traffic entering the mainline from the minor road. The improvement limits for this alternative are shown in **Figure 5-17**.

This alternative would require minimal additional right-of-way and all property access would be maintained. This alternative would also have minimal impacts on the surrounding natural resources. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Convert to Interchange Alternative

This alternative for the free-flow concepts allows for US 30 traffic to move without interruption. US 30 would utilize two bridges over US 421 and on and off ramps, folded into the east side of US 421 to avoid further right-of-way impacts, to allow access to and from US 30. The improvement limits for this alternative can be seen in **Figure 5-18**.

Extensive right-of-way is required for this alternative with several potential relocations of adjacent properties. The most substantial portion of work would be in the northeast, southwest, and southeast quadrants to avoid impacts to the residential area to the northwest. It is considered a high-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process for potential use with bundled improvements.

Partial Displaced Left Turn Alternative

The Partial Displaced Left Turn alternative would relocate left turns from US 30 upstream of the main intersection, thereby eliminating the left turn signal phase for approaches at the main intersection. This would improve intersection safety. The improvement limits for this alternative are shown in **Figure 5-19**.

The DLT alternative would require substantial additional right-of-way. There would also be substantial impacts to nearby natural resources. This alternative would also result in several potential relocations. It is considered a medium-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Quadrant Roadway Southwest Alternative

This alternative would improve intersection safety by splitting the movements at the main intersection into three separate signalized intersections. In this alternative, a connector road would be added in the southwest quadrant connecting US 30 with US 421; a signalized intersection would be placed at each intersection. Existing aerial imagery has not been updated to show the Casey's located in the southeast quadrant. The improvement limits for this alternative are shown in **Figure 5-20**.

This alternative would have substantial additional right-of-way impacts to the surrounding area including several potential relocations due to improvements at the main intersection included in this alternative, such as increases to the turning radii and additional lanes. There is also potential impact to the natural resources in the vicinity of the intersection. It is considered a medium-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Quadrant Roadway Southeast Alternative

This alternative would improve intersection safety by splitting the movements at the main intersection into three separate signalized intersections. In this alternative, a connector road would be added in the southeast quadrant connecting US 30 with US 421; a signalized intersection would be placed at each intersection.. The improvement limits for this alternative are shown in **Figure 5-21**.

This alternative would have substantial additional right-of-way impacts to the surrounding area including a few potential relocations, as well as impact the natural resources in the vicinity of the intersection. It is considered a medium-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Roundabout Alternative

Reconfiguring the US 30 and US 421 intersection into a roundabout alternative would require the center of the roundabout to be approximately 50 feet southwest of the current intersection so impacts to the Casey's at the southeast corner can be limited. The roundabout alternative would increase safety by reducing travel speed and the chance for more severe right angle, left turn, and head on collisions, although additional rear-end crashes may occur. The improvement limits for this alternative are shown in **Figure 5-22**.

The potential right-of-way impacts for this alternative impacts all quadrants of the intersection; however, all property access is maintained. It is considered a medium-cost option. Speed management strategies would have to be paired with the roundabout alternative to mitigate the risk of rear-end crashes. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.7.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Access Management.
- Add or Lengthen Turn Lanes.
- Add/Extend Acceleration Lanes.
- Convert to Interchange.
- Full Displaced Left Turn.
- Quadrant Roadway S-W.
- Quadrant Roadway S-E.
- Roundabout.
- Signal Timing Updates/Coordination – May be incorporated into all alternatives involving signalization.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.
- Freight Priority System – May be incorporated into all alternatives involving signalization.
- Bike/Pedestrian Facilities – May be incorporated into all alternatives.

Table 5-7: US 30 and US 421 – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x US 421	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	N/A	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Access Management	Yes	Yes	No	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Carried forward due to safety and operation improvements associated with meeting access management guidelines.
Add or Lengthen Turn Lanes	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Lengthen Existing Left and Right Turn Lanes EB and WB. Carried forward due to safety improvements associated with sufficient deceleration distances. The proposed turn lanes would meet IDM standards.
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Add Acceleration lanes for right turns onto US 30. Carried forward due to safety improvements to observed issue with crash patterns at the intersection.
Convert to Interchange	Yes	Yes	Yes	Yes	N/A	High	Low	No	High	High	N/A	High	Yes	Carried forward due to necessity for limited access alternative, but not considered for other bundled improvements.
Signalized Intersection Improvements														
Full Displaced Left Turn	Yes	Yes	Yes	Yes	N/A	High	Low	No	High	High	N/A	Medium	Yes	Carried forward due to improvements to intersection safety and operations associated with reduced signal phases.
Quadrant Roadway S-W	Yes	Yes	Yes	Yes	N/A	Medium	Low	No	High	High	N/A	Medium	Yes	Carried forward due to improvements to intersection safety and operations associated with reducing traffic around the main intersection.
Quadrant Roadway S-E	Yes	Yes	Yes	Yes	N/A	Medium	Low	No	High	High	N/A	Medium	Yes	Carried forward due to improvements to intersection safety and operations associated with reducing traffic around the main intersection.
Unsignalized Intersection Improvements														
Roundabout	Yes	Yes	Yes	Yes	N/A	Medium	Low	No	High	Low	N/A	Medium	Yes	Carried forward due to safety improvements associated with reduced speed around the intersection and operational improvements by eliminating signal delay.
Complementary Concepts														
Signal Timing Updates/Coordination	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Potential to improve safety. No other existing signals close enough for coordination, but timings updates can be made to improve efficiency. Coordination can be included in the signalized intersection alternatives because each alternative involves multiple new signals.
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Provide lighting for intersection alternatives per INDOT guidelines

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	Notes/ Comments
US30 x US 421	Applies Safety Counter-Measures	Reduces Delay or Improves Intersection Operations	Maintain or Improve Local Access	Meet Access Management Guidelines	Improves Substandard Elements	Potential for Adverse Impacts to Natural Resources?	Potential for Adverse Impacts to Cultural Resources?	Potential for Adverse Impacts to Underserved Populations?	Potential ROW Impacts	Potential Relocations	Impacts to Railroad	Relative Cost	Carry Forward?	
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Raises awareness of approaching traffic to upcoming hazards
Freight Priority System	No	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Can reduce delays for trucks at intersection alternatives involving signalization by extending green time
Bike/Pedestrian Facilities	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Potential to improve safety for bike users and pedestrians.

Figure 5-17: US 30 and US 421 – Add or Lengthen Turn Lanes and Add/Extend Acceleration Lanes Alternatives

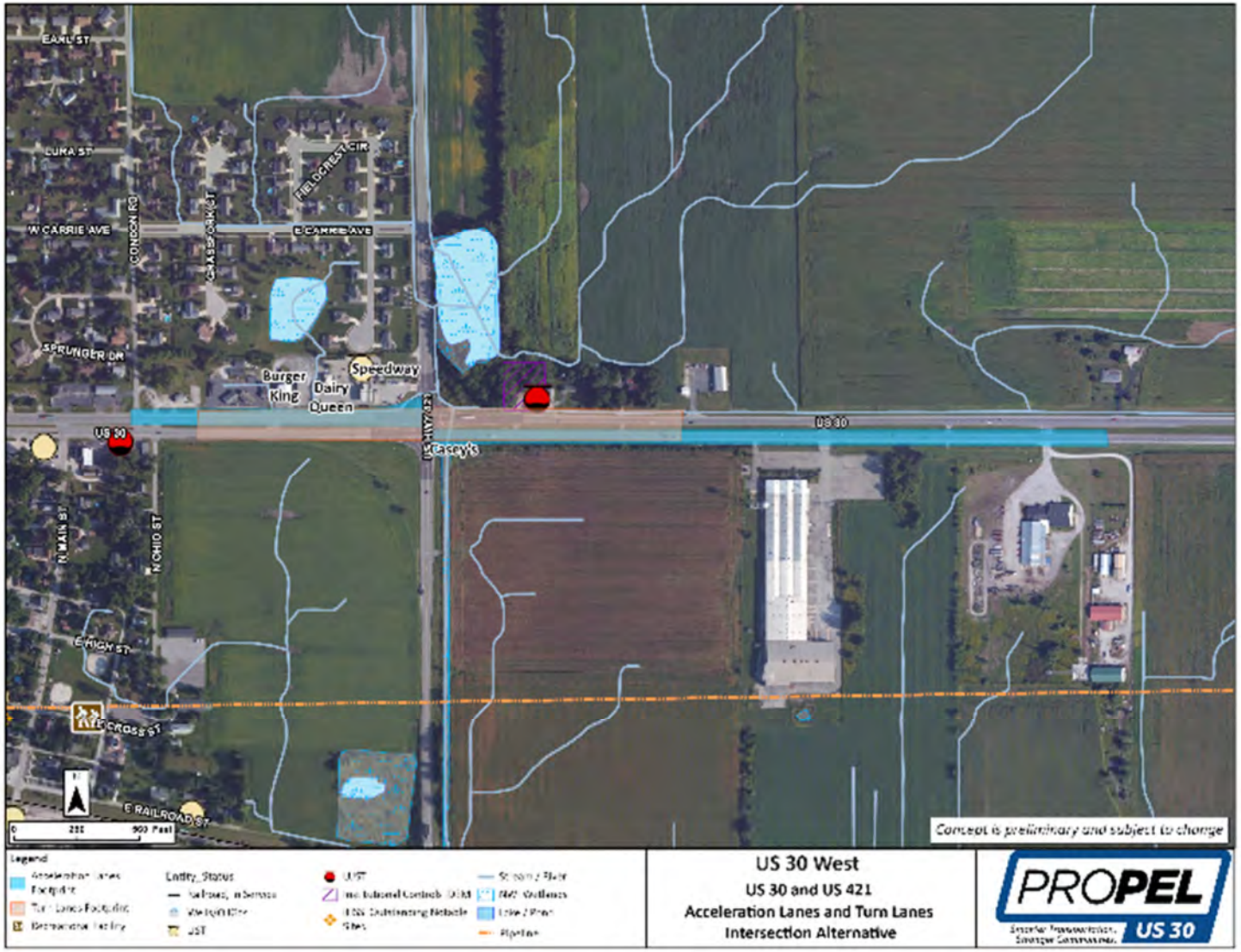


Figure 5-18: US 30 and US 421 – Interchange Alternative

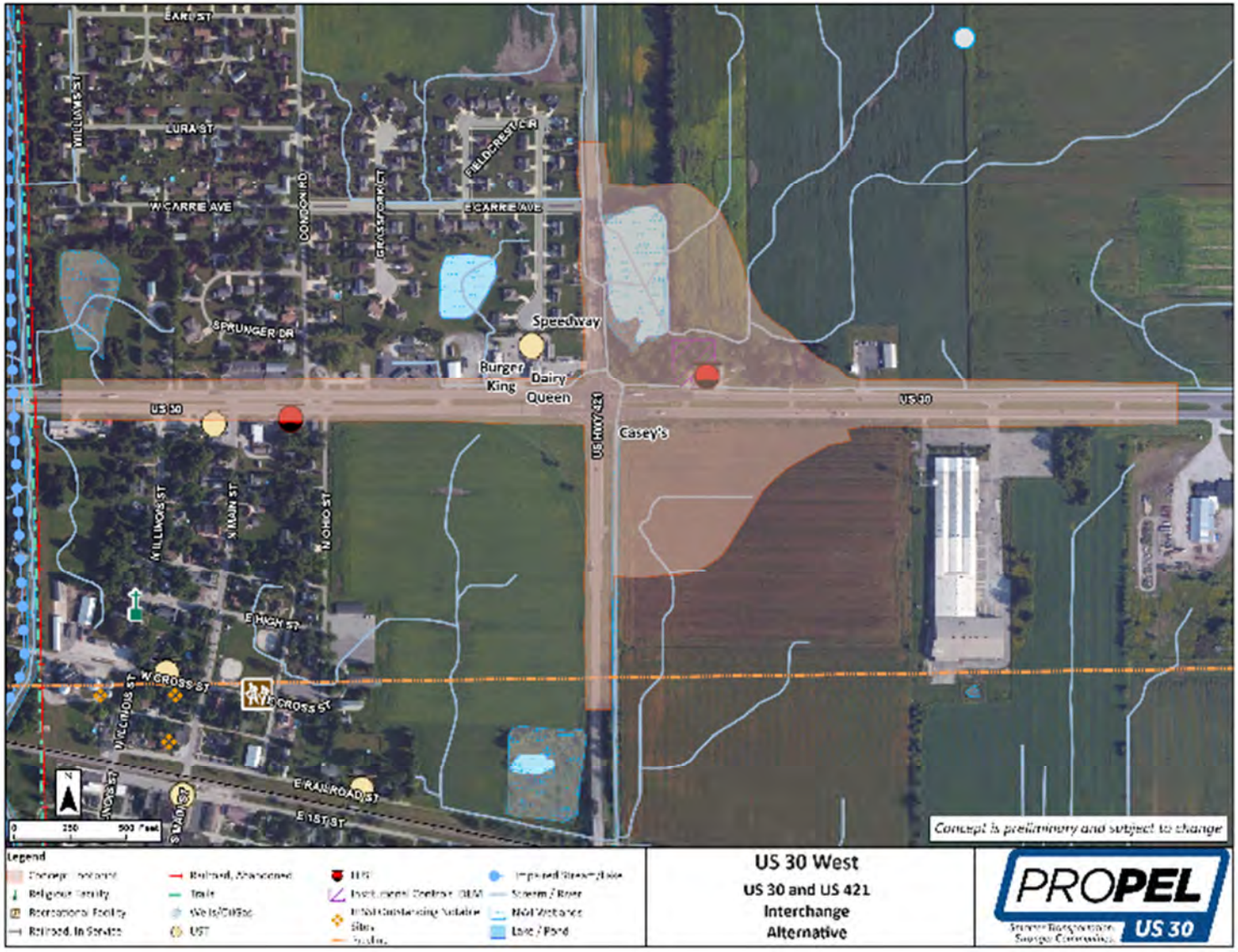


Figure 5-19: US 30 and US 421 – Partial Displaced Left Turn Alternative

Figure 5-20: US 30 and US 421 – Quadrant Roadway Southwest Alternative

Figure 5-21: US 30 and US 421 – Quadrant Roadway Southeast Alternative

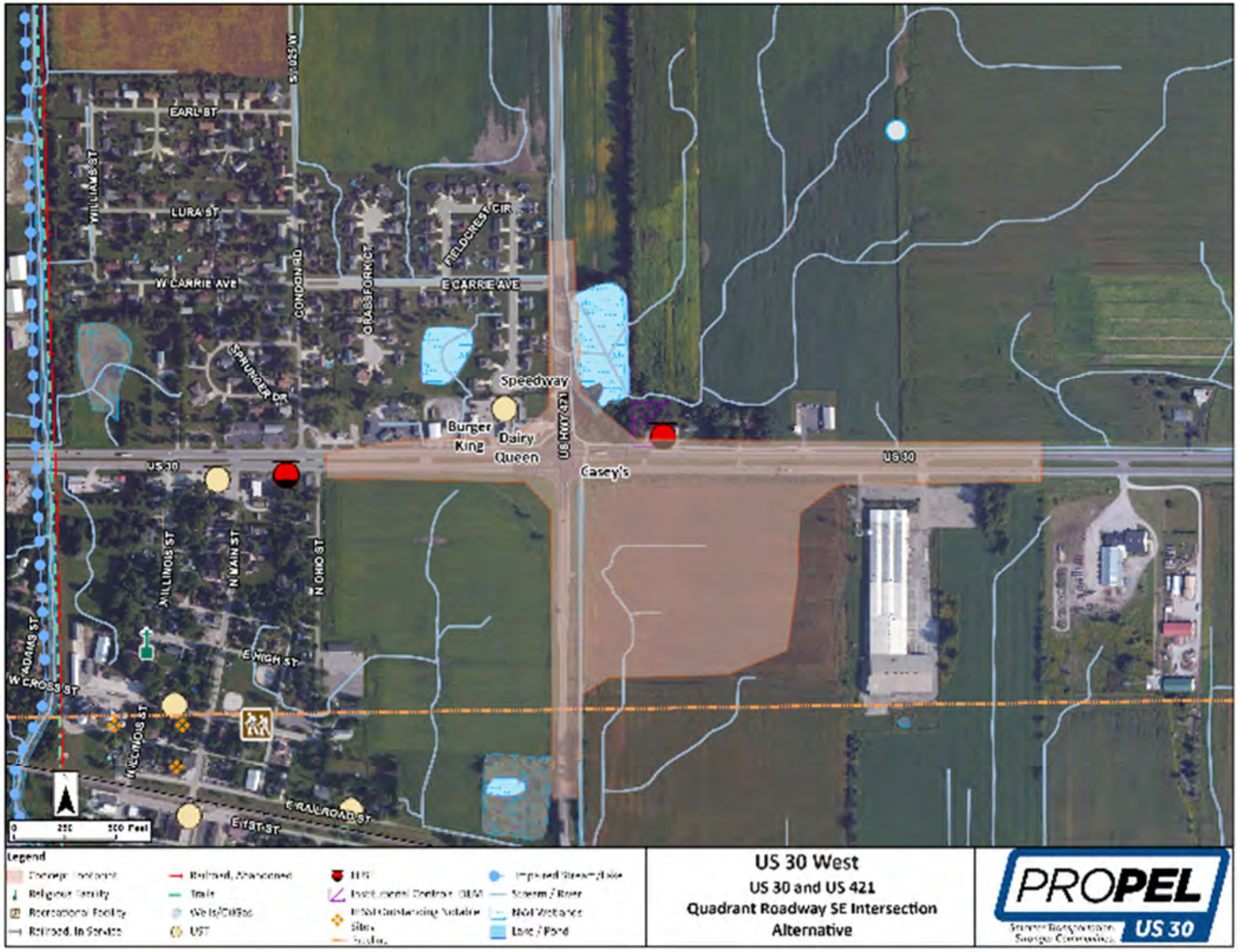


Figure 5-22: US 30 and US 421 – Roundabout Alternative

5.8. US 30 AND CR 600 W IN LAPORTE COUNTY

5.8.1. OVERVIEW OF LOCATION

This intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices indicate that there are no major safety concerns at the intersection. Improvements were still considered at this intersection as a part of safety or operational improvements along this segment of US 30, to be further considered in the Level 3 screening.

Public comments received specific to this location include:

- This intersection is a school crossing and a secondary entrance to the town of Hanna. Improved access to and from US 30 is desired. Improved access to the area around this intersection is desired.
- Concerns regarding potential relocations involved with intersection improvements at this intersection.
- Desire for turning lanes along CR 600 W for improved safety at the school campus located nearby.
- Maintain access for truck/trailer traffic along CR 600 E to maintain business operations.

5.8.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the US 30 and Laporte CR 600 intersection poses numerous constraints that were considered in the development of alternative s. The constraints are summarized as follows:

- Plaza 30 Truck Stop is located 0.4 miles west of the intersection.
- Laporte CR 1200 S is located 300 feet north of the intersection.
- 2 NWI wetlands are in the vicinity of the intersection.
- Richman Ditch crosses underneath US 30 at the intersection.
- South Central Community Schools is located 2 miles north of the intersection.
- Underserved populations are located near the intersection.
    - Non-English Speaking Population
    - Family Income Below Poverty Level

5.8.3. SCREENING OF ALTERNATIVES

The decision tree indicates that both at-grade and grade-separated alternatives would be applicable, while an interchange would be unnecessary. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-8**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – The existing left turn lanes do not provide sufficient deceleration length and right turn lanes are missing. The left turn lanes should be lengthened and right turn lanes should be added. This alternative would maintain local access.
- Cross Road Overpass/Underpass – There are other locations within approximately 2 miles with equal or better access based on the functional classification of the route that local traffic would use to access the corridor. Therefore, a crossroad overpass or underpass should be considered, especially when applied alongside a limited access section.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Median Safety Improvements – The median meets IDM requirements.
- Add/Extend Acceleration Lanes – The crash patterns do not indicate a concern with missing acceleration lanes.
- Convert to Interchange – There are no traffic volumes or other factors that support an interchange at this location as a standalone alternative.
- Signalized Intersection Improvements – There are no apparent safety or operation issues at this intersection requiring improvements at this time.
- Unsignalized Intersection Improvements – There are no apparent safety or operation issues at this intersection requiring improvements at this time.
- If conditions change in the future and there are safety or operational concerns, solutions such as a reduced conflict intersection should be considered at this location as it is known to reduce severe crashes at intersections with similar physical characteristics.

Complementary Concepts to be considered as part of intersection alternatives are as follows:

- Intersection Sight Distance Improvements – Potential to improve safety.
- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic.
- Bike / Pedestrian Facilities – Nearby school indicates potential need for bike and pedestrian facilities.
- Freight Priority System – Potential to reduce delay for trucks.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add and Lengthen Turn Lanes Alternative

This alternative involves lengthening the existing eastbound left and westbound right turn lanes and adding eastbound right and westbound left turn lanes. Adding turn lanes improves intersection operations. Both lengthening existing and adding turn lanes improves intersection safety by providing sufficient deceleration length and increasing storage space, reducing the likelihood of rear-end crashes. The proposed turn lanes will meet IDM standards. The improvement limits of this alternative can be seen in **Figure 5-23**.

With the addition of the eastbound right turn lane and the lengthening of the westbound right turn lane there are potential right-of-way impacts in all quadrants of the intersection. No changes to property access are expected. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Cross Road Overpass / Underpass Alternative – LaPorte CR 600 W over US 30

Reconfiguring this intersection so that Laporte CR 600 W goes over US 30 increases safety by eliminating access from Laporte CR 600 W to US 30 and vice versa. In this alternative, CR 600 W would be routed over top of US 30 by use of a bridge. The improvement limits of this alternative can be seen in **Figure 5-24**.

By constructing an overpass to reach the allowed clearance over US 30 the wetland and streams in the northwest, southwest, and southeast quadrants would be impacted by grading. The potential right-of-way impacts of an overpass configured this way at this intersection are along the east and west sides of Laporte CR 600 W with the largest impacts coming closer to US 30 which would introduce impacts to underserved populations. This is where the potential roadway is the highest before the bridge. Right-of-way Impacts then taper back into the existing limits on the south side as the potential road profile ties back into the existing profile. On the north side Laporte CR

1200 S is realigned to the north so that it maintains access to Laporte CR 600 W. With this alternative there are no potential relocations. It is considered a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with a limited access, to be analyzed in Level 3. This grade-separated configuration was preliminarily selected as opposed to elevating US 30 over LaPorte CR 600 W due to the assumed lower impacts given the rural environment. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.8.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Cross Road Overpass/Underpass.
- Intersection Sight Distance Improvements – May be incorporated into all alternatives.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.

Table 5-8: US 30 and Laporte CR 600 W – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x LaPorte CR 600 W	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	N/A	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	Yes	Yes	Yes	N/A	Medium	Low	No	Medium	Low	N/A	Low	Yes	Added WB Left and Right Turn lanes and Added EB Right Turn Lane. Carried forward due to safety improvements associated with sufficient deceleration length which reduces the chance of rear-end crashes. The proposed turn lanes will meet IDM standards.
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	N/A	High	Low	Yes	High	Low	N/A	Medium	Yes	Elevation change graded down to existing. Carried forward dure to improvements to safety and operations associated with grade separation.
Complementary Concepts														
Intersection Sight Distance Improvements	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Existing intersection is skewed. Improving sight distances would improve safety.
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Provide lighting for Intersection Improvements per INDOT guidelines
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Raises awareness of approaching traffic to upcoming hazards
Freight Priority System	No	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Potential to reduce delay for trucks by extending green time. Applicable to intersection alternatives involving signalization.

Figure 5-23: US 30 and LaPorte CR 600 W – Add and Lengthen Turn Lanes Alternative

Figure 5-24: US 30 and LaPorte CR 600 W – Cross Road Overpass/Underpass Alternative – LaPorte CR 600 W Over US 30

5.9. US 30 AND THOMPSON STREET IN LAPORTE COUNTY

5.9.1. OVERVIEW OF LOCATION

This intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices indicate that there are no major safety concerns at the intersection. Improvements were still considered at this intersection as a part of safety or operational improvements along this segment of US 30, to be further considered in level 3.

The intersection is located approximately 195 feet east of the at-grade Chesapeake & Indiana Railroad crossing on the north side of Hanna.

Public comments received to date about this intersection are summarized as follows.

- Safety concern due to missing turn lanes
- Bike and pedestrian safety concerns when crossing US 30.
- Noise Pollution
- Emergency Vehicle and Farm Equipment access
- Safety concerns with existing at-grade rail crossing

5.9.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the US 30 and Thompson Street intersection poses numerous constraints that were considered in development of alternatives. These constraints are summarized as follows:

- The LaPorte County Highway Department is in the southeast quadrant of the intersection.
- There are several residential properties in the southwest quadrant of the intersection.
- There is an at-grade railroad crossing US 30, located approximately 200 feet west of the intersection.
- There is a bridge located approximately 0.4 miles east of the intersection, elevating US 30 over Sheldon Arm Ditch.
- Underserved populations are located near the intersection.
    - Family Income Below Poverty Level
- There is an Indiana Historic Building, Bridge and Cemetery (IHBBC) cemetery located 0.3 miles southwest of the intersection.
- There is an unnamed stream/ditch running parallel to US 30 along the southside.
- Hazardous material concerns are near the intersection, including 1 UST site located southeast of the intersection.
- Hanna Park, a recreational facility, is located approximately 0.13 mile southeast of the intersection.
- Thompson Street is one of two access points to the town of Hanna from US 30.
- Last Resort Campground is located 0.5 miles west of the intersection.

5.9.3. SCREENING OF ALTERNATIVES

The decision tree indicates that at-grade alternatives would be applicable, while grade-separated alternatives would be unnecessary. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided is summarized in **Table 5-9**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – The existing eastbound right and westbound left turn lanes do not provide sufficient deceleration length and eastbound left and westbound right turn lanes are missing. The existing turn lanes should be lengthened and eastbound left and westbound right turn lanes should be added. This alternative would maintain local access.
- Unsignalized Intersection Improvements – This intersection is important for access to and from US 30. While there are no major safety or operational concerns, the following improvements were still considered as a part of segment safety and operational improvements, to be further considered in level 3. This intersection is two-way stop controlled and forecasted traffic volumes do not warrant a signal. The CAP-X analysis indicated that the following at-grade intersection types could produce acceptable operating conditions in the design year.
    - Reduced Conflict Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Reduced Conflict Intersection would meet access management guidelines as well as preserve free-flow operations on US 30 and maintain local access.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Median Safety Improvements – The existing median meets IDM requirements.
- Add/Extend Acceleration Lanes – Crash patterns do not indicate a concern with acceleration distances.
- Cross Road Overpass / Underpass – There are no other locations within approximately 2 miles which provide equal or better access based on the functional classification of the route that local traffic can use to access the corridor.
- Convert to Interchange – There are no traffic volumes or other factors that support an interchange at this location as a standalone alternative.
- Signalized Intersection Improvements – This intersection is currently two-way stop controlled and traffic volumes do not warrant a signalized intersection.

Complementary concepts to be considered as part of Intersection Alternatives include:

- Railroad Crossing Improvements – Provide deceleration and acceleration lanes for vehicles stopping at railroad crossings, such as busses and hazardous cargo carriers. The Railroad Crossing Improvement concept is included in the footprints for the following alternatives:
    - Add or Lengthen Turn Lanes Alternative
    - Reduced Conflict Intersection Alternative
- Intersection Sight Distance Improvement – Potential to improve safety.
- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness of approaching traffic.
- Bike/Pedestrian facility – Urban environment indicates potential desire for bike and pedestrian facilities, as well as recreational facilities nearby.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add or Lengthen Turn Lanes Alternative

This alternative involves lengthening the existing eastbound right and westbound left turn lanes and adding eastbound left and westbound right turn lanes. Adding turn lanes improves intersection operations. Both adding and lengthening existing turn lanes improves safety by providing sufficient deceleration length and increasing storage space, reducing the likelihood of rear-end crashes. The proposed turn lanes will meet IDM standards. The improvement limits of this alternative can be seen in **Figure 5-25**.

With the addition and lengthening of turn lanes, there are potential right-of-way impacts in all quadrants of the intersection including potential relocations. No changes to property access are expected. The at-grade railroad crossing at the west leg of the intersection would be widened to accommodate the changes to the turn lanes and the application of the railroad crossing improvement complementary concept. This alternative has the potential for adverse impacts to underserved populations. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Reduced Conflict Intersection

The RCI alternative would allow the free-flow of through traffic along US 30 while rerouting left turns from Thompson Street to US 30 and minor road through movements. This would improve safety by reducing the risk of right-angle crashes and reduce delay at the intersection. The addition of truck loons was included in the conceptual design. The improvement limits for this alternative can be seen in **Figure 5-26**.

This alternative would require additional right-of-way and would have impacts to natural resources. This alternative also has the potential for adverse impacts to underserved populations and potential relocations. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.9.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

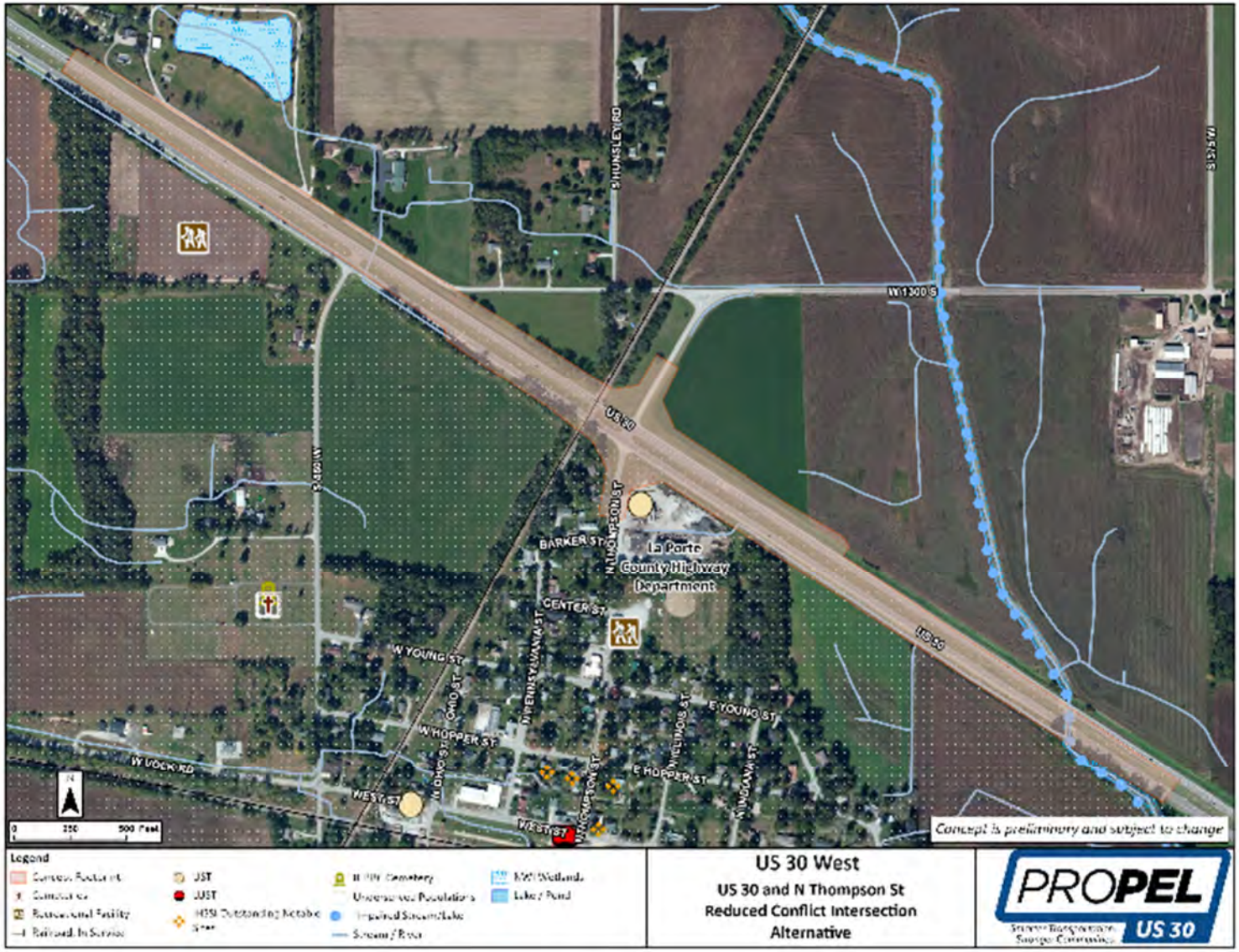
- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Reduced Conflict Intersection.
- Intersection Sight Distance Improvements – May be incorporated into all alternatives.
- Railroad Crossing Improvement – May be incorporated into all alternatives.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.
- Bike/Pedestrian Facilities – May be incorporated into all alternatives.

Table 5-9: US 30 and Thompson Street – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Thompson St	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	N/A	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	Yes	Yes	Yes	N/A	Low	Low	Yes	Medium	Medium	High	Low	Yes	Lengthened EB Right and WB Left Turn Lanes, Added EB Left and WB Right Turn Lanes. Railroad Crossing Improvements included. Carried forward due to improvements to safety associated with sufficient deceleration distances which reduce the likelihood of rear-end crashes. The proposed turn lanes will meet IDM standards.
Unsignalized Intersection Improvements														
Reduced Conflict Intersection	Yes	Yes	Yes	Yes	N/A	Medium	Low	Yes	Medium	Medium	High	Low	Yes	Railroad crossing improvements included in conceptual design. Carried forward due to improvements to safety and operations associated with reducing conflicting movements.
Complementary Concepts														
Intersection Sight Distance Improvements	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Existing intersection is skewed. Improvements to sight distances would improve safety.
Railroad Crossing Improvement	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	High	Medium	Yes	Decel accel lanes for vehicles stopping. Increases footprint of all alternatives when applied.
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Provide lighting for Intersection Alternatives per INDOT guidelines
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Raises awareness of approaching traffic to upcoming hazards. Would improve safety
Bike/Pedestrian Facilities	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Potential to improve safety for cyclists and pedestrians

Figure 5-25: US 30 and Thompson Street – Add or Lengthen Turn Lanes Alternative

Figure 5-26: US 30 and Thompson Street – Reduced Conflict Intersection Alternative



5.10. US 30 AND OLD US 30 WEST IN LAPORTE COUNTY

5.10.1. OVERVIEW OF LOCATION

This three-legged intersection is expected to operate acceptably through the design year of this study. The crash frequency and cost indices indicate that there are no major safety concerns at the intersection. Improvements were still considered at this intersection as a part of safety or operational improvements along this segment of US 30, to be further considered in level 3.

There have been no specific public comments to date regarding concerns at this intersection.

5.10.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the intersection of US 30 and Old US 30 West poses numerous constraints that were considered in the development of alternatives. These constraints are summarized as follows:

- There is a box culvert located 0.1 miles west of the intersection that allows Rice Ditch to pass under US 30.
- Underserved populations are located near the intersection, including:
    - Family Income Below Poverty Level
- A railroad runs along the south side of US 30 at this intersection.
- The area immediately surrounding Rice Ditch, located 0.1 miles west of the intersection, is a NWI Wetland.
- There are hazardous material concerns as a LUST site is located 0.1 miles northwest of the intersection.
- The town of Hanna is located 0.8 miles west of the intersection.
- Old US 30 West is one of two access points to the town of Hanna from US 30.

5.10.3. SCREENING OF ALTERNATIVES

The decision tree at this intersection indicates that a few at-grade alternatives are applicable, while grade-separated alternatives are unnecessary. This intersection is not important for access to or from US 30, due to low usage and redundancy with both Thompson Street and County Road 1350 S both located within approximately 0.9 miles and providing access to US 30. As such, extensive intersection improvements were not considered. The evaluation of this intersection can be summarized in **Table 5-10**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – There are no existing turn lanes. Turn lanes should be added. This alternative would maintain local access.
- Limit Access – This intersection is not important for access to or from US 30 due to low usage and redundancy with both Thompson Street and County Road 1350 S located within approximately 0.9 miles and providing access to US 30.
- Convert to Interchange – There are no factors that indicate an interchange is needed at this location as a standalone alternative. However, given further bundled improvements anticipated to be analyzed in Level 3, this location was identified as a potential interchange due to proximity to Hanna and instead of at Thompson Street due to right-of-way and railroad constraints at the Thompson Street intersection. This alternative would maintain local access. Further analysis on the configuration of this alternative, such as using CR 1350, will be conducted in level 3.

The primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Median Safety Improvements – The existing median is consistent with IDM requirements.
- Add/Extend Acceleration Lanes – The crash patterns do not indicate a concern with acceleration distances.
- Cross Road Overpass/Underpass – While there are other locations within approximately 2 miles with equal or better access based on the functional classification of the route that local traffic can use to access the corridor, this is a three-legged intersection with a cross road extending only one way from US 30 and is unsuitable for a crossroad overpass/underpass.
- Signalized Intersection Improvements – This intersection is one way stop controlled and traffic volumes do not warrant signalization. Unsignalized Intersection Improvements – This intersection is not important for access to or from US 30 and does not have any existing safety or operational concerns.
    - If conditions change in the future and there are safety or operational concerns at this intersection, solutions such as a reduced conflict intersection should be considered as it is known to reduce severe crashes at intersections with similar physical characteristics.

The complementary concepts to be considered as part of the intersection alternatives include:

- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add or Lengthen Turn Lanes Alternative

Adding eastbound and westbound left and right turn lanes to the intersection of US 30 and Old US 30 West improves the operations of the intersection. Adding turn lanes also improves the safety of the intersection by providing adequate deceleration lengths, reducing the likelihood of rear end collisions. The proposed turn lanes will meet IDM standards. The improvement limits of this alternative can be seen in **Figure 5-27**.

With the addition and lengthening of turn lanes, there are potential right-of-way impacts in the southwest and southeast quadrants of the intersection. No changes to property access are expected. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Limiting Access Alternative

Limiting access to and from US 30 West would improve safety at this location along US 30 because there would be no interaction between US 30 and US 30 West, eliminating all conflict points. This is a low-cost option. This alternative is not expected to require any additional right-of-way and no improvement limits have been drawn.

Convert to Interchange Alternative

This alternative for the free-flow concepts allows for US 30 to move without interruption. Old US 30 would utilize a bridge over US 30 and connect with Laporte CR 1350 S road north of the existing intersection. On and off ramps would allow access to and from US 30. The improvement limits for this alternative can be seen in **Figure 5-28**.

Extensive right-of-way is required for this alternative with several potential relocations of adjacent properties which would impact underserved populations. The most substantial portion of the work would be to the north and south of US 30 with new access being provided to nearby residential properties. It is considered a high-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process for potential use with bundled improvements.

5.10.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Convert to Interchange.
- Limit Access.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.

Table 5-10: US 30 and Old US 30 West – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Old US 30 West	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	N/A	Yes	Yes	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	Yes	Yes	Yes	N/A	Medium	Low	No	Low	Low	Low	Low	Yes	Added EB Right turn lane and WB left turn lane. Carried forward due to improvements to safety associated with dedicated deceleration lanes. The proposed turn lanes will meet IDM standards.
Convert to Interchange	Yes	Yes	Yes	Yes	Yes	High	Low	Yes	High	Medium	Low	High	Yes	Carried forward due necessity with a limited access alternative considered in Level 3. Not considered for other bundled improvements.
Unsignalized Intersection Improvements														
Limit Access	Yes	No	No	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Carried forward because this intersection was identified as not important for access to the corridor. Eliminating this access point to US 30 would provide potential safety improvements by reducing conflict points.
Complementary Concepts														
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Provide lighting for intersection alternatives per INDOT guidelines
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Raises awareness of approaching traffic to upcoming hazards

Figure 5-27: US 30 and Old US 30 West – Add or Lengthen Turn Lanes Alternative

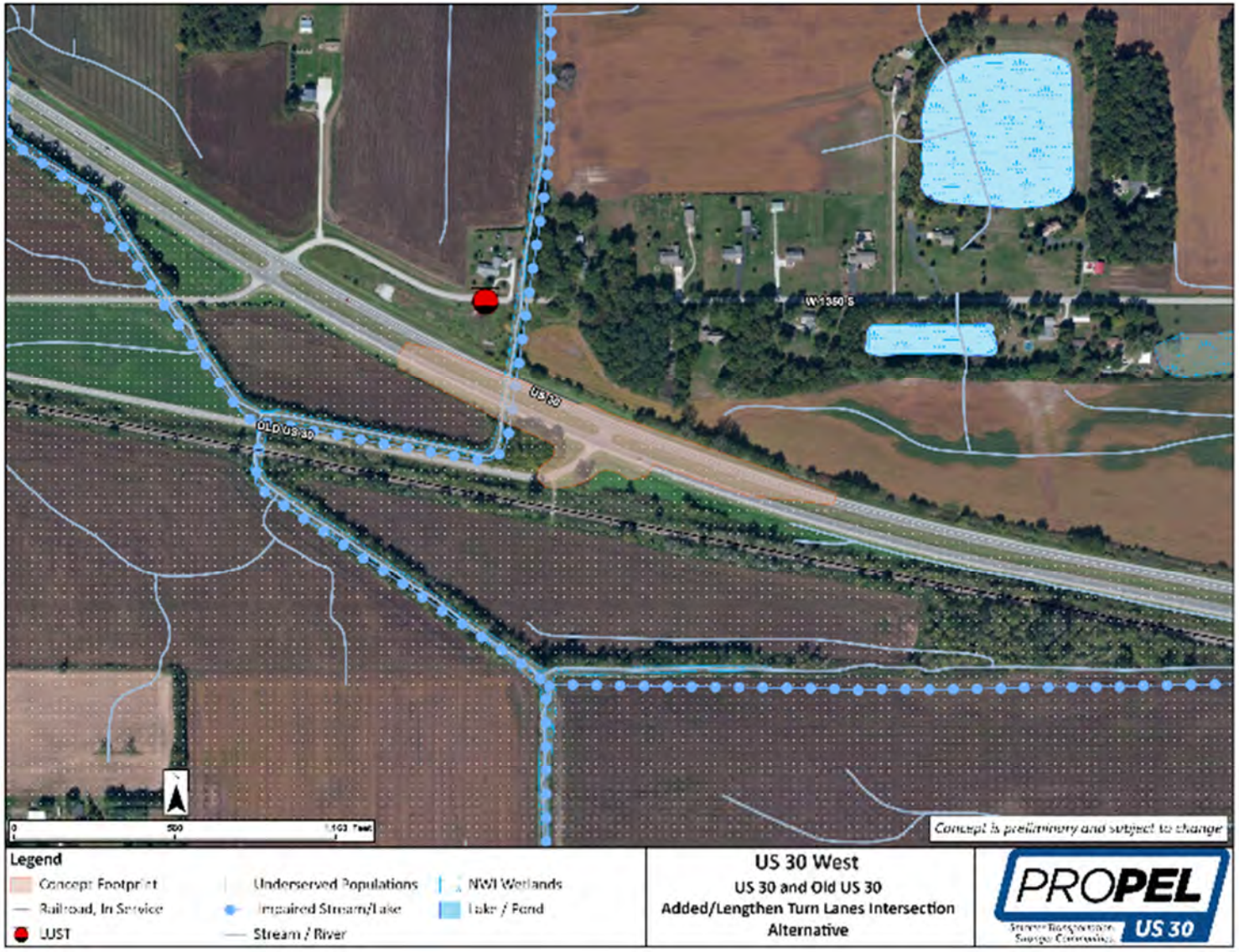
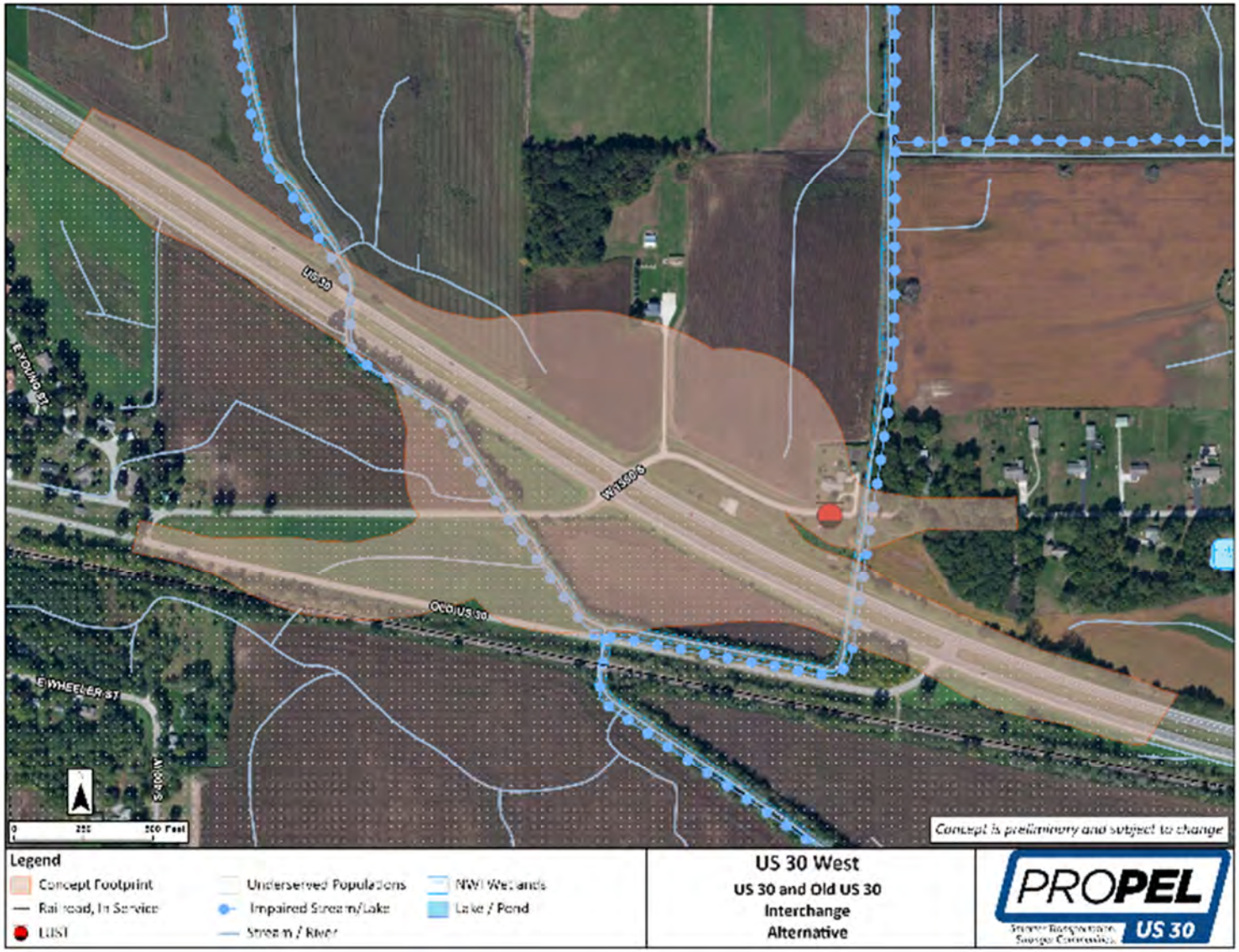


Figure 5-28: US 30 and Old US 30 West – Interchange Alternative



5.11. US 30 AND CR 300 W / LONG LANE IN LAPORTE COUNTY

5.11.1. OVERVIEW OF LOCATION

This intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices indicate that there are no major safety concerns at the intersection. Alternatives were still considered at this intersection as a part of safety or operational improvements along this segment of US 30, to be further considered in level 3.

The Norfolk-Southern Railroad runs parallel to US 30 approximately 100' south of the intersection. Review of the LaPorte County Countywide Land Development Plan (2008) did not indicate any preferences with regard to transportation infrastructure improvements along US 30. There have been no specific public comments to date regarding concerns at this intersection.

5.11.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the US 30 and Laporte CR 300 W (Long Lane) intersection poses numerous constraints that were considered in the development of Intersection Alternatives. The constraints are summarized as follows:

- Farmland surrounds this intersection with the closest residential parcel located 0.2 miles north of the intersection.
- Powerhouse Travel Plaza is located 1.2 miles east of the intersection.
- The intersection of US 30 and SR 39 is located 1.0 miles east of the intersection.
- The intersection of US 30 and Old US 30 West is located 0.5 miles west of the intersection.
- An at-grade railroad crossing is on the south leg of the intersection, crossing LaPorte CR 300 W.
- 5 NWI wetlands are in the vicinity of the intersection, including an impaired stream south of the railroad.
- There are no hazardous material concerns near the intersection.
- Underserved populations are located near the intersection.
    - Family Income Below Poverty Level
- A floodplain is located approximately 0.11 miles northeast of the intersection.

5.11.3. SCREENING OF ALTERNATIVES

The decision tree indicates that both at-grade and grade-separated alternatives would be applicable, while an interchange would be unnecessary. These alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-11**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – There are no turn lanes at the intersection. Turn lanes should be added. This alternative would maintain local access.
- Cross Road Overpass/Underpass – There are other locations within approximately 2 miles of the intersection with equal or better access based on the functional classification of the route that local traffic would use to access the corridor. Therefore, a crossroad overpass or underpass should be considered, especially in Level 3 as part of a limited access section.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Median Safety Improvements – The median meets IDM requirements
- Add/Extend Acceleration Lanes – The crash patterns do not indicate a concern with missing acceleration lanes.
- Convert to Interchange – There are no traffic volumes or other factors that support an interchange at this location as a standalone alternative.
- Signalized Intersection Improvements – This intersection is currently two-way stop controlled and traffic volumes do not warrant a signalized intersection.
- Unsignalized Intersection Improvements – While this intersection is important for access to and from US 30, there are no safety or operational concerns here that support improvements.
    - If conditions change in the future and there are safety or operational issues, solutions such as a reduced conflict intersection should be considered as it is known to reduce severe crashes at intersection with similar physical characteristics.

Complementary Concepts to be considered as part of intersection alternatives are as follows:

- Intersection Sight Distance Improvements – Potential to improve safety.
- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add and Lengthen Turn Lanes Alternative

This alternative involves adding eastbound and westbound right and left turn lanes at US 30 and Laporte CR 300 W (Long Lane). Adding turn lanes improves the operations of the intersection. Adding turn lanes also improves the safety of the intersection by providing adequate deceleration lengths in a dedicated lane, reducing the likelihood of rear end collisions. The proposed turn lanes will meet IDM standards. The improvement limits of this alternative can be seen in **Figure 5-29**.

With the addition of eastbound and westbound right and left turn lanes there are potential right-of-way impacts in all quadrants of the intersection with improvements widening the existing railroad crossing. No changes to property access are expected. This alternative would involve widening the existing at-grade rail crossing on the south leg of the intersection. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Cross Road Overpass / Underpass Alternative – Laporte CR 300 W (Long Lane) over US 30

Reconfiguring this intersection so that Laporte CR 300 W (Long Lane) goes over US 30 increases safety by eliminating access from Laporte CR 300 W (Long Lane) to US 30 and vice versa. In this alternative traffic would be routed over top of US 30 by use of a bridge. The improvement limits of this alternative can be seen in **Figure 5-30**.

By constructing an overpass to reach the allowed clearance over the railroad and US 30, the wetland in the northwest quadrant would be impacted by grading. The potential right-of-way impacts of a minor road overpass at this intersection are along the east and west sides of Laporte CR 300 W (Long Lane) with the largest impacts coming closer to US 30. This is where the potential roadway is the highest before the bridge. Right-of-way Impacts then taper back into the existing limits as the potential road profile ties back into the existing profile. Right-of-way changes would potentially impact underserved populations. It is considered a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with a limited access section, to be analyzed in Level 3. This grade-separated configuration was preliminarily selected as opposed to elevating US 30 over LaPorte CR 300 W due to the assumed lower impacts given the rural environment. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.11.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Cross Road Overpass/Underpass.
- Intersection Sight Distance Improvements – May be incorporated into all alternatives.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.

Table 5-11: US 30 and Laporte CR 300 W Long Lane – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Laporte CR 300W Long Lane	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	N/A	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Medium	Low	Medium	Low	Yes	Added EB and WB left and right turn lanes. Carried forward due to safety improvements associated with sufficient deceleration lengths and dedicated turn lanes within a small footprint. The proposed turn lanes will reduce the likelihood of rear-end crashes and meet IDM standards.
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	N/A	Low	Low	Yes	High	Low	High	Medium	Yes	Carried forward due to safety and operational improvements associated with grade separation.
Complementary Concepts														
Intersection Sight Distance Improvements	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Existing intersection is skewed. Improvements to sight distances would improve safety
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Provide lighting for intersection alternatives per INDOT guidelines
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Raises awareness of approaching traffic to upcoming hazards.

Figure 5-29: US 30 and LaPorte CR 300 W Long Lane – Add and Lengthen Turn Lanes Alternative

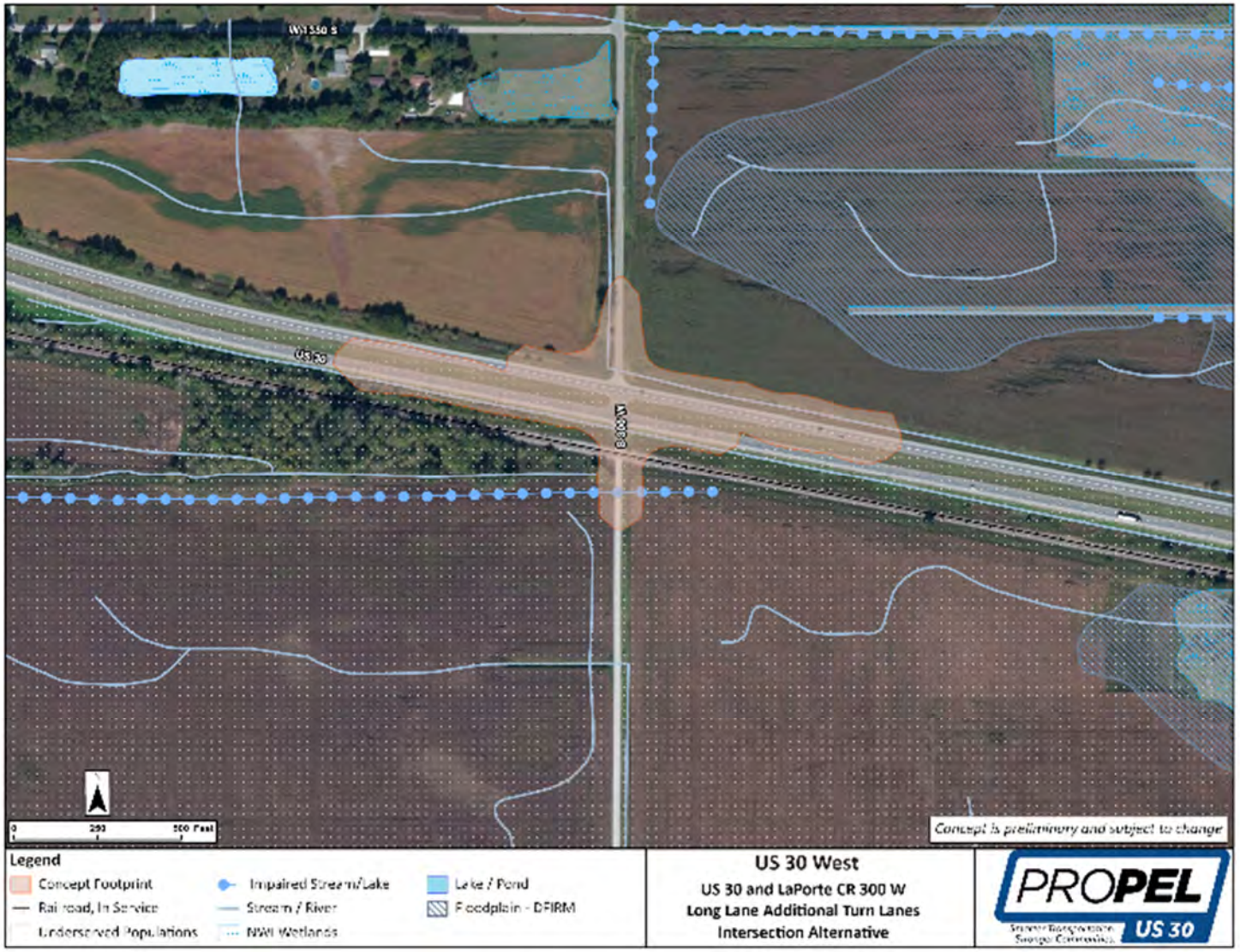
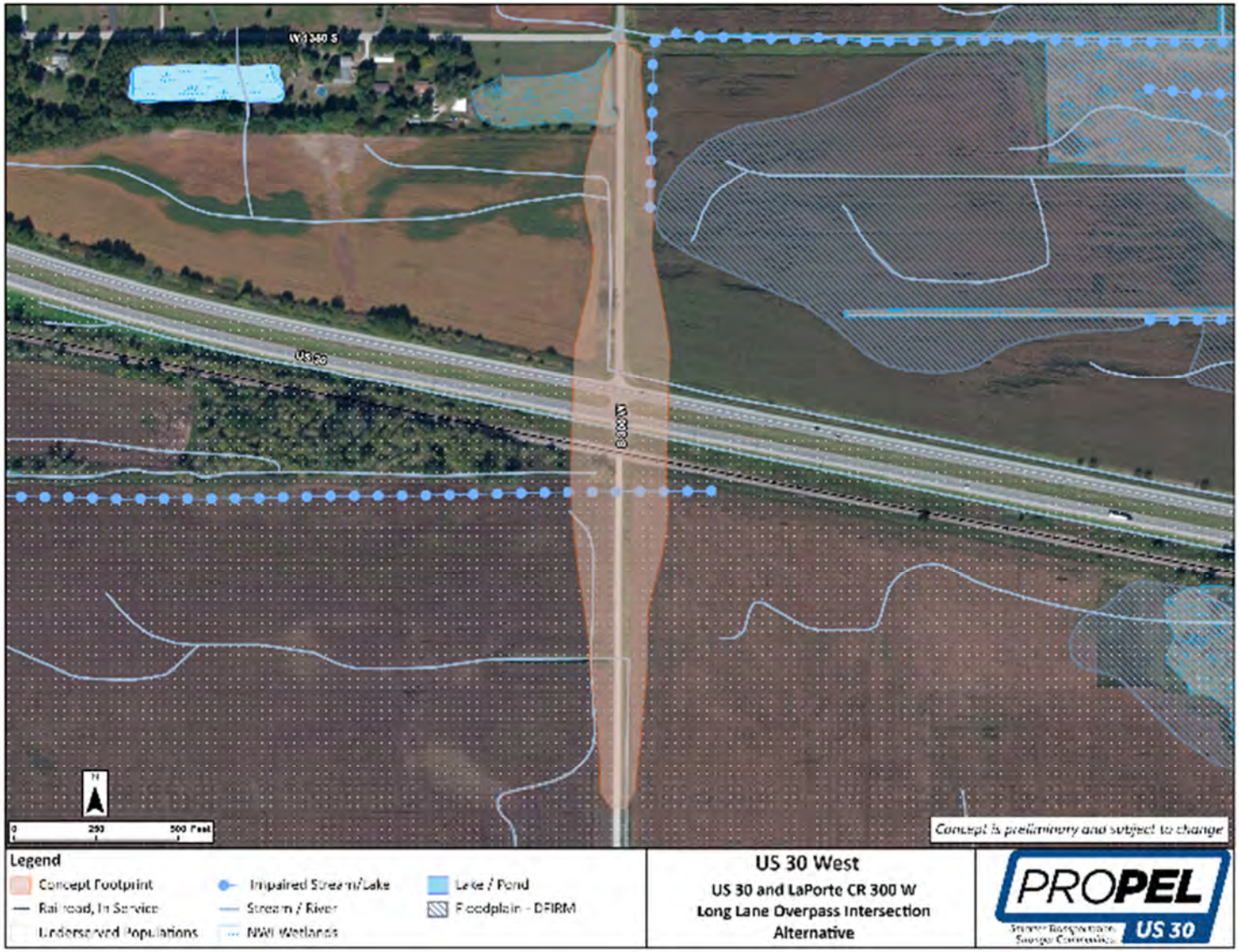


Figure 5-30: US 30 and LaPorte CR 300 W Long Lane – Cross Road Overpass/Underpass Alternative – LaPorte CR 300 W Over US 30



5.12. US 30 AND SR 39 IN LAPORTE COUNTY

5.12.1. OVERVIEW OF LOCATION

This signalized intersection is expected to operate acceptably through the design year of this study. The crash frequency index is slightly elevated, indicating an opportunity for safety improvements at the intersection. Of the intersection crashes occurring, the predominant crash type was rear-end crashes. These crashes may be related this signalized intersection being a surprise after a long run of unsignalized intersections.

There have been no specific public comments to date regarding concerns at this intersection.

The FY2022-2026 INDOT State Transportation Improvement Program (STIP) includes an intersection improvement project (Des. No. 1801871) to convert this location to a reduced conflict intersection. The project was suspended pending the completion of the ProPEL US 30 West study and recommendations.

5.12.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the intersection of US 30 and SR 39 poses numerous constraints that were considered in the development of intersection alternatives. These constraints are summarized as follows:

- There is a truck stop, Powerhouse Travel Plaza, located in the northeast quadrant of the intersection.
- There are several residential properties located in the southwest quadrant of the intersection.
- There are hazardous material concerns with a LUST located 0.2 miles east of the intersection.
- There are numerous UNTs and unnamed ditches in the immediate vicinity of the intersection.
- There are 16 NWI wetlands located in the area surrounding the intersection.
- Multiple floodplains surround the intersection.
- There are 4 lakes/ponds near the intersection.
- There is an at-grade railroad crossing at the south leg of the intersection running parallel to US 30, crossing SR 39.
- Underserved populations are located near the intersection.
    - Family Income Below Poverty Level

5.12.3. SCREENING OF ALTERNATIVES

The decision tree indicates that both at-grade and interchange alternatives would be applicable, while other grade-separated alternatives would be unnecessary. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-12**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – The existing left and right turn lanes do not provide sufficient deceleration length. Turn lanes should be lengthened. This alternative would maintain local access.
- Add/Extend Acceleration Lanes – Crash patterns are potentially due to not having acceleration lanes. Acceleration lanes should be added. This alternative would maintain local access.
- Convert to Interchange – There are no factors that support an interchange being needed at this location as a standalone alternative. However, given further bundled improvements anticipated to be analyzed in

Level 3, this location was identified as a potential interchange due to the relatively high traffic volume observed here and State Route status of the roadway. This alternative would maintain local access.

- Signalized and Unsignalized Intersection Improvements – This intersection is important for access to and from US 30 due to heavy usage, and the crash frequency index indicates an opportunity for safety improvements. This intersection is already signalized. The CAP-X analysis indicated that the following at-grade intersection types could produce acceptable operating conditions in the design year.

    - Partial Displaced Left Turn – This alternative would improve safety at the intersection while also improving operations and maintaining local access.
    - Restricted Crossing U-Turn Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. This alternative would retain the existing signal, but with fewer phases. A Restricted Crossing U-Turn Intersection would meet access management guidelines and maintain local access.
    - Reduced Conflict Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Reduced Conflict Intersection would meet access management guidelines as well as create free-flow operations on US 30 and maintain local access.

The primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Median Safety Improvements – The existing median meets IDM requirements.
- Cross Road Overpass / Underpass – There are no other locations within approximately 2 miles with equal or better access based on the functional classification of the route that local traffic can use to access the corridor.
- Other signalized intersection types were eliminated through Cap-X tool analysis because their potential benefits were not substantial enough when compared to the existing conditions. Therefore, they were not further analyzed as part of this process. These intersection types included:

    - Green-T Intersection – This alternative is not applicable to a four-legged intersection.
    - Quadrant Roadway – The CAP-X results indicated a high volume to capacity ratio implying poor operational performance of the intersection.
    - Boulevard Left Turn – The CAP-X results indicated a high volume to capacity ratio implying poor operational performance of the intersection.

The complementary concepts to be considered as part of the intersection alternatives include:

- Intersection Sight Distance Improvements – Potential to improve safety.
- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness of approaching traffic.
- Freight Priority System – Potential to reduce delay for trucks.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add or Lengthen Turn Lanes Alternative

Lengthening the existing eastbound and westbound left and right turn lanes would improve intersection safety by providing sufficient deceleration lengths which would reduce the risk of rear-end crashes. The proposed turn lanes would meet IDM standards. The improvement limits for this alternative can be seen in **Figure 5-31**.

This alternative is expected to require minimal additional right-of-way from the southwest and northeast quadrants. All property access would be maintained. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Add/Extend Acceleration Lanes Alternative

Added acceleration lanes would improve intersection safety by providing dedicated lanes for vehicles turning onto US 30 from SR 39 to achieve sufficient speed before entering the travel lanes. This alternative would also improve intersection operations by reducing the differential speed between mainline traffic and traffic entering the mainline from the minor road. The improvement limits for this alternative can be seen in **Figure 5-31**.

This alternative is expected to require minimal additional right-of-way from the northeast and southwest quadrants. All property access would be maintained. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Convert to Interchange Alternative

This intersection alternative for the free-flow concepts allows for US 30 traffic to move without interruption. SR 39 would utilize a bridge over US 30 and on and off ramps to allow access to and from US 30. The improvement limits for this alternative can be seen in **Figure 5-32**.

Extensive right-of-way is required for this alternative with several potential relocations of adjacent properties. The most substantial portion of work would be in the northeast and northwest with new access being provided to nearby residential properties in the southwest and southeast quadrants. This alternative would maintain local access while meeting access management guidelines. The Interchange alternative has the potential for adverse impacts to underserved populations. It is considered a high-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process for potential use with bundled improvements.

Partial Displaced Left Turn Alternative

The Partial Displaced Left Turn would reroute the left turns originating on US 30 upstream of the main intersection. This would improve intersection operations by reducing the number of signal phases at the main intersection and allowing signal timing coordination between the signal controls at the left turns and at the main intersection. The improvement limits for this alternative can be seen in **Figure 5-33**.

This alternative is expected to require substantial additional right-of-way from all quadrants of the intersection to account for the additional displaced left turn and backside right turn travel lanes along US 30 and the widening of the existing intersection radii. This alternative would also have impacts to nearby streams and wetlands. All property access would be maintained while introducing potential adverse impacts to underserved populations. It is considered a medium-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Restricted Crossing U-Turn Intersection Alternative

The RCUT alternative would reroute left turns from SR 39 to US 30 and minor road through movements. This would improve safety by reducing the risk of right-angle crashes and reduce delay at the intersection. The improvement limits for this alternative are the same as those shown in **Figure 5-35**.

This alternative would require minimal additional right-of-way and would have impacts to the natural resources surrounding the intersection. This alternative has no potential relocations and no potential for adverse impacts to underserved populations. The RCUT is a low-cost option. The RCUT alternative will be carried forward to the Level 3 screening process due to the potential for safety improvements.

Reduced Conflict Intersection Alternative

The RCI alternative would allow the free-flow of through traffic along US 30 while rerouting left turns from Porter SR 39 to US 30 and minor road through movements. This would improve safety by reducing the risk of right-angle crashes and reduce delay at the intersection.. The improvement limits for this alternative can be seen in **Figure 5-35**.

This alternative would require minimal additional right-of-way and would have impacts to the natural resources surrounding the intersection. This alternative has no potential relocations and no potential for adverse impacts to underserved populations. The RCI is a low-cost option. The RCI alternative will be carried forward to the Level 3 screening process due to the potential for safety improvements.

5.12.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Add/Extend Acceleration Lanes.
- Convert to Interchange.
- Partial Displaced Left Turn.
- Reduced Conflict Intersection.
- Restricted Crossing U-Turn Intersection
- Intersection Sight Distance Improvements – May be incorporated into all alternatives.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.
- Freight Priority System – May be incorporated into all alternatives which involve signalization.

Table 5-12: US 30 and SR 39 – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US 30 x SR 39	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	N/A	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	No	Yes	Yes	N/A	Medium	Low	No	Low	Low	Medium	Low	Yes	Extend existing turn lanes, providing sufficient deceleration lengths. Carried forward due to the potential safety improvements associated with sufficient deceleration lengths which reduce the likelihood of rear-end crashes. The proposed turn lanes will meet IDM standards.
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	N/A	Medium	Low	No	Low	Low	Medium	Low	Yes	Carried forward due to potential safety improvements and improvements to observed crash patterns at the intersection.
Convert to Interchange	Yes	Yes	Yes	Yes	N/A	High	Low	Yes	High	High	High	High	Yes	Carried forward as a necessity for a limited access alternative. Not considered for other bundled improvements.
Signalized Intersection Improvements														
Partial DLT E-W	Yes	Yes	Yes	Yes	N/A	High	Low	Yes	High	Low	Medium	Medium	Yes	Carried forward due to the potential to improve intersection safety and operations as a result of reducing the number of conflict points and signal phases at the main intersection.
Restricted Crossing U-Turn Intersection E-W	Yes	Yes	Yes	Yes	N/A	Medium	Low	No	Low	Low	Medium	Low	Yes	Carried forward due to the potential safety improvements by reducing conflicting movements.
Unsignalized Intersection Improvements														
Reduced Conflict Intersection E-W	Yes	Yes	Yes	Yes	N/A	Medium	Low	No	Low	Low	Medium	Low	Yes	Carried forward due to the potential safety improvements by reducing conflicting movements and operational improvements by eliminating delay associated with the existing signal.
Complementary Concepts														
Intersection Sight Distance Improvements	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Existing intersection is skewed. Sight distance improvements would increase safety.
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Provide lighting for intersection alternatives
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Raises awareness of approaching traffic to upcoming hazards
Freight Priority System	No	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Can reduce delays for trucks by extending green time. Applicable to alternatives involving signalization.

Figure 5-31: US 30 and SR 39 – Add or Lengthen Turn Lanes and Add/Extend Acceleration Lanes Alternative

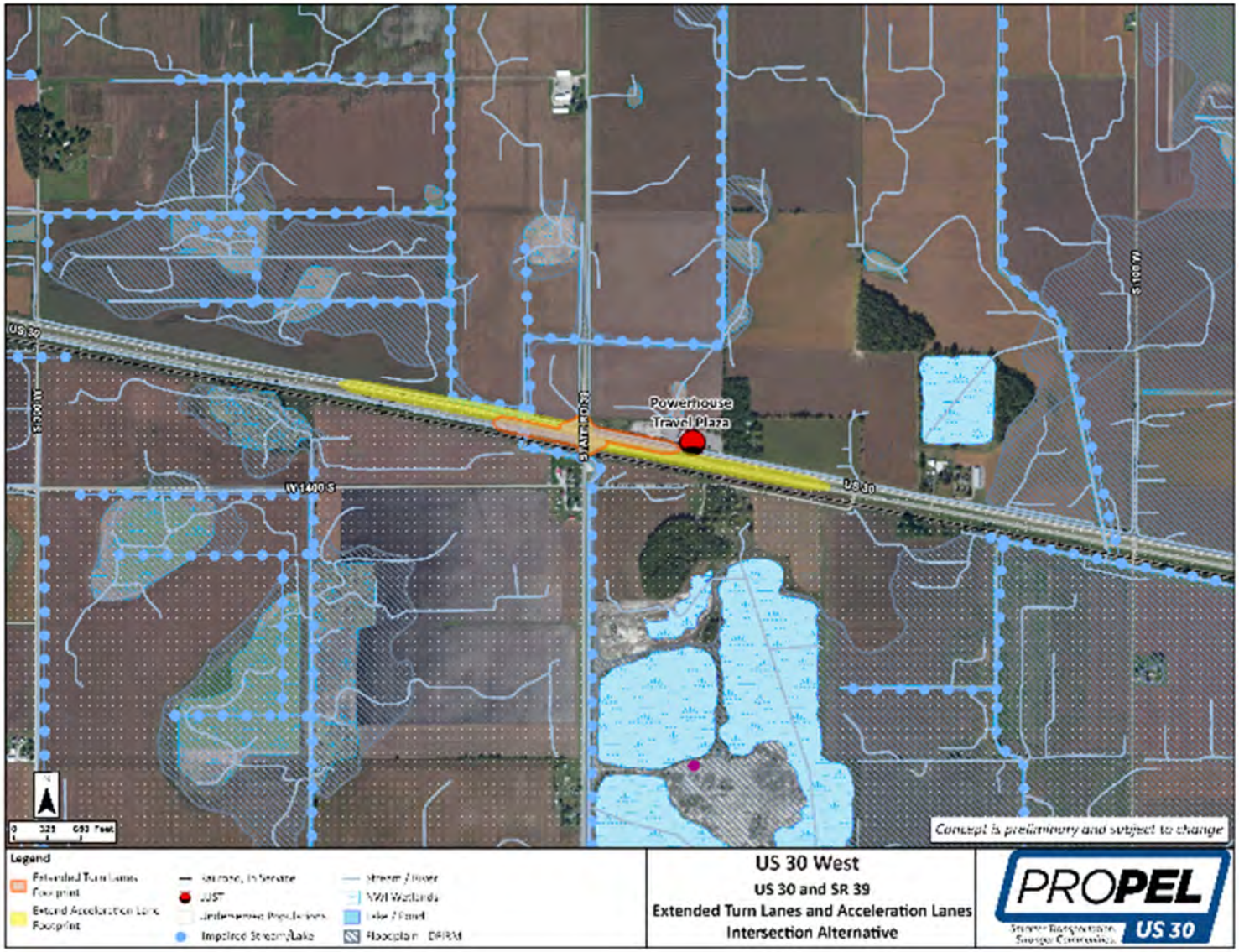


Figure 5-32: US 30 and SR 39 – Convert to Interchange Alternative

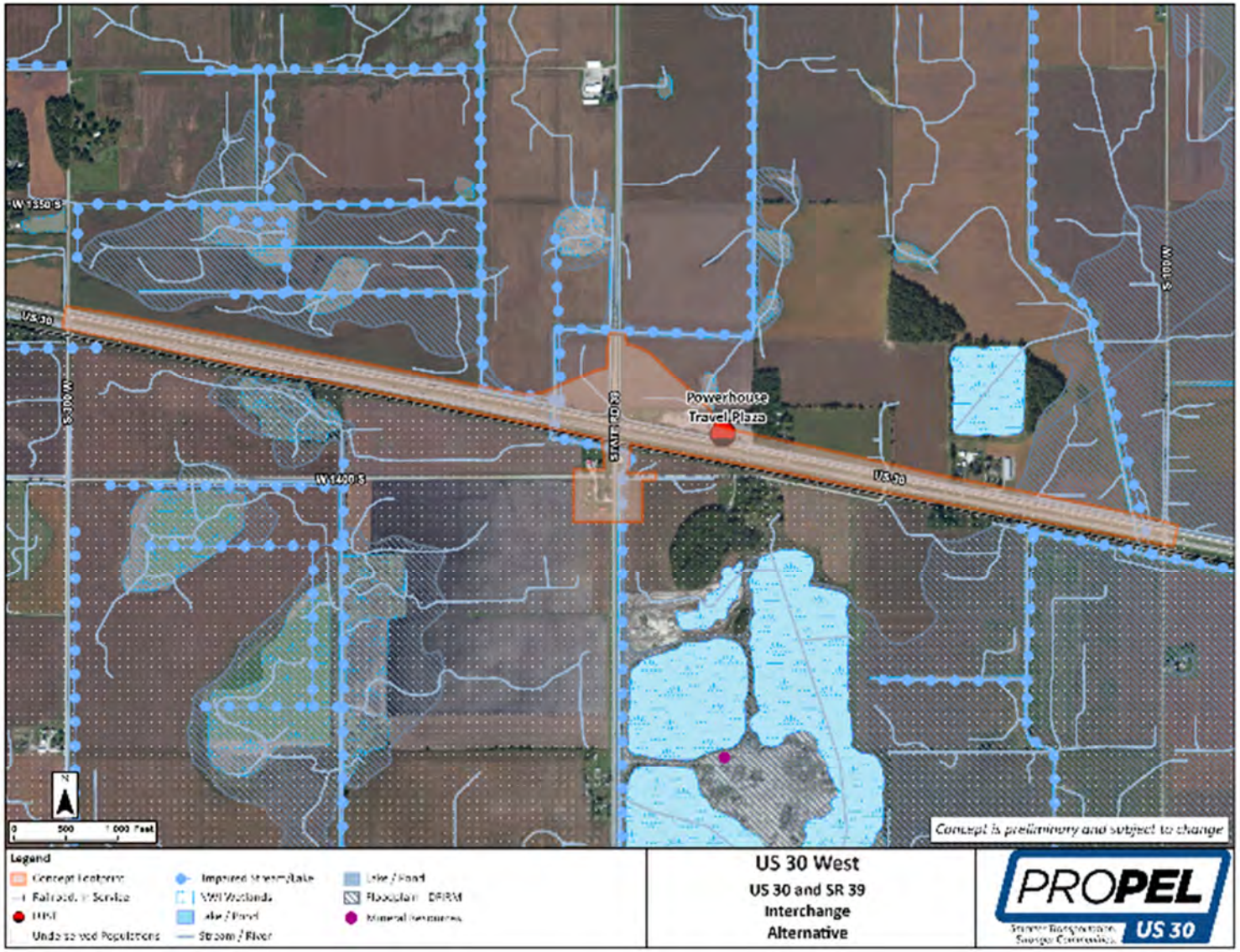


Figure 5-33: US 30 and SR 39 – Partial Displaced Left Turn Intersection Alternative

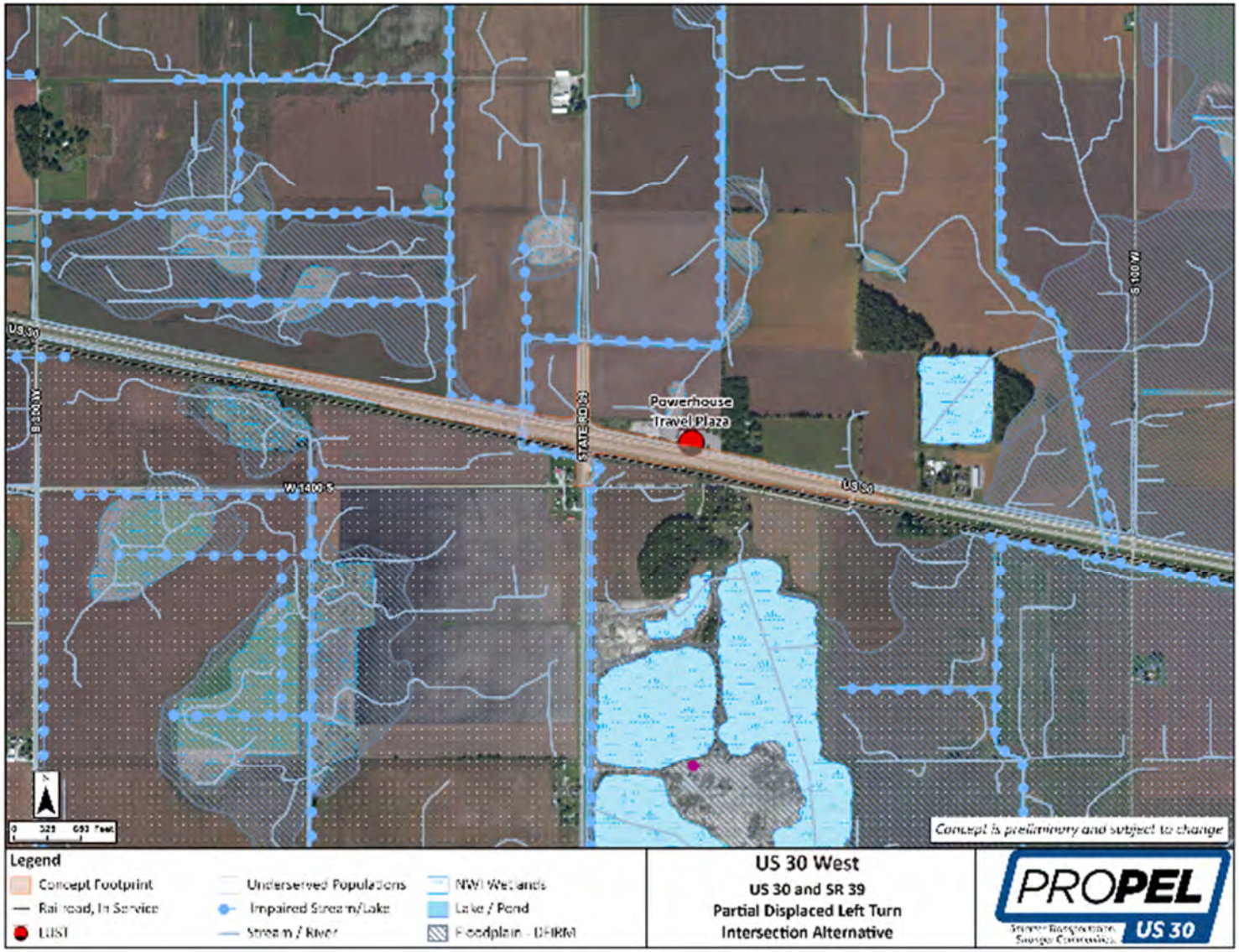
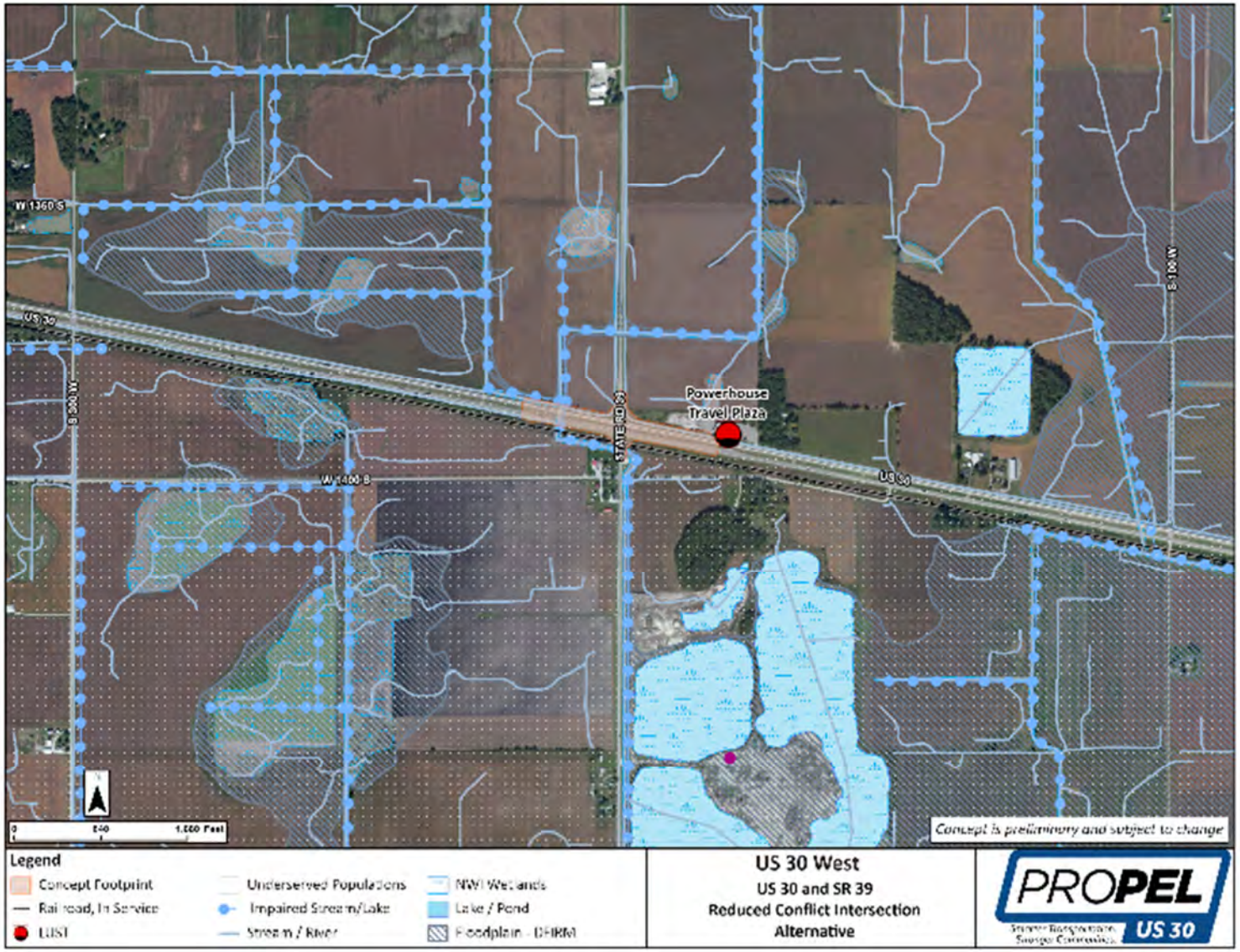


Figure 5-34: US 30 and SR 39 Reduced Conflict Intersection Alternative



5.13. US 30 AND US 35 IN STARKE COUNTY

5.13.1. OVERVIEW OF LOCATION

This diamond interchange is expected to operate acceptably through the design year of this study for all ramp and mainline movements. The crash frequency and crash cost indices for all ramps and mainline indicate that there are no major safety concerns at the interchange. Improvements were still considered at this interchange as a part of safety or operational improvements along this segment of US 30, to be further considered in level 3.

This interchange is located approximately 2.0 miles west of the Town of Hamlet.

Public comments received to date about this intersection are summarized as follows:

- The existing facilities at the interchange of US 30 and US 35 should be maintained.

5.13.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the interchange of US 30 and US 35 poses numerous constraints that were considered in the development of alternatives. These constraints are summarized as follows:

- Benninghoff Ditch is located in the northeast and northwest quadrants of the interchange and crosses US 30 just west of the interchange.
- US 35 overpasses a railroad approximately 0.40 miles south of the interchange.
- There are several wetlands, ponds, and streams located in the vicinity of the interchange.
- This interchange is located in a floodplain.
- Underserved populations are located near the intersection.
    - Family Income Below Poverty Level

5.13.3. SCREENING OF ALTERNATIVES

The decision tree indicates that improvements to the existing interchange would be applicable, while new grade-separated and at-grade alternatives would be unnecessary. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-13**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Extend Acceleration/Deceleration Lanes – The existing US 30 westbound acceleration lane does not meet IDM design standards and should be extended. This alternative would maintain local access.

Complementary Concepts to be considered at this interchange are as follows:

- Ramp Terminal Intersection Improvements – Potential to improve traffic operations and safety at the interchange.

The interchange alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these interchange alternatives where applicable.

Extend Acceleration Lanes Alternative

At this interchange, the only substandard deceleration or acceleration lane identified was the US 35 southbound to US 30 westbound. This alternative would improve the safety at the interchange of US 30 and US 35 by providing a

longer dedicated lane for vehicles entering US 30 westbound from US 35 southbound to reach the design speed before merging with through traffic on US 30. This would decrease the risk of rear-end and side-swipe crashes. This alternative would also improve operations by reducing the differential speed between mainline traffic and traffic entering the mainline from the minor road. The improvement limits for this alternative are shown in **Figure 5-36**.

This alternative would require minimal additional right-of-way and all property access would be maintained. This alternative would also have minimal impacts on the surrounding natural resources. This is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.13.4. INTERCHANGE ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

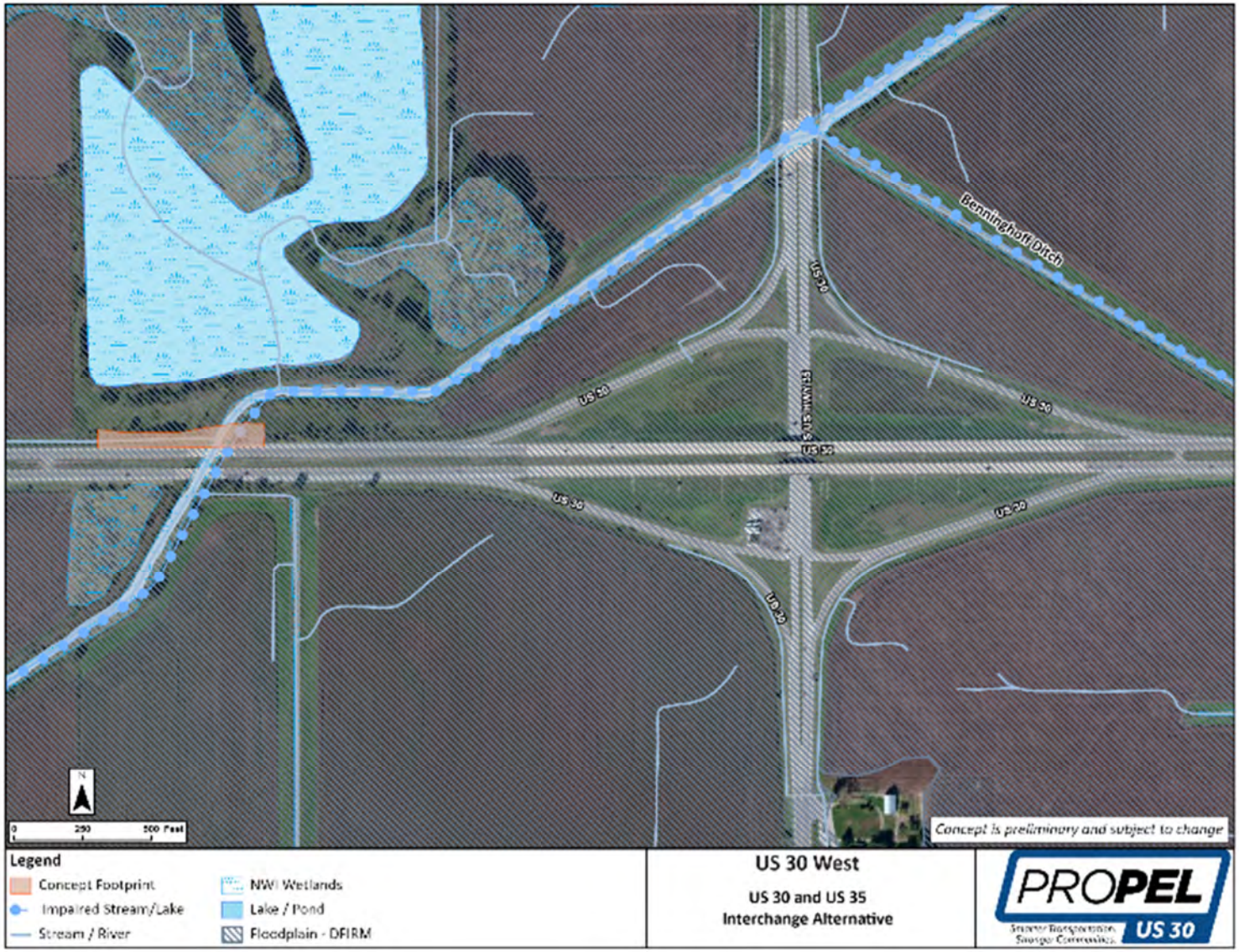
The following interchange alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Extend Acceleration Lanes.
- Ramp Terminal Intersection Improvements – May be incorporated into all alternatives.

Table 5-13: US 30 and US 35 – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	Notes/ Comments
US30 x US 35	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	
No build	N/A	N/A	Yes	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	Yes	Medium	Low	No	Low	Low	N/A	Low	Yes	Would have to widen bridge to extend WB acceleration lane. Carried forward due to the potential for improvements to safety and operations.
Complementary Concepts														
Ramp Terminal Intersection Improvements	Yes	Yes	Yes	Yes	Yes	Low	Low	No	Low	Low	N/A	Medium	Yes	To be determined at Level 3

Figure 5-35: US 30 and US 35 – Extend Acceleration Lanes Alternative



5.14. US 30 AND CR 750 E IN STARKE COUNTY

5.14.1. OVERVIEW OF LOCATION

This intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices indicate that there are no major safety concerns at the intersection. Alternatives were still considered at this intersection as a part of safety or operational improvements along this segment of US 30, to be further considered in level 3.

The Norfolk-Southern Railroad runs parallel to US 30 approximately 100' south of the intersection.

Public comments received to date about this intersection are summarized as follows:

- All local access at this intersection should be maintained.

5.14.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the US 30 and Starke CR 750 E intersection poses numerous constraints that were considered in the development of alternatives. The constraints are summarized as follows:

- Several businesses are located adjacent to the intersection, including Howard & Sons Towing & Salvage, Norton Packaging INC, Hensler Nursery, and D & M Exotic Pets
- The town of Hamlet is located 1.6 miles west of the intersection.
- Oregon Davis Elementary and High School are located 0.5 miles north of the intersection.
- An at-grade railroad crossing is on the south leg of the intersection, crossing Starke CR 750 E.
- An electric substation is located 300 feet north of the intersection.
- 4 NWI wetlands are in the vicinity of the intersection.
- There is a ditch that crosses US 30 approximately 0.2 mile west of the intersection. The ditch is listed as an impaired stream.
- Underserved populations are located near the intersection.
    - Family Income Below Poverty Level
    - Non-English Speaking Population

5.14.3. SCREENING OF ALTERNATIVES

The decision tree indicates that both at-grade and grade-separated alternatives would be applicable, while an interchange would be unnecessary. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-14**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – The existing turn lanes do not provide sufficient deceleration length. The turn lanes should be lengthened. This alternative would maintain local access.
- Cross Road Overpass/Underpass – There are other locations within approximately two miles of the intersection that provide equal or better access based on the functional classification of the route that local traffic would use to access the corridor. Therefore, a crossroad overpass or underpass should be considered.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Median Safety Improvements – The median meets IDM requirements
- Add/Extend Acceleration Lanes – The crash patterns do not indicate a concern with missing acceleration lanes.
- Convert to Interchange – Volumes or other factors do not support an interchange.
- Signalized Intersection Improvements – Traffic volumes at this intersection do not warrant a signalized intersection.
- Unsignalized Intersection Improvements – While this intersection is important for access to and from US 30, there are no safety or operational concerns that indicate a need for intersection improvements.
    - If conditions change in the future and there are safety or operational concerns, solutions such as a reduced conflict intersection should be considered at this location as it is known to reduce severe crashes at intersections with similar physical characteristics.

Complementary Concepts to be considered as part of primary concepts are as follows:

- Intersection Sight Distance Improvements – Potential to improve safety.
- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add and Lengthen Turn Lanes Alternative

This alternative involves lengthening the existing left and right turn lanes along US 30. Lengthening turn lanes improves the safety of the intersection by providing adequate deceleration lengths and increasing storage space, reducing the likelihood of rear end collisions. The proposed turn lanes would meet IDM standards. The improvement limits of this alternative can be seen in **Figure 5-37**.

With the eastbound and westbound turn lanes lengthened there are potential right-of-way impacts in all quadrants of the intersection with improvements widening the existing railroad crossing. No changes to property access are expected. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Cross Road Overpass / Underpass Alternative – US 30 over Starke CR 750 E

Reconfiguring this intersection so that US 30 goes over Starke CR 750 E increases safety by eliminating access from Starke CR 750 E to US 30 and vice versa. In this alternative, traffic would be routed over top of Starke CR 750 E by use of two bridges. The improvement limits of this alternative can be seen in **Figure 5-38**.

The potential right-of-way impacts of an underpass configured this way at this intersection are along the north and south sides of US 30. With this alternative there are no potential relocations but there are potential adverse impacts to underserved populations. It is considered a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with a limited access section, to be analyzed in Level 3. This grade-separated configuration was preliminarily selected as opposed to elevating Starke CR 750 E over US 30 due to the assumed lower impacts to the surrounding area. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.14.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Cross Road Overpass/Underpass.
- Intersection Sight Distance Improvements – May be incorporated into all alternatives.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.

Table 5-14: US 30 and Starke CR 750 E – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Starke CR 750 E	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	N/A	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Medium	Low	Yes	Lengthen EB & WB Left and Right Turn Lanes. Carried forward due to the potential safety improvements associated with sufficient deceleration lengths which reduces the likelihood of rear-end crashes. The proposed turn lanes would meet IDM requirements.
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	N/A	Low	Low	Yes	Medium	Low	High	Medium	Yes	EB Bridge shifted north to lessen impacts to railroad. Carried forward due to the safety and operational improvements associated with grade separation.
Complementary Concepts														
Intersection Sight Distance Improvements	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Intersection is on a skew. Improvements to sight distance would increase safety.
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Provide lighting for intersection alternatives
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Raises awareness of approaching traffic

Figure 5-36: US 30 and Starke CR 750 E – Add and Lengthen Turn Lanes Alternative

Figure 5-37: US 30 and Starke CR 750 E – Cross Road Overpass/Underpass Alternative – US 30 Over Starke CR 750 E

5.15. US 30 AND SR 23 IN STARKE COUNTY

5.15.1. OVERVIEW OF LOCATION

This unsignalized intersection (flashing signal) is expected to operate acceptably through the design year of this study. The crash cost index is slightly elevated, indicating there are opportunities for safety improvements at the intersection. Of the intersection crashes occurring, the predominant crash types were right-angle and left-turn crashes. These crashes may be related to vehicles pulling out in front of on-coming traffic.

The Norfolk Southern Railroad runs parallel to US 30 approximately 185' south of the intersection.

The FY2022-2026 INDOT State Transportation Improvement Program (STIP) includes an intersection improvement project (Des. No. 1801870) to convert this location to a reduced conflict intersection. The project was suspended pending the completion of the ProPEL US 30 West study and recommendations.

Public comments received to date about this intersection are summarized as follows.

- Desire for this intersection to be converted to an interchange.
- Intersection improvements that would improve mobility of semi-trucks and trailers.
- Property owner concerns regarding impacts involved with intersection improvements.
- Safety concerns with the Grovertown Truck Stop.
- Emergency Response Services located near the intersection.

5.15.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the US 30 and SR 23 intersection poses numerous constraints that were considered in the development of alternatives. The constraints are summarized as follows:

- Several businesses are located adjacent to the intersection, including Indiana Hope Center and Niteline Auto Service.
- Grovertown United Methodist Church is located 600 feet north of the intersection.
- United States Postal Service is located 400 feet north of the intersection.
- Starke County EMS Grovertown Base is located just 100 feet north of the intersection.
- An at-grade railroad crossing is on the south leg of the intersection, crossing SR 23.
- 10 NWI wetlands are in the vicinity of the intersection.
- One Indiana Historic Sites and Structures Inventory (IHSSI) Notable site located 900 feet north of the intersection.
- Underserved populations are located near the intersection.
    - Family Income Below Poverty Level
    - Non-English Speaking Population
- Tall Oaks RV Campground is located approximately 0.4 miles northwest of the intersection. This location is listed as a Recreational Facility.
- A natural gas pipeline passes through the intersection.
- Hazardous material concerns are near the intersection, including 1 LUST site east of the intersection.

5.15.3. SCREENING OF ALTERNATIVES

The decision tree indicates that both at-grade and interchange alternatives would be applicable, while other grade-separated alternatives would be unnecessary. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-15**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – Existing turn lanes do not provide sufficient deceleration length. Turn lanes should be lengthened. This alternative would maintain local access.
- Add/Extend Acceleration Lanes – Crash patterns indicate a concern potentially due to not having acceleration lanes. Acceleration lanes should be added. This alternative would maintain local access.
- Convert to Interchange – There are no factors that support an interchange at this location as a standalone alternative. However, given further bundled improvements anticipated to be analyzed in Level 3, this location was identified as a potential interchange due to the relatively high traffic volume observed here and State Route status of the roadway, as well as the proximity to the community of Grovertown. This alternative would maintain local access.
- Signalized and Unsignalized Intersection Improvements – This intersection is important for access to and from US 30 due to the community of Grovertown located north of the intersection. The crash cost index indicates there are safety concerns. This intersection is currently two-way stop controlled with a beacon. Forecasted traffic volumes at this intersection warrant a signal. The CAP-X analysis indicated that the following at-grade intersection types could produce acceptable operating conditions in the design year.
    - Boulevard Left Turn Intersection East-West – This alternative would improve safety at the intersection while improving intersection operations and maintaining local access.
    - Restricted Crossing U-Turn Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. It would also meet access management guidelines and maintain local access.
    - Reduced Conflict Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Reduced Conflict Intersection would meet access management guidelines as well as preserve free-flow operations on US 30 and maintain local access.
    - Roundabout – This alternative would reduce delay and improve intersection operations along US 30 while maintaining all local access. This alternative also improves safety at the intersection by reducing speeds and lowering the risk of right-angle crashes.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Median Safety Improvements – The median meets IDM requirements
- Cross Road Overpass/Underpass – There are no other locations within approximately 2 miles with equal or better access than SR 23, based on the functional classification of the route that local traffic can use to access the corridor.
- Other signalized intersection types were eliminated through Cap-X tool analysis because their potential benefits were not substantial enough when compared to the existing conditions. Therefore, they were not further analyzed as part of this process. These intersection types included:
    - Green-T Intersection – This alternative is not applicable to a four-legged intersection.

- Displaced Left Turn Intersection – Based on low left turning volumes and the requirement of additional right-of-way for left turn crossovers, this alternative would become prohibitively expensive compared to other feasible intersection types.
- Quadrant Roadway – The CAP-X results indicated a high volume to capacity ratio implying poor operational performance of the intersection.

Complementary Concepts to be considered as part of intersection alternatives are as follows:

- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic.
- Freight Priority System – Potential to reduce delay for trucks.
- Bike / Pedestrian Facilities – Nearby recreational facilities indicate a potential desire for bike and pedestrian facilities.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add and Lengthen Turn Lanes Alternative

This alternative involves lengthening the existing left and right turn lanes along US 30. Lengthening the existing turn lanes would improve safety by providing sufficient deceleration length, which reduces the likelihood of rear-end crashes, and increasing storage space. The proposed turn lanes would meet IDM requirements. The improvement limits of this alternative can be seen in **Figure 5-39**.

With the eastbound and westbound turn lanes lengthened there are potential right-of-way impacts in the northeast and southwest quadrants of the intersection with improvements widening the existing railroad crossing. Potential relocations may be required in the northeast and southwest quadrants. This alternative has the potential for adverse impacts to underserved populations. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Add/Extend Acceleration Lanes Alternative

Added acceleration lanes would improve intersection safety by providing dedicated lanes for vehicles turning onto US 30 from SR 23 to achieve sufficient speed before entering the travel lanes. This alternative would also improve intersection operations by reducing the differential speed between mainline traffic and traffic entering the mainline from the minor road. The improvement limits for this alternative can be seen in **Figure 5-39**.

This alternative is expected to require additional right-of-way from the northeast, northwest, and southwest quadrants. All property access would be maintained. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Convert to Interchange Alternative

This intersection alternative allows for US 30 traffic to move without interruption. US 30 would utilize two bridges over SR 23 and on and off ramps to allow access to and from US 30. This is a folded diamond interchange. The improvement limits for this alternative can be seen in **Figure 5-40**.

Extensive right-of-way is required for this alternative with several potential relocations of adjacent properties, including potential impacts to underserved populations. The most substantial portion of work would be in the northwest and southeast quadrants to avoid impacts to the residential area to the northeast and businesses in the southwest. The interchange alternative would have major impacts to natural resources in the northwest quadrant of the intersection. In addition, there would be some impacts to the IHSSI notable property in the northwest quadrant. It is considered a high-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process for potential use with bundled improvements.

Boulevard Left Turn Intersection East-West Alternative

This alternative would reroute left turns from US 30 to SR 23 which would improve intersection safety by reducing conflict points, thereby reducing the risk of right-angle crashes. This alternative would also improve intersection operations improving the capacity ratio from the existing two way stop control condition. This alternative requires the turning radii to be enlarged to accommodate truck turning movements. The improvement limits for this alternative can be seen in **Figure 5-41**.

This alternative is expected to require additional right-of-way from all four quadrants. Potential relocations may be required in the northeast and southwest quadrants which have the potential to adversely impact underserved populations. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Restricted Crossing U-turn Intersection Alternative

The RCUT alternative keeps all existing movements for US 30 while rerouting left turns and through movements from SR 23 to US 30, which improves safety by eliminating conflict points. The improvement limits for this alternative are shown in **Figure 5-42**.

Potential right-of-way impacts are expected in all quadrants of the intersection including potential adverse impacts to underserved populations. Widening of the existing at-grade railroad crossing at the south leg of the intersection is also expected. Additionally, potential relocations in the northeast and southwest quadrants may be required. This alternative requires railroad impacts. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Reduced Conflict Intersection Alternative

The RCI alternative would retain free-flow through traffic along US 30 while rerouting left turns from SR 23 to US 30 and minor road through movements. This would improve safety by reducing the risk of right-angle crashes and reduce delay at the intersection. The addition of truck loons was included in the conceptual design. The improvement limits for this alternative are identical to that of what is shown in **Figure 5-42**.

Potential right-of-way impacts are expected in all quadrants of the intersection, including potential adverse impacts to underserved populations. Widening of the existing at-grade railroad crossing at the south leg of the intersection is also expected. Additionally, the potential alternative may require relocations in the northeast and southwest quadrants. The RCI at this location has previously been designed by INDOT and construction was scheduled to begin in 2022. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Roundabout Alternative

Reconfiguring the US 30 and SR 23 intersection into a roundabout alternative would require the center of the roundabout to be at the center of the current intersection so that impacts can be limited. The roundabout alternative would increase safety by reducing travel speed and the chance for more severe right angle, left turn, and head on collisions, although additional rear-end crashes may occur. The improvement limits of this alternative can be seen in **Figure 5-43**.

The potential right-of-way impacts for this alternative affects all four quadrants of the intersection. Additionally, the potential alternative may require relocations in the southwest quadrant. It is considered a medium-cost option. Speed management strategies would have to be paired with the roundabout alternative to mitigate the risk of rear-end crashes. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.15.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Add/Extend Acceleration Lanes.
- Convert to Interchange.
- Boulevard Left Turn E-W.
- Restricted Crossing U-Turn.
- Reduced Conflict Intersection.
- Roundabout.
- Spot Roadway Lighting – May be incorporated into all alternatives involving signalization.
- Warning Systems – May be incorporated into all alternatives.
- Freight Priority System – May be incorporated into all alternatives.
- Bike/Pedestrian Facilities – May be incorporated into all alternatives.

Table 5-15: US 30 and SR 23 – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	Notes/ Comments
US30 x SR 23 / CR 1000 E	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	
No build	N/A	N/A	N/A	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	No	Yes	Yes	N/A	Low	Low	Yes	Low	Medium	Medium	Low	Yes	Extend EB and WB turn lanes. Carried forward due to the potential safety improvements associated with providing sufficient deceleration lengths which reduce the likelihood of rear-end crashes. The proposed turn lanes would meet IDM requirements.
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	Medium	Low	Yes	Extend EB and WB acceleration lanes. Carried forward due to the potential to improve safety by reducing the rear-end crash risk which was observed as a concerns this intersection.
Convert to Interchange	Yes	Yes	Yes	Yes	Yes	High	Medium	Yes	High	High	High	High	Yes	Carried forward as a necessity for a limited access alternative. Not considered for other bundled improvements.
Signalized Intersection Improvements														
Boulevard Left Turn E-W	Yes	Yes	Yes	Yes	N/A	Low	Low	Yes	Low	Medium	Medium	Low	Yes	Carried forward due to the potential improvements to safety and intersection operations.
Restricted Crossing U-Turn Intersection E-W	Yes	Yes	Yes	Yes	N/A	Low	Low	Yes	Low	High	Medium	Low	Yes	Carried forward due to the potential for improvements to safety and intersection operations.
Unsignalized Intersection Improvements														
Reduced Conflict Intersection E-W	Yes	Yes	Yes	Yes	N/A	Low	Low	Yes	Low	High	Medium	Low	Yes	Caried forward due to the potential for improvements to safety and intersection operations.
Roundabout	Yes	Yes	Yes	Yes	N/A	Low	Low	No	High	Medium	Medium	Medium	Yes	Carried forward due to the potential for improvements to safety and intersection operations.
Complementary Concepts														
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Provide lighting for intersection alternatives per INDOT guidelines
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Raises awareness of approaching traffic to upcoming hazards.
Freight Priority System	No	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Can reduce delays for trucks by extending green time
Bike/Pedestrian Facilities	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Potential to improve safety at the intersection or bike riders and pedestrians

Figure 5-38: US 30 and SR 23 – Add and Lengthen Turn Lanes and Add/Extend Acceleration Lanes Alternative

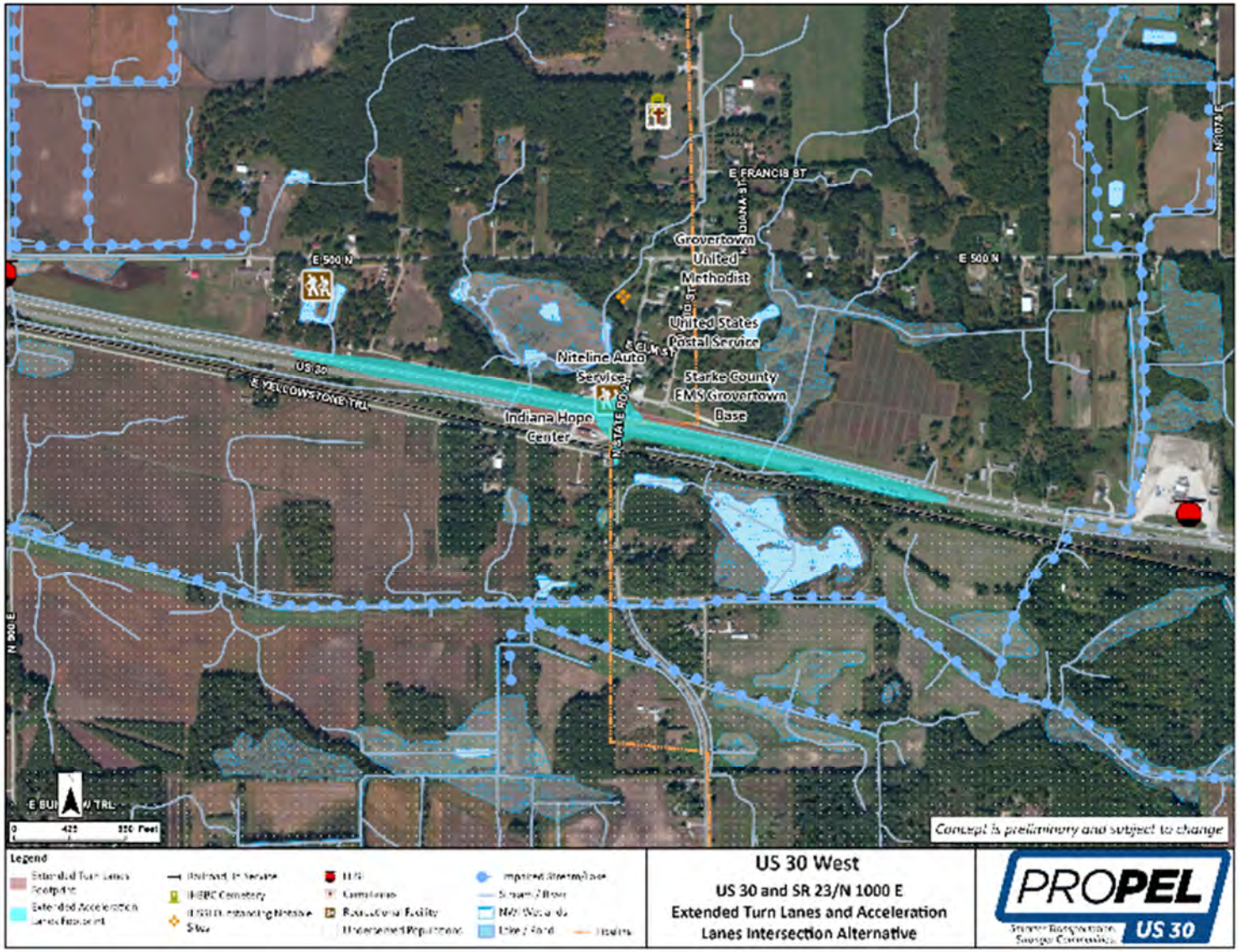


Figure 5-39: US 30 and SR 23 – Interchange Alternative

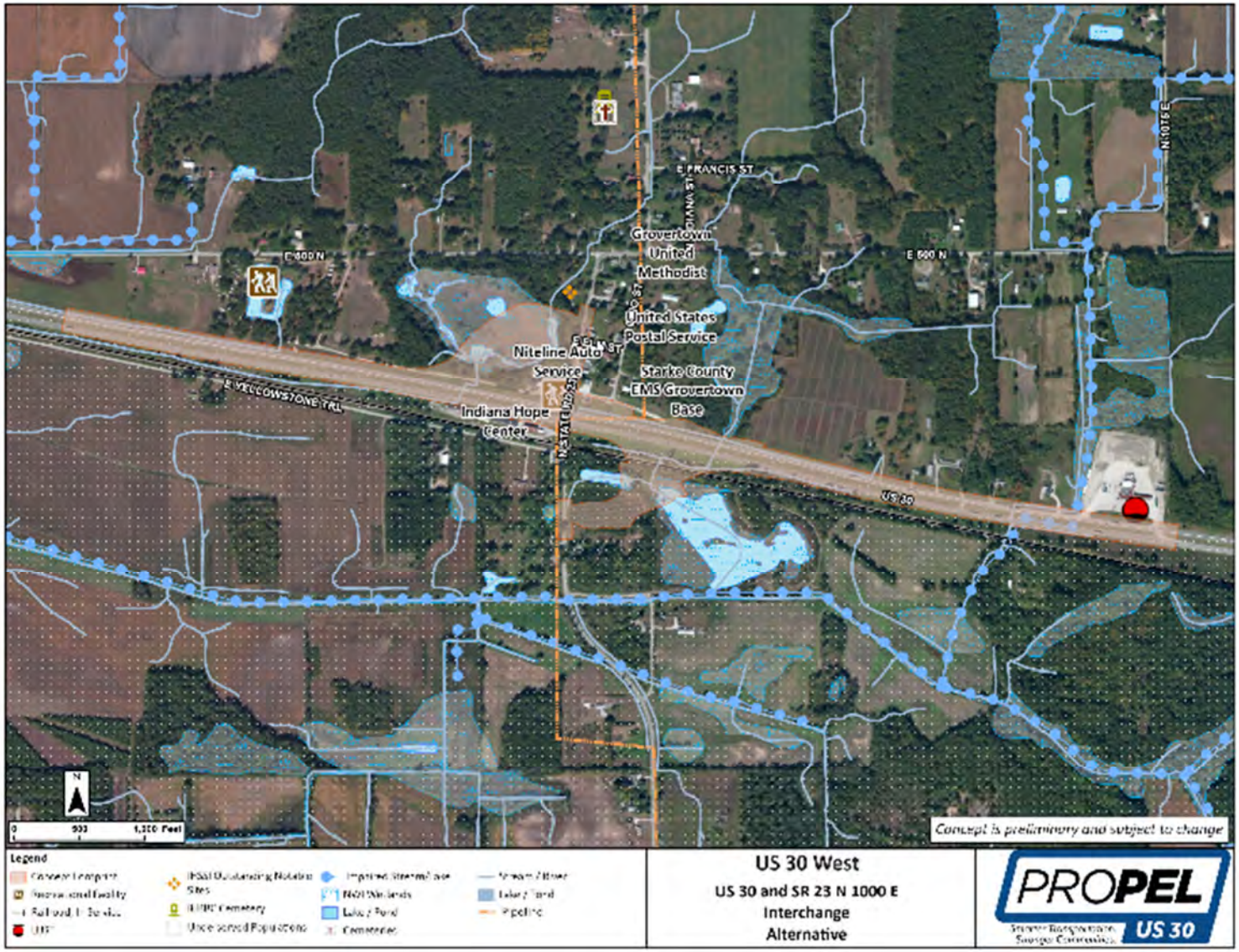


Figure 5-40: US 30 and SR 23 – Boulevard Left Turn Intersection East-West Alternative

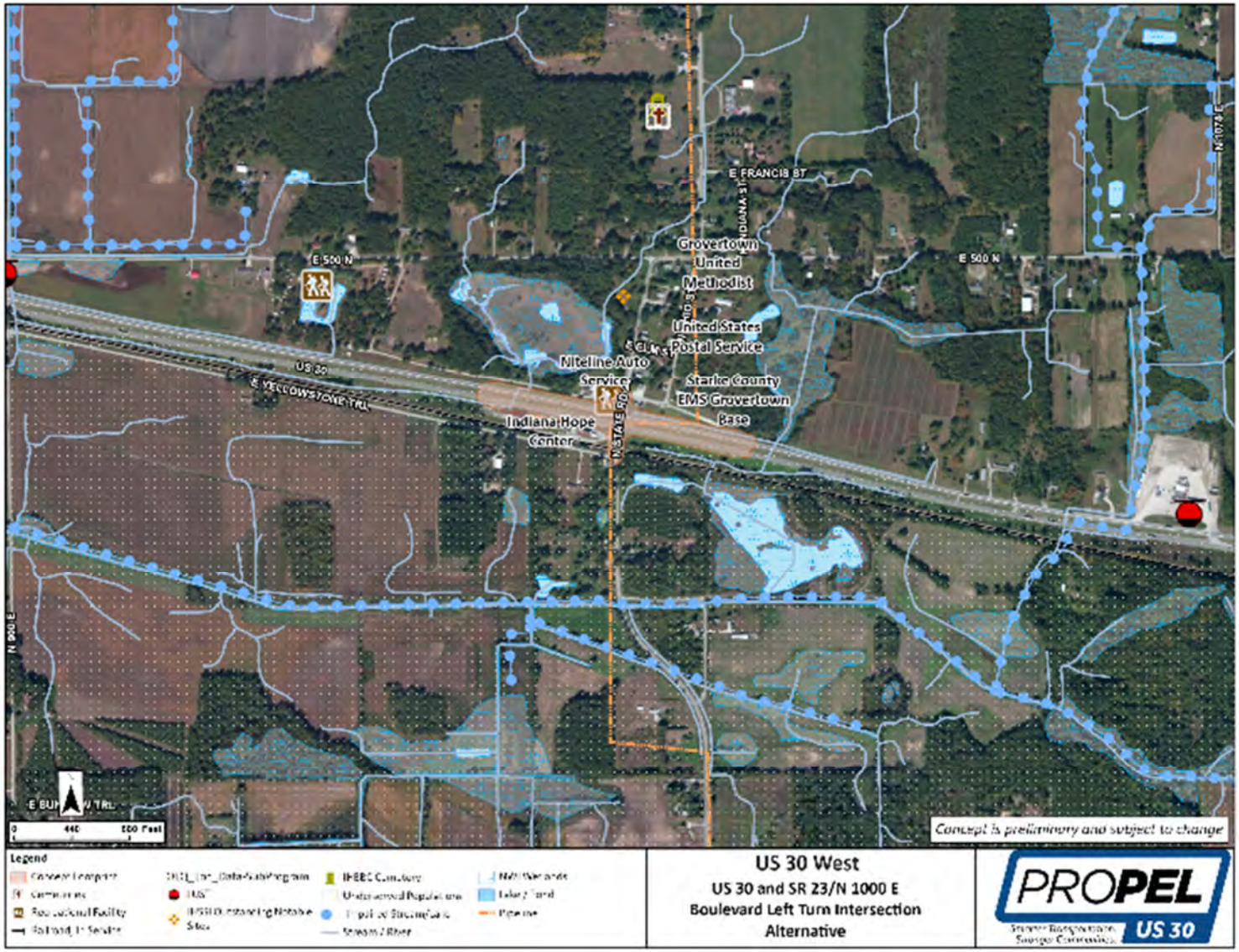


Figure 5-41: US 30 and SR 23 – Restricted Crossing U-Turn Intersection Alternative

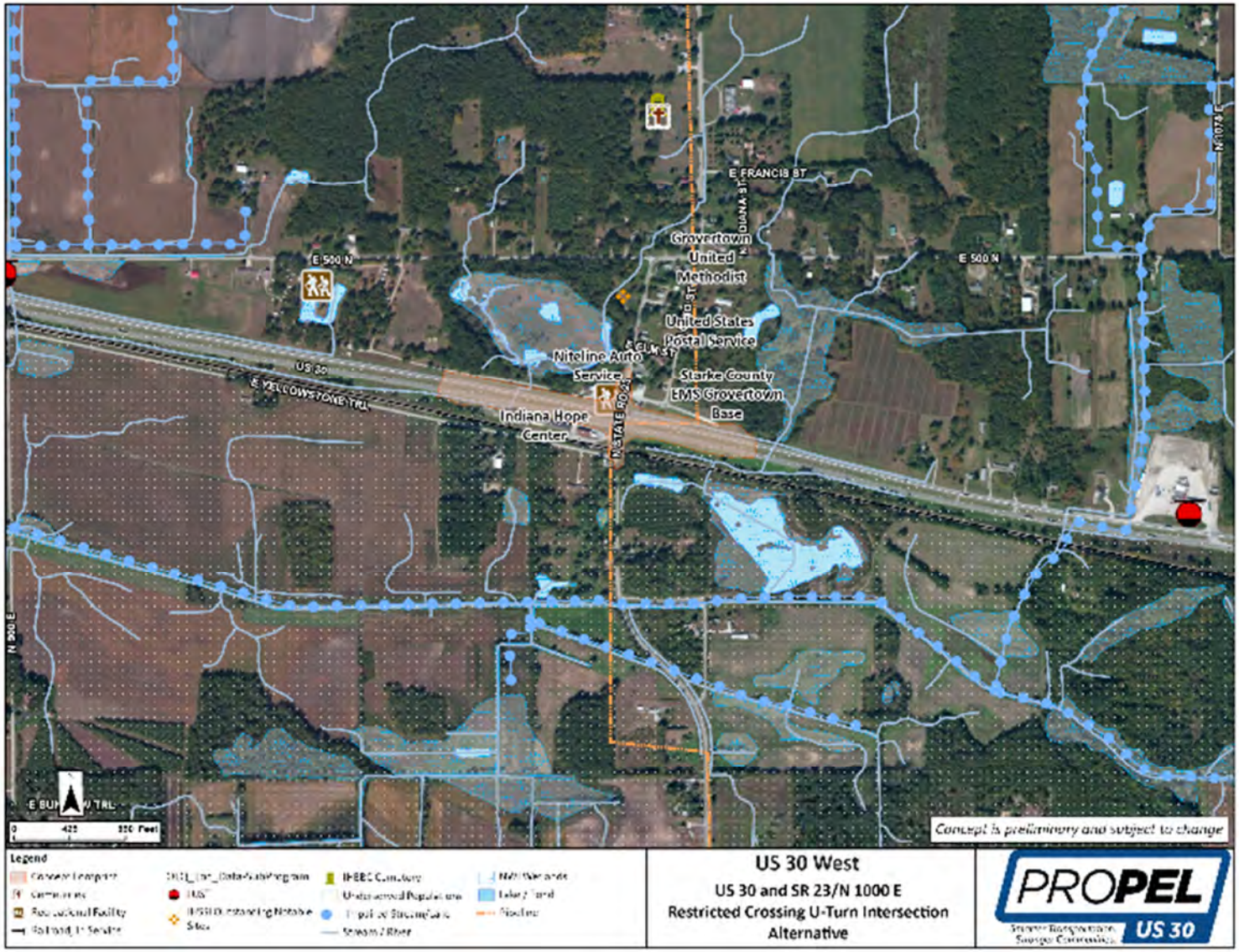
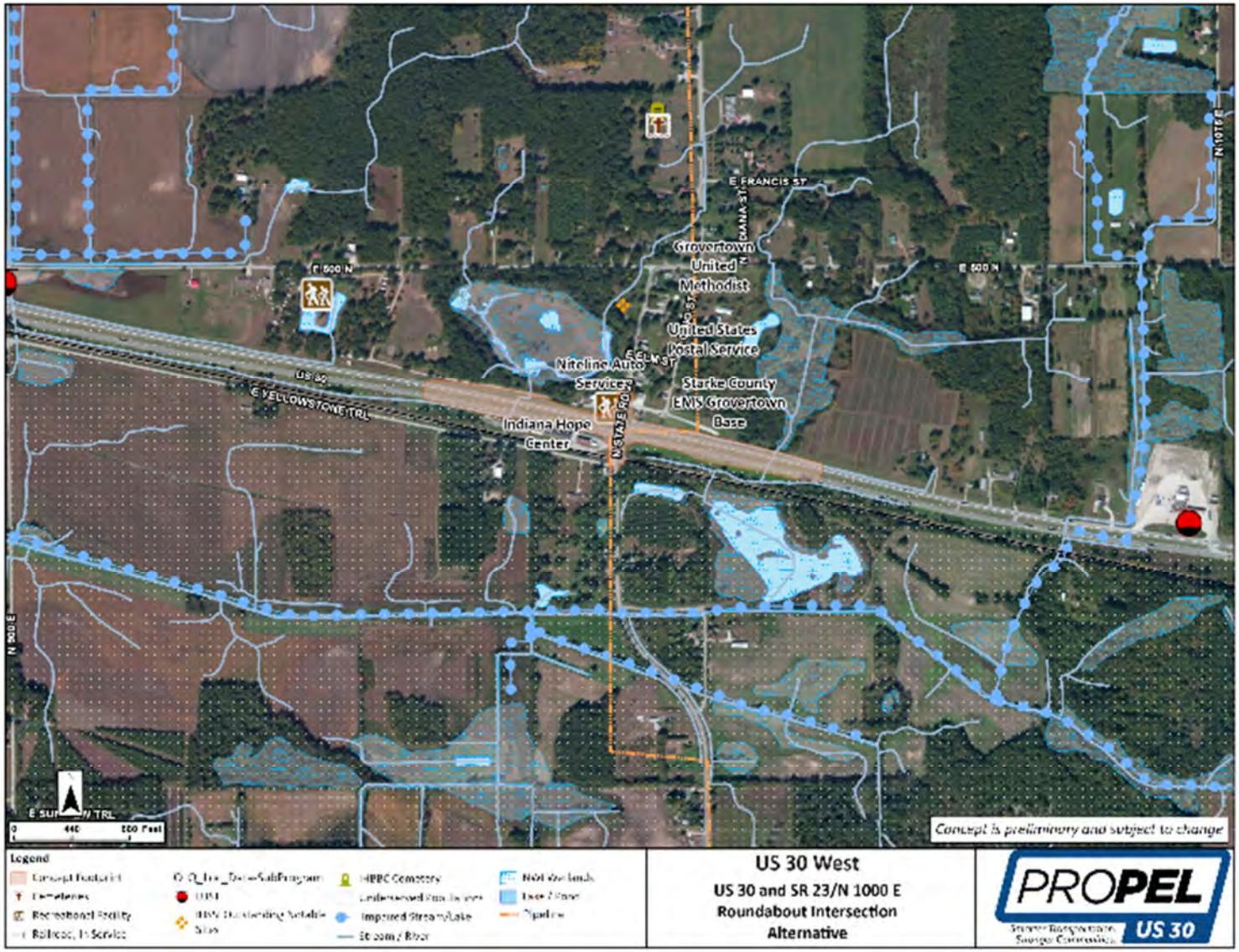


Figure 5-42: US 30 and SR 23 – Roundabout Alternative



5.16. US 30 AND QUEEN ROAD IN MARSHALL COUNTY

5.16.1. OVERVIEW OF LOCATION

This signalized intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices are both elevated, indicating there are safety concerns at the intersection. The predominant types of crashes are as follows:

- 33% were rear end crashes.
- 14% were right angle crashes.
- 17% were same direction side-swipe crashes.

The US 30 and US 31 Marshall County Plan (2023) notes this intersection is an access point to Yogi Bear Campground and the Swan Lake Resort and should be coordinated with a potential future "West Plymouth" Interchange.

The FY2022-2026 INDOT Transportation Improvement Plan (TIP) includes an intersection improvement project (Des. No. 1801871) to convert this location to a reduced conflict intersection. The project was suspended pending the completion of the ProPEL US 30 West study and recommendations.

Public comments received specific to this location include:

- Concerns regarding access to local businesses.
- Concerns regarding ease of access to US 30 due to semi-traffic.
- Concerns regarding how intersection improvements would impact properties near the intersection.

5.16.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the intersection of US 30 and Queen Road poses numerous constraints that were considered in the development of alternatives. These constraints are summarized as follows:

- There are several businesses located in the southern quadrants of the intersection, including Intra-Lock Self Storage and Frogs One Stop Tire & Auto.
- There is a religious facility located 0.15 miles south of the intersection, House of the Lord Church.
- There are residential properties located in the southwest and northwest quadrant of the intersection.
- Yogi Bear's Jellystone Park is located 0.61 miles west of the intersection.
- The intersection of Queen Road and Plymouth LaPorte Trail is located approximately 50 feet north of the intersection of Queen Road and US 30.
- There are also 5 NWI wetlands located within the vicinity of the intersection.
- Hazardous material concerns are near the intersection, including 1 UST site south of the intersection and 1 LUST site southeast of the intersection.

5.16.3. SCREENING OF ALTERNATIVES

The decision tree indicates that both at-grade and grade-separated alternatives would be applicable, including an interchange alternative. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-16**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – The existing turn lanes do not provide sufficient deceleration length. The turn lanes should be lengthened. This alternative would maintain local access.
- Add/Extend Acceleration Lanes – Crash patterns indicate a potential concern due to not having acceleration lanes. Acceleration lanes should be added. This alternative would maintain local access.
- Cross Road Overpass/Underpass – There are other locations within approximately 2 miles that provide equal or better access based on the functional classification of the route that local traffic can use to access the corridor. Therefore, a crossroad overpass or underpass should be considered, especially when applied alongside a limited access section, to be analyzed in level 3.
- Convert to Interchange – There are no factors that support an interchange as a standalone alternative. However, given future bundled improvements anticipated to be analyzed in Level 3, this location was identified as a potential interchange due to the relatively high traffic volumes and proximity to Plymouth. This alternative would maintain local access.
- Signalized and Unsignalized Intersection Improvements – The intersection is important for access to and from US 30 due to high usage. The high crash cost and frequency indices indicate there are safety concerns. This intersection is already signalized. The CAP-X analysis indicated that the following at-grade intersection types could produce acceptable operating conditions in the design year.
    - Boulevard Left Turn Intersection East-West – This alternative would improve safety at the intersection while also improving operations and maintaining local access.
    - Restricted Crossing U-Turn Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. It would also meet access management guidelines and maintain local access.
    - Roundabout – This alternative would reduce delay and improve intersection operations along US 30 while maintaining all local access. This alternative also improves safety at the intersection by reducing speeds and lowering the risk of right-angle crashes.
    - Reduced Conflict Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Reduced Conflict Intersection would meet access management guidelines as well as create free-flow operations on US 30 and maintain local access.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management guidelines.
- Median Safety Improvements – The existing median meets IDM Requirements.
- Other signalized and unsignalized intersection types were eliminated through Cap-X tool analysis because their potential benefits were not substantial enough when compared to the existing conditions. Therefore, they were not further analyzed as part of this process. These intersection types included:
    - Green-T Intersection – This alternative is not applicable to a four-legged intersection.
    - Displaced Left Turn Intersection – Based on low left turning volumes from US 30 and the requirement of additional right-of-way for left turn crossovers, this alternative would become prohibitively expensive compared to other feasible intersection types.
        - Quadrant Roadway – The CAP-X results indicated a high volume to capacity ratio implying poor operational performance of the intersection.

Complementary concepts to be considered as part of intersection alternatives include:

- Intersection Sight Distance Improvements – Potential to improve safety.
- Signal Timing Updates/Coordination – Potential to improve safety and relieve congestion.
- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness of approaching traffic.
- Freight Priority System – Potential to reduce delays for trucks.
- Bike/Pedestrian Facilities – Urban environment indicates potential desire for bike and pedestrian facilities.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add or Lengthen Turn Lanes Alternative

This alternative involves lengthening the existing left and right turn lanes along US 30. Lengthening the existing turn lanes would improve intersection safety by providing sufficient deceleration lengths, which reduces the likelihood of rear-end crashes, and increased storage space. The proposed turn lanes would meet IDM requirements. The improvement limits for this alternative can be seen in **Figure 5-44**.

This alternative would require no additional right-of-way and would maintain all property access. This alternative would have no impact on the natural resources in the area. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Add/Extend Acceleration Lanes Alternative

Adding acceleration lanes at this intersection would improve safety by providing vehicles turning onto US 30 from Queen Road with sufficient distance to achieve an appropriate speed to merge onto US 30. This would also improve intersection operations by reducing the differential speed between mainline traffic and traffic entering the mainline from the minor road. The improvement limits for this alternative can be seen in **Figure 5-44**.

This alternative would require minimal right-of-way impacts from all quadrants to accommodate grading. This alternative would have no impact on the natural resources surrounding the intersection. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Overpass Alternative – Queen Road over US 30

This alternative would require the northbound approach of Queen Road to be shifted west to promote continuous flow on the overpass of Queen Road. The intersection of Queen Road and Plymouth LaPorte Trail is shifted north to maintain access to nearby residential properties.

This alternative would improve safety at the intersection by eliminating all interaction between Queen Road and US 30. This alternative would also improve intersection operations by removing any delays associated with signal timings at the existing intersection. The improvement limits for this alternative can be seen in **Figure 5-45**.

This alternative would require substantial additional right-of-way including the potential relocation of one property. This alternative also has substantial impacts to nearby wetlands. It is considered a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with a limited access section, to be analyzed in Level 3. This grade-separated configuration was preliminarily selected as opposed to elevating US 30 over Queen Road due to the assumed lower impacts given the rural environment. This alternative will be advanced for further evaluation in the Level 3 screening process.

Convert to Interchange Alternative

This alternative for the free-flow alternatives allows for US 30 traffic to move without interruption. Queen Road would utilize a bridge over US 30 and on and off ramps to allow access to and from US 30. This is a diamond interchange. The improvement limits for this alternative can be seen in **Figure 5-46**.

Extensive right-of-way is required for this alternative with several potential relocations of adjacent properties. Substantial work would be done in all quadrants of the intersection. This alternative would have substantial impact to right-of-way and numerous potential relocations. This alternative would also have medium impacts to natural resources in the area. It is considered a high-cost option. This alternative would be advanced for further evaluation in the Level 3 screening process for potential use with bundled improvements.

Restricted Crossing U-Turn Intersection Alternative

This alternative would improve safety at the intersection by rerouting left turns from Queen Road to US 30, thereby reducing the chance of right-angle crashes. This alternative would also improve intersection operations by reducing the number of signal phases required. This alternative would involve closing the median to Queen Road through and left turn traffic. The intersection of Queen Road and Plymouth LaPorte Trail would be moved north to accommodate increases to the intersection radii. The improvement limits for this alternative can be seen in **Figure 5-47**.

This alternative would require additional right-of-way from all quadrants of the intersection, in addition to one potential relocation. This alternative would have minimal impacts to the surrounding natural resources. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Boulevard Left Turn Intersection East-West Alternative

This alternative would improve intersection safety by rerouting drivers on US 30 from crossing the opposing lanes, reducing conflict points, thereby reducing the risk of right-angle crashes. This alternative would also improve intersection operations by reducing the number of signal phases required. This alternative may require the potential relocation of the Queen Road and Plymouth LaPorte Trail intersection to the north. The improvement limits for this alternative can be seen in **Figure 5-48**.

This alternative would require substantial additional right-of-way in addition to several potential relocations. This alternative would also introduce impacts to surrounding natural resources. It is considered a low-cost option. This alternative will be advanced to Level 3 screening.

Reduced Conflict Intersection Alternative

The RCI alternative would allow the free-flow of through traffic along US 30 while rerouting left turns from Queen Road to US 30 and minor road through movements. This alternative would also improve intersection operations by eliminating the signal. The intersection of Queen Road and Plymouth LaPorte Trail would be moved north to accommodate increases to the intersection radii. The improvement limits for this alternative can be seen in **Figure 5-47**.

This alternative would require additional right-of-way from all quadrants of the intersection, in addition to one potential relocation. This alternative would have minimal impacts to the surrounding natural resources. The RCI has previously been designed by INDOT and was scheduled to begin construction in 2022. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Roundabout Alternative

This alternative would convert the existing signalized intersection to an unsignalized roundabout. This would involve removing the median near the intersection. This alternative would improve intersection safety by reducing

travel speed and the chance for more severe right angle, left turn, and head on collisions, although additional rear-end crashes may occur. The improvement limits for this alternative can be seen in **Figure 5-49**.

This alternative would require substantial additional right-of-way due to relocating the intersection of Queen Road and Plymouth LaPorte Trail to the north. This alternative would also have impacts on the surrounding natural resources. It is considered a medium-cost option. Speed management strategies would have to be paired with the roundabout alternative to mitigate the risk of rear-end crashes. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.16.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Add/Extend Acceleration Lanes.
- Cross Road Overpass/Underpass.
- Convert to Interchange.
- Restricted Crossing U-Turn.
- Reduced Conflict Intersection.
- Roundabout.
- Signal Timing Updates/Coordination – May be incorporated into all alternatives involving signalization.
- Intersection Sight Distance Improvements – May be incorporated into all alternatives.
- Spot Roadway Lighting – May be incorporated into all alternatives involving signalization.
- Warning Systems – May be incorporated into all alternatives.
- Freight Priority System – May be incorporated into all alternatives.
- Bike/Pedestrian Facilities – May be incorporated into all alternatives.

Table 5-16: US 30 and Queen Road – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Queen Road	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	N/A	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Extended WB and EB left right turn lanes provide sufficient deceleration lengths, reducing the likelihood of rear-end crashes. Carried forward due to the potential for improved safety with a small footprint. The proposed turn lanes would meet IDM requirements.
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Added EB and WB Acceleration Lanes reduce the risk of rear-end crashes. Carried forward due to the potential for improved safety.
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	N/A	Medium	Low	No	High	Medium	N/A	Medium	Yes	Intersection of Queen Road and Plymouth LaPorte Trail moved north. Carried forward due to the potential to improve safety and operations in association with grade separation.
Convert to Interchange	Yes	Yes	Yes	Yes	N/A	Medium	Low	No	High	High	N/A	High	Yes	Carried forward as a necessity for a limited access alternative. This alternative is not considered for other bundled improvements.
Signalized Intersection Improvements														
Restricted Crossing U-Turn Intersection E-W	Yes	Yes	Yes	Yes	N/A	Low	Low	No	High	Medium	N/A	Low	Yes	Carried forward due to the potential to improve safety by reducing conflicting movements.
Boulevard Left Intersection E-W	Yes	Yes	Yes	Yes	N/A	Medium	Low	No	High	Medium	N/A	Low	Yes	Carried forward due to the potential to improve safety by reducing conflicting movements
Unsignalized Intersection Improvements														
Reduced Conflict Intersection	Yes	Yes	Yes	Yes	N/A	Low	Low	No	High	Medium	N/A	Low	Yes	Carried forward due to the potential to improve intersection operations by eliminating delay due to signals and improving safety.
Roundabout	Yes	No	Yes	Yes	N/A	Medium	Low	No	High	Medium	N/A	Medium	Yes	Carried forward as an alternative to existing signalized intersection while also improving safety by reducing speeds and conflict points at the intersection.
Complementary Concepts														

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	Notes/ Comments
US30 x Queen Road	Applies Safety Counter-Measures	Reduces Delay or Improves Intersection Operations	Maintain or Improve Local Access	Meet Access Management Guidelines	Improves Substandard Elements	Potential for Adverse Impacts to Natural Resources?	Potential for Adverse Impacts to Cultural Resources?	Potential for Adverse Impacts to Underserved Populations?	Potential ROW Impacts	Potential Relocations	Impacts to Railroad	Relative Cost	Carry Forward?	
Signal Timing Updates/Coordination	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Potential to improve safety and relieve congestion
Intersection Sight Distance Improvements	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Intersection is on a skew. Improvements to sight distance would increase safety.
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Provide lighting for intersection alternatives
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Raises awareness of approaching traffic
Freight Priority System	No	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Can reduce delays for trucks
Bike/Pedestrian Facilities	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Potential to improve safety at the intersection or bike riders and pedestrians

Figure 5-43: US 30 and Queen Road – Add or Lengthen Turn Lanes and Add/Extend Acceleration Lanes Alternatives

Figure 5-44: US 30 and Queen Road – Cross Road Overpass/Underpass Alternative – Queen Road Over US 30

Figure 5-45: US 30 and Queen Road – Interchange Alternative

Figure 5-46: US 30 and Queen Road – Restricted Crossing U-Turn Intersection and Reduced Conflict Intersection Alternatives

Figure 5-47: US 30 and Queen Road – Boulevard Left Turn Intersection East-West Alternative

Figure 5-48: US 30 and Queen Road – Roundabout Alternative

5.17. US 30 AND PIONEER DRIVE IN MARSHALL COUNTY

5.17.1. OVERVIEW OF LOCATION

This signalized intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices are both slightly elevated, indicating there are opportunities for safety improvements at the intersection. Of the intersection crashes occurring, the predominant crash type was rear-end crashes. These crashes may be related to vehicles pulling out in front of on-coming traffic.

This intersection is located on the far west side of the City of Plymouth in a highly commercial and industrial area that is continuing to grow. The US 30 and US 31 Marshall County Plan (2023) notes a new interchange would provide calculated benefit to US 30.

Public comments received to date about this intersection are summarized as follows.

- Convert this intersection to an interchange.

5.17.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the intersection of US 30 and Pioneer Drive poses numerous constraints that were considered in the development of alternatives. These constraints can be summarized as follows:

- There are businesses located in all 4 quadrants surrounding the intersection, including Hacienda Mexican Restaurants, Love's Travel Stop, Pioneer Hi-Bred International, and Plymouth BMV Branch.
- There is a rail line located approximately 0.8 miles east of the intersection.
- Lift Station located in the northwest quadrant.
- Underserved populations are located near the intersection.
    - Family Income Below Poverty Level
    - Non-English Speaking Population
    - Minority Populations
- USDOT Disadvantaged Populations (Source: USDOT's Transportation Disadvantaged Census Tracts)
- There is a refined products pipeline located approximately 0.1 miles north and 0.38 miles west of the intersection.
- Schuh Ditch, listed as an impaired stream, is located approximately 0.1 miles south of the intersection.
- The floodplain of Schuh Ditch comes within approximately 50 feet of eastbound US 30 in one location near the intersection.
- INDOT Plymouth sub district located 0.4 miles north of the intersection.

5.17.3. SCREENING OF ALTERNATIVES

The decision tree indicates that both at-grade and grade-separated alternatives would be applicable. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-17**.

The primary concepts identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add/Extend Acceleration Lanes – Crash patterns at this intersection are potentially due to missing acceleration lanes. Acceleration lanes should be added. This alternative would maintain local access.
- Cross Road Overpass/Underpass – There are other locations within approximately 2 miles that provide equal or better access based on the functional classification of the route that local traffic would use to access the corridor. Therefore, a crossroad overpass or underpass should be considered, especially when applied alongside a limited access section, to be analyzed in level 3.
- Convert to Interchange – There are no factors that support an interchange at this location as a standalone alternative. However, given further bundled improvements anticipated to be analyzed in Level 3, this location was identified as a potential interchange due to the relatively high traffic volumes as well as the proximity to Plymouth. This alternative would maintain local access.
- Signalized and Unsignalized Intersection Improvements – This intersection is important for access to and from US 30 due to its proximity to commercial properties and high usage. The crash cost and crash frequency indices are above average, indicating safety concerns. This intersection is already signalized. The CAP-X analysis indicated that the following at-grade intersection types could produce acceptable operating conditions in the design year.

    - Partial Displaced Left Turn – This alternative would reduce delay and improve intersection operations along US 30 while maintaining all local access.
    - Restricted Crossing U-Turn Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Restricted Crossing U-Turn Intersection would meet access management guidelines as well as improve intersection operations on US 30 while maintaining local access.
    - Reduced Conflict Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Reduced Conflict Intersection would meet access management guidelines as well as create free-flow traffic on US 30 and maintain local access.
    - Roundabout – This alternative would reduce delay and improve intersection operations along US 30 while maintaining all local access. This alternative also improves safety at the intersection by reducing speeds and lowering the risk of right-angle crashes.

The primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Median Safety Improvements – The existing median meets IDM requirements.
- Add or Lengthen Turn Lanes – The existing eastbound and westbound left and right turn lanes provide sufficient deceleration length.
- Other signalized and unsignalized intersection types were eliminated through Cap-X tool analysis because their potential benefits were not substantial enough when compared to the existing conditions. Therefore, they were not further analyzed as part of this process. These intersection types included:

    - Green-T Intersection – This alternative is not applicable to a four-legged intersection.
    - Boulevard Left Turn Intersection – The CAP-X results indicated a higher volume to capacity ratio implying relatively poor operational performance compared to other similar intersection types such as RCUT.
    - Quadrant Roadway – The CAP-X results indicated a high volume to capacity ratio implying poor operational performance of the intersection.

Complementary Concepts to be considered as part of intersection alternatives are as follows:

- Signal Timing Updates/Coordination – Potential to improve safety and reduce delay at the intersection.
- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness of approaching traffic.
- Freight Priority System – Potential to reduce delays for trucks.
- Bike/Pedestrian Facilities – Urban environment indicates potential desire for bike and pedestrian facilities.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add/Extend Acceleration Lanes Alternative

This alternative improves safety at the intersection by providing drivers turning from Pioneer Drive to US 30 with a dedicated lane to allow them to accelerate before merging with through traffic on US 30. This would also improve intersection operations by reducing the differential speed between mainline traffic and traffic entering the mainline from the minor road. The improvement limits for this alternative can be seen in **Figure 5-50**.

This alternative would require minimal additional right-of-way in all quadrants of the intersection, while maintaining all property access. This is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Cross Road Overpass / Underpass Alternative – US 30 over Pioneer Drive

In this alternative, a bridge would be used to elevate US 30 over Pioneer Drive. The elevation change would be graded on all sides and not use a retaining wall. This alternative would improve safety at the intersection by eliminating all interaction between US 30 and Pioneer Drive. This alternative would also improve intersection operations be eliminating all delay associated with the traffic signal. The underpass alternative would reduce local access while meeting Access Management Guidelines. The improvement limits for this alternative can be seen in **Figure 5-51**.

This alternative would require moderate right-of-way from all quadrants of the intersection, in addition to a potential industrial relocation in the southeast quadrant. There are underserved populations mapped within the Block Group, however no right-of-way impacts to underserved populations are anticipated to occur from this alternative. This is a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with a limited access section, to be analyzed in Level 3. This grade-separated configuration was preliminarily selected as opposed to elevating Pioneer Drive over US 30 due to the assumed lower impacts given the urban environment. This alternative will be advanced for further evaluation in the Level 3 Screening process.

Convert to Interchange Alternative

This alternative supports a free-flow facility that allows US 30 traffic to move without interruption. US 30 would utilize two bridges over Pioneer Drive and on and off ramps to allow access to and from US 30. The improvement limits for this alternative can be seen in **Figure 5-52**.

Extensive right-of-way is required for this alternative, including several potential relocations. The most substantial portion of work would be in the northeast and southwest quadrants to avoid impacts to the businesses in the northwest and southeast quadrants. This alternative would also substantially impact the wetland located south of the intersection. The potential interchange would introduce potential adverse impacts for underserved populations. It is considered a high-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process for potential use with bundled improvements.

Partial Displaced Left Turn Alternative

This alternative would involve crossing left turn movements to the outside of US 30 upstream of the main intersection. This would improve intersection safety by reducing the risk of right-angle crashes at the main intersection. This alternative would also improve intersection operations by reducing the number of signal phases at the main intersection. The improvement limits for this alternative can be seen in **Figure 5-53**.

This alternative would require additional right-of-way from all quadrants of the intersection, while maintaining all property access. This is a medium-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Restricted Crossing U-Turn Intersection Alternative

This alternative would involve rerouting through movements from Pioneer Drive and left turns on and off of US 30. This alternative would improve safety at the intersection by reducing the risk of right-angle crashes. This alternative would also improve intersection operations by reducing the number of signal phases. The improvement limits for this alternative can be seen in **Figure 5-54**.

This alternative would require low amounts of additional right-of-way while maintaining all property access, with low impacts to cultural and natural resources. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Reduced Conflict Intersection Alternative

This alternative would involve rerouting through movements from Pioneer Drive and left turns on and off of US 30. This alternative would improve safety at the intersection by reducing the risk of right-angle crashes. This alternative would also eliminate the existing traffic signal. The improvement limits for this alternative would be the same as those shown in **Figure 5-54**.

This alternative would require low amounts of additional right-of-way while maintaining all property access, with low impacts to cultural and natural resources. This is a low-cost option. This alternative will be advanced for further evaluation in the level 3 screening process.

Roundabout Alternative

This alternative would improve intersection operations by reducing travel speed and the chance for more severe right angle, left turn, and head on collisions, although additional rear-end crashes may occur. The improvement limits for this alternative can be seen in **Figure 5-55**.

This alternative would require high amounts of additional right-of-way while maintaining all property access. This is a medium-cost option. Speed management strategies would have to be paired with the roundabout alternative to mitigate the risk of rear-end crashes. This alternative will advance for further evaluation in the Level 3 screening process.

5.17.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add/Extend Acceleration Lanes.
- Cross Road Overpass/Underpass.
- Convert to Interchange.
- Partial Displaced Left Turn.
- Restricted Crossing U-Turn.
- Roundabout.
- Signal Timing Updates/Coordination – May be incorporated into all alternatives involving signalization.
- Spot Roadway Lighting – May be incorporated into all alternatives involving signalization.
- Warning Systems – May be incorporated into all alternatives.
- Freight Priority System – May be incorporated into all alternatives.
- Bike/Pedestrian Facilities – May be incorporated into all alternatives.

Table 5-17: US 30 and Pioneer Drive – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Pioneer Drive	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	Yes	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Add acceleration lanes. Carried forward due to the potential to improve safety by limiting rear-end crashes at the intersection with a relatively low cost.
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	N/A	Low	Low	No	Medium	Medium	N/A	Medium	Yes	Carried forward due to the potential for safety and operational improvements associated with grade separation.
Convert to Interchange	Yes	Yes	Yes	Yes	N/A	Medium	Low	Yes	High	Medium	N/A	High	Yes	Carried forward due to necessity for a limited access alternative. This concept is not considered in other bundled improvements.
Signalized Intersection Improvements														
Partial DLT E-W	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Medium	Low	N/A	Medium	Yes	Intersection shifted slightly east to avoid impacts to utilities on NW corner. Carried forward due to potential to improve intersection operations by reducing the number of signal phases at the intersection.
Restricted Crossing U-Turn Intersection E-W	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Retaining wall used as needed in NW corner of intersection to avoid impacts to utilities. Carried forward as a result of the potential to improve intersection safety by reducing the number of conflicting movements within a small footprint.
Unsignalized Intersection Improvements														
Reduced Conflict Intersection	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Retaining wall used as needed in NW corner of intersection to avoid impacts to utilities. Carried forward as a result of the potential to improve intersection safety by reducing the number of conflicting movements within a small footprint.
Roundabout	Yes	Yes	Yes	Yes	N/A	Low	Low	No	High	Low	N/A	Medium	Yes	Retaining wall used as needed in NW corner of intersection to avoid impacts to utilities. Carried forward as a potential solution to eliminate the signal at the intersection while also maintaining safety by reducing speeds.

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Pioneer Drive	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
Complementary Concepts														
Signal Timing Updates/Coordination	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Potential to improve safety and relieve congestion
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Provide lighting for primary concepts
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Raises awareness of approaching traffic
Freight Priority System	No	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Can reduce delays for trucks
Bike/Pedestrian Facilities	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Potential to improve safety at the intersection or bike riders and pedestrians

Figure 5-49: US 30 and Pioneer Road – Add/Extend Acceleration Lanes Alternative

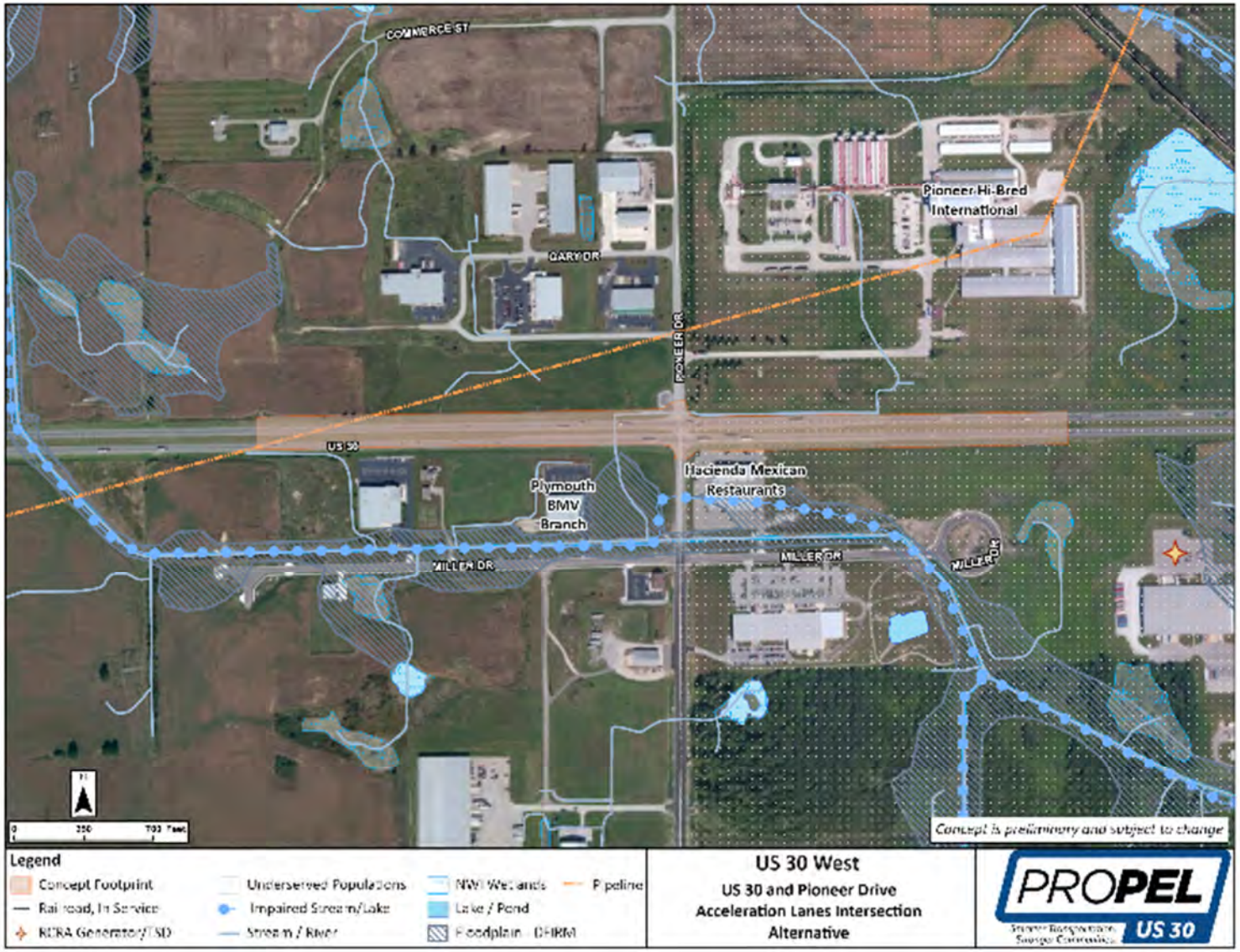


Figure 5-50: US 30 and Pioneer Road – Cross Road Overpass/Underpass Alternative – US 30 Over Pioneer Drive

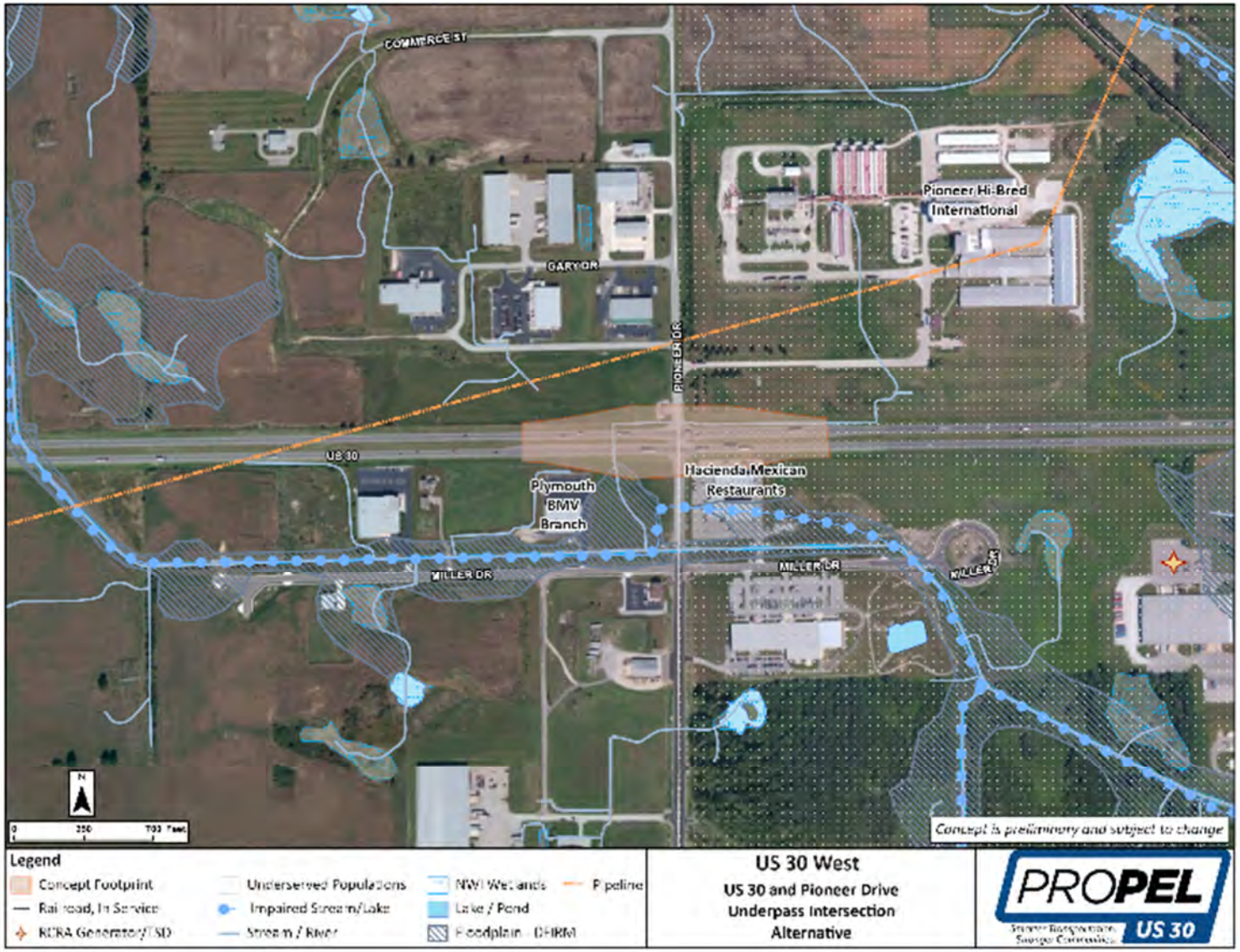


Figure 5-51: US 30 and Pioneer Road – Convert to Interchange Alternative

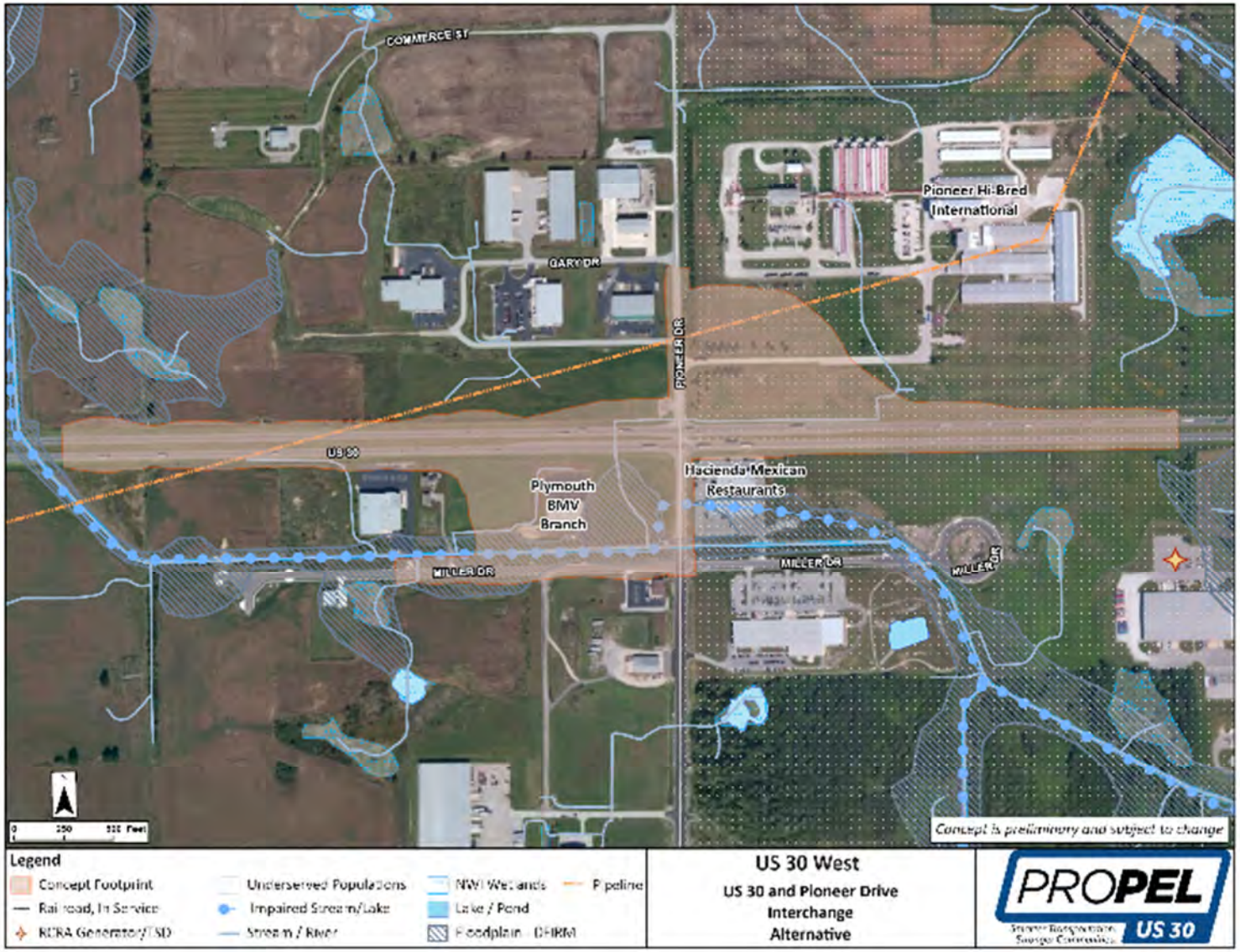


Figure 5-52: US 30 and Pioneer Road – Partial Displaced Left Turn Alternative

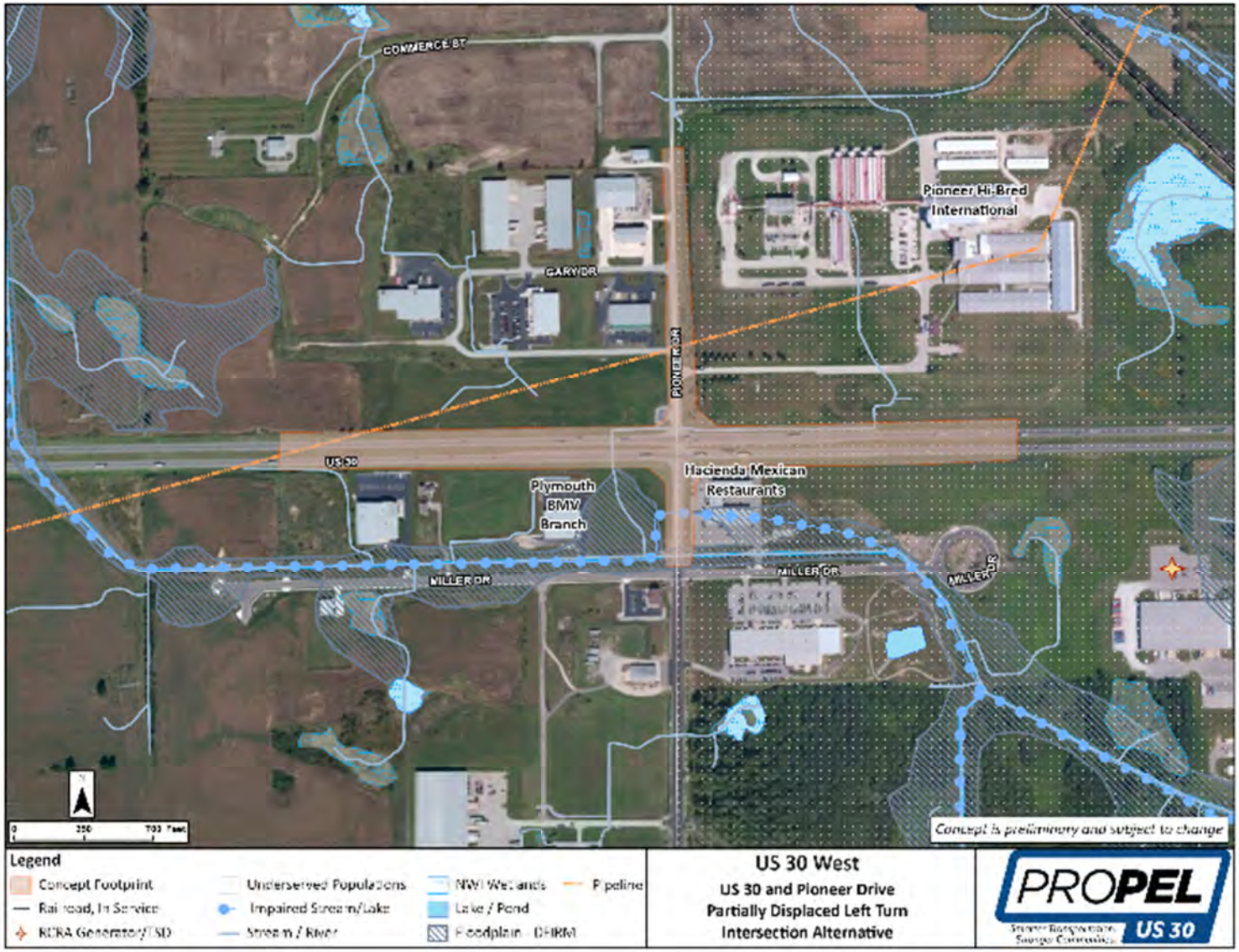


Figure 5-53: US 30 and Pioneer Road – Restricted Crossing U-Turn Intersection and Reduced Conflict Intersection Alternatives

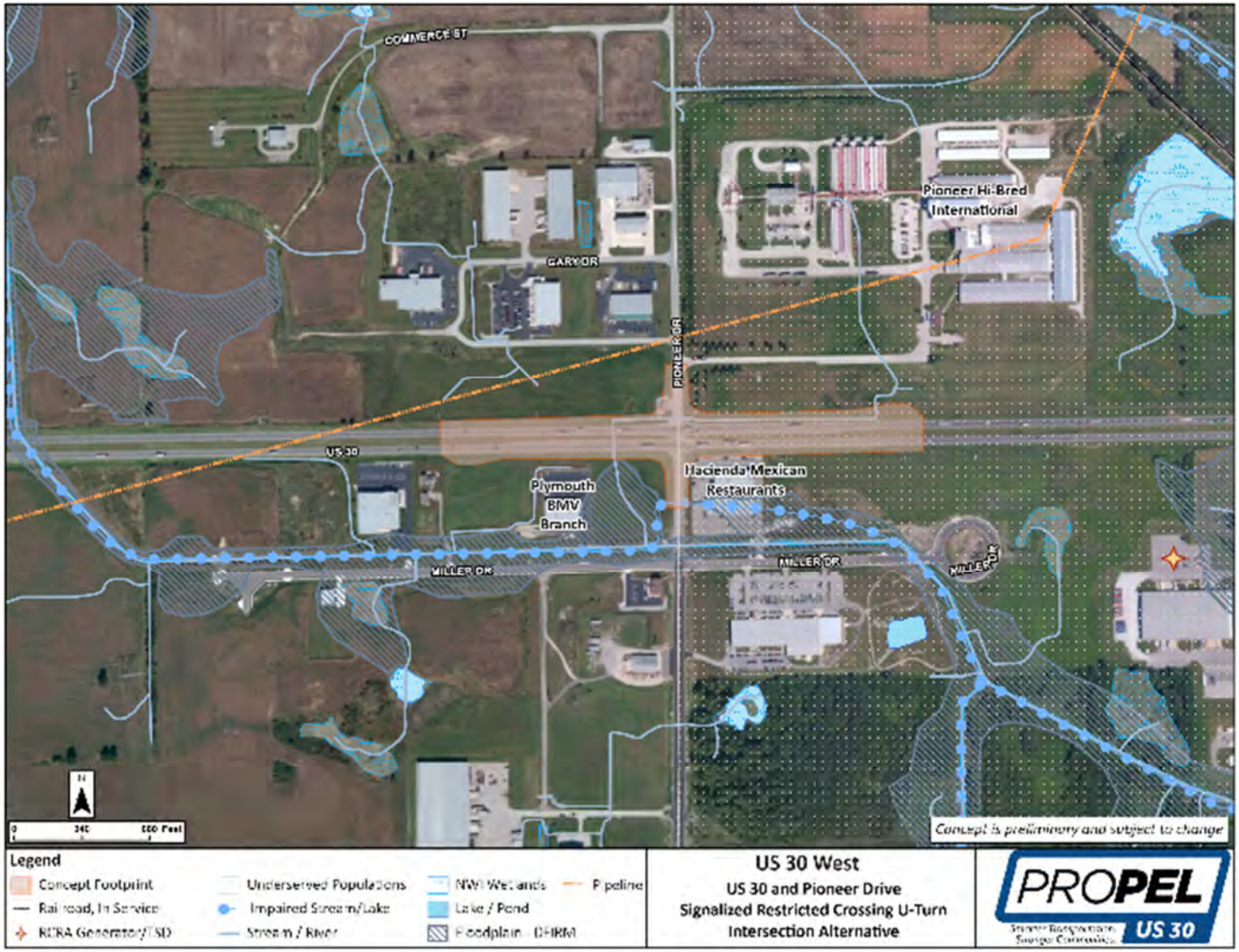
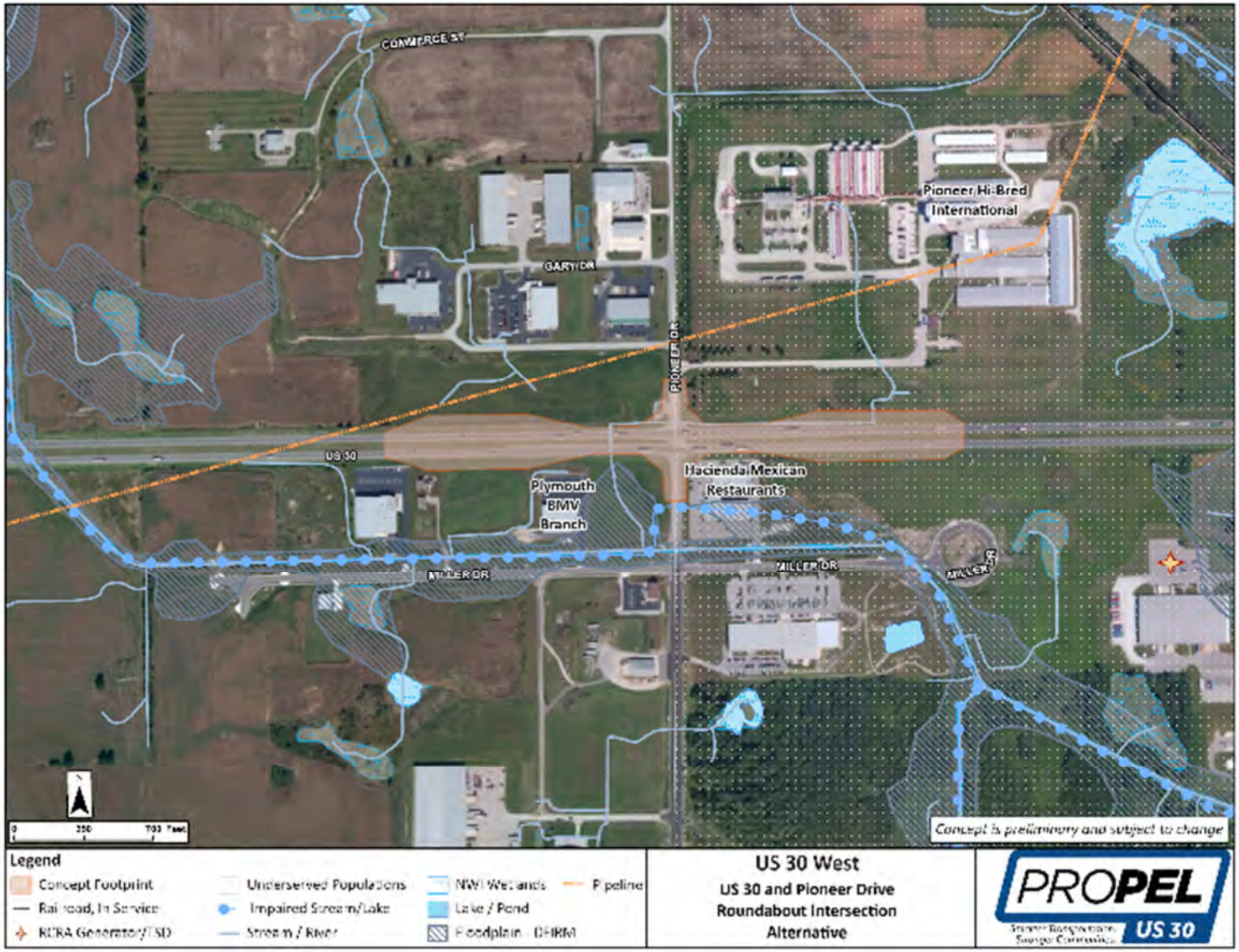


Figure 5-54: US 30 and Pioneer Road – Roundabout Alternative



5.18. US 30 AND OAK DRIVE IN MARSHALL COUNTY

5.18.1. OVERVIEW OF LOCATION

This signalized intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices are both elevated, indicating there are safety concerns at the intersection. The predominant types of crashes are as follows:

- 56% were rear end crashes
- 20% were right angle crashes
- 15% were same direction side-swipe crashes

This intersection is located within the city limits of Plymouth with high commercial and industrial development. There is a railroad crossing on US 30 located 950' west of the intersection. The US 30 and US 31 Marshall County Plan (2023) notes that available space for an interchange may be problematic and that a grade separated solution may be more beneficial given the other costs.

Public comments received to date about this intersection are summarized as follows.

- Convert this intersection to an interchange.

5.18.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the US 30 and Oak Drive intersection poses numerous constraints that were considered in the development of alternatives. The constraints are summarized as follows:

- Commercial centers are located to both the north and south of the intersection.
- Love's Travel Stop is located 1.0 miles west of the intersection.
- An at-grade railroad crossing is located 0.2 miles west of the intersection, crossing US 30.
- The Michigan Street interchange is located 0.9 miles east of this intersection.
- Underserved populations are located near the intersection.
- Family Income Below Poverty Level
    - Non-English Speaking Population
    - Minority Populations
    - USDOT Disadvantaged Populations
- A natural gas pipeline is located approximately 0.1 miles north and 0.06 miles west of the intersection.
- The Murphy Gas Station located 0.12 miles northwest of the intersection is listed as a UST and LUST.
- There is a floodplain to the west of the intersection; the floodplain comes within 0.12 miles of the intersection at its nearest point.

5.18.3. SCREENING OF ALTERNATIVES

The decision tree indicates that both at-grade and grade-separated alternatives would be applicable, although an interchange is unnecessary. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-18**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – Existing turn lanes do not provide sufficient deceleration length. Turn lanes should be lengthened. This alternative would maintain local access.
- Add/Extend Acceleration Lanes – Crash patterns at the intersection indicate a potential concern due to not having acceleration lanes. Acceleration lanes should be added. This alternative would maintain local access.
- Cross Road Overpass/Underpass – There are other locations within approximately 2 miles of the intersection with equal or better access based on the functional classification of the route that local traffic can use to access the corridor. Therefore, a crossroad overpass or underpass should be considered, especially when applied alongside a limited access section, to be analyzed in level 3.
- Signalized and Unsignalized Intersection Improvements – This intersection is important for access to and from US 30 due to its location near Plymouth's main commercial center. The above average crash frequency and cost indices indicate safety concerns. This intersection is currently signalized. The CAP-X analysis indicated that the following at-grade intersection types could produce acceptable operating conditions in the design year.
    - Partial Displaced Left Turn – This alternative would improve safety and intersection operations while retaining the existing signal. The DLT alternative would maintain local access.
    - Boulevard Left Turn Intersection East-West – This alternative would improve safety and intersection operations while retaining the existing signal. This alternative would maintain local access.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Median Safety Improvements – The median meets IDM requirements
- Convert to Interchange – There are no volumes of other factors that support an interchange. An interchange exists at Michigan Street which precludes an interchange here for spacing reasons.
- Other signalized and unsignalized intersection types were eliminated through Cap-X tool analysis because their potential benefits were not substantial enough when compared to the existing conditions. Therefore, they were not further analyzed as part of this process. These intersection types included:
    - Green-T Intersection – This alternative is not applicable to a four-legged intersection.
    - Restricted Crossing U-Turn Intersection – The CAP-X results indicated a high volume to capacity ratio implying poor operational performance of the intersection.
    - Quadrant Roadway – The CAP-X results indicated a high volume to capacity ratio implying poor operational performance of the intersection.
    - RCI/ RCUT – The CAP-X results indicated a high volume to capacity ratio implying poor operational performance of the intersection.

Complementary Concepts to be considered as part of intersection alternatives are as follows:

- Signal Timing Updates / Coordination – Signal timing updates and coordination have the potential to improve safety and relieve congestion.
- Railroad Crossing Improvements – Provide deceleration and acceleration lanes for vehicles required to stop. The Railroad Crossing Improvement concept is included in the footprints for the following alternatives:
    - Add and Lengthen Turn Lanes Alternative
    - Add/Extend Acceleration Lanes Alternative
    - Underpass Alternative
    - Displaced Left Turn Alternative
    - Boulevard Left Turn Alternative
- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic.
- Freight Priority System – Potential to reduce delay for trucks.
- Bike / Pedestrian Facilities – Urban environment indicates potential desire for bike and pedestrian facilities. The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add and Lengthen Turn Lanes Alternative

This alternative involves lengthening the existing eastbound and westbound left and right turn lanes. Lengthening the existing turn lanes would improve safety by providing sufficient deceleration lengths and increasing storage space, reducing the risk of rear-end crashes. The proposed turn lanes will meet IDM requirements. The improvement limits of this alternative can be seen in **Figure 5-56**.

With the eastbound and westbound turn lanes lengthened there are potential right-of-way impacts in all four quadrants of the intersection. The railroad crossing improvements further push out the required right-of-way along US 30. By requiring additional grading, a wetland north of US 30 may be impacted. This alternative would have potential adverse impacts to underserved populations. Potential relocations may be required in the northeast and southwest quadrants. This is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Add/Extend Acceleration Lanes Alternative

Extended acceleration lanes would improve intersection safety by providing dedicated lanes for vehicles turning onto US 30 from Oak Drive to achieve sufficient speed before entering the travel lanes. This alternative would also improve intersection operations by reducing the differential speed between mainline traffic and traffic entering the mainline from the minor road. The improvement limits for this alternative can be seen in **Figure 5-56**.

This alternative is expected to require additional right-of-way from all quadrants. Potential relocations may be required in the northeast and southwest quadrants. The railroad crossing improvements further push out the required right-of-way along US 30. The extended acceleration turn lane requires additional grading east of the intersection causing a wetland south of US 30 to be impacted. This alternative would have potential adverse impacts to underserved populations. This is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Underpass Alternative – US 30 over Oak Drive

Reconfiguring this intersection so that US 30 goes over Oak Drive increases safety by eliminating access from Oak Drive and vice versa. In this alternative US 30 traffic would be routed over top of Oak Drive by the use of two bridges. To reduce conflicts with the railroad crossing west of the existing intersection, bridges would be utilized to route traffic over top of the existing railroad. The improvement limits of this alternative can be seen in **Figure 5-57**.

By constructing an underpass to reach the necessary clearance over Oak Drive the wetland and streams in the immediate area as well as several businesses would be impacted by grading. The potential right-of-way impacts of an underpass configured this way at this intersection are along the north and south sides of US 30. With this alternative there are potential relocations to the north and south of US 30. This alternative would have potential adverse impacts to underserved populations. This is a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with a limited access section, to be analyzed in level 3. This grade-separated configuration was preliminarily selected as opposed to elevating Oak Drive over US 30 due to the assumed lower impacts given the urban environment. This alternative will be advanced for further evaluation in the level 3 screening process.

Partial Displaced Left Turn Alternative

The Partial Displaced Left Turn alternative would reroute left turns from US 30 and Oak Drive upstream of the main intersection, thereby eliminating the left turn signal phase for both approaches at the main intersection. This would improve operations and reduce delay at the intersection of US 30 and Oak Drive. The improvement limits for this alternative are shown in **Figure 5-58**.

The DLT alternative would require additional right-of-way in all four quadrants of the intersection and along Oak Drive and US 30. There would also be substantial impacts to nearby natural resources. This alternative would also result in several potential relocations. This alternative would have potential adverse impacts to underserved populations. The railroad crossing improvements further push out the required right-of-way along US 30. This is a medium-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Boulevard Left Turn Intersection East-West Alternative

This alternative would improve intersection safety by rerouting drivers on US 30 from crossing the opposing lanes, reducing conflict points, thereby reducing the risk of right-angle crashes. This alternative would also improve intersection operations by reducing the number of signal phases required. This alternative requires the turning radii to be enlarged to accommodate truck turning movements. The improvement limits for this alternative can be seen in **Figure 5-59**.

This alternative is expected to require additional right-of-way from all four quadrants. Potential relocations may be required in the northeast and southwest quadrants. There is also potential impacts to the surrounding wetlands. This alternative would have potential adverse impacts to underserved populations. The railroad crossing improvements further push out the required right-of-way along US 30. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.18.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Add/Extend Acceleration Lanes.
- Cross Road Overpass/Underpass.
- Partial Displaced Left Turn.
- Boulevard Left Turn Intersection.
- Signal Timing Updates/Coordination – May be incorporated into all alternatives involving signalization.
- Railroad Crossing Improvements – May be incorporated into all alternatives.
- Spot Roadway Lighting – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.
- Freight Priority System – May be incorporated into all alternatives involving signalization.
- Bike/Pedestrian Facilities – May be incorporated into all alternatives.

Table 5-18: US 30 and Oak Drive – Qualitative Analysis of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	Notes/ Comments
US30 x Oak Dr	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward ?**	
No build	N/A	N/A	Yes	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	No	Yes	Yes	N/A	Medium	Low	Yes	Low	Medium	Medium	Low	Yes	Extend EB and WB turn lanes to provide sufficient deceleration lengths. Carried forward due to the potential to improve safety at a relatively low cost.
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	N/A	Medium	Low	Yes	Low	Medium	Medium	Low	Yes	Extend EB and WB acceleration to potentially reduce the likelihood of rear-end crashes, which were observed to be a concern. Carried forward due to the potential to improve safety at a relatively low cost. The proposed turn lanes will meet IDM standards.
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	N/A	Medium	Low	Yes	High	High	High	Medium	Yes	Carried forward due to safety improvements associated with grade separation and applicability to a limited access concept.
Signalized Intersection Improvements														
Partial DLT E-W	Yes	Yes	Yes	Yes	N/A	Medium	Low	Yes	High	High	Medium	Medium	Yes	Turning radii designed to Indiana Design Vehicle (IDV) can reduce potential ROW impacts with another design vehicle. Carried forward as a result of the potential to improve intersections safety and operations.
Boulevard Left Intersection E-W	Yes	Yes	Yes	Yes	N/A	Medium	Low	Yes	Medium	High	Medium	Low	Yes	Turning radii designed to IDV, but can reduce potential ROW impacts with another design vehicle. Carried forward as a result of the potential to improve intersection safety and operations.
Complementary Concepts														
Signal Timing Updates/Coordination	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Potential to improve safety and relieve congestion
Railroad Crossing Improvement	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Medium	Medium	Yes	Decel accel lanes for vehicles stopping. Increases footprint of all alternatives when applied.
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Provide lighting for intersection alternatives
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Raises awareness of approaching traffic
Freight Priority System	No	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Can reduce delays for trucks
Bike/Pedestrian Facilities	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	Low	Low	Yes	Potential to improve safety at the intersection or bike riders and pedestrians

Figure 5-55: US 30 and Oak Drive – Add and Lengthen Turn Lanes and Add/Extend Acceleration Lanes Alternatives

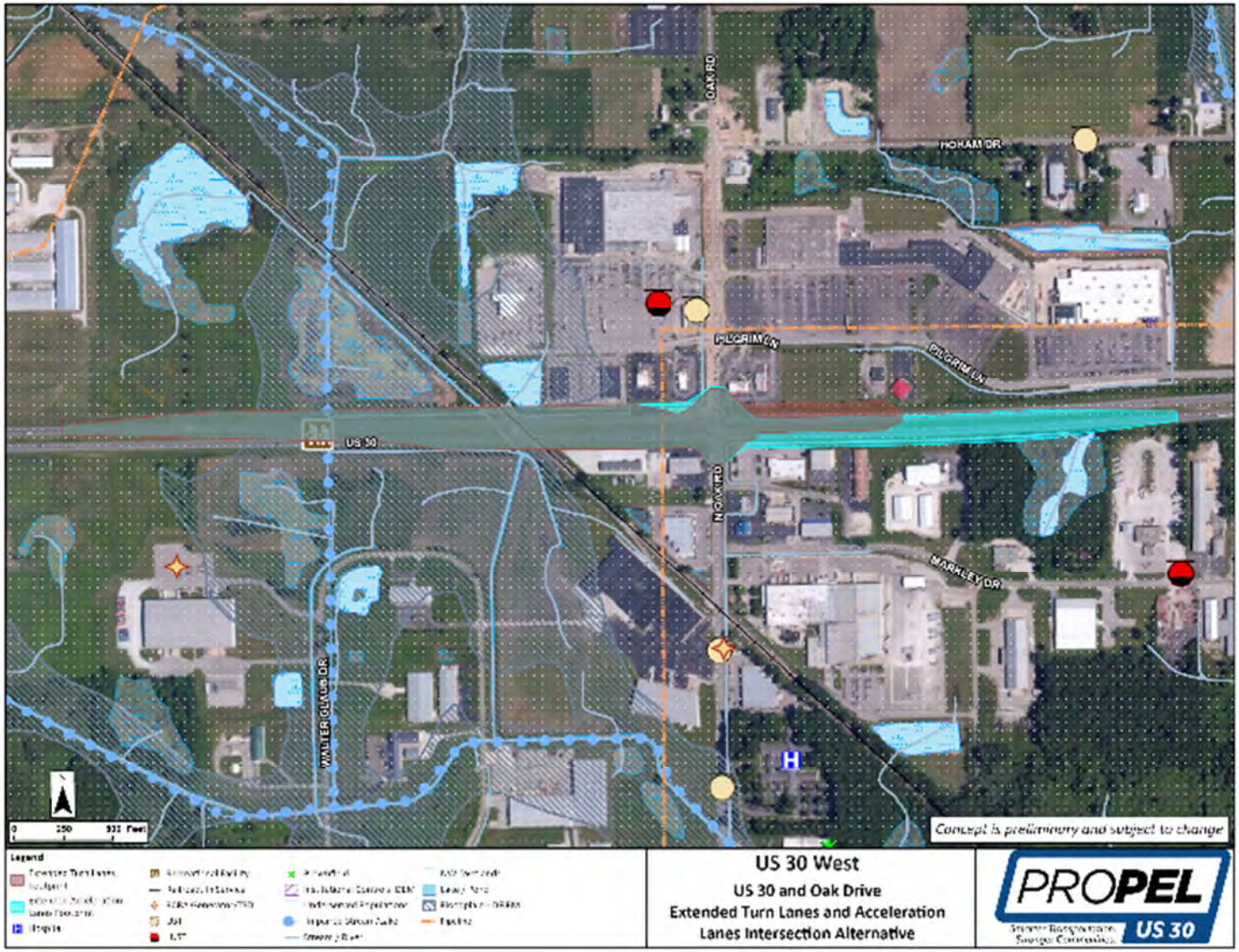


Figure 5-56: US 30 and Oak Drive – Cross Road Overpass/Underpass Alternative – US 30 Over Oak Drive

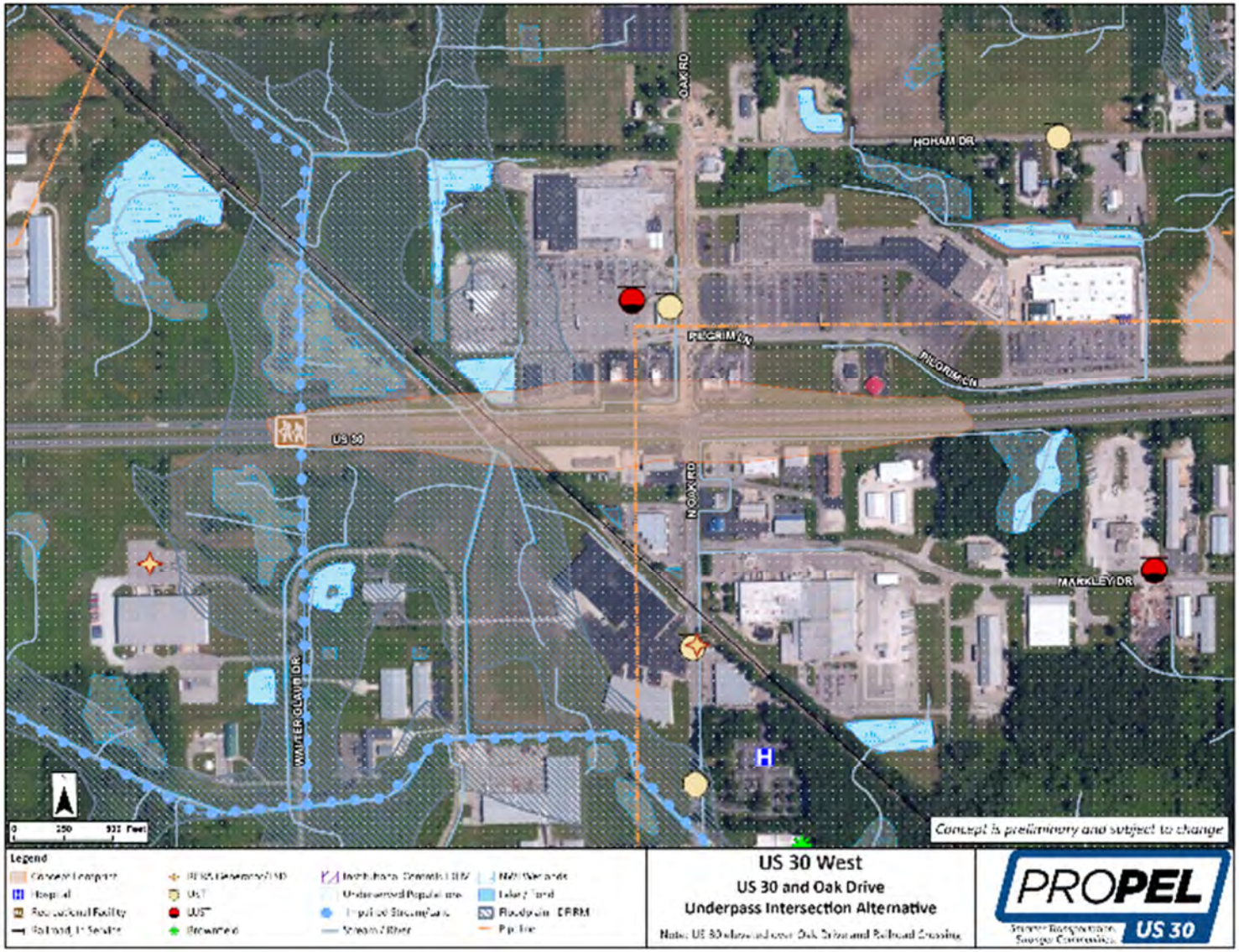


Figure 5-57: US 30 and Oak Drive – Partial Displaced Left Turn Alternative

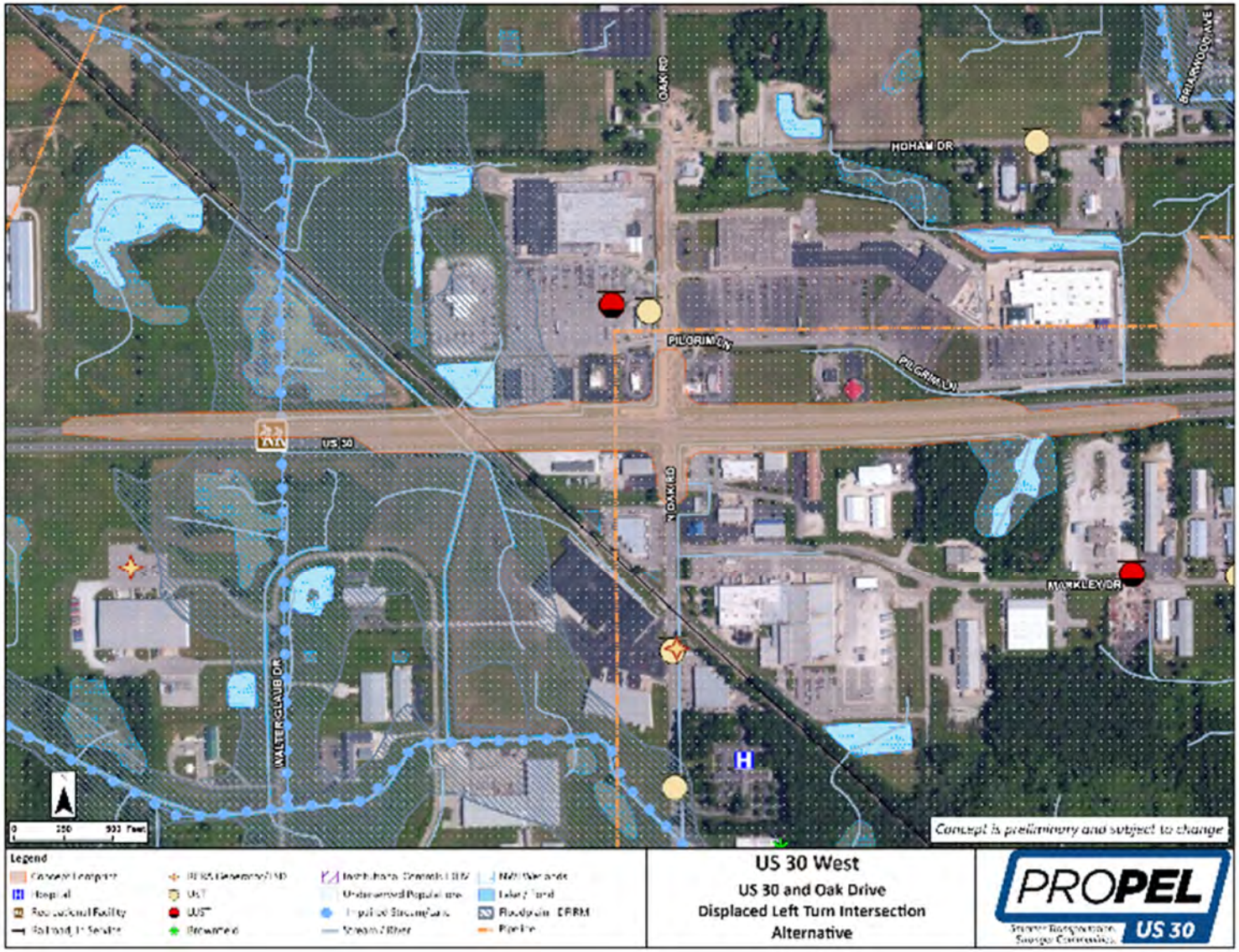
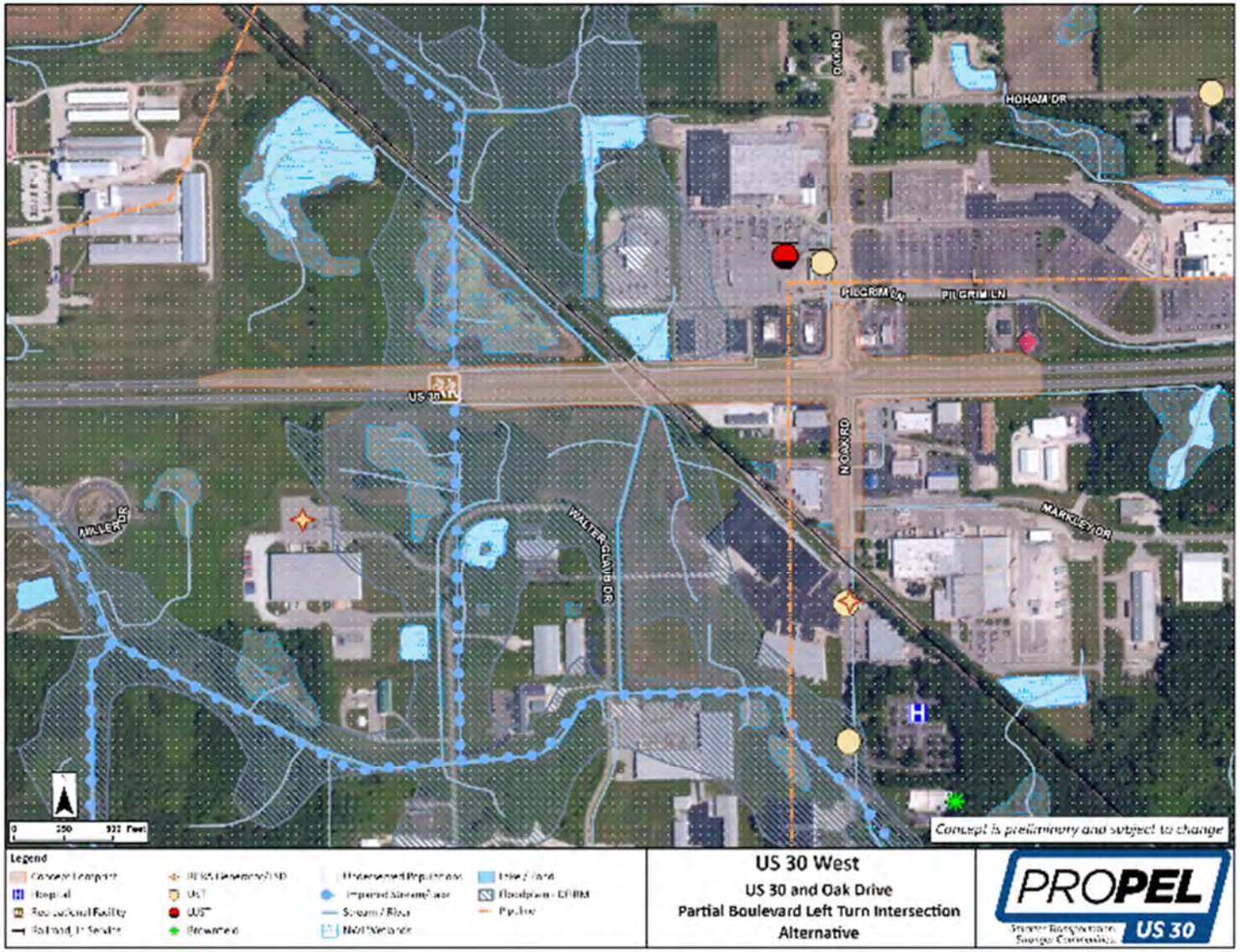


Figure 5-58: US 30 and Oak Drive – Boulevard Left Turn Intersection East-West Alternative



5.19. US 30 AND MICHIGAN STREET IN MARSHALL COUNTY

5.19.1. OVERVIEW OF LOCATION

This folded diamond interchange is expected to operate acceptably through the design year of this study for all ramp and mainline movements. The crash severity index for the interchange is slightly elevated, indicating there are opportunities for safety improvements at the interchange.

This interchange is located within the city limits of Plymouth. There have been no specific public comments to date regarding concerns at this interchange.

No specific improvements are noted in the US 30 and US 31 Marshall County Plan (2023) other than upgrades to Michigan Street proper.

5.19.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the US 30 and Michigan Street interchange poses numerous constraints that were considered in the development of alternatives. The constraints are summarized as follows:

- A stream is located 0.3 miles east of the interchange.
- A commercial area surrounds the interchange.
- Underserved populations are located near the interchange.
    - Family Income Below Poverty Level
    - Non-English Speaking Population
    - Minority Populations
    - USDOT Disadvantaged Populations
- Plymouth Municipal Airport is located in the northeast quadrant of the interchange.

5.19.3. SCREENING OF ALTERNATIVES

This interchange is important for access to and from US 30 as it is in an urban region. As this is an existing interchange, at-grade and new grade-separated alternatives are not appropriate. The evaluation of alternatives from the decision tree are summarized in **Table 5-19**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Extend Acceleration/Deceleration Lanes – The existing US 30 westbound acceleration and deceleration lanes as well as the US 30 eastbound acceleration lane are substandard and should be lengthened. This alternative would maintain local access.

Complementary Concepts to be considered at this interchange are as follows:

- Add Capacity to Movements – Potential to improve mobility at the interchange.
- Ramp Terminal Intersection Improvement – Potential to improve traffic operations at the interchange.
- Bike/Pedestrian Facilities – Urban environment indicates potential desire for bike and pedestrian facilities.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these interchange alternatives where applicable.

Extend Acceleration Lanes Alternative

At this interchange, the US 30 westbound acceleration and deceleration lanes as well as the US 30 eastbound acceleration lane were all found to be substandard. This alternative would improve the safety at the interchange of US 30 and Michigan Street by providing longer dedicated lanes for vehicles entering US 30 from Michigan Street to reach the design speed before merging with through traffic on US 30. This would decrease the risk of rear-end and side-swipe crashes. This alternative would also improve operations by reducing the differential speed between mainline traffic and traffic entering the mainline from the minor road. Safety at this interchange would improve by providing drivers a longer lane to decelerate so that they can safely exit US 30 westbound. The improvement limits for this alternative are shown in **Figure 5-60**.

This alternative would require minimal additional right-of-way but does potentially require a relocation. This alternative requires the US 30 bridges directly east of Michigan Street as well as the westbound US 30 bridge just west of Michigan Street to be widened which increases impacts on the surrounding natural resources and cost of the alternative. This is a medium-cost option due to the need to widen the existing structure to accommodate the extension of the acceleration and deceleration lanes. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.19.4. INTERCHANGE ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

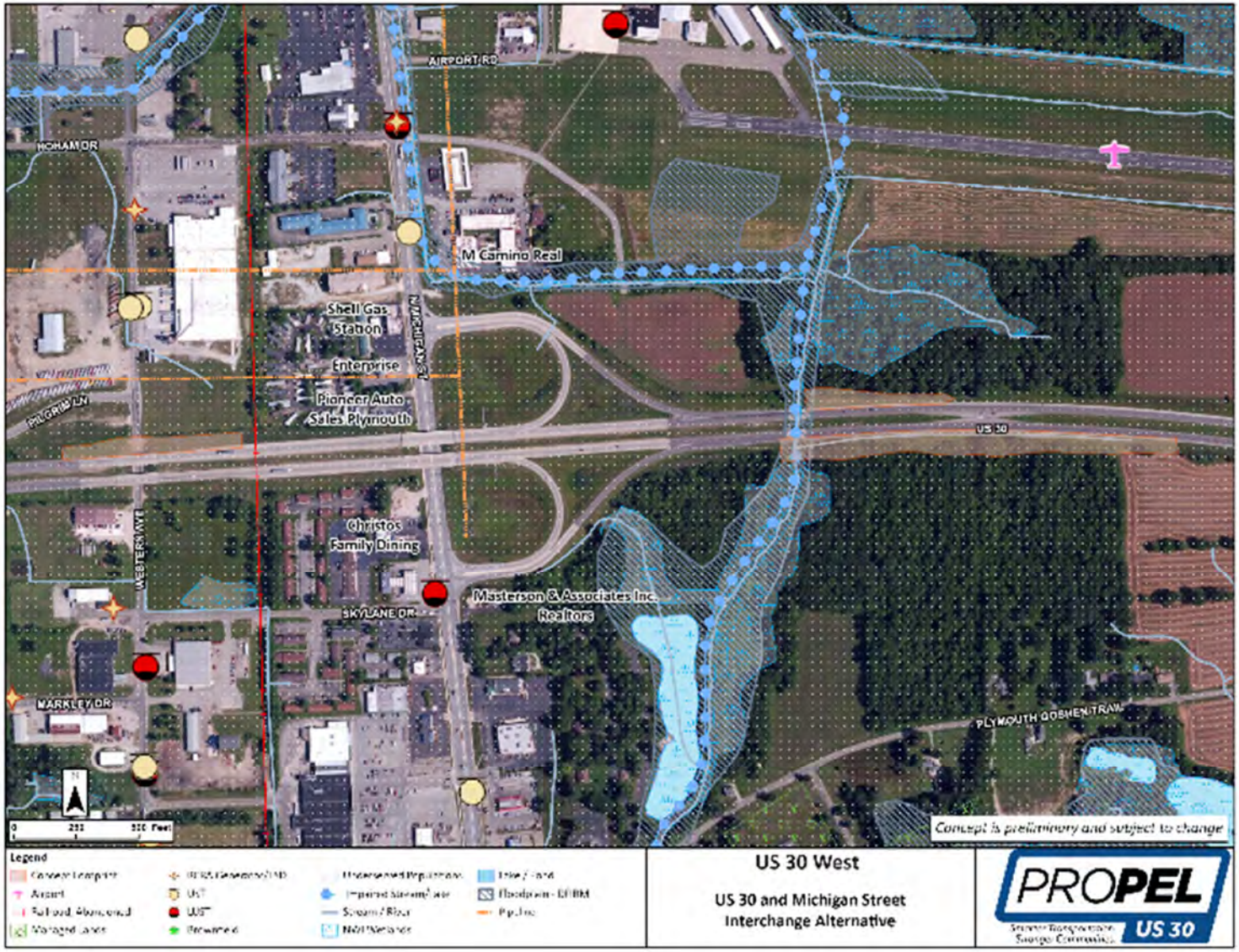
The following interchange alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add/Extend Acceleration Lanes.
- Ramp Terminal Intersection Improvements – May be incorporated into all alternatives.
- Bike/Pedestrian Facilities – May be incorporated into all alternatives.

Table 5-19: US 30 and Michigan Street – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Michigan Street	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	Yes	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	Yes	Medium	Low	Yes	Low	Medium	N/A	Medium	Yes	Requires widening of the existing WB and EB bridges over Elmer Seltenright Ditch to extend EB acceleration and WB deceleration lane. This alternative will be carried forward due to the potential to improve operations and safety at the interchange with a relatively small footprint.
Complementary Concepts														
Add Capacity to Movements	Yes	Yes	Yes	Yes	No	Low	Low	No	Low	Low	N/A	Medium	No	Additional capacity for this facility is not needed. This concept will not be advanced for further evaluation.
Ramp Terminal Intersection Improvements	Yes	Yes	Yes	Yes	No	Low	Low	No	Low	Low	N/A	Low	Yes	Would Improve interchange safety and operations by improving existing deficiencies at the ramp terminals.
Bike/Pedestrian Facilities	Yes	Yes	Yes	Yes	No	Low	Low	No	Low	Low	N/A	Low	Yes	Potential to improve safety for bike users and pedestrians using Michigan Street.

Figure 5-59: US 30 and Michigan Street – Extend Acceleration Lanes Alternative



5.20. US 30 AND PLYMOUTH GOSHEN TRAIL IN MARSHALL COUNTY

5.20.1. OVERVIEW OF LOCATION

This intersection is expected to operate acceptably through the design year of this study. The crash frequency index is slightly elevated and the crash cost index is elevated, indicating there are opportunities for safety improvements at this intersection.

- 60% of the crashes were right angle

In 2019 the intersection was modified into a directional access intersection, thus most likely reducing the number of right-angle crashes.

Public comments received to date about this intersection are summarized as follows.

- This intersection is a safety concern.
- Right angle crashes and crossing fatalities have occurred here.

The US 30 and US 31 Marshall County Plan (2023) notes that an additional bridge overpass could/should be constructed to maintain cross-connectivity from south of US 30 to north of US 30.

5.20.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the intersection of US 30 and Plymouth Goshen Trail poses numerous constraints that were considered in the development of these alternatives. These constraints are summarized as follows:

- Stockberger Trucking is in the northwest quadrant of the intersection, and Darling Ingredients is in the southeast quadrant.
- There are residential properties in the southwest and northeast quadrants of the intersection.
- Plymouth Municipal Airport is located approximately 0.30 miles northwest of the intersection.
- Underserved populations are located near the intersection.
    - Family Income Below Poverty Level
    - Non-English Speaking Population
- There is 1 NWI wetland located in the southeast quadrant of the intersection.
- Hazardous material concerns are near the intersection, including 2 UST sites north of the intersection; 1 LUST site east of the intersection. There is also an IDEM institutional control site east of the intersection.
- There is a floodplain south of the intersection.

5.20.3. SCREENING OF ALTERNATIVES

The decision tree indicates that that both at-grade and grade-separated alternatives would be applicable, although an interchange is unnecessary. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-20**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – Right turn lanes are not present. Turn lanes should be added. This alternative would maintain local access.
- Add/Extend Acceleration Lanes – Crash patterns at the intersection are potentially due to not having acceleration lanes. Acceleration lanes should be added. This alternative would maintain local access.
- Cross Road Overpass/Underpass – There are other locations within approximately 2 miles of the intersection that provide equal or better access based on the functional classification of the route that local traffic would use to access the corridor. Therefore, a crossroad overpass or underpass should be considered, especially when applied alongside a limited access section, to be analyzed in level 3.
- Unsignalized Intersection Improvements – This intersection is important for access to and from US 30 due to the high usage of the intersection. The above average crash frequency and crash cost indices indicate the potential for safety improvements. This intersection is two-way stop controlled and forecasted traffic volumes do not warrant signalization. The CAP-X analysis indicated that of the following at-grade intersection types could produce acceptable operating conditions in the design year.
    - Reduced Conflict Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Reduced Conflict Intersection would meet access management guidelines as well as preserve free-flow operations on US 30 and maintain local access. Due to a recent project at this intersection, an RCI would only need the U-Turns constructed.

The primary concepts eliminated from eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT access management guidelines.
- Median Safety Improvements – The existing median meets IDM requirements.
- Convert to Interchange – There are no volumes or other factors that support an interchange here. The location of this intersection relative to the US 30 and US 31 and US 30 and Michigan Street interchanges also preclude an interchange here.
- Signalized Intersection Improvements – This intersection is important for access to and from US 30 and has safety and/or operational concerns, but it is currently unsignalized and does not meet a warrant for a signal.

Complementary concepts to be considered as part of intersection alternatives are as follows:

- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add or Lengthen Turn Lanes Alternative

This alternative involves adding eastbound and westbound right turn lanes. Adding turn lanes improves intersection operations and improves safety by providing sufficient deceleration length in a dedicated lane. The proposed turn lanes will meet IDM standards. The improvement limits of this alternative can be seen in **Figure 5-61**.

With the eastbound and westbound right turn lanes added, there are potential right-of-way impacts in all four quadrants of the intersection. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Add/Extend Acceleration Lanes Alternative

Adding acceleration lanes at the intersection of US 30 and Plymouth Goshen Trail would improve intersection operations by reducing the differential speed between mainline traffic and traffic entering the mainline from the minor road. This alternative would also improve safety at the intersection by providing a dedicated lane for vehicles turning from Plymouth Goshen Trail to accelerate to the speed of vehicles traveling on US 30, thereby reducing the risk of rear-end crashes. The improvement limits of this alternative can be seen in **Figure 5-61**.

The addition of acceleration lanes to the eastbound and westbound legs of the intersection would result in low right-of-way impacts in the northwest and southeast quadrants of the intersection. There would also be impacts to wetlands located in the southeast quadrant. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Cross Road Overpass / Underpass Alternative – Plymouth Goshen Trail over US 30

Reconfiguring this intersection so that Plymouth Goshen Trail goes over US 30 increases safety by eliminating access from Plymouth Goshen Trail to US 30 and vice versa. In this alternative traffic would be routed over top of US 30 by use of a bridge. The improvement limits of this alternative can be seen in **Figure 5-62**.

Constructing an overpass for Plymouth-Goshen Trail would require grading to elevate the roadway. This grading would have substantial impacts all quadrants of the intersection. In addition, there would be numerous potential relocations in the southern quadrants. New access would also be provided where necessary in the southeast and northwest quadrants. This alternative would have potential adverse impacts to underserved populations. This alternative would also have impacts to the wetland located in the southeast quadrant. This is a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with a limited access section, to be analyzed in Level 3. This grade-separated configuration was preliminarily selected as opposed to elevating US 30 over Plymouth Goshen Trail due to the assumed lower impacts given the rural environment.

Reduced Conflict Intersection Alternative

The RCI alternative would retain the free-flow of through traffic along US 30 while rerouting left turns from Plymouth Goshen Trail to US 30 and minor road through movements. This would improve safety by reducing the risk of right-angle crashes. The addition of truck loons was included in the conceptual design. The improvement limits for this alternative are identical to that of what is shown in **Figure 5-63**.

Potential right-of-way impacts are expected in all quadrants of the intersection. New access would be provided in the southeast quadrant as needed. Additionally, the alternative may require relocations in the southeast quadrant. This alternative would have potential adverse impacts to underserved populations. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.20.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Add/Extend Acceleration Lanes.
- Cross Road Overpass/Underpass.
- Reduced Conflict Intersection.
- Spot Roadway Lighting – May be applied to all alternatives.
- Warning Systems – May be applied to all alternatives.

Table 5-20: US 30 and Plymouth Goshen Trail – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Plymouth Goshen Trail	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	Yes	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Add EB and WB right turn lanes to provide sufficient deceleration length, reducing the likelihood of rear-end crashes. Carried forward because of the potential for improved safety. The proposed turn lanes will meet IDM requirements.
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	N/A	Medium	Low	No	Low	Low	N/A	Low	Yes	Extend EB and WB acceleration lanes, reducing the likelihood of rear-end crashes which were observed to be a concern at this intersection. Carried forward due to the potential to improve safety with a relatively small footprint.
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	N/A	High	Low	Yes	High	High	N/A	Medium	Yes	Carried forward due to the potential for improvements to safety and operations associated with grade separation and applicability to a limited access alternative.
Unsignalized Intersection Improvements														
Reduced Conflict Intersection E-W	Yes	Yes	Yes	Yes	N/A	Medium	Low	Yes	Medium	Medium	N/A	Low	Yes	Turning radii designed to IDV can reduce potential R/W impacts with another design vehicle. Carried forward due to the potential to improve intersection safety and operations by limiting conflicting movements within a small footprint.
Complementary Concepts														
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Provide lighting for intersection alternatives
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Raises awareness of approaching traffic

Figure 5-60: US 30 and Plymouth Goshen Trail – Add or Lengthen Turn Lanes and Add/Extend Acceleration Lanes Alternatives

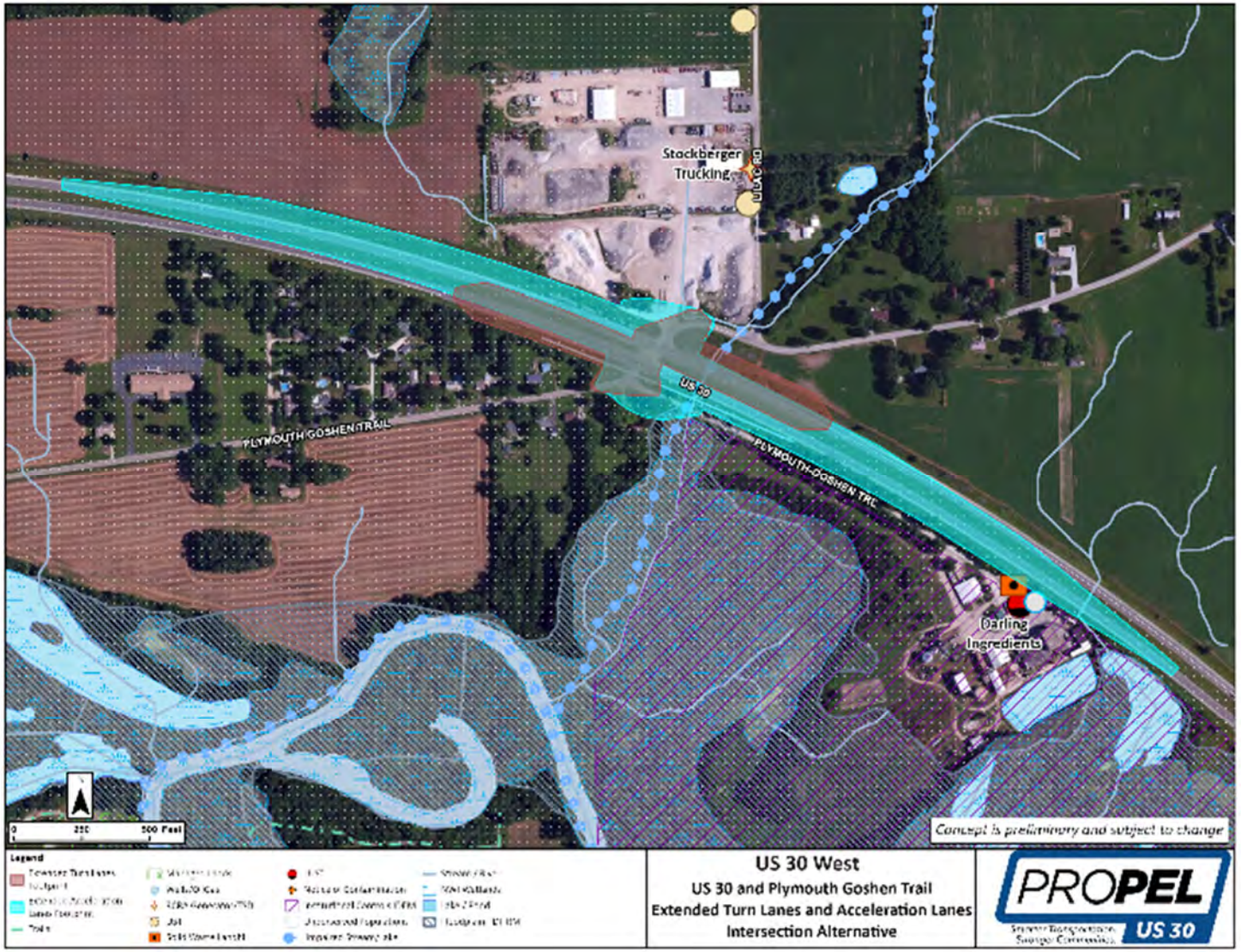


Figure 5-61: US 30 and Plymouth Goshen Trail – Cross Road Overpass/Underpass Alternative – Plymouth Goshen Trail over US 30

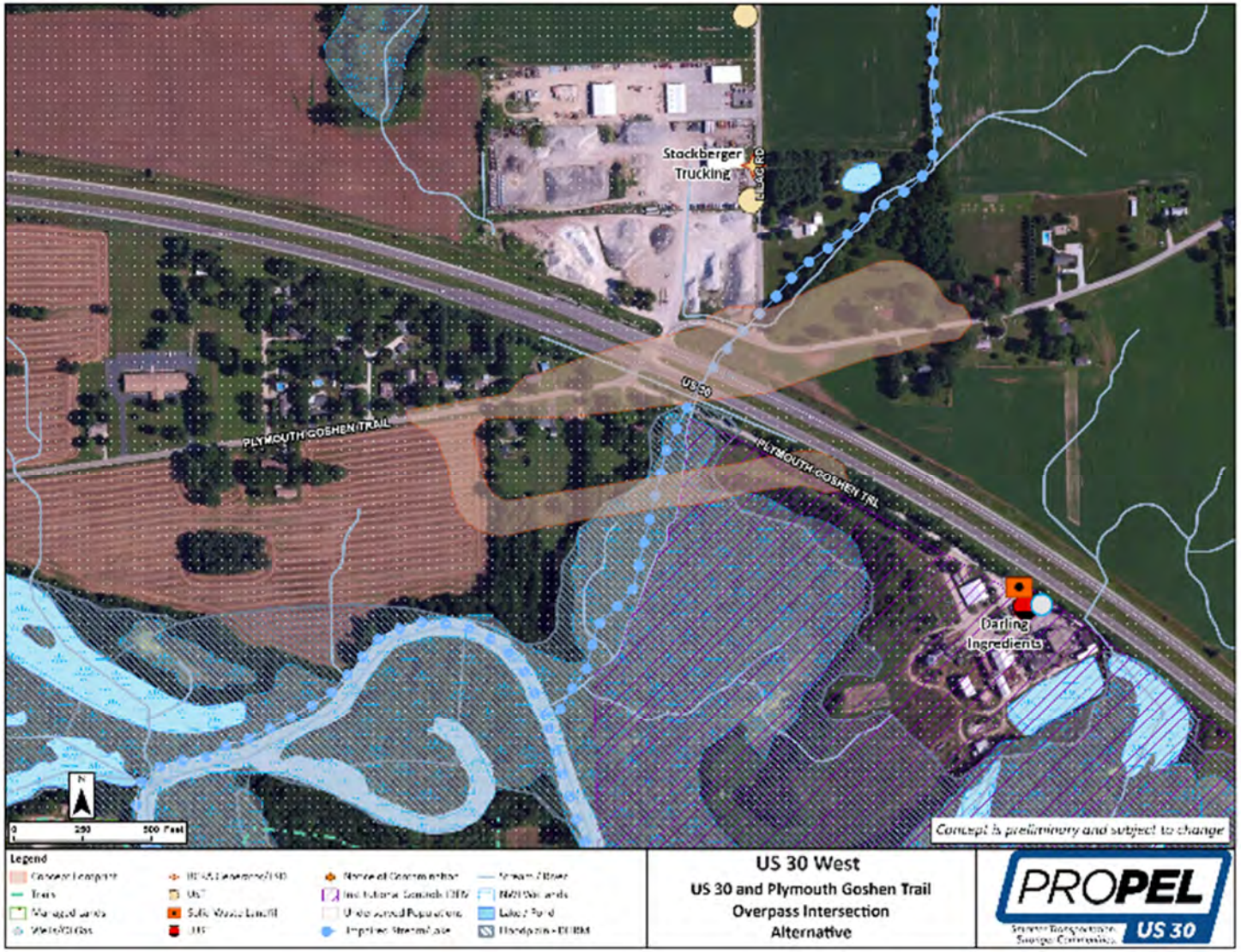
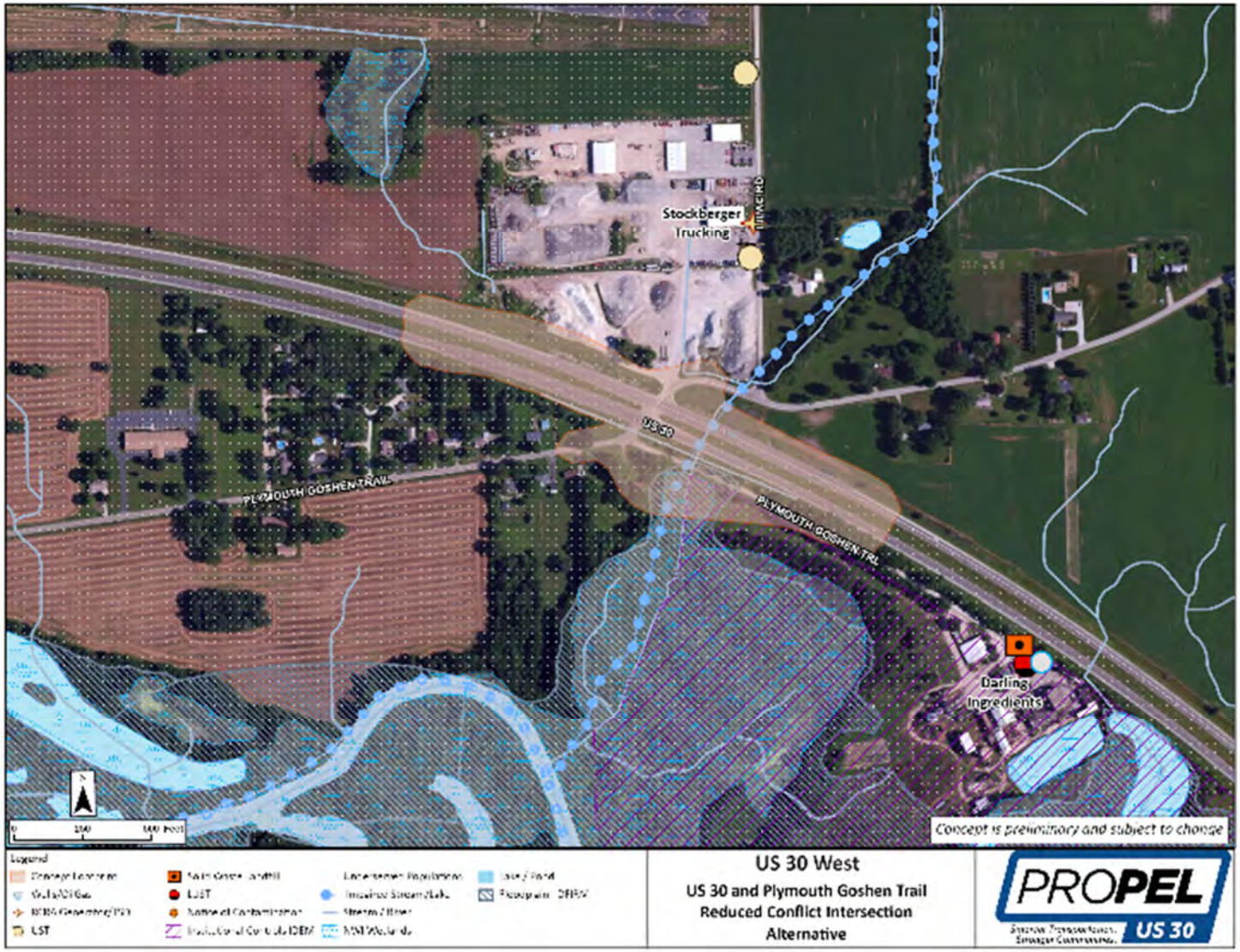


Figure 5-62: US 30 and Plymouth Goshen Trail – Reduced Conflict Intersection Alternative



5.21. US 30 AND US 31 IN MARSHALL COUNTY

5.21.1. OVERVIEW OF LOCATION

This cloverleaf interchange is expected to operate acceptably through the design year of this study for all ramp and mainline movements. The crash frequency and crash cost indices for all ramps and indicate that there are no major safety concerns at the interchange. Improvements were still considered at this interchange as a part of safety or operational improvements along this segment of US 30, to be further considered in level 3.

This interchange is located at the eastern limits of the City of Plymouth.

- Public comments received specific to this location include: Maintain access to Plymouth around this interchange.

5.21.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The interchange of US 30 and US 31 poses numerous constraints. These constraints are summarized as follows:

- Several NWI Wetlands are in the northwest, northeast, and southeast quadrants of the interchange.
- Underserved populations are located near the interchange.
    - Family Income Below Poverty Level
    - Non-English Speaking Population
- There are several residential properties located in the southwest and southeast quadrants of the intersection.
- There are 2 religious institutions, Kingdom Hall of Jehovah's Witnesses and Plymouth Baptist Church, in the southwest quadrant.
- There is a truck stop located 0.60 miles east of the interchange on US 30.

5.21.3. SCREENING OF ALTERNATIVES

The interchange of US 30 and US 31 is important for access to and from both US 30 and US 31, due to the interchange's high usage. As this is an existing interchange, at-grade and new grade-separated alternatives are not appropriate. The evaluation of alternatives from the decision tree are summarized in **Table 5-21**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Extend Acceleration/Deceleration Lanes – The existing acceleration lanes are substandard and should be extended. This alternative would maintain local access.

Complementary concepts to be considered as a part of interchange alternatives include:

- Add capacity to movements – Potential to improve mobility at the interchange.

The interchange alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these interchange alternatives where applicable.

Extend Acceleration Lanes Alternative

At this interchange, the US 30 eastbound and westbound diagonal ramp acceleration lanes from US 31 to US 30 were found to be substandard. This alternative would improve the safety at the interchange of US 30 and US 31 by providing longer dedicated lanes for vehicles entering US 30 from US 31 to reach the design speed before merging

with through traffic on US 30. This would decrease the risk of rear-end and side-swipe crashes. This alternative would also improve operations reducing the differential speed between mainline traffic and traffic entering the mainline from the minor road. The improvement limits for this alternative are shown in **Figure 5-64**.

This alternative would require minimal additional right-of-way and access to all parcels would be maintained. This alternative requires the westbound US 30 bridge directly west of US 31 to be widened which increases impacts on the surrounding natural resources and cost of the alternative. This is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.21.4. INTERCHANGE ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

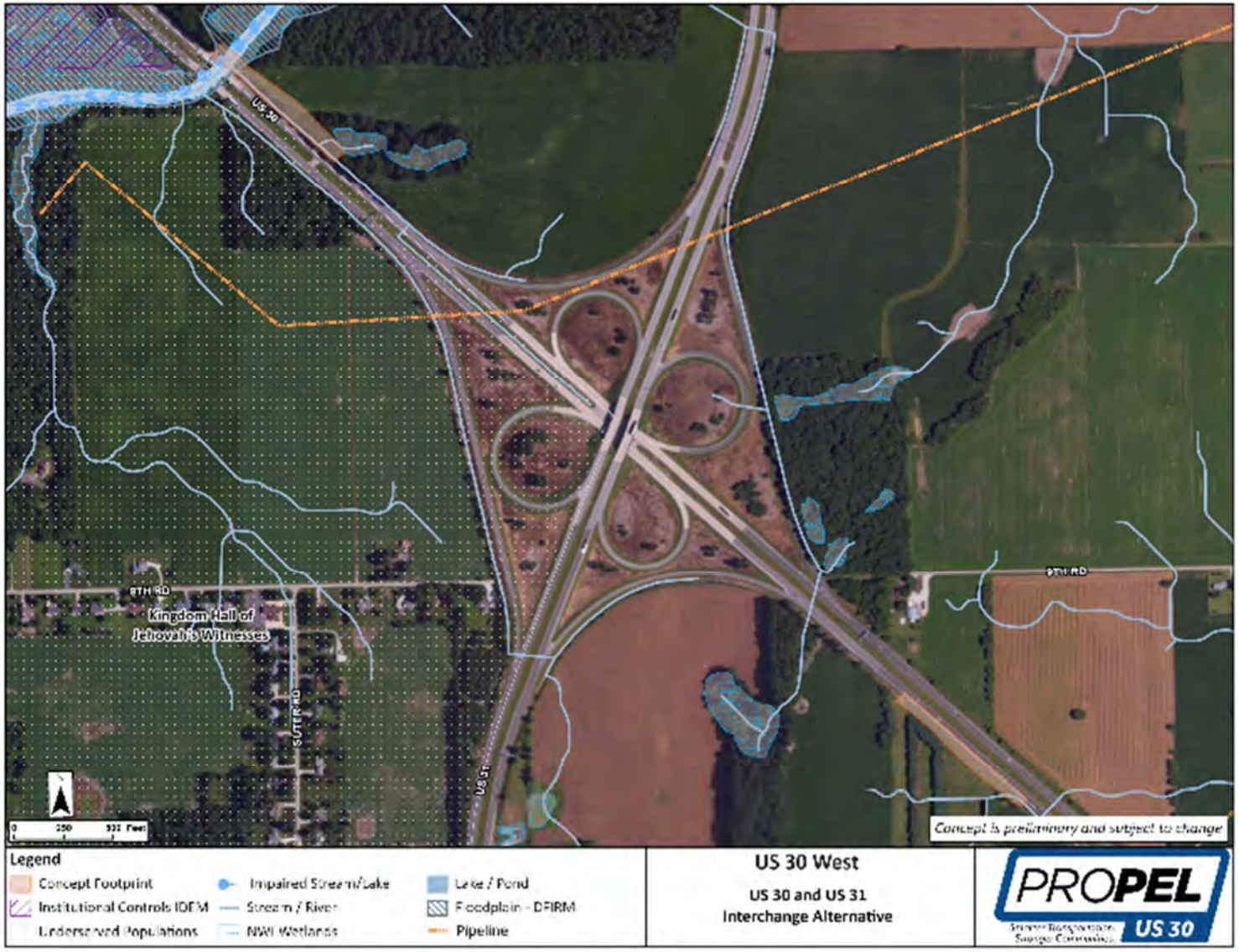
The following interchange alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add/Extend Acceleration Lanes.

Table 5-21: US 30 and US 31 – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x US 31	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	Yes	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	Yes	Medium	Low	No	Low	Low	N/A	Low	Yes	Would have to widen bridge over Yellow river o extend WB acceleration lane. Carried forward due to the potential to improve safety and operations of this interchange.
Complementary Concepts														
Add Capacity to Movements	Yes	Yes	Yes	Yes	No	Low	Low	No	Low	Low	N/A	Medium	No	Additional capacity for this facility is not needed. This concept will not be advanced for further evaluation.

Figure 5-63: US 30 and US 31 – Extend Acceleration Lanes Alternative



5.22. US 30 AND 9A ROAD/KING ROAD IN MARSHALL COUNTY

5.22.1. OVERVIEW OF LOCATION

This signalized intersection is expected to operate acceptably through the design year of this study. The crash frequency index is slightly elevated indicating there are opportunities to improve safety at the intersection.

Public comments received to date about this intersection are summarized as follows.

- This intersection is a heavily travelled intersection. Access should be maintained if possible.
- If not possible, a bike/ped overpass or underpass should be considered. Non-motorized vehicle facilities should be implemented.
- Safety concerns regarding red-light running. Maintain access and mobility for semi-trucks and trailers when completing intersection improvements. Safety concerns associated with reducing US 30 access at this intersection.
- Safety concerns regarding emergency response vehicles.

The US 30 and US 31 Marshall County Plan (2023) notes that an interchange is recommended at this intersection. There is a truck stop located at the intersection with a new tire shop and the area is slated for low density residential zoning.

5.22.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the US 30 and King Road and 9A Road intersection poses numerous constraints that were considered in the development of alternatives. The constraints are summarized as follows:

- Farm fields are located to the north of the intersection.
- Pilot Travel Center is adjacent to the intersection.
- Greyhound Bus Stop is located at the Pilot Travel Center
- Marshall County Highway Garage is on King Road, just south of the intersection.
- The interchange of US 30 and US 31 is 0.8 miles west of the intersection.
- 1 NWI wetland is in the vicinity of the intersection.
- Hazardous material concerns are near the intersection, including 2 LUST sites and an IDEM institutional control site located just south of the intersection.
- Intersections of King Road and 9A Road located closely on both north and south legs of the intersection.

5.22.3. SCREENING OF ALTERNATIVES

The decision tree indicates that both at-grade and grade separated alternatives would be applicable. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-22**.

The primary alternatives that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – The existing turn lanes do not provide sufficient deceleration length. The turn lanes should be lengthened. This alternative would maintain local access.
- Add/Extend Acceleration Lanes – Crash patterns at the intersection indicate a potential concern due to missing acceleration lanes. Acceleration lanes should be added. This alternative would maintain local access.
- Cross Road Overpass/Underpass – There are other locations within approximately two miles of the intersection with equal or better access, based on the functional classification of the route that local traffic can use to access the corridor. Therefore, a crossroad overpass or underpass should be considered, especially when applied alongside a limited access section, to be analyzed in level 3.
- Signalized and Unsignalized Intersection Improvements – This intersection is important for access to and from US 30 due to the high usage. The above average crash frequency index indicates a need for safety improvements. This intersection is currently signalized. The CAP-X analysis indicated that the following at-grade intersection types could produce acceptable operating conditions in the design year.
    - Boulevard Left Turn Intersection East-West – This alternative would improve intersection safety and operations while maintaining local access.
    - Restricted Crossing U-Turn Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Restricted Crossing U-Turn Intersection would meet access management guidelines as well as improve intersection operations on US 30 and maintain local access.
    - Reduced Conflict Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. It would also meet access management guidelines as well as create free-flow operations on US 30 and maintain local access.
    - Roundabout – This alternative would improve intersection safety while maintaining local access. This alternative also improves safety at the intersection by reducing speeds and lowering the risk of right-angle crashes.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Median Safety Improvements – The median meets IDM requirements
- Convert to Interchange – While this intersection is a location listed as a possible interchange in the Marshall County Plan (2023), an interchange was not considered at this intersection due to its proximity to the existing US 30 and US 31 interchange.
- Other signalized intersection types were eliminated through Cap-X tool analysis because their potential benefits were not substantial enough when compared to the existing conditions. Therefore, they were not further analyzed as part of this process. These intersection types included:
    - Green-T Intersection – This alternative is not applicable to a four-legged intersection.
    - Displaced Left Turn Intersection – Based on low left turning volumes from US 30 and the requirement of additional right-of-way for left turn crossovers, this alternative would become prohibitively expensive compared to other feasible intersection types such as RCI.
    - Quadrant Roadway – The CAP-X results indicated a high volume to capacity ratio implying poor operational performance of the intersection.

Complementary Concepts to be considered as part of intersection alternatives are as follows:

- Signal Timing Updates / Coordination – Signal timing updates and coordination have the potential to improve safety and relieve congestion.
- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic.
- Freight Priority System – Potential to reduce delay for trucks.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add and Lengthen Turn Lanes Alternative

This alternative involves lengthening the existing eastbound and westbound left and right turn lanes. Lengthening the existing turn lanes improves safety by providing sufficient deceleration length and increasing storage space, reducing the likelihood of rear-end crashes. The proposed turn lanes will meet IDM standards. The improvement limits of this alternative can be seen in **Figure 5-65**.

Lengthening of eastbound and westbound turn lanes can fit inside the existing pavement. There are no potential right-of-way impacts because of this. No changes to property access are expected. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Add/Extend Acceleration Lanes Alternative

Added acceleration lanes would improve intersection safety by providing dedicated lanes for vehicles turning onto US 30 from King and 9A Road to achieve sufficient speed before entering the travel lanes. This alternative would also improve intersection operations by reducing the differential speed between mainline traffic and traffic entering the mainline from the minor road. The improvement limits for this alternative can be seen in **Figure 5-65**.

This alternative is expected to require additional right-of-way from all quadrants but is not expected to require any potential relocations. All property access would be maintained. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Cross Road Overpass / Underpass Alternative – King and 9A Road over US 30

Reconfiguring this intersection so that King and 9A Road goes over US 30 increases safety by eliminating access from King and 9A Road to US 30 and vice versa. In this alternative traffic would be routed over top of US 30 by use of a bridge. The improvement limits of this alternative can be seen in **Figure 5-66**.

King Road south of the Pilot Travel Center would be realigned so that it creates a T-intersection with the existing King Road just before the overpass begins on the south approach. The potential right-of-way impacts of a minor road overpass at this intersection are along the east and west sides of King and 9A Road with the largest impacts coming closer to US 30. This is where the potential roadway is the highest before the bridge. Right-of-way Impacts then taper back into the existing limits as the potential road profile ties back into the existing profile. With this alternative there are no potential relocations. This is a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with a limited access section, to be analyzed in Level 3. This grade-separated configuration was preliminarily selected as opposed to elevating US 30 over Fir Road due to the assumed lower impacts given the rural environment. This alternative will be advanced for further evaluation in the Level 3 screening process.

Boulevard Left Turn Intersection East-West Alternative

This alternative would reroute left turns from US 30 to King and 9A Road and vice versa. This alternative would improve intersection safety by rerouting left turns on US 30 and King Road, reducing conflict points, thereby reducing the risk of right-angle crashes. This alternative would also improve intersection operations by reducing

the number of signal phases required. This alternative requires the turning radii to be enlarged to accommodate truck turning movements. The improvement limits for this alternative can be seen in **Figure 5-67**.

This alternative is expected to require additional right-of-way from all four quadrants. No potential relocations are expected and the alternative can predominately fit within the existing footprint with the exception of the loons and grading. No wetland impacts are expected. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Restricted Crossing U-turn Intersection Alternative

The RCUT alternative keeps all existing movements for US 30 while rerouting left turns and through movements from King and 9A Road to US 30 which would improve safety by eliminating conflict points. The improvement limits for this alternative are shown in **Figure 5-68**.

Potential right-of-way impacts are expected in all quadrants of the intersection. No potential relocations or wetland impacts are expected with this alternative. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Reduced Conflict Intersection Alternative

The RCI alternative would allow the free-flow of through traffic along US 30 while rerouting left turns from King and 9A Road to US 30 and minor road through movements. This would improve safety by reducing the risk of right-angle crashes. The addition of truck loons was included in the conceptual design. The improvement limits for this alternative are the same as those shown in **Figure 5-68**.

Potential right-of-way impacts are expected in all quadrants of the intersection. No potential relocations or wetland impacts are expected with this alternative. The RCI was previously designed by INDOT at this location and was scheduled for construction in 2022. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Roundabout Alternative

Reconfiguring the US 30 and King and 9A Road intersection into a roundabout alternative would require the center of the roundabout to be located northeast of the existing center of the intersection. The roundabout alternative would increase safety by reducing travel speed and the chance for more severe right angle, left turn, and head on collisions, although additional rear-end crashes may occur. The improvement limits of this alternative can be seen in **Figure 5-69**.

The potential right-of-way impacts for this alternative affects the northeast and northwest quadrants of the intersection. This alternative was configured so that no wetland impacts, or potential relocations would be required. This a medium-cost option. Speed management strategies would have to be paired with the roundabout alternative to mitigate the risk of rear-end crashes. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.22.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Add/Extend Acceleration Lanes.
- Cross Road Overpass/Underpass.
- Boulevard Left Intersection.
- Restricted Crossing U-Turn.
- Reduced Conflict Intersection.
- Roundabout.
- Spot Roadway Lighting – May be incorporated into any alternative.
- Signal Timing Updates/Coordination – May be incorporated into any alternatives involving signalization.
- Warning Systems – May be incorporated into any alternative.
- Freight Priority System – May be incorporated into any alternatives involving signalization.

Table 5-22:US 30 and King Road and 9A Road – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x King/ 9A Road	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	No	Yes	Yes	N/A	Low	Low	N/A	Low	Low	N/A	Low	Yes	Lengthen EB and WB Turn Lanes, Carried forward due to improved safety by reducing the risk of rear-end crashes. The proposed turn lanes meet IDM standards.
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	N/A	Low	Low	N/A	Low	Low	N/A	Low	Yes	Add Acceleration Lanes for EB and WB directions. WB Acceleration Lane ties into WB to NB ramp of US 30 and US 31 Interchange. Carried forward due to Improved safety by reducing the likelihood of rearend crashes
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	N/A	Low	Low	N/A	High	Low	N/A	Medium	Yes	Overpass shifted southeast to avoid impacts to truck stop. Impacts are to the surrounding fields. Carried forward due to low impacts on cultural and natural resources while also improving safety.
Signalized Intersection Improvements														
Boulevard Left Intersection E-W	Yes	Yes	Yes	Yes	N/A	Low	Low	N/A	Low	Low	N/A	Low	Yes	Add median U-turns. Carried forward because this alternative maintains local access while improving safety and intersection operations while having a limited footprint. Truck stop is not impacted
Restricted Crossing U-Turn Intersection	Yes	Yes	Yes	Yes	N/A	Low	Low	N/A	Low	Low	N/A	Low	Yes	Close median to minor road thru and left turns and add U turn medians. Truck stop is not impacted. Carried forward due to low impacts on cultural and natural resources.
Unsignalized Intersection Improvements														
Reduced Conflict Intersection	Yes	Yes	Yes	Yes	N/A	Low	Low	N/A	Low	Low	N/A	Low	Yes	Already designed by INDOT. Similar footprint to the RCUT. Carried forward due to low impacts on cultural and natural resources.
Roundabout	Yes	Yes	Yes	Yes	N/A	Low	Low	N/A	High	Low	N/A	Medium	Yes	Larger footprint required to avoid impacts to truck stop. Carried forward due to low impacts on cultural and natural resources.
Complementary Concepts														
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	N/A	Low	Low	N/A	Low	Yes	Provide lighting for intersection alternatives
Signal Timing Updates/Coordination	Yes	Yes	Yes	Yes	N/A	Low	Low	N/A	Low	Low	N/A	Low	Yes	
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	N/A	Low	Low	N/A	Low	Yes	Raises awareness of approaching traffic
Freight Priority System	No	Yes	Yes	Yes	N/A	Low	Low	N/A	Low	Low	N/A	Low	Yes	Can reduce delays for trucks

Figure 5-64: US 30 and King Road and 9A Road – Add and Lengthen Turn Lanes and Add/Extend Acceleration Lanes Alternatives

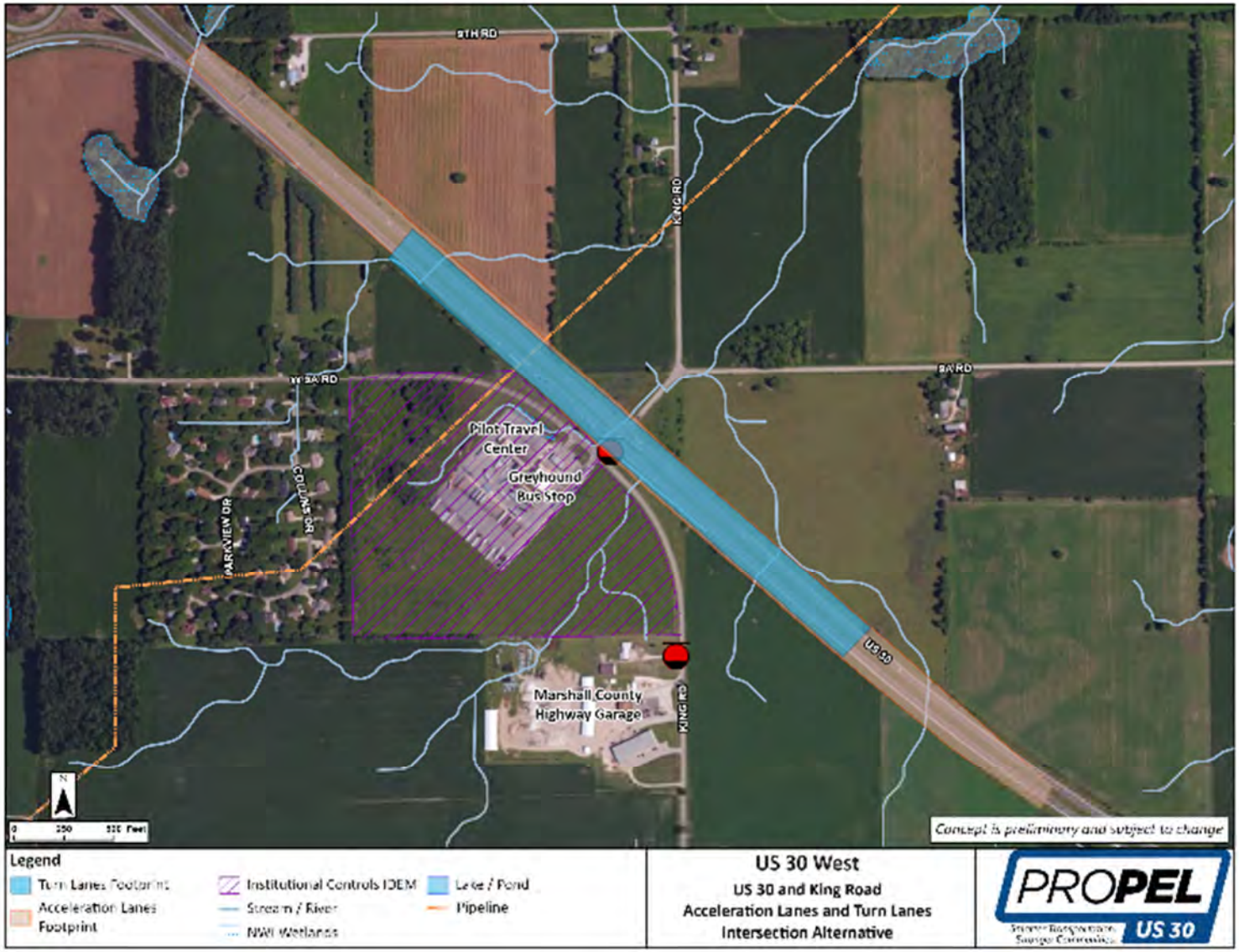
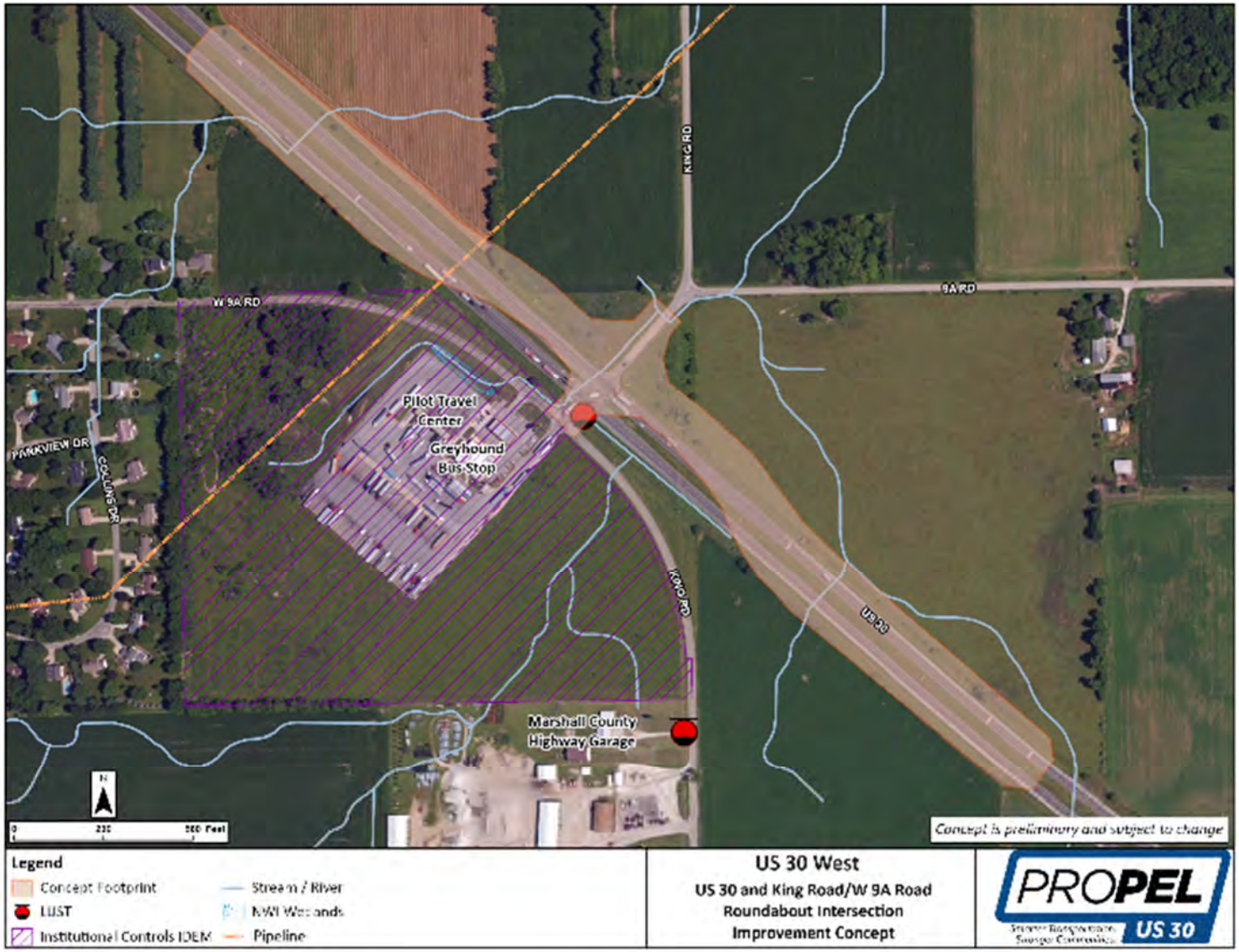


Figure 5-65: US 30 and King Road and 9A Road – Cross Road Overpass / Underpass Alternative – King Road Over US 30

Figure 5-66: US 30 and King Road and 9A Road – Boulevard Left Turn Intersection East-West Alternative

Figure 5-67: US 30 and King Road and 9A Road – Restricted Crossing U-Turn Intersection and Reduced Conflict Intersection Alternatives

Figure 5-68: US 30 and King Road and 9A Road – Roundabout Alternative



5.23. US 30 AND FIR ROAD IN MARSHALL COUNTY

5.23.1. OVERVIEW OF LOCATION

This intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices indicate that there are no major safety concerns at the intersection. Alternatives were still considered at this intersection as a part of safety or operational improvements along this segment of US 30, to be further considered in level 3.

Public comments received to date about this intersection are summarized as follows.

- An overpass is needed at Fir Road.
- Right angle crashes and crossing fatalities have occurred here.
- Concerns regarding negative impacts to nearby agricultural businesses.

The US 30 and US 31 Marshall County Plan (2023) notes that an interchange is recommended at this intersection. The region is slated for low density residential, based on the Comprehensive Plan.

5.23.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the intersection of US 30 and Fir Road poses constraints. These constraints are summarized as follows:

- There is a farming operation located 0.11 miles north of the intersection.
- There are several streams located in the vicinity of the intersection.

5.23.3. SCREENING OF ALTERNATIVES

The decision tree indicates that both at-grade and grade-separated alternatives would be applicable, while an interchange would be unnecessary. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-23**.

The preliminary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – The existing turn lanes do not provide sufficient deceleration length. The existing turn lanes should be extended. This alternative would maintain local access.
- Cross Road Overpass/Underpass – There are other locations within approximately 2 miles of the intersection with equal or better access, based on the functional classification of the route that local traffic would use to access the corridor. Therefore, grade separated alternatives should be considered, especially when applied alongside a limited access section, to be analyzed in level 3.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Median Safety Improvements – The existing median meets IDM requirements.
- Add/Extend Acceleration Lanes – Crash patterns do not indicate a concern with acceleration distances.
- Convert to Interchange – This is a location identified by the Marshall County Plan (2023) as a location for an interchange, however, due to the proximity of this intersection to the existing interchange of US 30 and SR 331, an interchange is not considered.
- Signalized Intersection Improvements – While this intersection is important for access to and from US 30, this intersection is currently unsignalized and a signal is not warranted in the design year.
- Unsignalized Intersection Improvements – While this intersection is important for access to and from US 30, there are no safety or operational concerns that indicate a need for intersection improvements.
    - If conditions change in the future and there are safety or operational concerns, solutions such as a reduced conflict intersection should be considered at this location as it is known to reduce severe crashes at intersections with similar physical characteristics..

Complementary concepts to be considered as part of intersection alternatives include:

- Spot Roadway Lighting – Provide lighting for intersection alternatives.
- Warning Systems – Potential to raise awareness for approaching traffic.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add or Lengthen Turn Lanes Alternative

This alternative involves lengthening the existing eastbound and westbound left and right turn lanes. Lengthening the existing turn lanes would improve safety by providing sufficient deceleration lengths and increased storage space, reducing the likelihood of rear-end crashes. The proposed turn lanes would meet IDM standards. The improvement limits for this alternative can be seen in **Figure 5-70**.

This alternative would have minimal right-of-way impacts to all quadrants of the intersection due to grading. All property access would be maintained in this alternative. No potential relocations are anticipated. This alternative is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Cross Road Overpass / Underpass Alternative – Fir Road over US 30

This alternative would involve elevating Fir Road over US 30 by use of a bridge. This alternative would improve intersection safety by removing all movements from Fir Road to US 30 and vice versa. This overpass would also improve intersection operation by eliminating any delay. The improvement limits for this alternative can be seen in **Figure 5-71**.

This alternative would require substantial additional right-of-way to accommodate the grading associated with the elevating of Fir Road. This alternative would maintain all property access and no potential relocations are expected. This is a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with a limited access section, to be analyzed in level 3. This grade-separated configuration was preliminarily selected as opposed to elevating US 30 over Fir Road due to the assumed impacts given the rural environment. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.23.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Cross Road Overpass/Underpass.
- Spot Roadway Lighting – May be incorporated into any alternative.
- Warning Systems – May be incorporated into any alternative.

Table 5-23: US 30 and Fir Road – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x Fir Road	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	No	Yes	Yes	N/A	Low	Low	N/A	Low	Low	N/A	Low	Yes	Lengthened EB and WB Left and Right Turn Lanes. Carried forward due to improved safety by reducing the likelihood of rear-end crashes.
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	N/A	Low	Low	N/A	Medium	Low	N/A	Medium	Yes	Crossroad overpass grading impacts surrounding farmland, no residential properties. Carried forward due to the improved safety and low impacts to cultural and natural resources.
Complementary Concepts														
Spot Roadway Lighting	Yes	No	Yes	Yes	N/A	Low	Low	N/A	Low	Low	N/A	Low	Yes	Provide lighting for intersection alternatives
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	N/A	Low	Low	N/A	Low	Yes	Raises awareness of approaching traffic

Figure 5-69: US 30 and Fir Road – Add or Lengthen Turn Lanes Alternative

Figure 5-70: US 30 and Fir Road – Cross Road Overpass / Underpass Alternative – Fir Road Over US 30

5.24. US 30 AND SR 331 IN MARSHALL COUNTY

5.24.1. OVERVIEW OF LOCATION

This diamond interchange is expected to operate acceptably through the design year of this study for all ramp and mainline movements. The crash frequency and crash cost indices for all ramps and mainline indicate that there are no major safety concerns at the interchange. Improvements were still considered at this interchange as a part of safety or operational improvements along this segment of US 30, to be further considered in level 3.

This interchange is located just north of the Town of Bourbon.

The US 30 and US 31 Marshall County Plan (2023) does not recommend any changes to this interchange.

The Bourbon 2030 Comprehensive Plan noted a TIF District is located in the southeast quadrant of the interchange.

There have been no public comments to date regarding this intersection.

5.24.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the interchange of US 30 and SR 331 poses numerous constraints. These constraints are summarized as follows:

- There is an IHBBC Cemetery north of the interchange.
- There are Indiana Historic Sites and Structures Inventory (IHSSI) notable properties located south of the interchange.
- NWI Wetlands are north of the interchange.

5.24.3. SCREENING OF ALTERNATIVES

The decision tree at this location indicates that major changes to the existing interchange are unnecessary. This location is already an interchange and acceleration and deceleration lanes / distances exist which provide sufficient distances. As such, no interchange alternatives, beyond the No-Build alternative, were considered for evaluation as at-grade and new grade-separated alternatives would reduce operations and safety at this intersection. The evaluation is summarized in **Table 5-24**.

Only complementary concepts were considered. These alternatives can be summarized as follows:

- Add Capacity to Movements – Potential to improve mobility at the interchange.
- Ramp Terminal Intersection Improvements – Potential to improve traffic operations at the interchange.
- Warning Systems – Potential to raise awareness for approaching traffic.

It is assumed these complementary concepts could be applied within the existing right-of-way, thereby limiting impacts to right-of-way and natural and cultural resources.

5.24.4. INTERCHANGE ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following interchange alternatives will be advanced to the Level 3 screening:

- Ramp Terminal Intersection Improvements – May be applied to all alternatives.
- Warning Systems – May be applied to all alternatives.

Table 5-24: US 30 and SR 331 – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US30 x SR 331	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	Yes	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Complementary Concepts														
Add Capacity to Movements	No	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Medium	No	Additional capacity for this facility is not needed. This concept will not be advanced for further evaluation.
Ramp Terminal Intersection Improvements	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Would Improve interchange safety and operations by improving existing deficiencies at the ramp terminals.
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Raises awareness of approaching traffic to improve safety

5.25. US 31 AND 9A ROAD IN MARSHALL COUNTY

5.25.1. OVERVIEW OF LOCATION

This intersection is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices indicate that there are no major safety concerns at the intersection. Improvements were still considered at this intersection as a part of safety or operational improvements along this segment of US 31, to be further considered in level 3.

The US 30 and US 31 Marshall County Plan (2023) notes that a grade-separated solution is recommended at this intersection to maintain connectivity across US 31 for emergency services and school routes.

Public comments received specific to this location include:

- Concerns regarding access to cultural facilities in the area surrounding this intersection.

5.25.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the intersection of US 31 and West 9A Road poses numerous constraints that were considered in the development of alternatives. These constraints are summarized as follows:

- There are residential properties located in the northwest and northeast quadrants of the intersection.
- There is a religious center, Plymouth Baptist Church, located in the southwest quadrant of the intersection.
- There are 2 NWI wetlands located in the northwest quadrant of the intersection.
- Underserved populations are located near the intersection.
    - Family Income Below Poverty Level
    - Non-English Speaking Population

5.25.3. SCREENING OF ALTERNATIVES

The decision tree at this location indicates that at-grade alternatives would not be appropriate for this intersection, but grade-separated alternatives would be appropriate. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-25**.

The primary concepts identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Crossroad Overpass/Underpass – There are other locations within approximately 2 miles of the intersection that provide equal or better access, based on the functional classification of the route that local traffic would use to access the corridor. Therefore, a crossroad overpass or underpass should be considered, especially when applied alongside a limited access section, to be analyzed in level 3.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Add or Lengthen Turn Lanes – Existing turn lanes provide sufficient deceleration length.
- Convert to Interchange – Traffic volumes or other factors do not support an interchange.
- Unsignalized Intersection Improvements – While this intersection is important to access to and from US 31, there are no safety or operational concerns requiring improvements.
    - If conditions change in the future and there are safety or operational concerns, solutions such as a reduced conflict intersection should be considered as it is known to reduce severe crashes at intersections with similar physical characteristics.

Complementary concepts to be considered as part of intersection alternatives include:

- Warning Systems – Potential to raise awareness of approaching traffic.
- Bike/Pedestrian Facilities – Nearby residential neighborhoods indicate a potential desire for bike and pedestrian facilities. The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Cross Road Overpass / Underpass Alternative – W 9A Road over US 31

This alternative would involve elevating W 9A Road over US 31 by use of a bridge. This alternative would also involve the lowering of US 31 to minimize impacts to nearby residential properties. This alternative would improve safety at the intersection by eliminating movements from W 9A Road to US 31 and vice versa. This alternative would also improve intersection operations by eliminating delay. The improvement limits for this alternative can be seen in **Figure 5-72**.

This alternative would require additional right-of-way in all quadrants of the intersection as well as one potential relocation in the northeast quadrant. This alternative would also have impacts to the surrounding wetlands and could adversely impact underserved populations. This is a medium-cost option.

This alternative is mainly applicable to the improvement packages associated with a limited access section, to be analyzed in Level 3. This grade-separated configuration was preliminarily selected as opposed to elevating US 31 over W 9A Road due to the assumed lowed impacts given the rural environment. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.25.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Cross Road Overpass/Underpass.
- Warning Systems – May be incorporated into any alternative.
- Bike/Pedestrian Facilities – May be incorporated into any alternative.

Table 5-25: US 31 and W 9A Road – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US31 x 9A Road	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	Yes	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	Yes		
Primary Concepts														
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	N/A	Medium	Medium	Yes	Medium	Medium	N/A	Medium	Yes	Cross street overpass grading minimized by lowering the mainline profile to maintain driveway access along 9A Road. Carried forward due to the improved safety and intersection operations while not having any adverse impacts to underserved populations.
Complementary Concepts														
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Raises awareness of approaching traffic
Bike/Pedestrian Facilities	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Potential to improve safety and relieve congestion

Figure 5-71: US 31 and W 9A Road – Cross Road Overpass / Underpass Alternative – W 9A Road Over US 31

5.26. US 31 AND MICHIGAN ROAD NORTH JUNCTION IN MARSHALL COUNTY

5.26.1. OVERVIEW OF LOCATION

This north junction of US 31 and Michigan Road is expected to operate acceptably through the design year of this study. The crash frequency and crash cost indices indicate that there are no major safety concerns at the intersection. Improvements were still considered at this intersection as a part of safety or operational improvements along this segment of US 31, to be further considered in level 3.

Public comments received to date include the desire to maintain connectivity to and from US 31 and Michigan Road in order to preserve the original route of Michigan Road, which is considered a Historic Byway.

The US 31 Corridor Existing Conditions Report (2017) noted the need for an overpass at Michigan Road and potentially leaking underground storage tanks at Michigan Road.

The US 30 and US 31 Marshall County Plan (2023) recommends an interchange at this location.

5.26.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The land surrounding the intersection of US 31 and Michigan Road poses numerous constraints that were considered in the development of alternatives. These constraints are summarized as follows:

- There is a IHSSI notable historic property in the northwest quadrant.
- Underserved populations are located near the intersection.
    - Non-English Speaking Population
    - Minority Populations
- There are residential properties located in the southwest quadrant.
- One business, Jennifer's Gifts, is in the southeast quadrant.
- Marshall County REMC is located 0.27 miles north of the intersection.
- Hazardous material concerns are near the intersection, including 2 LUST sites north of the intersection and an IDEM institutional control site.

5.26.3. SCREENING OF ALTERNATIVES

The decision tree at this location indicates that intersection improvements would not be appropriate. This location was determined to be a suitable location for an interchange for a limited access alternative. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-26**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – The northbound left turn lane and southbound right turn lane do not include adequate deceleration length. Lengthen northbound left turn and southbound right turn lane. This alternative would maintain local access.
- Convert to Interchange – There are no factors that support an interchange at this location as a standalone alternative. However, given further bundled improvements anticipated to be analyzed in Level 3, this location was identified as a potential interchange due to the relatively high traffic volumes and proximity to Plymouth.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Add/Extend Acceleration Lanes – Crash patterns do not indicate a concern with acceleration distances.
- Cross Road Overpass/Underpass – There are no locations within approximately two miles of the intersection that provide equal or better access based on the functional classification of the route that local traffic can use to access the corridor. This is also a 3-leg intersection, making an overpass unfeasible.
- Unsignalized Intersection Improvements – While this intersection is important for access to and from US 31, there are no safety or operational concerns to indicate a need for intersection improvements.
    - If conditions change in the future and there are safety or operational issues, solutions such as a reduced conflict intersection should be considered as a solution as it is known to reduce severe crashes at intersections with similar physical characteristics.

Complementary concepts to be considered as part of intersection alternatives include:

- Intersection Sight Distance Improvements – Potential to improve safety.
- Warning Systems – Potential to raise awareness for approaching traffic.
- Bike/Pedestrian Facilities – Nearby residential properties indicate a potential desire for bike and pedestrian facilities.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add or Lengthen Turn Lanes Alternative

In this alternative, the existing northbound left and southbound right turn lanes would be lengthened. Lengthening the existing turn lanes would improve safety by providing sufficient deceleration lengths and increasing storage space, thereby reducing the likelihood of rear-end crashes. The proposed turn lanes would meet IDM standards. The improvement limits for this alternative can be seen in **Figure 5-73**.

This is a low-cost alternative but lengthening the existing turn lanes would require additional right-of-way due to grading. All property access would be maintained. The IHSSI notable historic property located in the northwest quadrant of the intersection would be impacted by the grading associated with lengthened turn lanes. This is a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

Convert to Interchange Alternative

This alternative for the free-flow alternatives allows for US 31 traffic to move without interruption. US 31 would utilize one bridge over Michigan road in the southbound direction and on and off ramps to allow access to and from US 31. The improvement limits for this alternative can be seen in **Figure 5-74**.

This is a high-cost alternative due to the need for grade-separation, realignment, as well as right-of-way impacts and potential relocations. Extensive right-of-way is required for this alternative with the potential for relocations of one or more properties in the northwest quadrant including potential adverse impacts to underserved populations. This alternative would require substantial additional right-of-way. This alternative would also require medium impacts to natural resources and high impacts to cultural resources in the area. It is considered a high-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process for potential use with bundled improvements.

5.26.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Convert to Interchange.
- Intersection Sight Distance Improvements – May be incorporated into any alternative.
- Warning Systems – May be incorporated into any alternative.
- Bike/Pedestrian Facilities – May be incorporated into any alternative.

Table 5-26: US 31 and Michigan Road – Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	
US31 x Michigan Road	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	**Notes/ Comments**
No build	N/A	N/A	Yes	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	No	Yes	Yes	N/A	Low	Medium	No	Low	Low	N/A	Low	Yes	Lengthened NB Left Turn Lane and SB Right Turn Lane. Carried forward due to improved safety of the intersection by reducing the likelihood of rear-end crashes. The proposed turn lanes meet IDM requirements.
Convert to Interchange	Yes	Yes	No	Yes	N/A	Medium	High	Yes	High	Medium	N/A	High	Yes	Carried forward due to necessity for a limited access alternative. This alternative is not considered in other bundled improvements. Causes the relocation of a IHSSI notable property.
Complementary Concepts														
Intersection Sight Distance Improvements	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Intersection is on a skew. Improvements to sight distance would increase safety.
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Raises awareness of approaching traffic
Bike/Pedestrian Facilities	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Potential to improve safety and relieve congestion

Figure 5-72: US 31 and Michigan Road – Added Turn Lanes Intersection Improvement Alternative

Figure 5-73: US 31 and Michigan Road – Interchange Alternative

5.27. US 31 AND 13TH ROAD IN MARSHALL COUNTY

5.27.1. OVERVIEW OF LOCATION

This intersection is expected to operate acceptably through the design year of this study. The crash frequency index is slightly elevated and the crash severity index is elevated, indicating there are safety concerns at the intersection. The predominant types of crashes are as follows:

- 29% were run-off-road crashes
- 16% were rear end crashes
- 16% were same direction side-swipe crashes
- 13% were right angle crashes

Public comments received specific to this location include:

- Concerns regarding property access around this intersection
- Comments regarding improving connectivity in the region and how it relates to projects at this intersection.

5.27.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

The intersection of US 31 and 13th Road poses numerous constraints that were considered in the development of intersection alternatives. These constraints are summarized as follows:

- There are several businesses located near the intersection, including Marshall County Humane Society.
- There are residential properties located in the southeast quadrant of the intersection.
- There is an at-grade rail crossing located 0.5 miles south of the intersection, crossing US 31. This crossing is currently under construction to become grade separated.
- There is 1 NWI wetland located near the intersection.
- Underserved populations are located near the intersection.
    - Non-English Speaking Population
    - Minority Populations

5.27.3. SCREENING OF ALTERNATIVES

The decision tree at this location indicates that both at-grade and grade-separated alternatives would be appropriate for this intersection. The alternatives from the decision tree were then evaluated qualitatively based on study needs, environmental impacts, and relative project cost, with the results of this screening provided in **Table 5-27**.

The primary concepts that were identified to be advanced to the conceptual footprint comparison from the decision tree are as follows:

- Add or Lengthen Turn Lanes – Northbound and southbound right and left turn lanes do not include the proper deceleration distance. Lengthen northbound and southbound right and left turn lanes. This alternative would maintain local access.
- Add/Extend Acceleration Lanes – Crash patterns potentially due to not having acceleration lanes. Acceleration lanes should be added for vehicles turning onto US 31. This alternative would maintain local access.
- Cross Road Overpass/Underpass – There are other locations within around 2 miles with equal or better access to US 31, based on the functional classification of the route that local traffic would use to access the corridor. Therefore, a crossroad overpass or underpass should be considered, especially when applied alongside a limited access section, to be analyzed in level 3.
- Convert to Interchange – There are no traffic volumes or other factors that support an interchange at this location as a standalone alternative. However, given further bundled improvements anticipated to be analyzed in Level 3, this location was identified as a potential interchange due to the relatively high traffic volumes and location between Plymouth and Argos. This alternative would maintain local access.
- Unsignalized Intersection Improvements – The intersection is important for access to and from US 31 due to high usage of this intersection. This intersection has higher than average crash frequency and crash severity indices, the following improvements were considered as a part of segment safety and operational improvements, to be further considered in level 3. This intersection is currently two-way stop controlled and forecasted traffic volumes do not warrant signalization. The CAP-X analysis at this intersection indicated that the following intersection types would produce acceptable operating conditions in the design year.
    - Reduced Conflict Intersection – This alternative would improve safety by rerouting minor road crossing and left turn right angle conflicts that often result in incapacitating and fatal crashes. A Reduced Conflict Intersection would meet access management guidelines as well as preserve free-flow operations on US 30 while maintaining local access.

Primary concepts eliminated from further consideration are as follows:

- Access Management – The intersection functional area is consistent with INDOT Access Management Guidelines.
- Unsignalized Intersection Improvements –The CAP-X results of the Reduced Conflict Intersection alternative showed relatively poor volume to capacity ratio compared the current two-way stop configuration.

Complementary concepts to be considered as part of intersection alternatives include:

- Intersection Sight Distance Improvements – Potential to improve safety and reduce the risk of right-angle and rear-end crashes.
- Warning Systems – Potential to raise awareness of approaching traffic.
- Bike/Pedestrian Facilities – Nearby residential properties indicate a potential desire for bike and pedestrian facilities.

The intersection alternatives advancing to the conceptual footprint comparison are described below. Complementary concepts have been incorporated into these intersection alternatives where applicable.

Add or Lengthen Turn Lanes Alternative

This alternative involves lengthening the existing northbound and southbound left and right turn lanes. Lengthening the existing turn lanes would improve safety by providing sufficient deceleration lengths and increasing storage space, reducing the likelihood of rear-end crashes. The proposed turn lanes will meet IDM standards. The improvement limits for this alternative can be seen in **Figure 5-75**.

This is a low-cost option. This alternative would require no potential relocations, while also limiting impacts to the surrounding natural resources. This alternative will be advanced for further evaluation in the Level 3 screening process.

Add/Extend Acceleration Lanes Alternative

Adding acceleration lanes to US 31 would improve safety at the intersection by providing dedicated lanes for vehicles entering the mainline to achieve proper speed. This would reduce the risk of rear-end crashes at the intersection. This alternative would also improve intersection operations by reducing the differential speed between mainline traffic and traffic entering the mainline from the minor road. The improvement limits for this alternative can be seen in **Figure 5-75**.

This is a low-cost option. This alternative has the potential for adverse impacts to underserved populations. This alternative will be advanced for further evaluation in the Level 3 screening process.

Cross Road Overpass / Underpass Alternative – 13th Road over US 31

This alternative would involve elevating 13th Road over US 31 by use of a bridge. This alternative would improve intersection safety by eliminating all movements from 13th road to US 31 and vice versa. This alternative would improve intersection operations by eliminating all delay on the side street. The improvement limits for this alternative can be seen in **Figure 5-76**.

This is a medium-cost option. This alternative would involve shifting the alignment of 13th Road north to avoid potential relocations around the intersection. Substantial additional right-of-way would be required for this alternative which could impact underserved populations, and all property access would be maintained, with new access provided where needed. This alternative would also introduce substantial impacts to the natural resources in the area.

This alternative is mainly applicable to the improvement packages associated with a limited access section, to be analyzed in level 3. This grade-separated configuration was preliminarily selected as opposed to elevating US 31 over 13th Road due to the assumed lower impacts given the rural environment. This alternative will be advanced for further evaluation in level 3.

Convert to Interchange Alternative

This alternative for the free-flow alternatives allows for US 31 traffic to move without interruption. US 31 would utilize two bridges over 13th road in the southbound direction and on and off ramps to allow access to and from US 31. The improvement limits for this alternative can be seen in **Figure 5-77**.

This is considered a high-cost option. Extensive right-of-way is required for this alternative with the potential relocation of one or more properties in the northeast, southwest, and southeast quadrants. This alternative would require substantial additional right-of-way. This alternative would also require medium impacts to natural resources and high impacts to cultural resources in the area and has the potential for adverse impacts to underserved populations. This alternative will be advanced for further evaluation in the Level 3 screening process for potential use with bundled improvements.

Reduced Conflict Intersection

The RCI alternative would allow the free-flow of through traffic along US 30 while rerouting left turns from 13th Road to US 31 and minor road through movements. This would improve safety by reducing the risk of right-angle crashes. The addition of truck loons was included in the conceptual design. The improvement limits for this alternative can be seen in **Figure 5-78**.

This alternative would require low amounts of additional right-of-way and would have low impacts to natural resources. It is considered a low-cost option. This alternative will be advanced for further evaluation in the Level 3 screening process.

5.27.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

The following intersection alternatives will be advanced to the Level 3 screening:

- No-Build Alternative will be carried forward to serve as a baseline for comparison to all build alternatives.
- Add or Lengthen Turn Lanes.
- Add or Extend Acceleration Lanes.
- Reduced Conflict Intersection.
- Crossroad Overpass/Underpass.
- Convert to Interchange.
- Reduced Conflict Intersection.
- Intersection Sight Distance Improvements – May be incorporated into all alternatives.
- Warning Systems – May be incorporated into all alternatives.
- Bike/Pedestrian Facilities – May be incorporated into all alternatives.

Table 5-27: US 31 and 13th Road - Qualitative Comparison of Alternatives

	Safety	Traffic	Access		Deficiencies	Environmental Impacts			ROW		Railroad	Cost	Advance	Notes/ Comments
US31 x 13th Road / Michigan Road	**Applies Safety Counter-Measures**	**Reduces Delay or Improves Intersection Operations**	**Maintain or Improve Local Access**	**Meet Access Management Guidelines**	**Improves Substandard Elements**	**Potential for Adverse Impacts to Natural Resources?**	**Potential for Adverse Impacts to Cultural Resources?**	**Potential for Adverse Impacts to Underserved Populations?**	**Potential ROW Impacts**	**Potential Relocations**	**Impacts to Railroad**	**Relative Cost**	**Carry Forward?**	
No build	N/A	N/A	Yes	Yes	N/A	N/A	N/A	No	N/A	N/A	N/A	N/A	Yes	
Primary Concepts														
Add or Lengthen Turn Lanes	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Lengthen NB and SB Left and Right Turn Lanes. Right turn lanes fit within existing pavement. Left turn lanes encroach into median. Carried forward due to improved safety associated with reduced likelihood of rear-end crashes.
Add/Extend Acceleration/Deceleration Lanes	Yes	Yes	Yes	Yes	N/A	Low	Low	Yes	Medium	Low	N/A	Low	Yes	NB Acceleration Lane ends at US 31 12 B Road Intersection. Carried forward due to improved safety and intersection operations
Cross Road Overpass / Underpass	Yes	Yes	No	Yes	N/A	High	Low	Yes	High	Low	N/A	Medium	Yes	Shift overpass north and provide new access points to nearby businesses. Provides free flow conditions for both the mainline and crossroad.
Convert to Interchange	Yes	Yes	Yes	Yes	N/A	Low	Low	Yes	High	High	N/A	High	Yes	Carried forward due to necessity for a limited access alternative. This concept is not considered in other bundled improvements.
Unsignalized Intersection Improvements														
Reduced Conflict Intersection	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Increased intersection radii and truck loons to assist completion of U-Turns. Carried forward due to improves safety and intersection operations while maintaining free-flow along US 31
Complementary Concepts														
Intersection Sight Distance Improvements	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Intersection is on a skew. Improvements to sight distance would increase safety.
Warning Systems	Yes	No	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Raises awareness of approaching traffic
Bike/Pedestrian Facilities	Yes	Yes	Yes	Yes	N/A	Low	Low	No	Low	Low	N/A	Low	Yes	Potential to improve safety and relieve congestion

Figure 5-74: US 31 and 13th Road - Acceleration Lanes and Turn Lanes Intersection Improvement Alternatives

Figure 5-75: US 31 and 13th Road – Cross Road Overpass / Underpass Intersection Improvement Alternative

Figure 5-76: US 31 and 13th Road - Interchange Alternative

Figure 5-77: US 31 and 13th Road - Reduced Conflict Intersection

5.28. US 31 AND SR 10 IN MARSHALL COUNTY

5.28.1. OVERVIEW OF LOCATION

An interchange is planned for construction in 2027 at this intersection.

Public comments received for this location include the following:

- Comments requesting bike and pedestrian facilities be considered at this intersection.
- Concerns regarding improvements to safety at the intersection

5.28.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

Social, economic, and environmental constraints have not been identified for this intersection.

5.28.3. SCREENING OF ALTERNATIVES

The programmed interchange is expected to improve access, improve operations, and reduce crashes at this intersection. This study provides no further recommendations for this location.

5.28.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

No improvements were identified beyond that of the interchange that is currently programmed.

5.29. US 31 AND SR 110 IN MARSHALL COUNTY

5.29.1. OVERVIEW OF LOCATION

An interchange is planned for construction in 2027 at this intersection.

Public comments received for this location include the following:

- Comments requesting the addition of bike and pedestrian facilities at this intersection.
- Concerns regarding safety at this intersection.

5.29.2. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSTRAINTS

Social, economic, and environmental constraints have not been identified for this intersection.

5.29.3. SCREENING OF ALTERNATIVES

The programmed interchange is expected to improve access, improve operations, and reduce crashes at this intersection. This study provides no further recommendations for this location.

5.29.4. INTERSECTION ALTERNATIVES ADVANCING TO LEVEL 3 SCREENING

No improvements were identified beyond that of the interchange that is currently programmed.

6. LEVEL 2 SCREENING SUMMARY

6.1. LEVEL 2 SCREENING SUMMARY

The Level 2 Screening has identified a wide range of intersection alternatives to improve operations and safety at the primary intersections. These intersection alternatives have been screened qualitatively and quantitatively based on their ability to meet study area needs, relative cost, and social, economic, and environmental impacts. Alternatives not able to meet study area needs and/or with substantial environmental impacts that could not be avoided or minimized were eliminated from further consideration.

The intersection alternatives advancing from this evaluation are depicted in **Table 6-1** and graphically in **Figure 6-1**, **Figure 6-2**, and **Figure 6-3**. The No-Build alternative is also advanced at every location but is not shown in **Table 6-1**, **Figure 6-1, Figure 6-2,** or **Figure 6-3**.

Table 6-1: Advanced to Level 3 Screening

Location	Advanced to Level 3 Screening
US 30 and SR 49	• Add/Extend Acceleration/Deceleration Lanes
US 30 and Industrial Drive	• Median Safety Improvements • Add or Lengthen Turn Lanes • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and Porter CR 325 E	• Median Safety Improvements • Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and Porter CR 400 E	• Median Safety Improvements • Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass • Convert to Interchange • Unsignalized Intersection Improvements
US 30 and County Line Road	• Median Safety Improvements • Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass • Unsignalized Intersection Improvements
US 30 and Main Street	• Access Management • Add or Lengthen Turn Lanes
US 30 and US 421	• Access Management • Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Convert to Interchange • Signalized Intersection Improvements • Unsignalized Intersection Improvements

Location	Advanced to Level 3 Screening
US 30 and LaPorte CR 600 W	• Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass
US 30 and Thompson Street	• Add or Lengthen Turn Lanes • Unsignalized Intersection Improvements
US 30 and Old US 30 West	• Add or Lengthen Turn Lanes • Convert to Interchange • Limit Access
US 30 and Laporte CR 300 W	• Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass
US 30 and SR 39	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Convert to Interchange • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and US 35	• Add/Extend Acceleration/Deceleration Lanes
US 30 and Starke CR 750 E	• Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass
US 30 and SR 23	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Convert to Interchange • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and Queen Road	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Cross Road Overpass/Underpass • Convert to Interchange • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and Pioneer Drive	• Add/Extend Acceleration/Deceleration Lanes • Cross Road Overpass/Underpass • Convert to Interchange • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and Oak Drive	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Cross Road Overpass/Underpass • Signalized Intersection Improvements
US 30 and Michigan Street	• Add/Extend Acceleration/Deceleration Lanes
US 30 and Plymouth Goshen Trail	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Cross Road Overpass/Underpass • Unsignalized Intersection Improvements

Location	Advanced to Level 3 Screening
US 30 and US 31	• Add/Extend Acceleration/Deceleration Lanes
US 30 and King Road	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Cross road Overpass/Underpass • Signalized Intersection Improvements • Unsignalized Intersection Improvements
US 30 and Fir Road	• Add or Lengthen Turn Lanes • Cross Road Overpass/Underpass
US 30 and SR 331	• No Intersection Alternatives
US 31 and 9A Road	• Cross Road Overpass/Underpass
US 31 and Michigan Road	• Add or Lengthen Turn Lanes • Convert to Interchange
US 31 and 13th Road	• Add or Lengthen Turn Lanes • Add/Extend Acceleration/Deceleration Lanes • Cross Road Overpass/Underpass • Convert to Interchange • Unsignalized Intersection Improvements
US 31 and SR 10	• Interchange Project Already Planned
US 31 and SR 110	• Interchange Project Already Planned

Figure 6-1:US 30 Intersection Alternatives Map

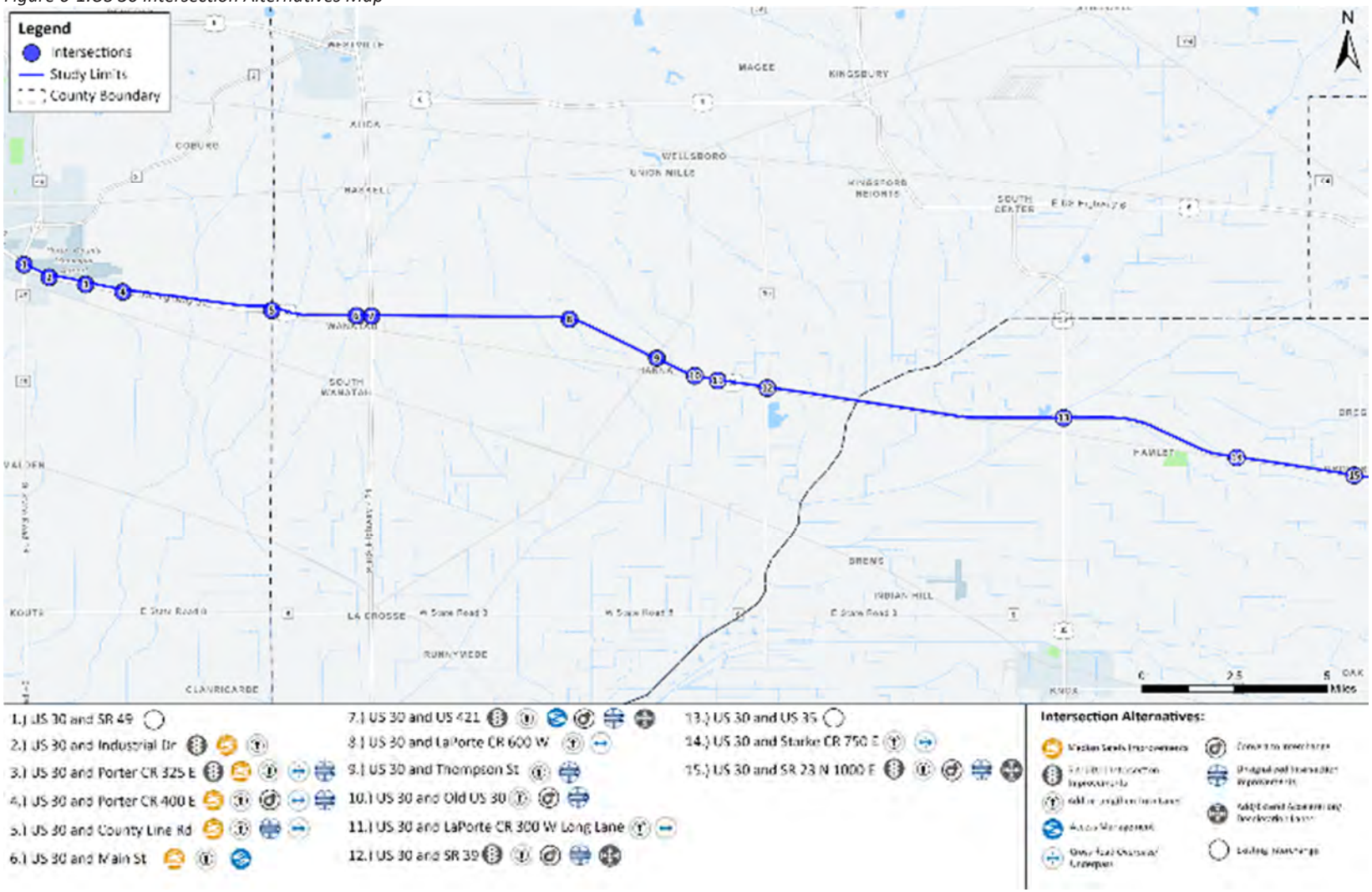


Figure 6-2:US 30 Intersection Alternatives Map

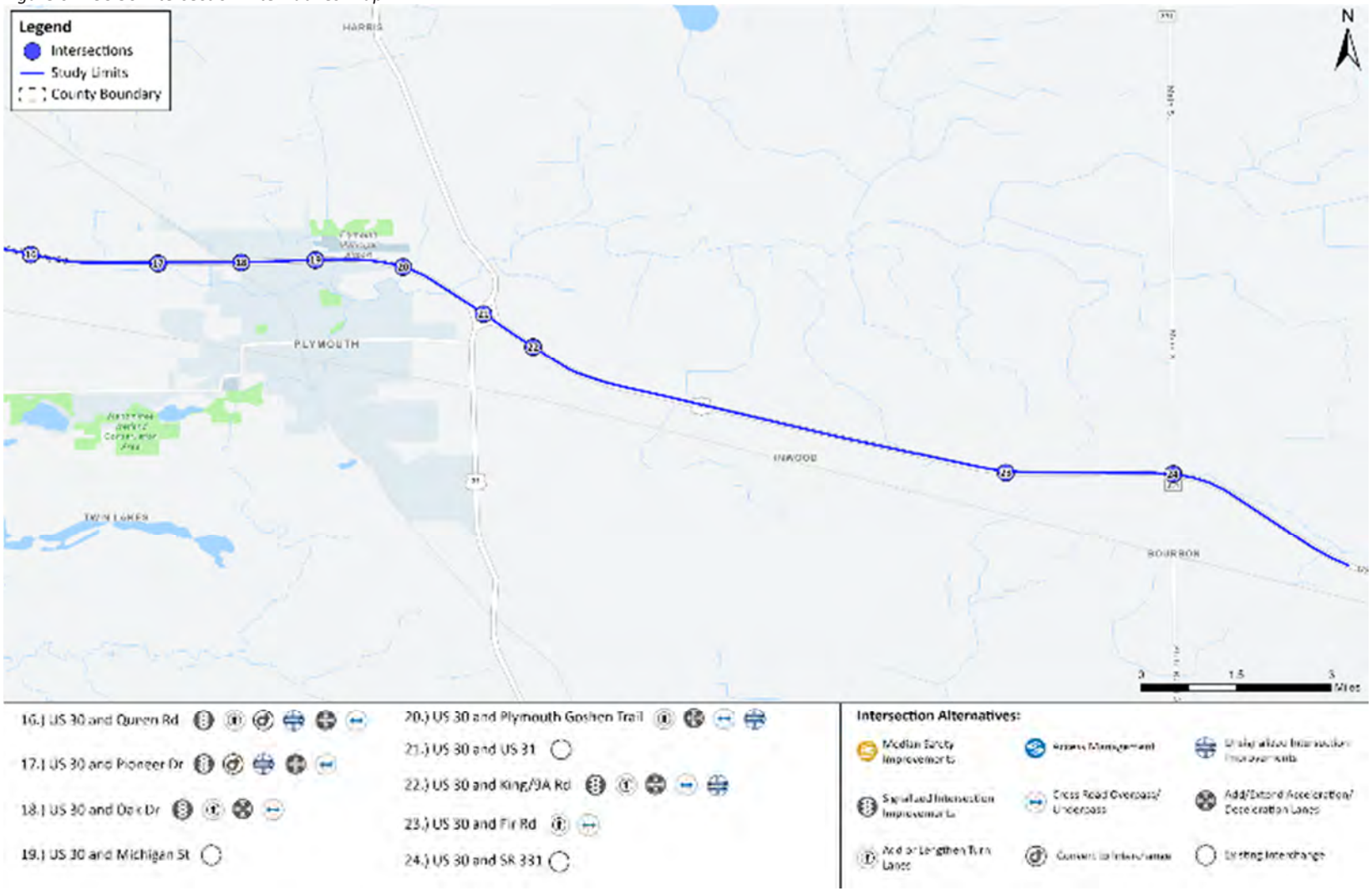
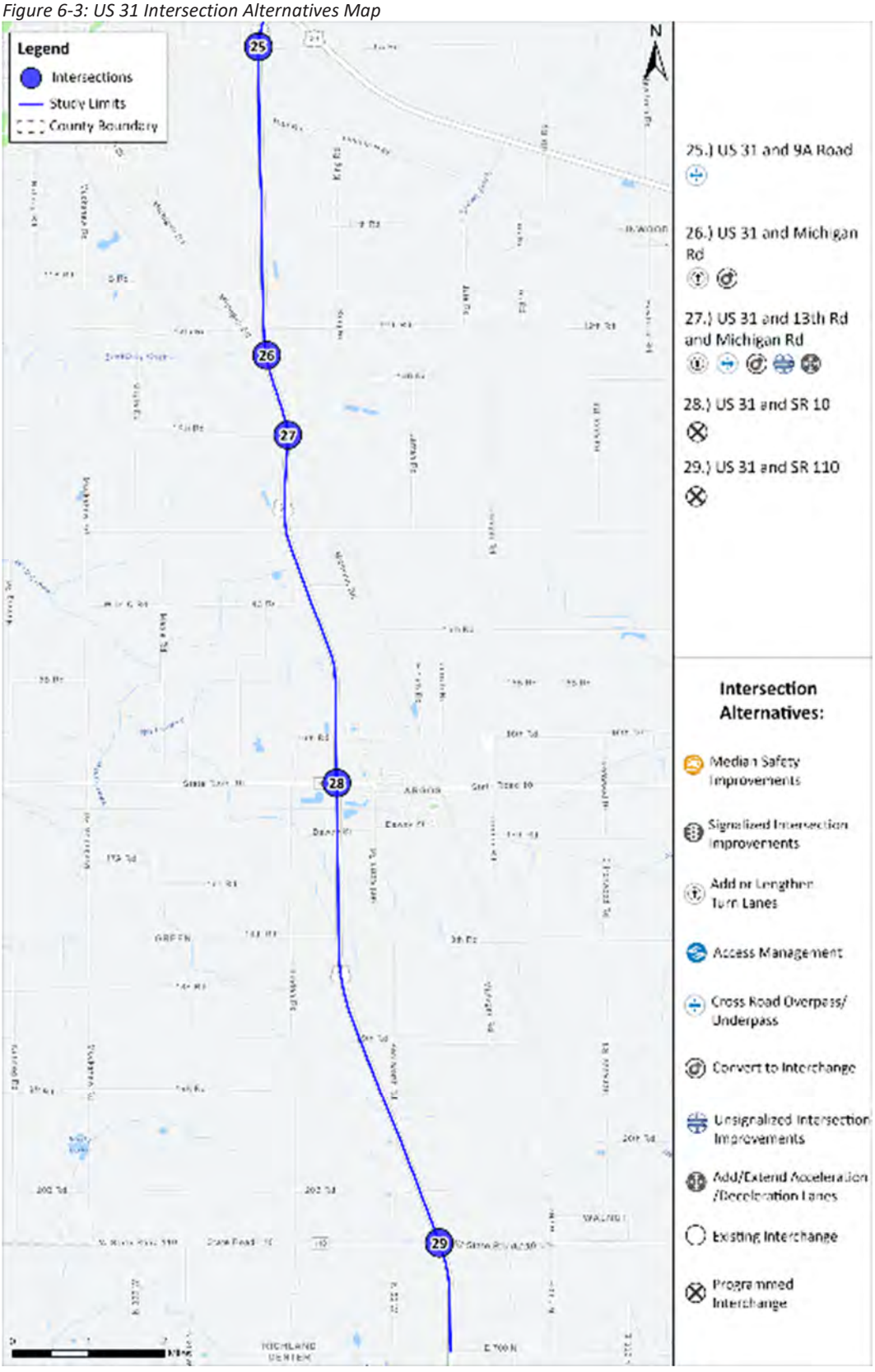


Figure 6-3: US 31 Intersection Alternatives Map



6.2. SHORT TERM IMPROVEMENTS

Rear-end crashes and right-angle crashes have been identified as being prevalent at several intersections in the study area. The frequency of these crash types may be reduced through implementation/upgrade of intersection warning systems at these intersections. Warning systems can be used at signalized intersections to warn motorists of a stop condition that lies ahead and can be activated only when the appropriate US 30 phase is active. Warning systems can also be used at unsignalized intersections to warn motorist on US 30 or US 31 of the presence of a vehicle on the side street and to warn motorist on the side street of traffic approaching on US 30 or US 31. These locations where the warning system concept is recommended for further study as a low-cost, short-term improvement are:

- US 30 and US 421 (LaPorte County), where there is a traffic signal at the entrance to Wanatah for westbound traffic where the land use changes from rural to urban and many of the crashes are rear-end collisions.US 30 and SR 39 (LaPorte county), where driver expectancy seems to be a concern as drivers were unable to brake in time to avoid rear-end collisions when other vehicles were stopped at the red light. Failure to yield to through traffic was also reported.
- US 30 and Truck Stop Driveway (approx. 1,070 feet east of SR 39 in LaPorte County) where rear-end crashes occurred at the red light and failure to yield to through traffic was also reported. This intersection is not a primary intersection included in Level 2 screening.
- US 30 and SR 23 (Starke County), where right-angle and turning crashes occurred at this unsignalized intersection.
- US 30 and Queen Road (Marshall County), where right-angle and rear-end crashes due to failing to yield were a common cause of crashes.
- US 30 and Pioneer Drive (Marshall County), where right-angle and rear-end crashes due to failing to yield or red-light running were a common cause of crashes.
- US 30 and Oak Road (Marshall County), where rear-end crashes due to failing to yield or red light running were a common cause of crashes.
- US 31 and 11th Road (Marshall County), where right-angle and left turn angle crashes were reported due to failing to yield. This intersection is not a primary intersection and is not in the Level 2 screening.
- US 31 and Michigan Road (Marshall County), where right-angle, left turn, and rear end crashes were reported due to failing to yield as a common cause.
- US 31 and SR 10 (Marshall County), where right-angle and left turn crashes were reported due to failing to yield. This intersection has an interchange currently programmed for construction in 2027.

The locations above have been identified as areas where low-cost, short-term safety improvement concepts (i.e., warning systems) could provide more immediate safety benefits, without complicating long term planning goals. The Level 3 screening will further identify and analyze which advancing concepts could be implemented in the near, intermediate, or long-term, in order to support both short-term and long-term planning goals.

7. NEXT STEPS

7.1. LEVEL 3 SCREENING

After consideration of public comments, the Level 3 screening will begin. The goal of this screening process will be to identify a reasonable range of alternatives to advance from this PEL study.

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. Depending on multiple factors, including statewide priorities and funding availability, improvements considered as part of this PEL study could be combined in different ways to address the identified transportation needs and goals of the study area.

While the Level 2 screening focused on alternatives at the Primary Intersections, the Level 3 screening will develop and analyze improvement packages for smaller pieces of the study area. These smaller pieces, which will be called planning segments, will include improvements at the primary intersections, the secondary intersections, as well as the roadway sections between them.

Each of the primary intersection improvement alternatives advancing from the Level 2 screening will be included in at least one of the improvement packages considered in the Level 3 screening.

Improvements to the roadway sections will focus on access management strategies. Decisions regarding access management will be made during project development and will be analyzed and documented as part of the NEPA environmental review process. For the purposes of this PEL study, INDOT will develop and evaluate basic access management criteria for roadway sections in the study area to better understand costs, benefits, and impacts of different access management strategies. The criteria for the Level 3 screening will be based on the INDOT access management guidelines and will consider differing levels of access control ranging from existing conditions (i.e., the No-Build) to full control of access. The access management criteria considered in the Level 3 analysis will support a range of facility types that address safety, mobility, and access needs within the study area.

Due to the high number of combinations possible (i.e., several thousand improvement packages), it is not feasible to evaluate every single permutation. Professional judgement will be used to create representative improvement packages for each planning segment that will constitute a reasonable range of alternatives.

In forming the improvement packages for each planning segment, the following will be considered:

- **Influence of adjacent intersections:** The influence of recommended improvements at a specific location on the adjacent intersections will be considered. For example, if an interchange alternative is considered at a primary intersection, consolidation of access to/from US 30 through closure of adjacent secondary intersections will likely be recommended along with it.
- **Interchange spacing guidelines:** INDOT prefers to have a minimum of 3 miles between adjacent interchanges in rural areas; however, this will be examined for the context of each section and location.
- **Access management principles:** Driveway treatments and recommendations on the spacing of median openings will be considered when developing the improvement packages for each planning segment.
- **Improvements at secondary intersections:** There are 56 secondary intersections within the study limits where no detailed evaluation was performed in the Level 2 screening due to the low volumes carried by the intersecting roadways. Access management principles will be evaluated in the Level 3

screening to align the treatments at intersections within the study area with the appropriate access management strategies. The improvements to Secondary Intersections will typically consist of restricting turning movements or closure of the intersection. At locations where an intersection may be considered for closure, a review of mitigation measures to retain access, such as local access roads, may be considered when certain conditions are met. These conditions would be identified as part of the Level 3 screening process, as needed.

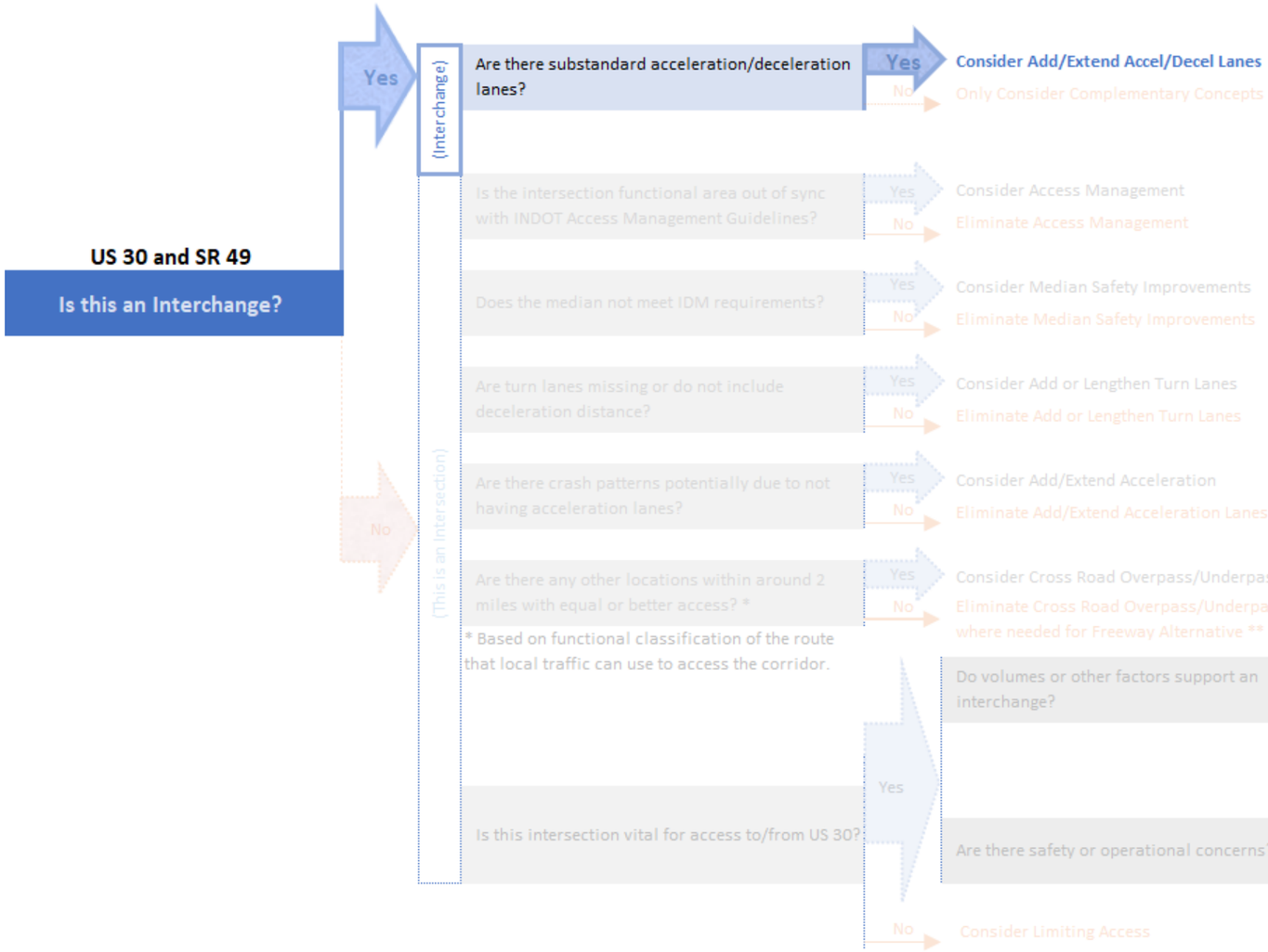
It is possible that improvement packages could be mixed and matched across planning segments. This means that access management strategies could vary throughout the study area; however, as part of that decision-making process (which may occur subsequent to this PEL study), an assessment will be completed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

The Level 3 screening process will include further analysis and more detail than Level 2. The alternatives that advance from the Level 2 analysis will be further refined based on public comments and to further avoid or minimize impacts, where possible.

Finally, the improvement packages for each planning segment will be compared against the performance measures identified in the *US 30 West Purpose and Need Report* to assess an improvement package's ability to both meet study needs and accomplish study goals. Alternatives will also be compared based on relative cost, safety, and operational benefits, as well as social, economic, environmental impacts. The results of this comparison will be used to develop recommendations on reasonable alternatives for further study, which will ultimately be released for public comment.

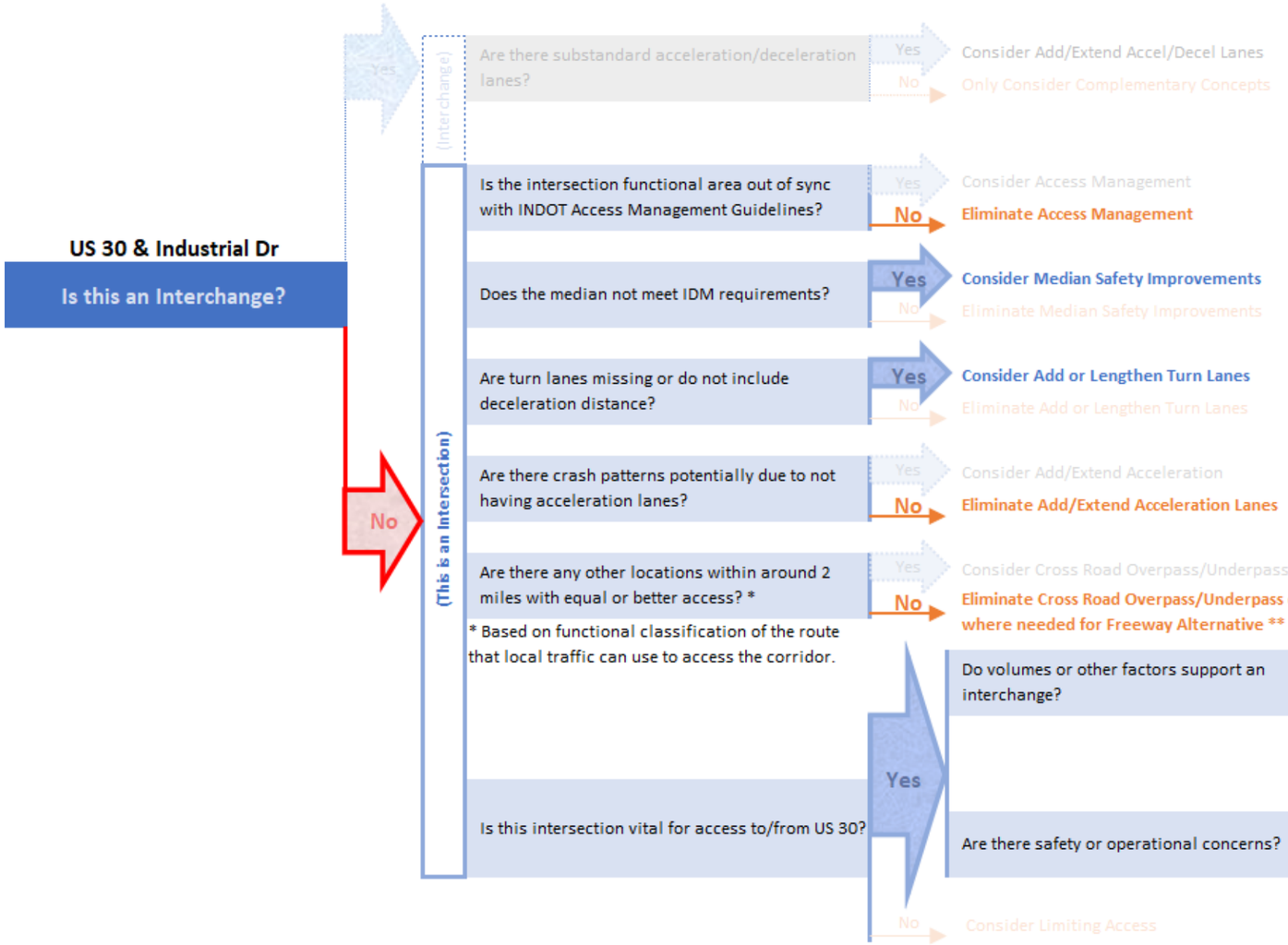
APPENDIX A: DECISION TREES

APPENDIX A - DECISION TREES
US 30 & SR 49



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
	Railroad Crossing Improvements
	Spot Roadway Lighting
	Realign Skewed Interections
	Intersection Sight Distance Improvements
TSMO	Warning Systems
	Freight Priority System
	Traveler Information Systems
Policy	Roadside Assistance Services
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & INDUSTRIAL DR



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
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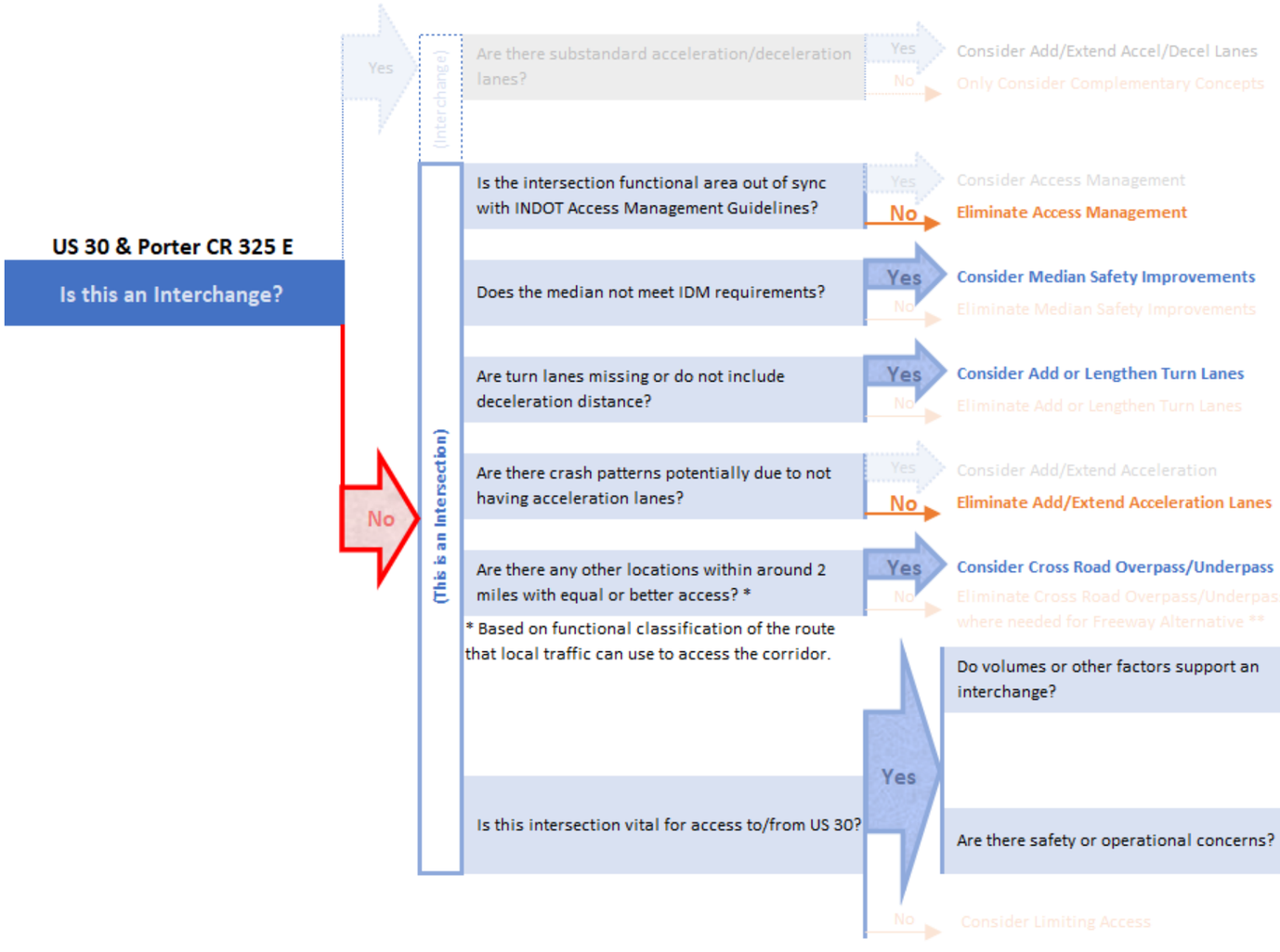
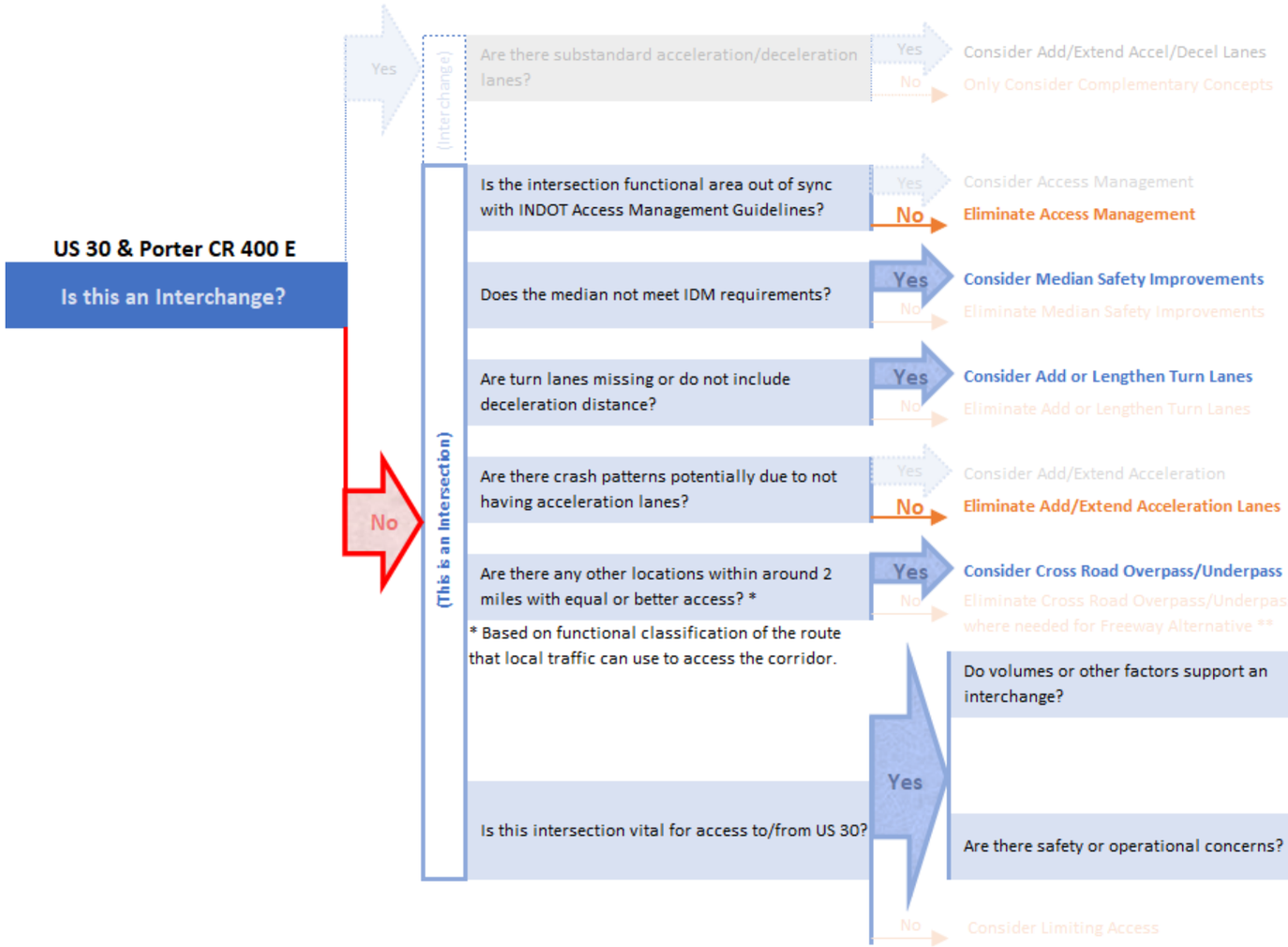
	Spot Roadway Lighting
	Realign Skewed Interections
	Intersection Sight Distance Improvements
TSMO	Warning Systems
	Freight Priority System
	Traveler Information Systems
Policy	Roadside Assistance Services
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & PORTER CR 325 E



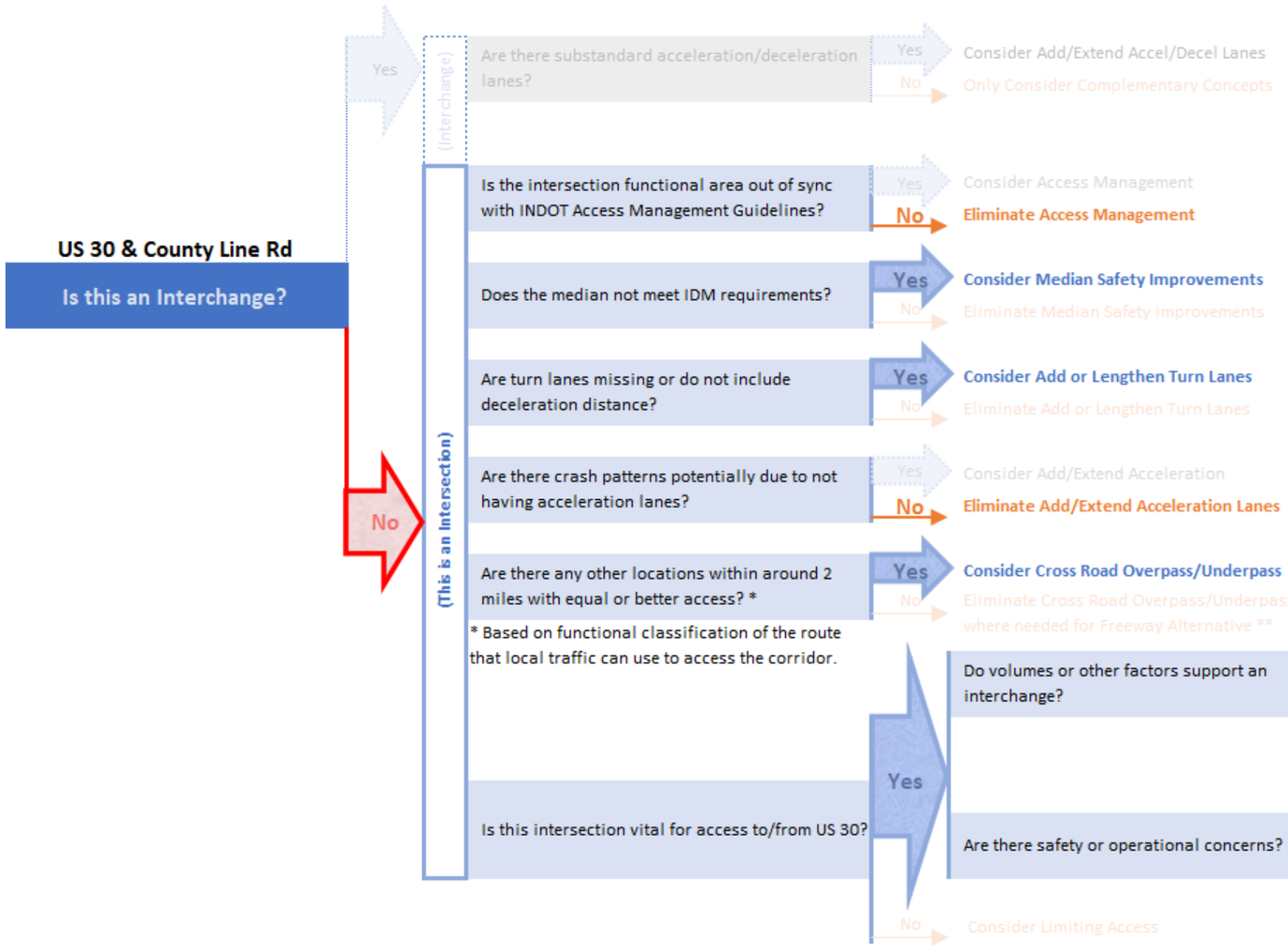
	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
	Railroad Crossing Improvements
	Spot Roadway Lighting
	Realign Skewed Interections
	Intersection Sight Distance Improvements
TSMO	Warning Systems
	Freight Priority System
	Traveler Information Systems
Policy	Roadside Assistance Services
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & PORTER CR 400 E



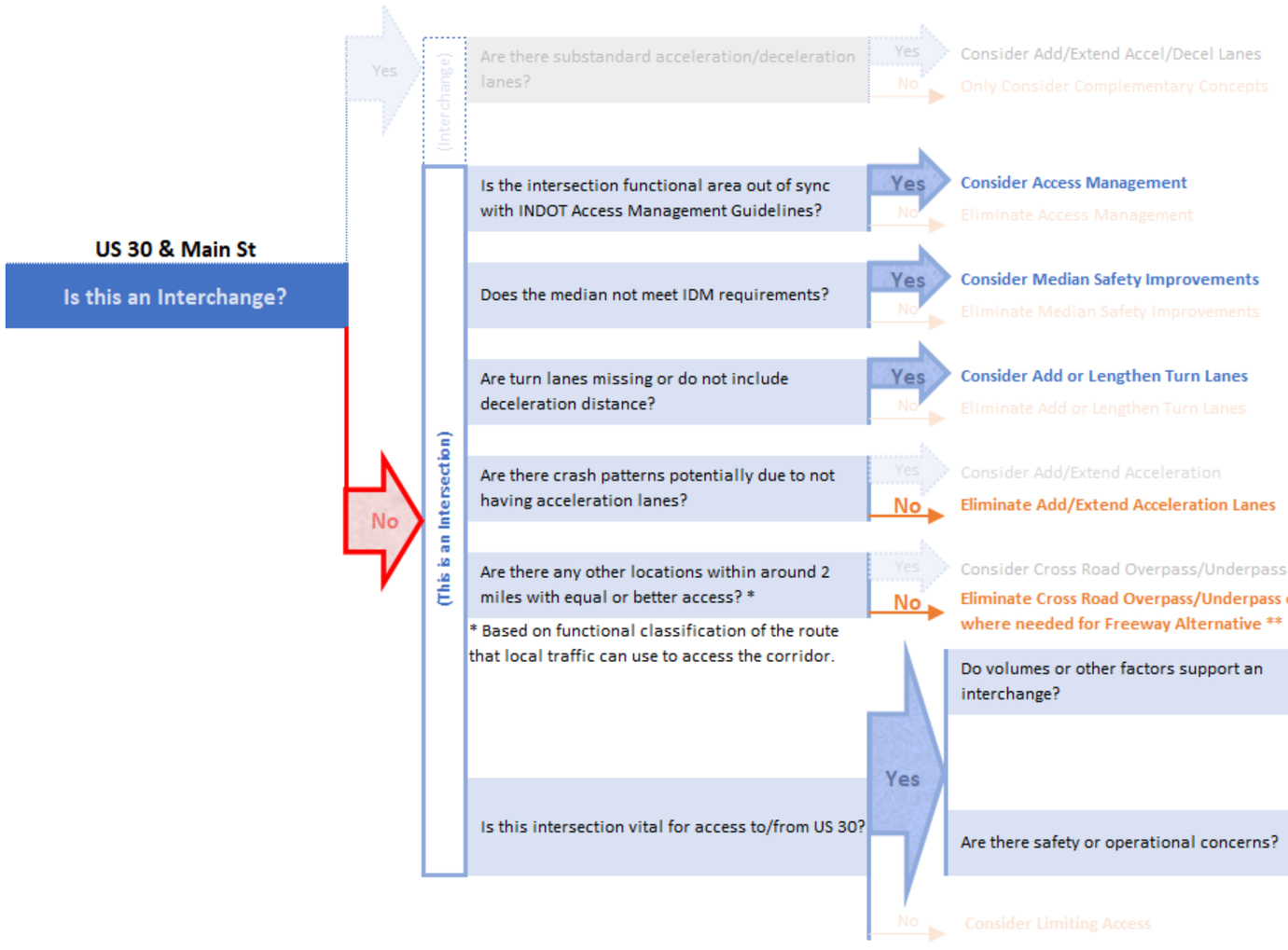
	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
	Railroad Crossing Improvements
	Spot Roadway Lighting
	Realign Skewed Interections
	Intersection Sight Distance Improvements
TSMO	Warning Systems
	Freight Priority System
	Traveler Information Systems
Policy	Roadside Assistance Services
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & COUNTY LINE RD



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
	Railroad Crossing Improvements
	Spot Roadway Lighting
	Realign Skewed Interections
	Intersection Sight Distance Improvements
TSMO	Warning Systems
	Freight Priority System
	Traveler Information Systems
Policy	Roadside Assistance Services
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & MAIN ST



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
	Railroad Crossing Improvements
	Spot Roadway Lighting
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	Intersection Sight Distance Improvements
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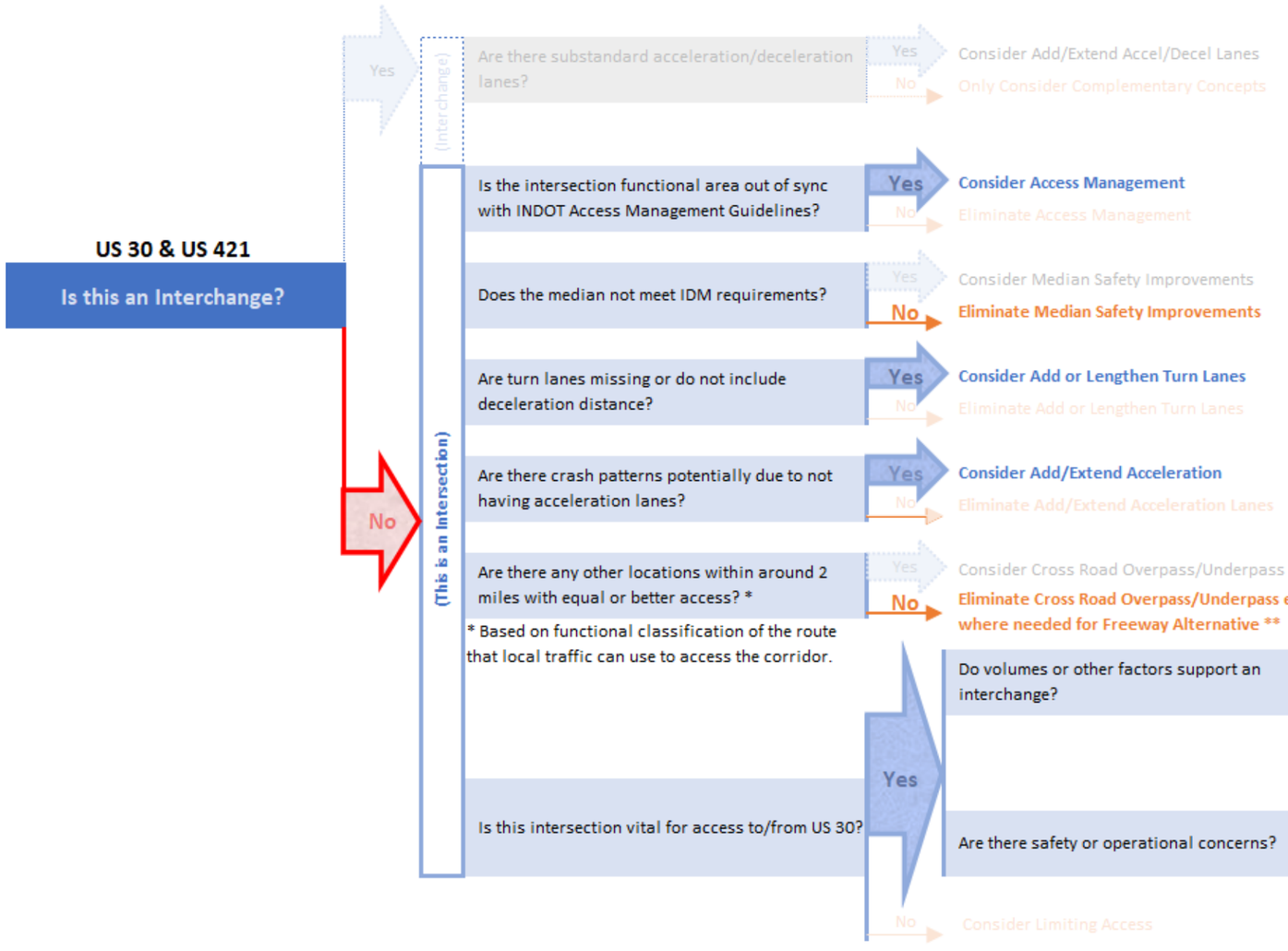
	Freight Priority System
	Traveler Information Systems
Policy	Roadside Assistance Services
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & US 421



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
	Railroad Crossing Improvements
	Spot Roadway Lighting
	Realign Skewed Interections
	Intersection Sight Distance Improvements
TSMO	Warning Systems
	Freight Priority System
	Traveler Information Systems
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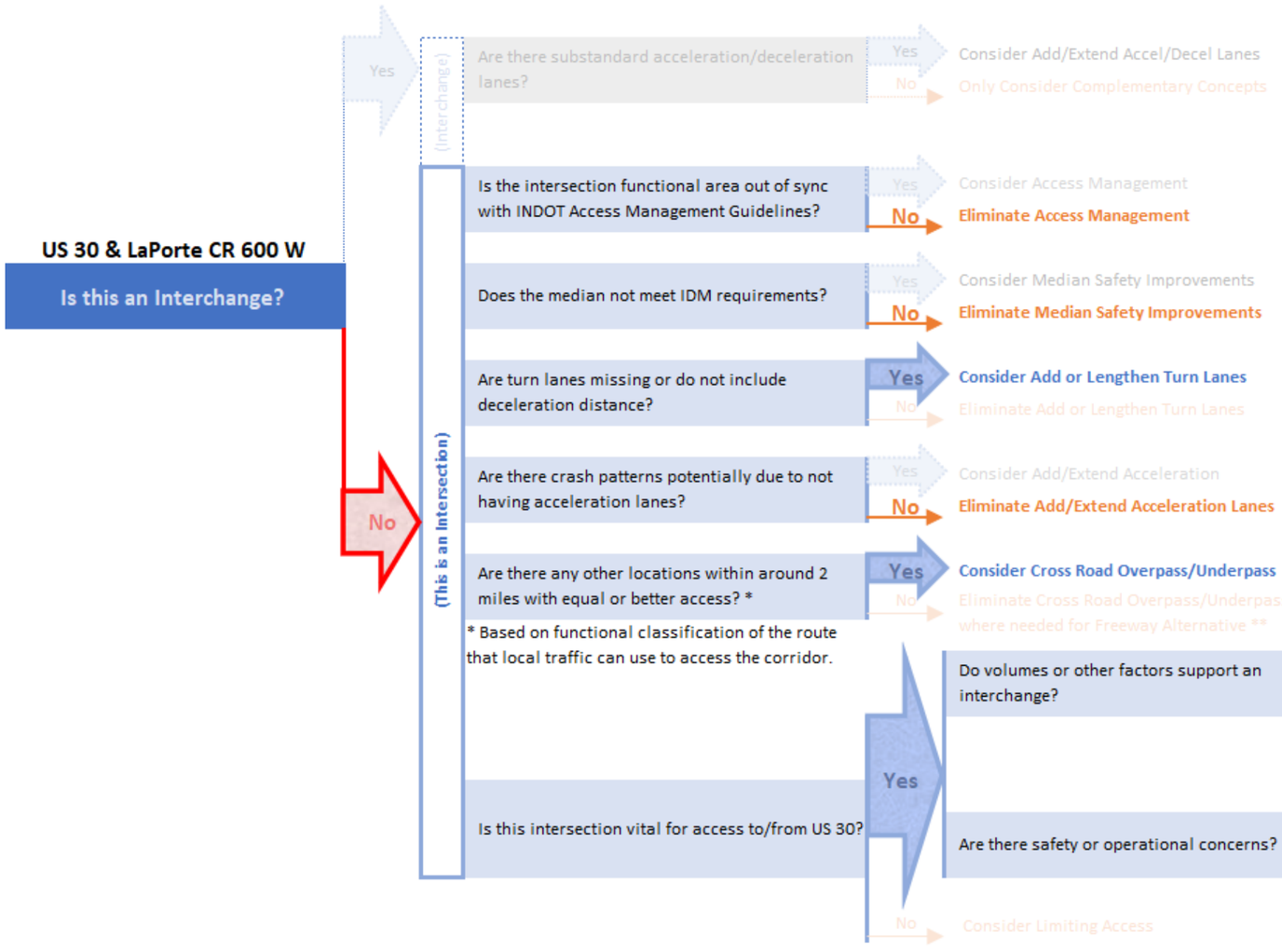
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & LAPORTE CR 600 W



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
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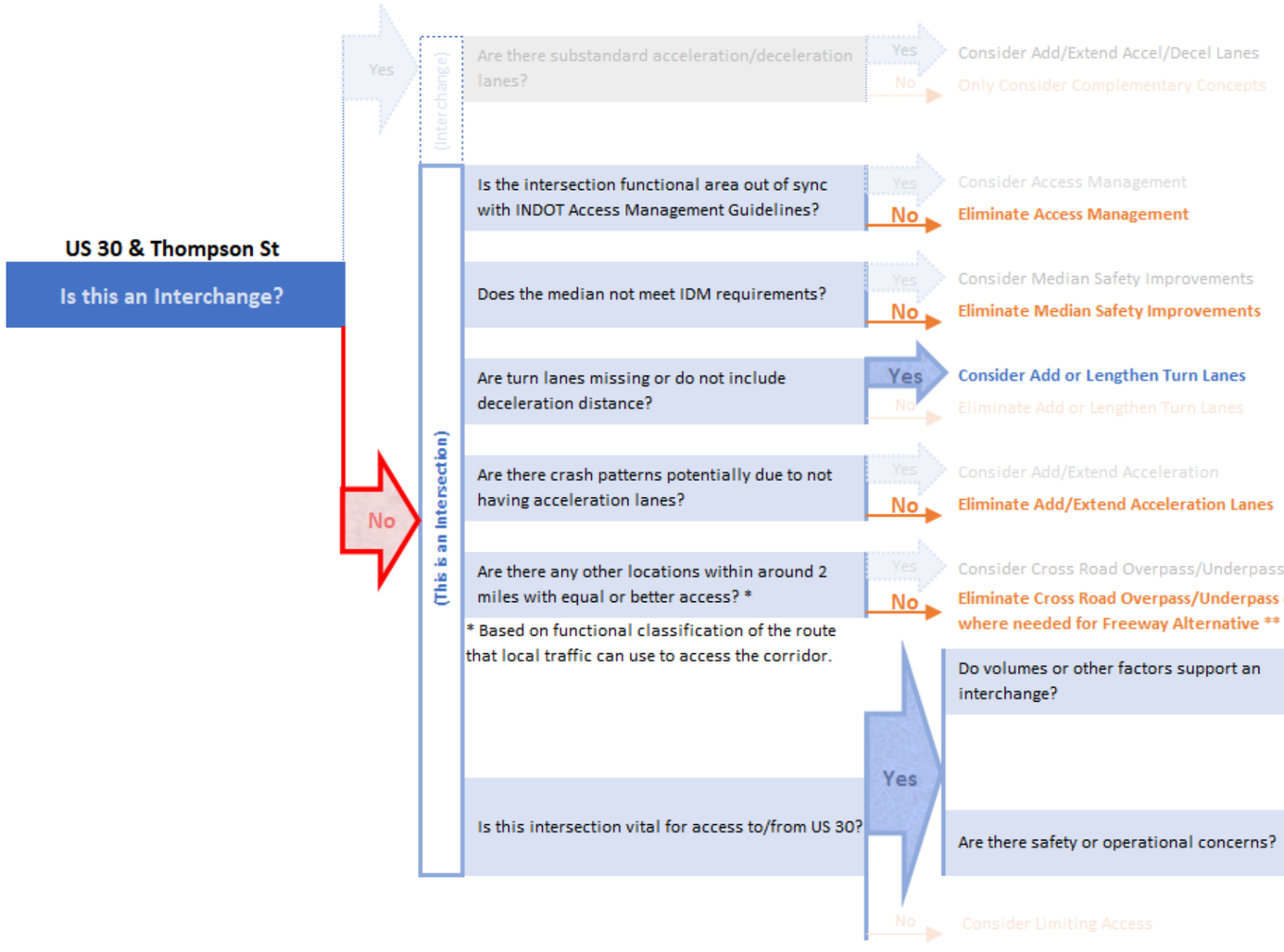
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & THOMPSON ST



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
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TSMO	Warning Systems
	Freight Priority System
	Traveler Information Systems
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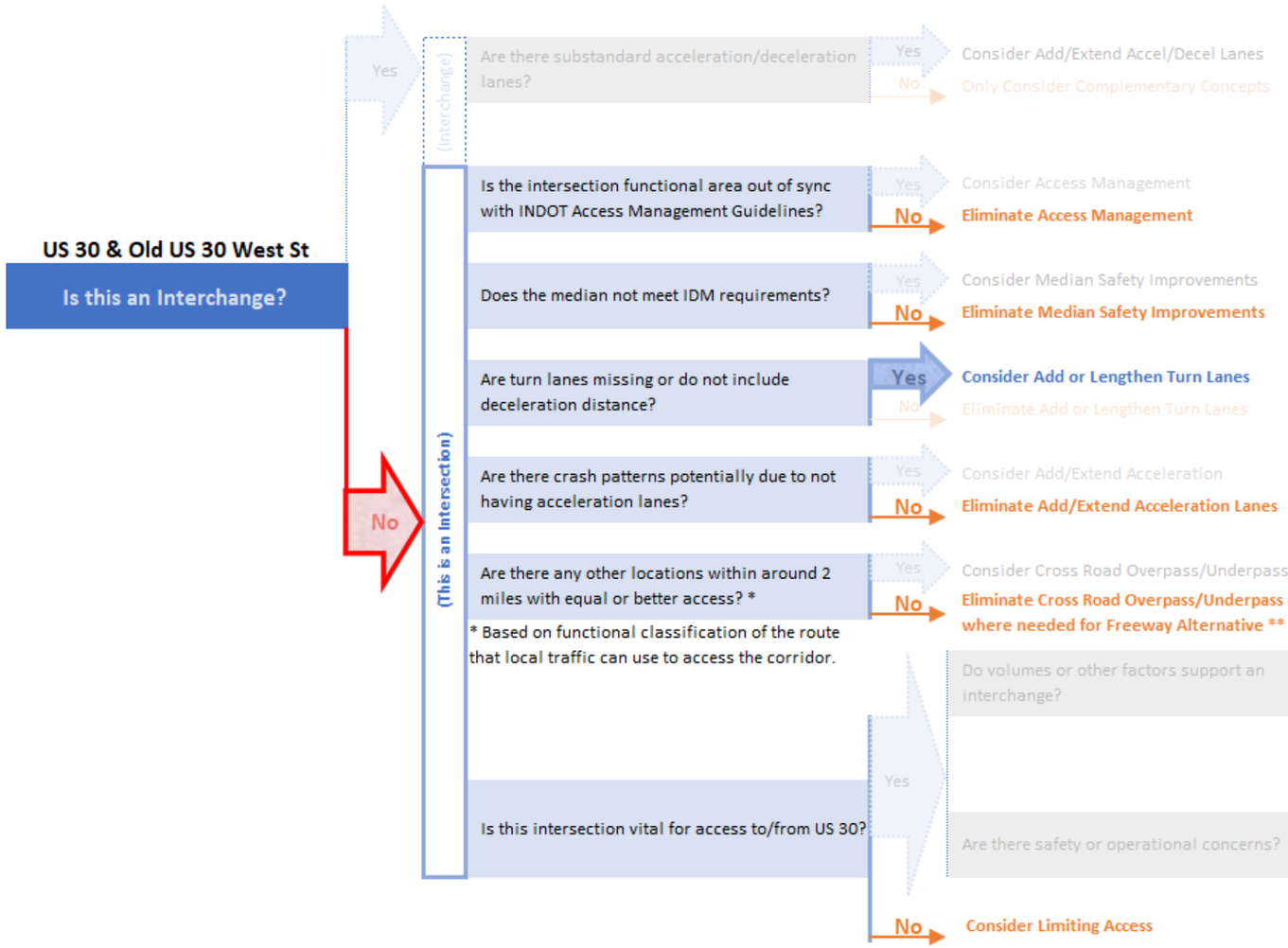
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & OLD US 30 WEST ST



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
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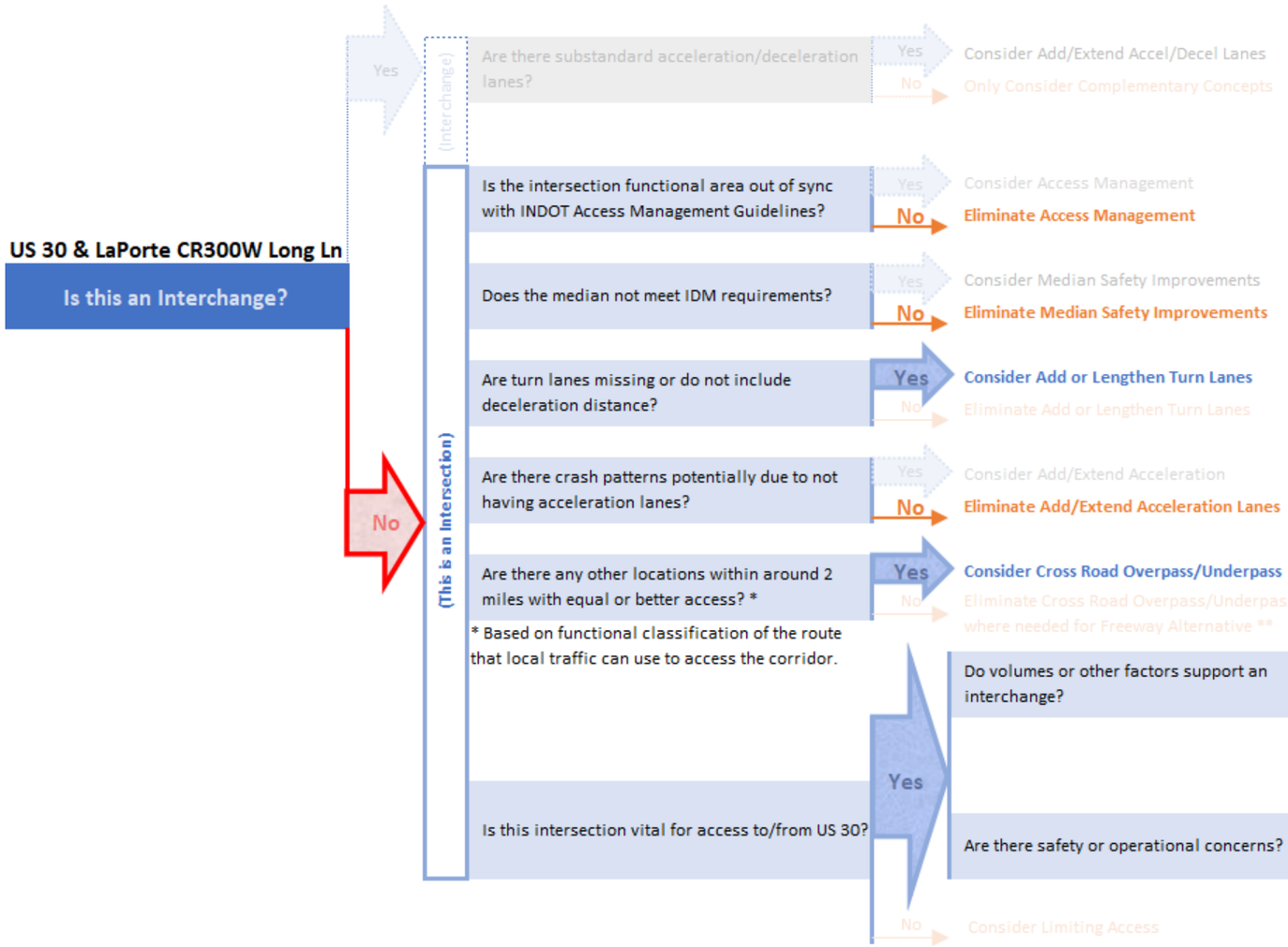
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
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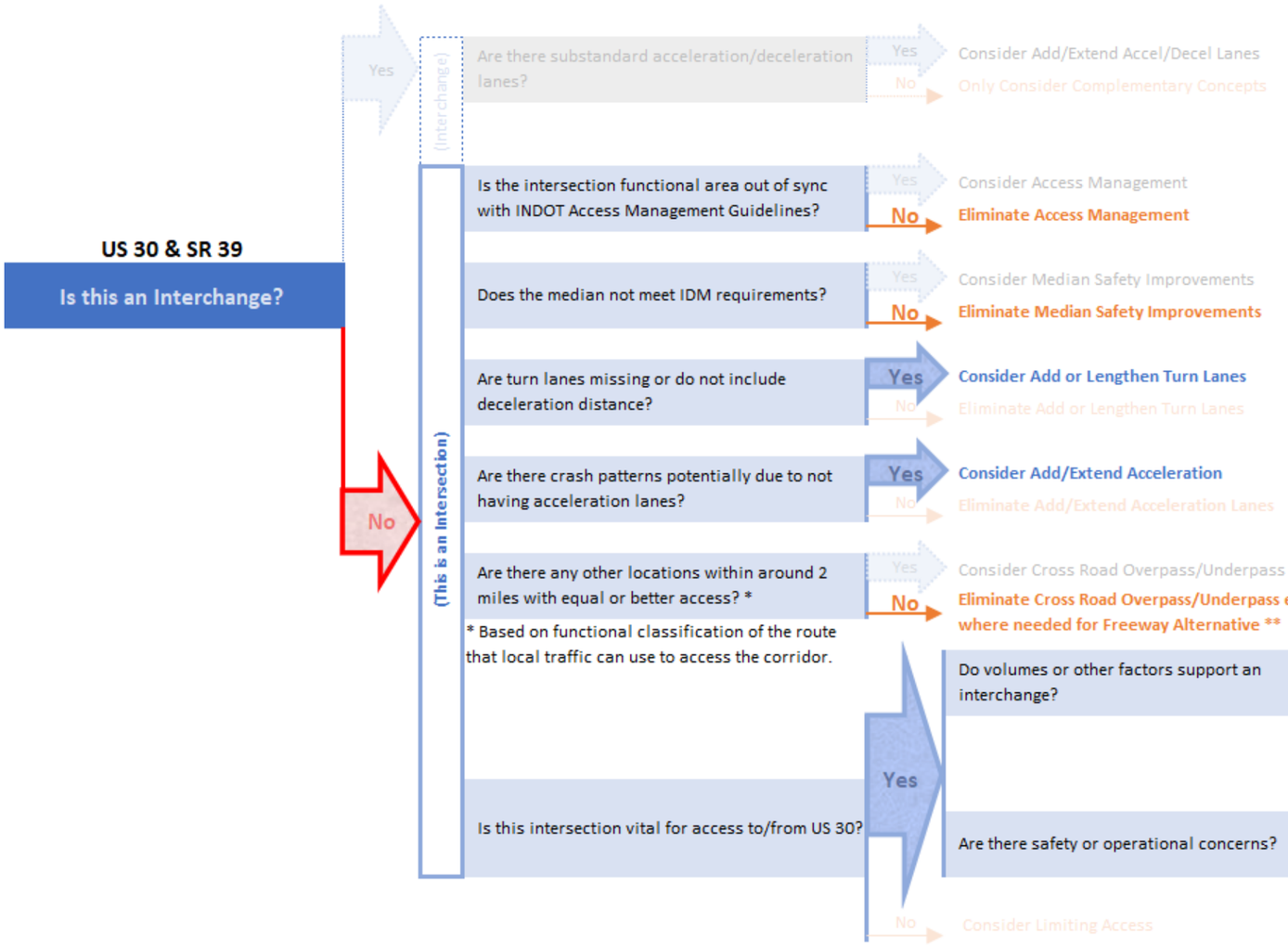
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & SR 39



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
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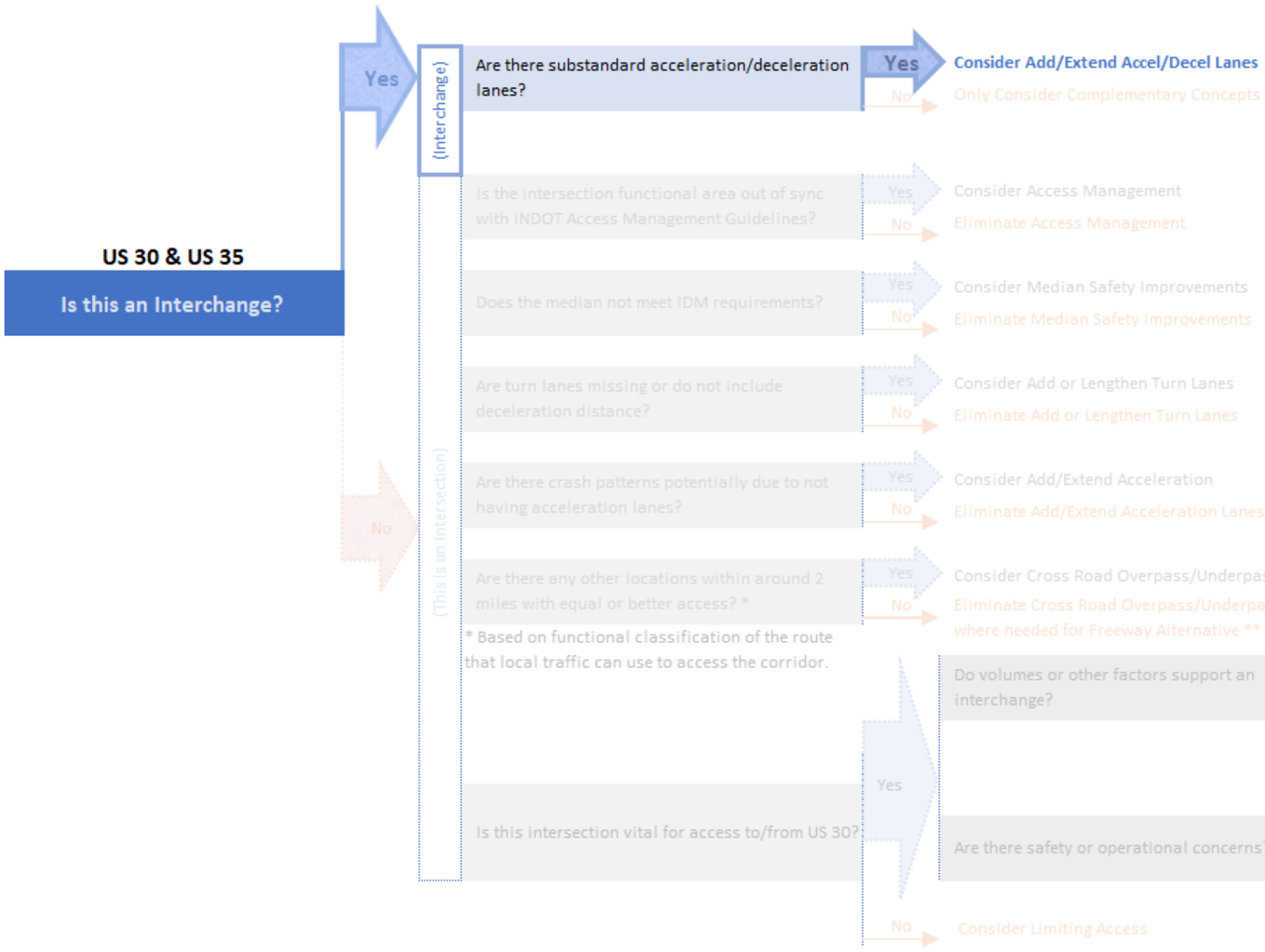
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & US 35



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
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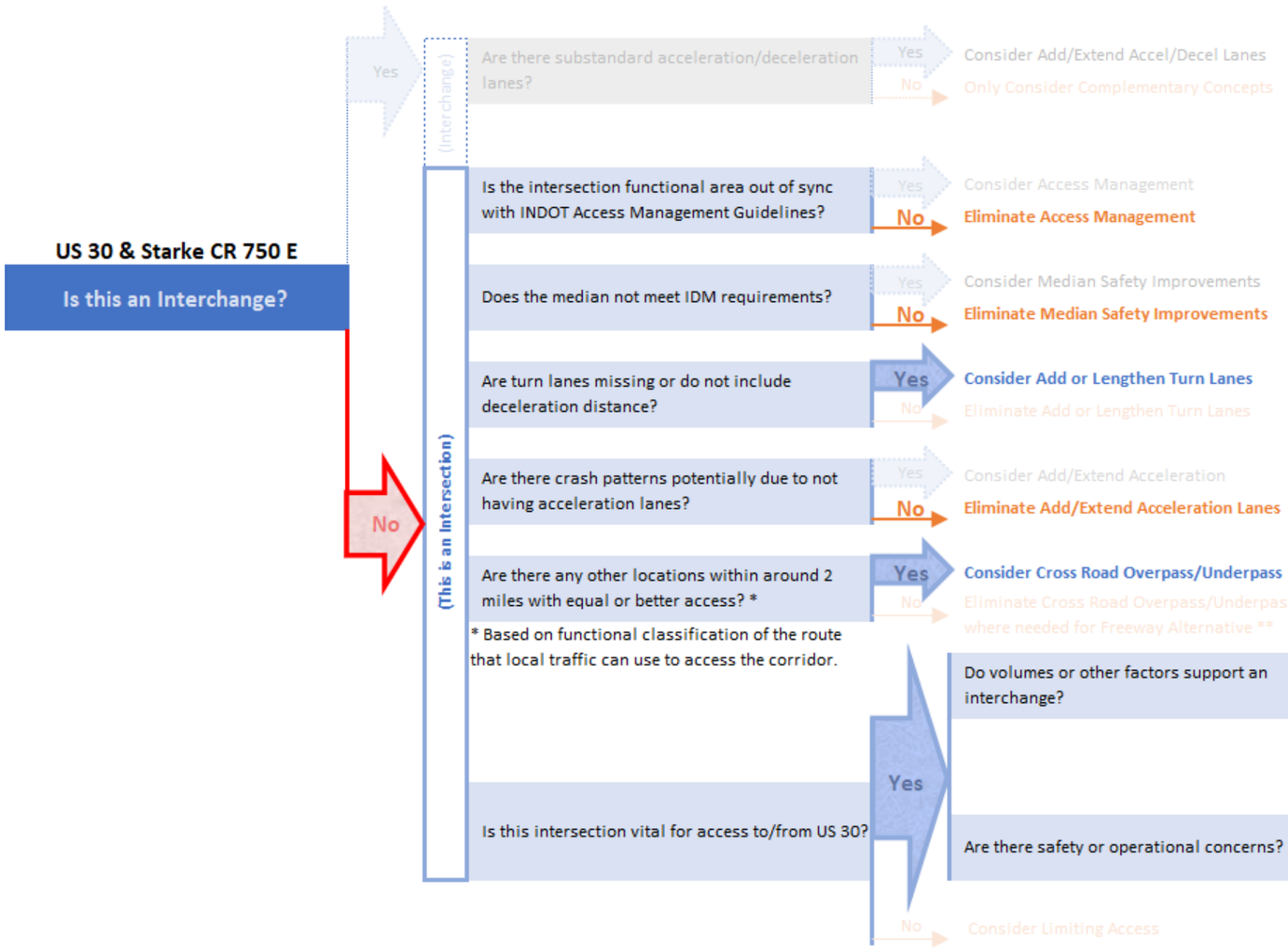
	Traveler Information Systems
Policy	Roadside Assistance Services
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & STARKE CR 750 E



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
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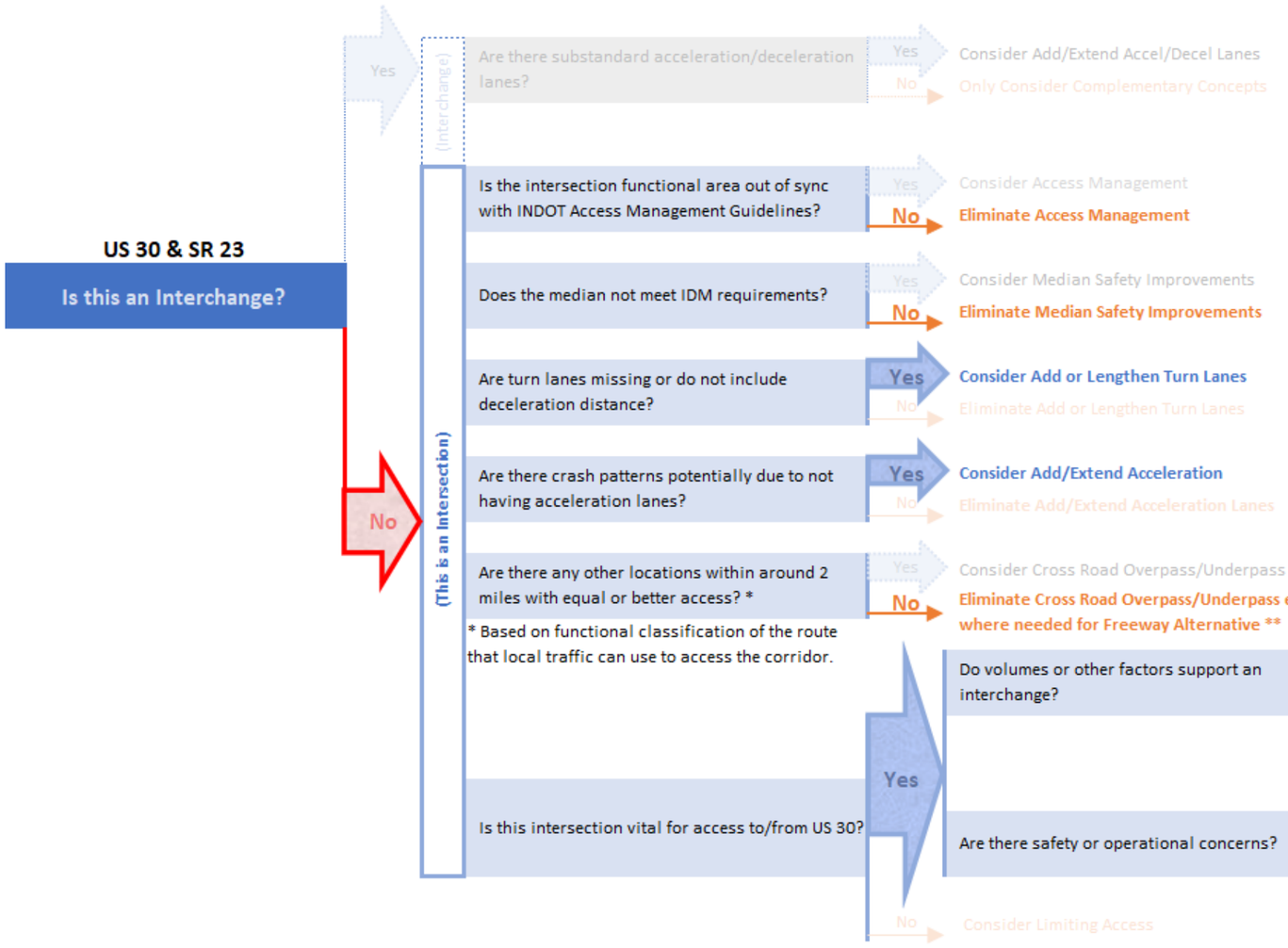
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & US 23



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
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	Traveler Information Systems
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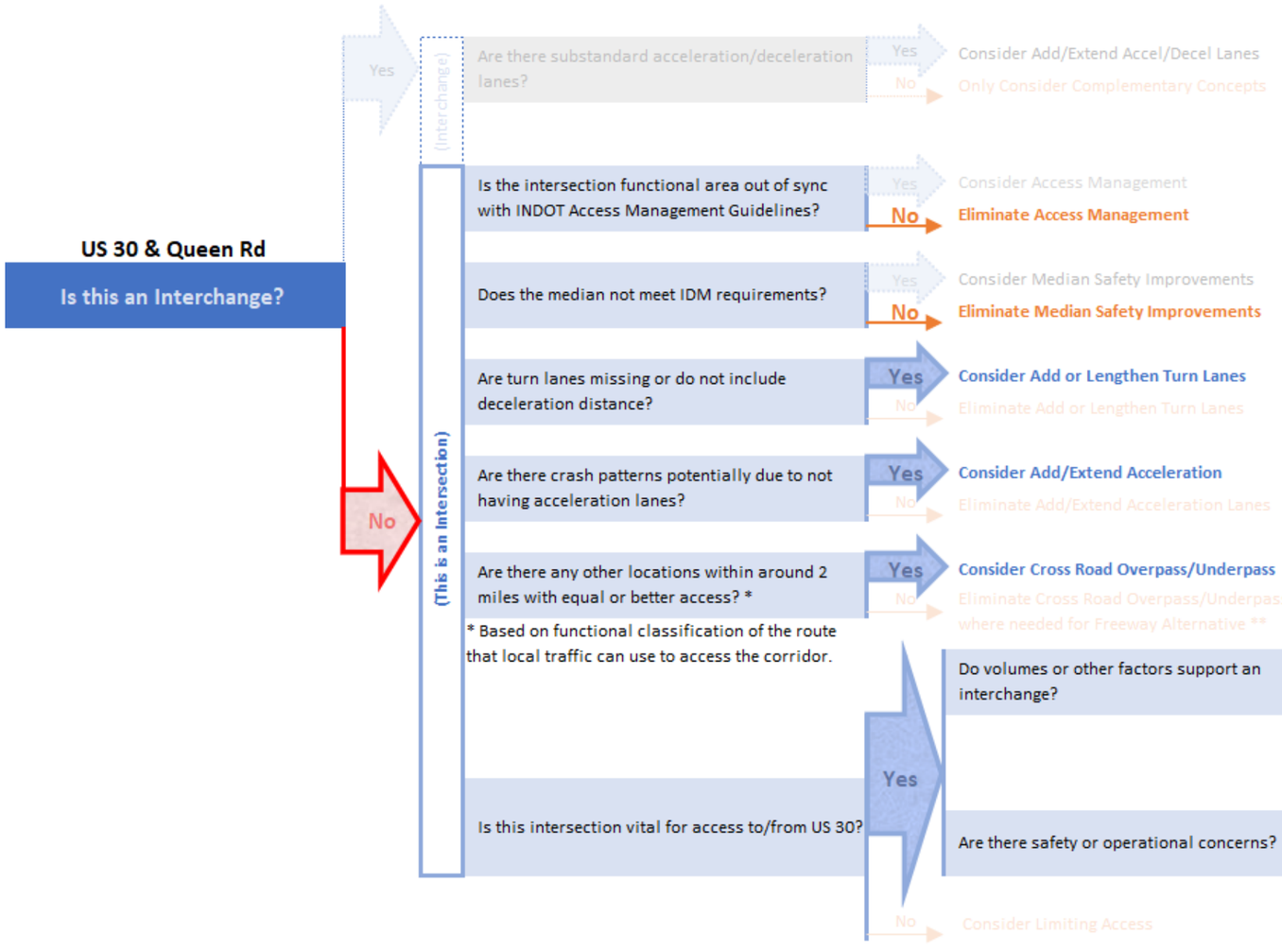
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & QUEEN RD



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
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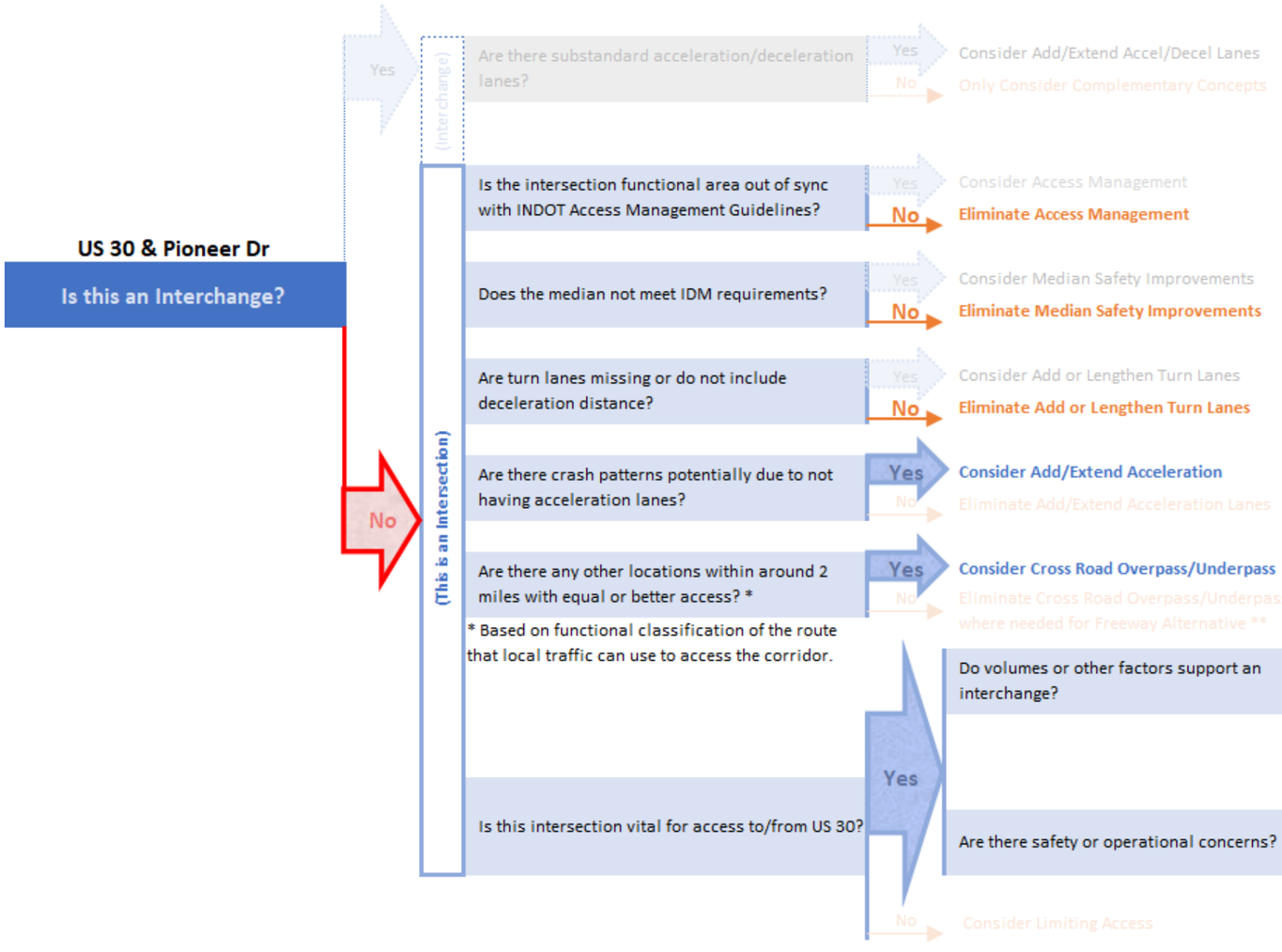
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & PIONEER DR



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
Spot Improvements	Accommodate Wildlife Crossing
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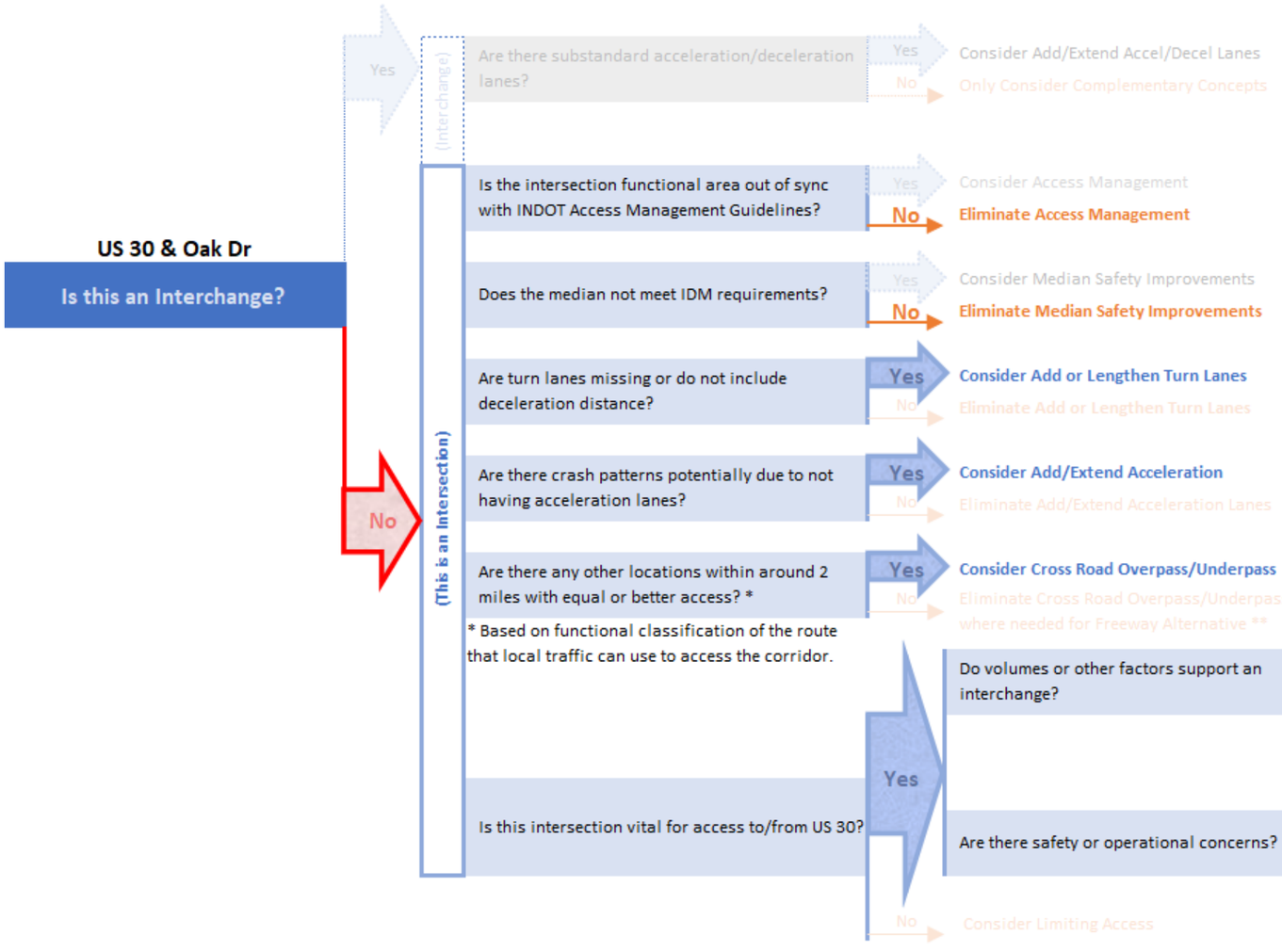
	Traveler Information Systems
Policy	Roadside Assistance Services
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & OAK DR



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
	Ramp Terminal Intersection Improvements
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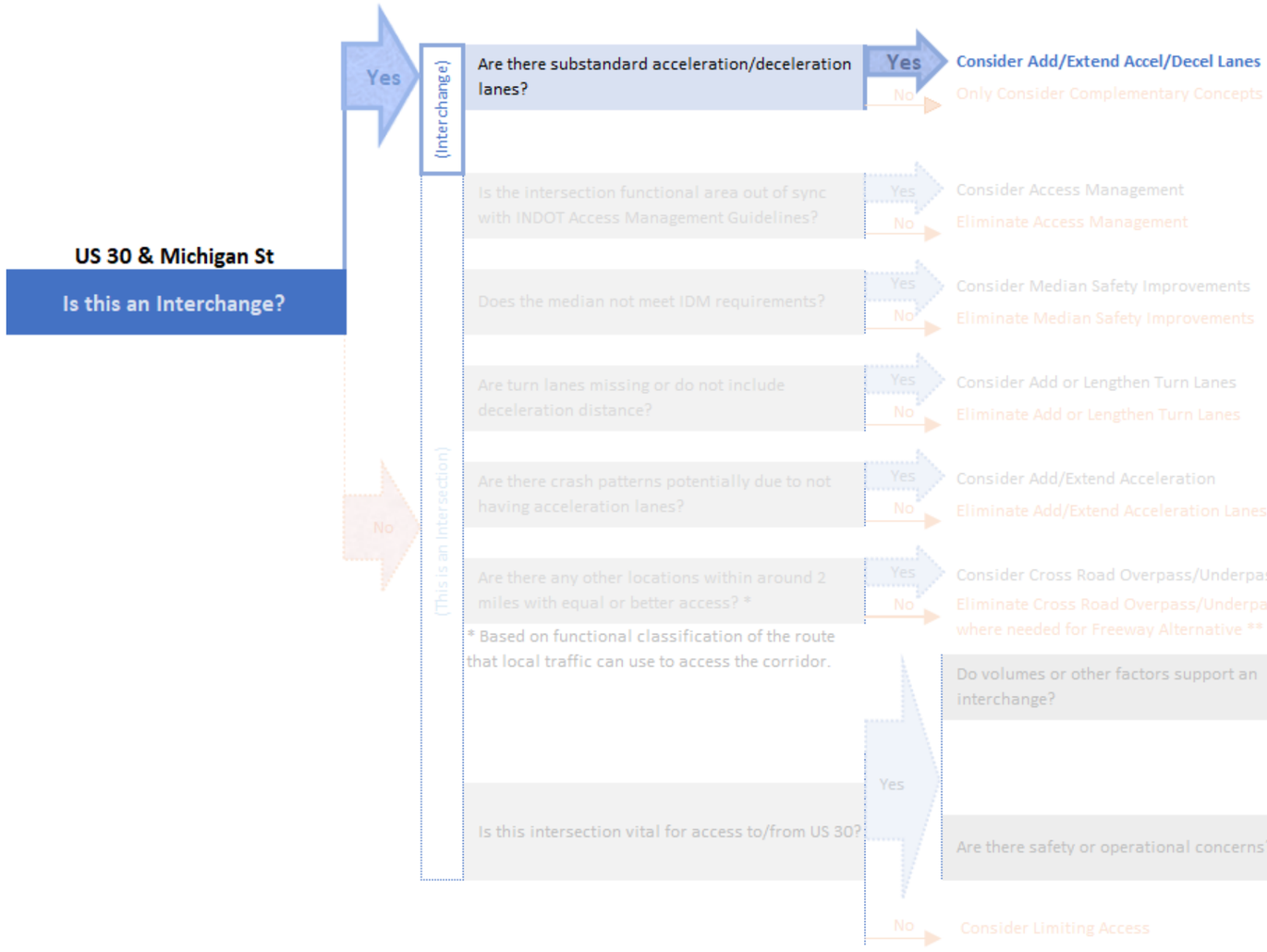
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & MICHIGAN ST



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
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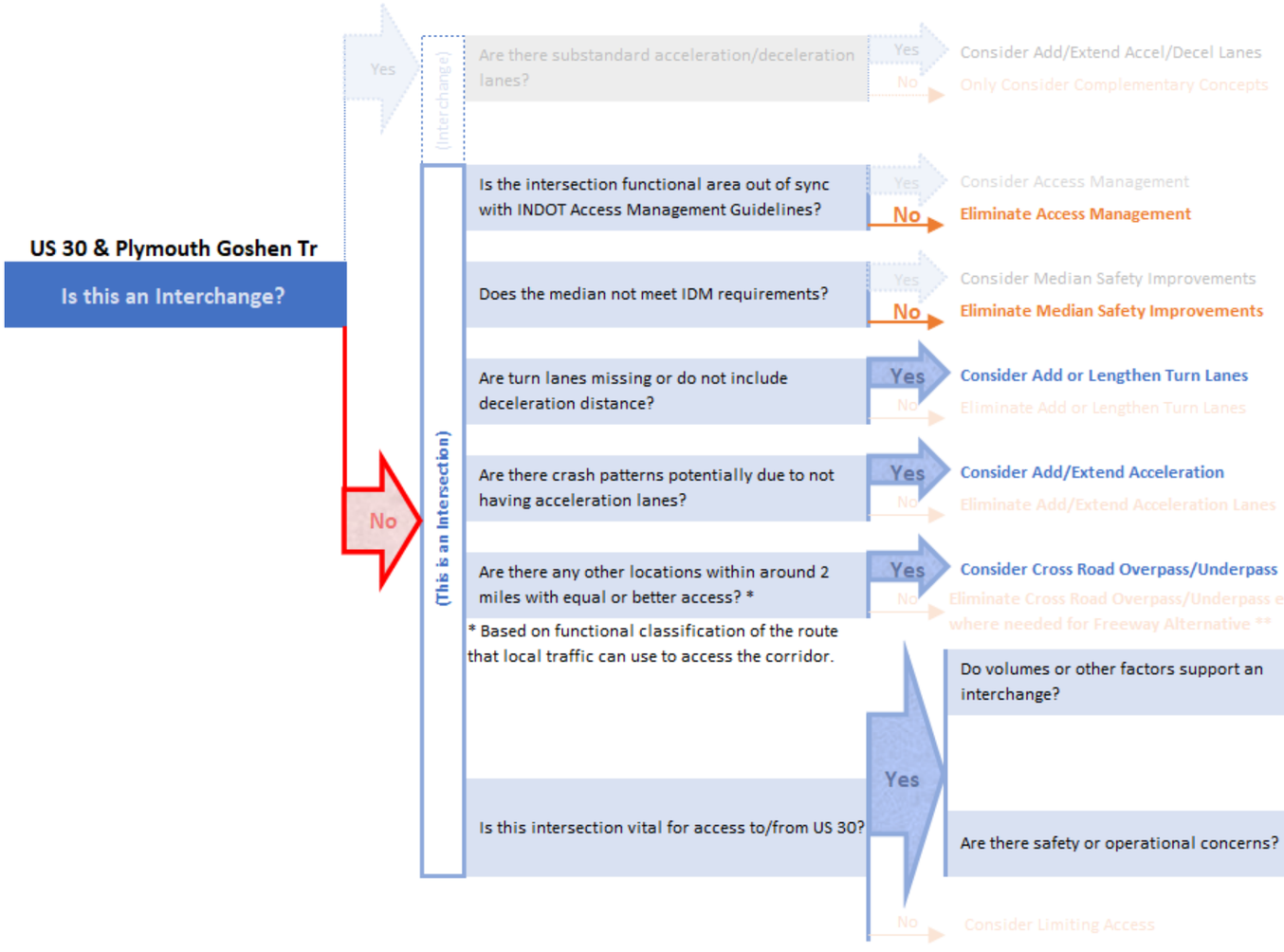
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & PLYMOUTH GOSHEN TR



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
	Signal Timing Updates/Coordination
Interchange	Add Capacity to Movements
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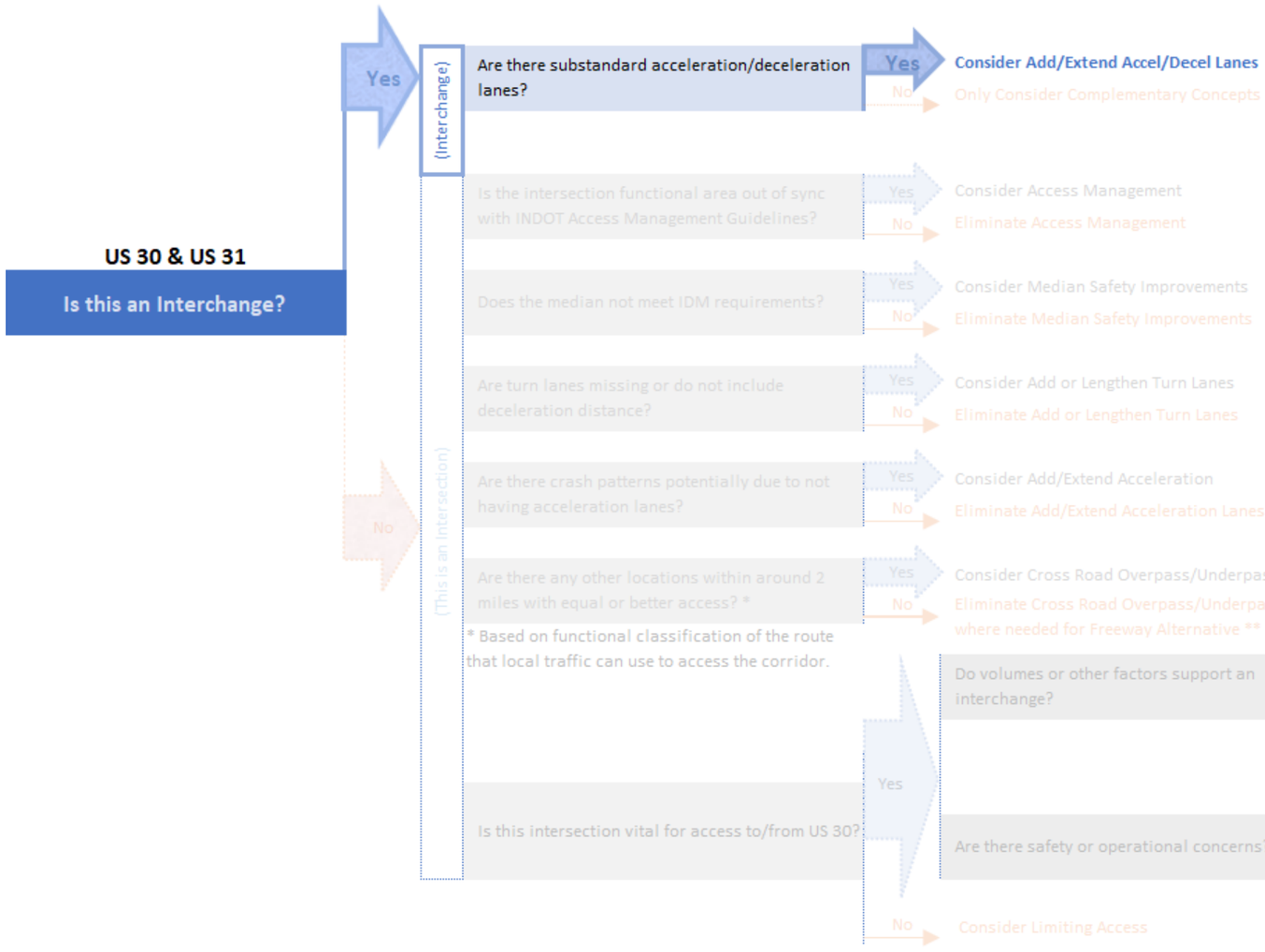
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & US 31



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	Traveler Information Systems
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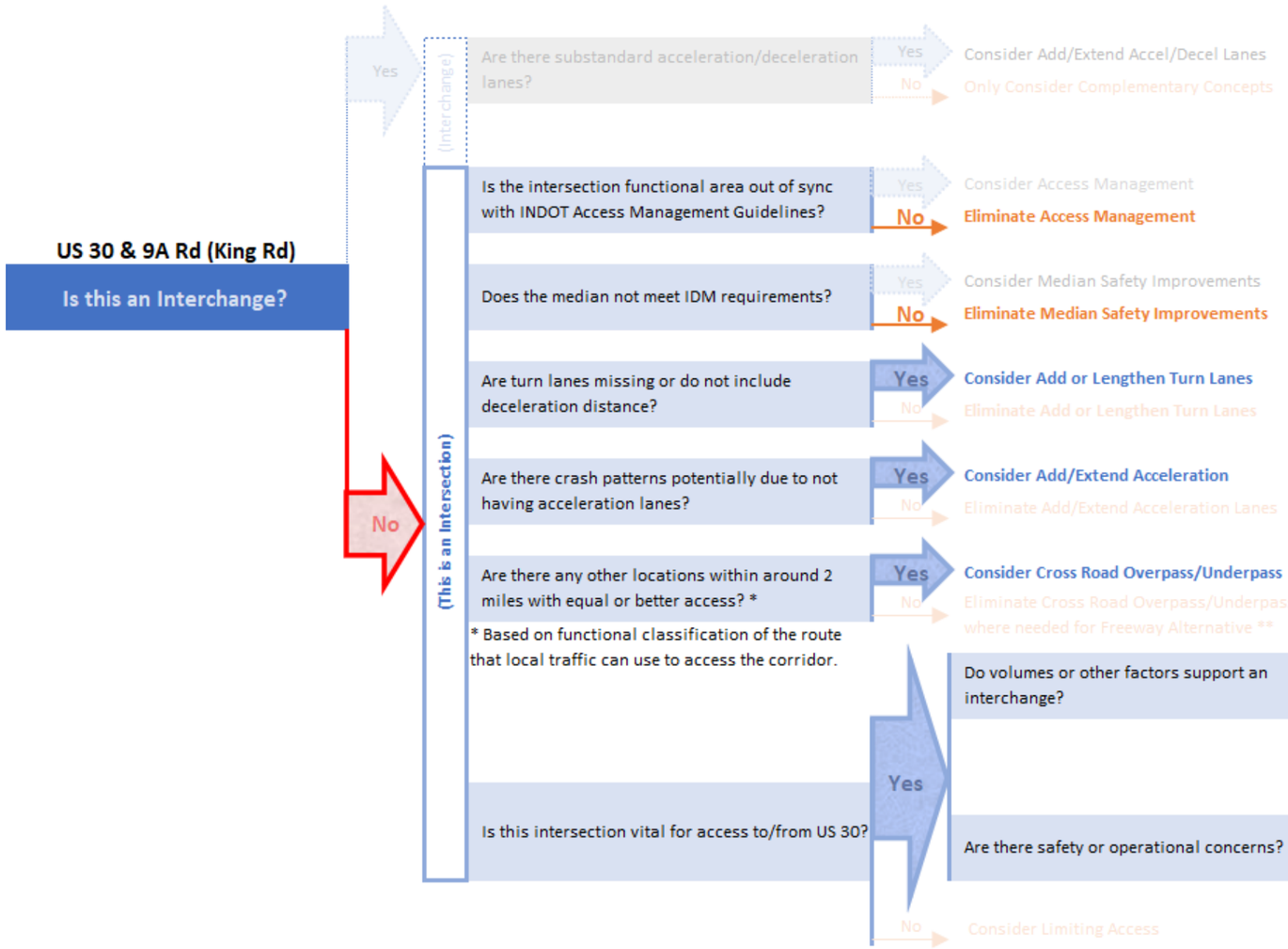
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & KING RD & 9A RD



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
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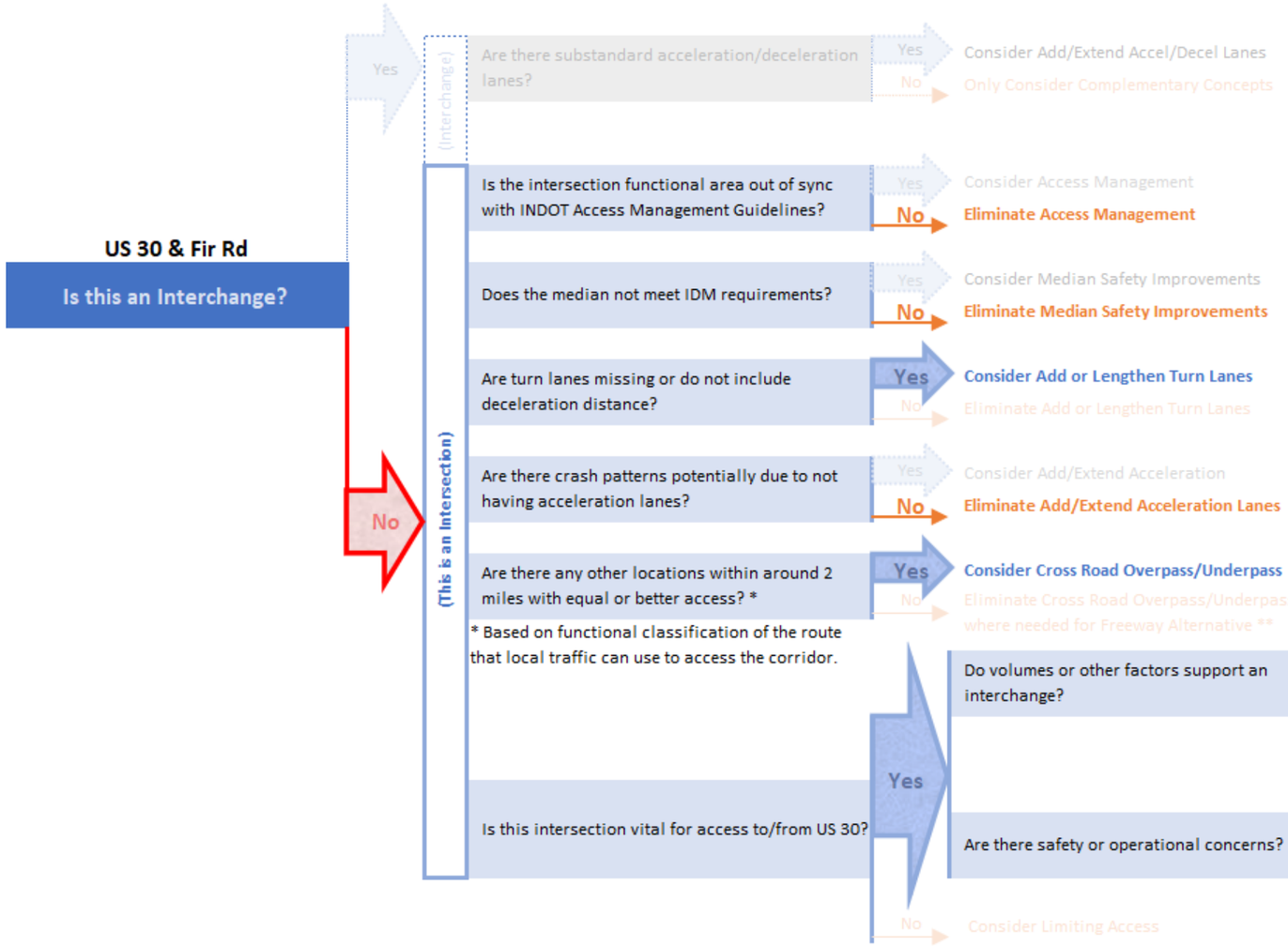
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 30 & FIR RD



	Complementary Concepts
Corridor	Auxiliary Lanes
	Bypass
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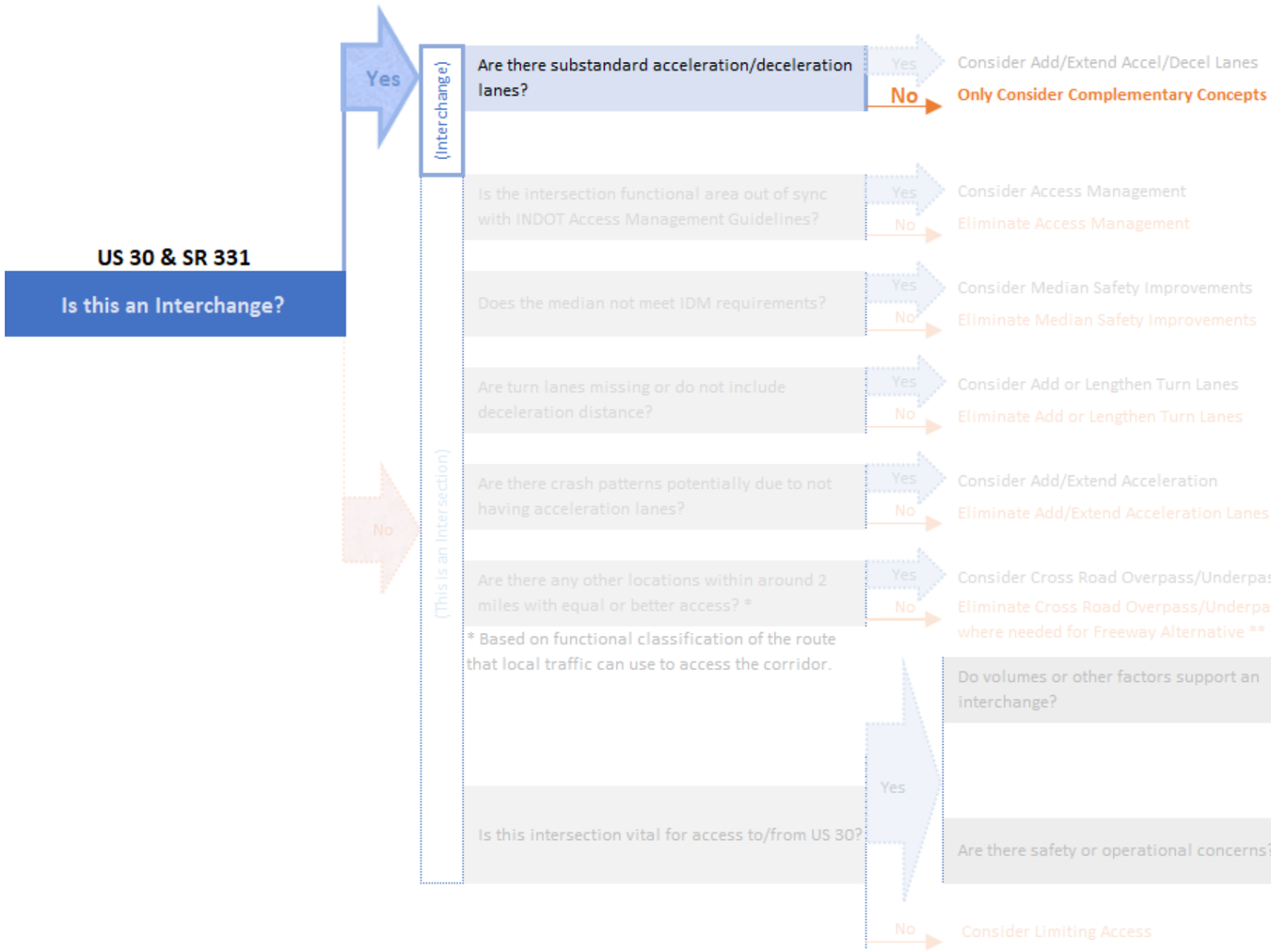
APPENDIX A - DECISION TREES
US 30 & SR 331



	Complementary Concepts
Corridor	Auxiliary Lanes
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APPENDIX A - DECISION TREES
US 31 & 9A RD

US 31 & 9A Rd

Is this an Interchange?

Yes (Interchange)

- Are there substandard acceleration/deceleration lanes?
  - Yes → Consider Add/Extend Accel/Decel Lanes
  - No → Only Consider Complementary Concepts
- Is the intersection functional area out of sync with INDOT Access Management Guidelines?
  - Yes → Consider Access Management
  - No → **Eliminate Access Management**
- Are turn lanes missing or do not include deceleration distance?
  - Yes → Consider Add or Lengthen Turn Lanes
  - No → **Eliminate Add or Lengthen Turn Lanes**
- Are there crash patterns potentially due to not having acceleration lanes?
  - Yes → Consider Add/Extend Acceleration
  - No → **Eliminate Add/Extend Acceleration Lanes**

No (This is an Intersection)

- Are there any other locations within around 2 miles with equal or better access? *
  - Yes → **Consider Cross Road Overpass/Underpass**
  - No → Eliminate Cross Road Overpass/Underpass except where needed for Freeway Alternatives **

* Based on functional classification of the route that local traffic can use to access the corridor.

- Is this intersection vital for access to/from US 31?
  - Yes
    - Do volumes or other factors support an interchange?
      - Yes → Consider Convert to Interchange
      - No → **Eliminate Convert to Interchange except where needed for Freeway Alternatives *****
    - Are there safety or operational concerns?
      - Yes → Consider Unsignalized Intersection Improvement
      - No → **Eliminate Unsignalized Intersection Improvement**
  - No → Consider Limiting Access

	Complementary Concepts
Corridor	Auxiliary Lanes
	Median Safety Improvements
Spot Improvements	Realign Skewed Intersection
	Intersection Sight Distance Improvements
	Accomodate Wildlife Crossings
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TSMO	Warning Systems
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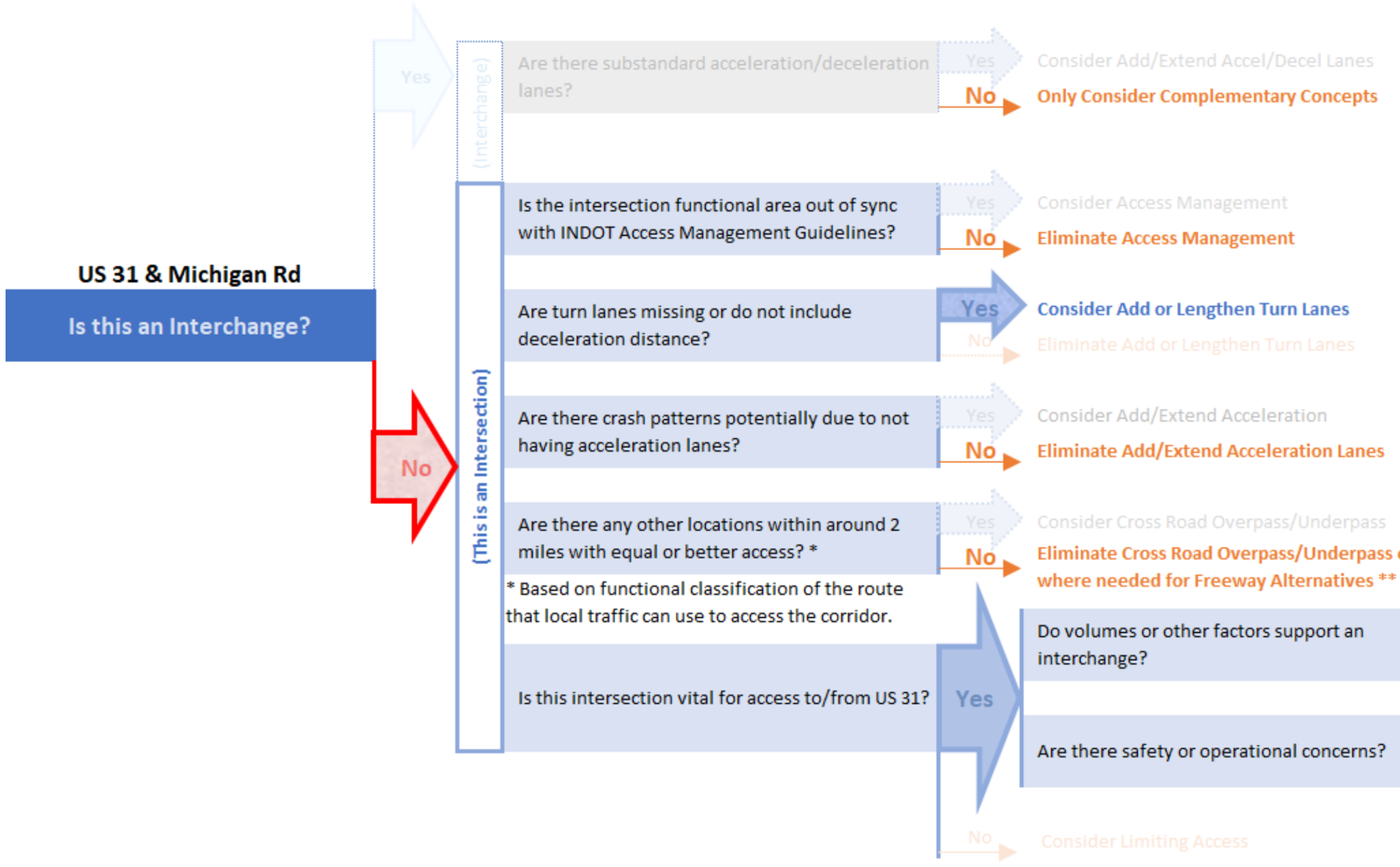
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 31 & MICHIGAN RD



	Complementary Concepts
Corridor	Auxiliary Lanes
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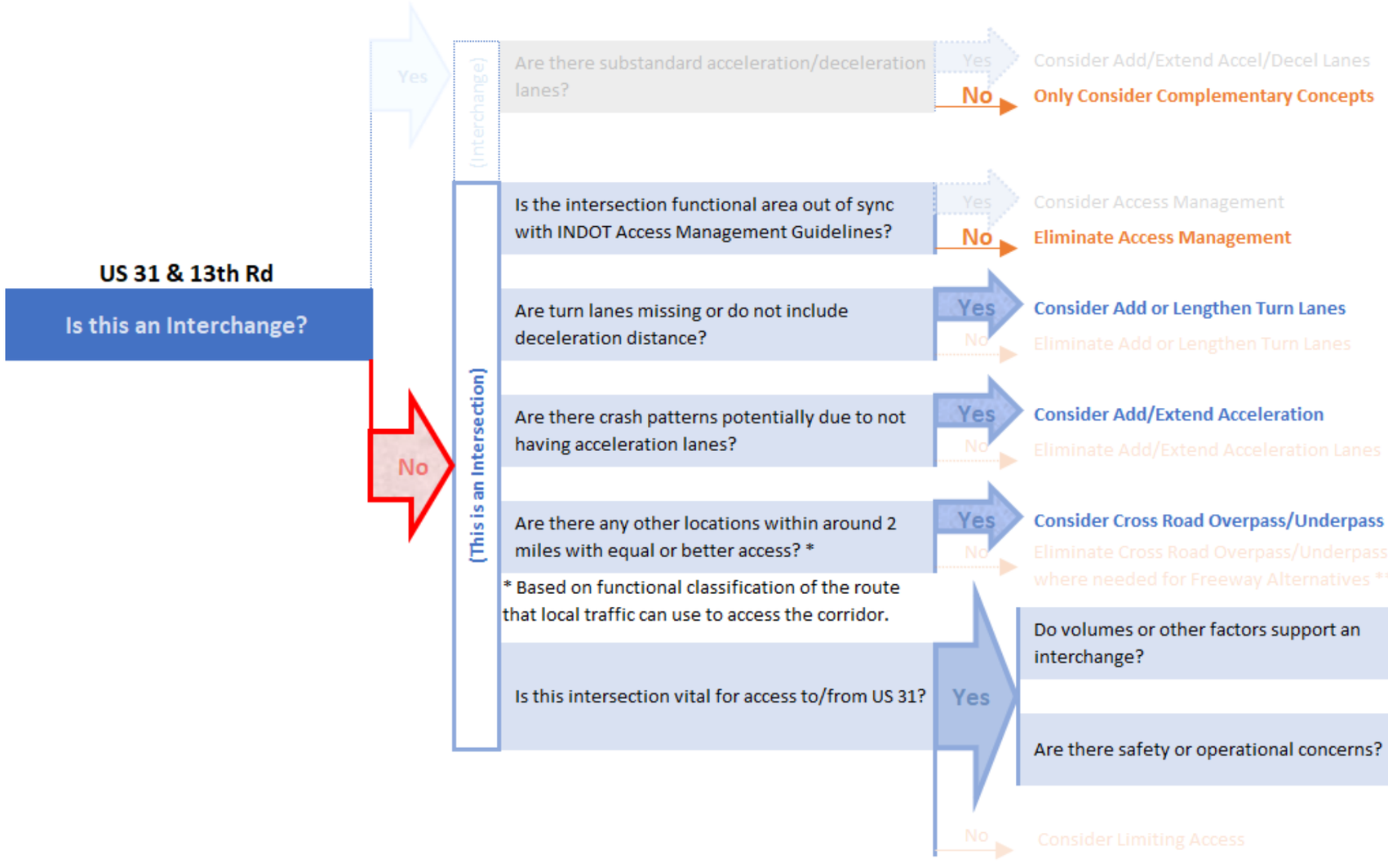
	Incident Management
Transit & Non-Motorized	Bike/ Pedestrian Facilities
	Non-Motorized User Accommodations (Amish)

APPENDIX A - DECISION TREES
US 31 & 13TH RD



	Complementary Concepts
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APPENDIX B: CAP-X RESULTS

Table 1: Intersection Nomenclature for Cap-X and INDOT Systems.

Intersection Type	
Cap-X	INDOT
Median U-Turn (MUT)	Boulevard Left Turn
Partial Median U-Turn	Boulevard Left Turn with Cross-Street Lefts
Signalized Restricted Crossing U-Turn (Signalized RCUT)	RCUT
Unsignalized RCUT	Reduced Conflict Intersection (RCI)

FHWA's Cap-X tool uses slightly different nomenclature for intersection types than INDOT. Table-1 in Appendix B shows the treatment name used in Cap-X and the equivalent name as used by INDOT. For all other intersection types, Cap-X and INDOT use the same name. This report will refer to the intersection types using the names that INDOT uses.

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Industrial Drive
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	253	636	187	20.82%	0.00%
Westbound	0	10	907	41	20.09%	0.00%
Southbound	0	3	8	118	1.82%	0.00%
Northbound	0	86	10	15	14.16%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

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TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Partial Displaced Left Turn E-W	**0.51**	**1**	**Good**	**Excellent**
Displaced Left Turn	**0.51**	**1**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn E-W	**0.51**	**1**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.53**	**4**	**Good**	**Excellent**
Median U-Turn E-W	**0.60**	**5**	**Good**	**Excellent**
Traffic Signal	**0.65**	**6**	**Good**	**Excellent**
Bowtie E-W	**0.86**	**7**	**Good**	**Excellent**
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Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Industrial Drive
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	129	965	49	19.87%	0.00%
Westbound	0	2	930	27	24.50%	0.00%
Southbound	0	32	3	300	1.79%	0.00%
Northbound	0	106	12	24	8.27%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Displaced Left Turn	**0.44**	**1**	**Good**	**Excellent**
Partial Displaced Left Turn E-W	**0.51**	**2**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn E-W	**0.58**	**3**	**Good**	**Excellent**
Median U-Turn E-W	**0.59**	**4**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.65**	**5**	**Good**	**Excellent**
Traffic Signal	**0.69**	**6**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.71**	**7**	**Good**	**Excellent**
Bowtie E-W	**0.94**	**8**	**Good**	**Excellent**
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Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Porter CR 325 E
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	26	901	7	21.22%	0.00%
Westbound	0	49	508	4	28.51%	0.00%
Southbound	0	15	3	11	3.79%	0.00%
Northbound	0	12	5	41	7.78%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.32	1	Good	Excellent
Partial Displaced Left Turn E-W	0.34	2	Good	Excellent
Displaced Left Turn	0.34	2	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.35	4	Good	Excellent
Partial Median U-Turn E-W	0.36	5	Good	Excellent
Traffic Signal	0.37	6	Good	Excellent
Median U-Turn E-W	0.37	6	Good	Excellent
1NS X 2EW Roundabout	0.45	8	Good	Excellent
Two-Way Stop Control E-W	0.59	9	Fair	Good
Quadrant Roadway S-W	0.67	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Porter CR 325 E
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	16	871	11	24.25%	0.00%
Westbound	0	37	885	15	17.00%	0.00%
Southbound	0	12	10	20	0.00%	0.00%
Northbound	0	0	10	45	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.26	1	Good	Excellent
Partial Displaced Left Turn E-W	0.33	2	Good	Excellent
Displaced Left Turn	0.33	2	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.34	4	Good	Excellent
Median U-Turn E-W	0.35	5	Good	Excellent
Partial Median U-Turn E-W	0.35	5	Good	Excellent
Traffic Signal	0.36	7	Good	Excellent
1NS X 2EW Roundabout	0.44	8	Good	Excellent
Quadrant Roadway S-W	0.64	9	Good	Excellent
Quadrant Roadway S-E	0.66	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Porter CR 400 E
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	18	556	6	21.09%	0.00%
Westbound	0	1	802	6	32.71%	0.00%
Southbound	0	1	1	14	0.00%	0.00%
Northbound	0	10	1	14	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.07	1	Good	Excellent
Two-Way Stop Control E-W	0.30	2	Fair	Good
Displaced Left Turn	0.38	3	Good	Excellent
Partial Displaced Left Turn E-W	0.39	4	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.39	4	Good	Excellent
Median U-Turn E-W	0.39	4	Good	Excellent
Bowtie E-W	0.40	7	Good	Excellent
Traffic Signal	0.41	8	Good	Excellent
Partial Median U-Turn E-W	0.41	8	Good	Excellent
All-Way Stop Control	1.01	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Porter CR 400 E
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	9	987	11	17.86%	0.00%
Westbound	0	12	773	6	24.58%	0.00%
Southbound	0	4	1	13	0.00%	0.00%
Northbound	0	16	1	5	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.09	1	Good	Excellent
Displaced Left Turn	0.66	2	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.66	2	Good	Excellent
Two-Way Stop Control E-W	0.67	4	Fair	Good
Partial Displaced Left Turn E-W	0.67	5	Good	Excellent
Median U-Turn E-W	0.67	5	Good	Excellent
Partial Median U-Turn E-W	0.68	7	Good	Excellent
Bowtie E-W	0.68	7	Good	Excellent
Traffic Signal	0.70	9	Good	Excellent
All-Way Stop Control	1.24	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	County Line Road
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	1	533	2	32.82%	0.00%
Westbound	0	1	711	2	21.91%	0.00%
Southbound	0	2	3	5	0.00%	0.00%
Northbound	0	11	6	9	23.08%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.08	1	Good	Excellent
Two-Way Stop Control E-W	0.24	2	Fair	Good
Quadrant Roadway N-E	0.40	3	Good	Excellent
Quadrant Roadway N-W	0.40	3	Good	Excellent
Displaced Left Turn	0.40	3	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.40	3	Good	Excellent
Median U-Turn E-W	0.40	3	Good	Excellent
Partial Displaced Left Turn E-W	0.41	8	Good	Excellent
Partial Median U-Turn E-W	0.41	8	Good	Excellent
Bowtie E-W	0.42	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	County Line Road
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	3	936	10	16.90%	0.00%
Westbound	0	22	664	0	21.93%	0.00%
Southbound	0	0	17	5	12.00%	0.00%
Northbound	0	3	17	22	7.84%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.18	1	Good	Excellent
Two-Way Stop Control E-W	0.37	2	Fair	Good
1NS X 2EW Roundabout	0.43	3	Good	Excellent
Quadrant Roadway N-W	0.62	4	Good	Excellent
Displaced Left Turn	0.62	4	Good	Excellent
Quadrant Roadway N-E	0.63	6	Good	Excellent
Partial Displaced Left Turn E-W	0.63	6	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.63	6	Good	Excellent
Quadrant Roadway S-E	0.64	9	Good	Excellent
Median U-Turn E-W	0.64	9	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Main Street
Date:	2045 AM
Number of Intersection Legs:	3
Which leg is the minor street?	S

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	1	608	23	31.75%	0.00%
Westbound	0	18	683	1	23.35%	0.00%
Southbound	0	0	0	0	0.00%	0.00%
Northbound	0	20	0	34	8.19%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.19	1	Good	Excellent
Partial Displaced Left Turn E-W	0.25	2	Good	Excellent
Traffic Signal	0.26	3	Good	Excellent
Continuous Green T S	0.26	3	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.26	3	Good	Excellent
Partial Median U-Turn E-W	0.27	6	Good	Excellent
Median U-Turn E-W	0.28	7	Good	Excellent
Two-Way Stop Control E-W	0.29	8	Fair	Good
All-Way Stop Control	0.97	9	Good	Excellent
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Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Main Street
Date:	2045 PM
Number of Intersection Legs:	3
Which leg is the minor street?	S

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	1	1043	28	17.51%	0.00%
Westbound	0	26	641	1	22.98%	0.00%
Southbound	0	0	0	0	0.00%	0.00%
Northbound	0	17	0	43	2.15%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.36	1	Good	Excellent
Partial Displaced Left Turn E-W	0.36	2	Good	Excellent
Traffic Signal	0.38	3	Good	Excellent
Continuous Green T S	0.38	3	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.38	3	Good	Excellent
Median U-Turn E-W	0.38	3	Good	Excellent
Partial Median U-Turn E-W	0.38	3	Good	Excellent
Two-Way Stop Control E-W	0.40	8	Fair	Good
All-Way Stop Control	1.18	9	Good	Excellent
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Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	US 421
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	136	452	55	32.81%	0.00%
Westbound	0	15	448	81	29.54%	0.00%
Southbound	0	48	86	60	26.86%	0.00%
Northbound	0	121	96	22	15.85%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

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TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Displaced Left Turn	**0.38**	**1**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.40**	**2**	**Good**	**Excellent**
Partial Displaced Left Turn E-W	**0.42**	**3**	**Good**	**Excellent**
Quadrant Roadway S-W	**0.46**	**4**	**Good**	**Excellent**
Traffic Signal	**0.48**	**5**	**Good**	**Excellent**
Quadrant Roadway S-E	**0.48**	**5**	**Good**	**Excellent**
Quadrant Roadway N-E	**0.50**	**7**	**Good**	**Excellent**
Bowtie E-W	**0.50**	**7**	**Good**	**Excellent**
Median U-Turn E-W	**0.53**	**9**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.54**	**10**	**Good**	**Excellent**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	US 421
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	222	651	136	17.60%	0.00%
Westbound	0	18	519	83	28.59%	0.00%
Southbound	0	93	139	85	15.54%	0.00%
Northbound	0	66	87	6	5.47%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Displaced Left Turn	**0.50**	**1**	**Good**	**Excellent**
Quadrant Roadway S-W	**0.51**	**2**	**Good**	**Excellent**
Quadrant Roadway S-E	**0.51**	**2**	**Good**	**Excellent**
Partial Displaced Left Turn E-W	**0.53**	**4**	**Good**	**Excellent**
Traffic Signal	**0.56**	**5**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.57**	**6**	**Good**	**Excellent**
Bowtie E-W	**0.60**	**7**	**Good**	**Excellent**
Quadrant Roadway N-E	**0.63**	**8**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.68**	**9**	**Good**	**Excellent**
Median U-Turn E-W	**0.75**	**10**	**Good**	**Excellent**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	LaPorte CR 600 W
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	48	471	10	39.81%	0.00%
Westbound	0	1	517	27	27.71%	0.00%
Southbound	0	6	27	51	4.61%	0.00%
Northbound	0	20	40	1	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.22	1	Good	Excellent
Partial Displaced Left Turn E-W	0.23	2	Good	Excellent
Displaced Left Turn	0.23	2	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.25	4	Good	Excellent
Median U-Turn E-W	0.25	4	Good	Excellent
Traffic Signal	0.26	6	Good	Excellent
Partial Median U-Turn E-W	0.26	6	Good	Excellent
1NS X 2EW Roundabout	0.29	8	Good	Excellent
Two-Way Stop Control E-W	0.36	9	Fair	Good
Quadrant Roadway N-W	0.38	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	LaPorte CR 600 W
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	50	621	83	21.16%	0.00%
Westbound	0	2	549	3	38.65%	0.00%
Southbound	0	14	26	63	8.99%	0.00%
Northbound	0	33	11	0	10.75%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

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TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Partial Displaced Left Turn E-W	0.26	1	Good	Excellent
Displaced Left Turn	0.26	1	Good	Excellent
Median U-Turn E-W	0.28	3	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.29	4	Good	Excellent
Traffic Signal	0.30	5	Good	Excellent
Partial Median U-Turn E-W	0.30	5	Good	Excellent
1NS X 2EW Roundabout	0.35	7	Good	Excellent
Unsignalized Restricted Crossing U-Turn E-W	0.36	8	Good	Excellent
Quadrant Roadway N-W	0.43	9	Good	Excellent
Split Intersection E-W	0.45	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Thompson Street
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	1	477	10	36.39%	0.00%
Westbound	0	2	572	2	30.78%	0.00%
Southbound	0	1	3	6	22.20%	0.00%
Northbound	0	23	3	3	11.45%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.08	1	Good	Excellent
Displaced Left Turn	0.22	2	Good	Excellent
Partial Displaced Left Turn E-W	0.23	3	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.23	3	Good	Excellent
Median U-Turn E-W	0.23	3	Good	Excellent
Partial Median U-Turn E-W	0.23	3	Good	Excellent
Traffic Signal	0.24	7	Good	Excellent
Two-Way Stop Control E-W	0.30	8	Fair	Good
Quadrant Roadway N-E	0.37	9	Good	Excellent
Quadrant Roadway N-W	0.37	9	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Thompson Street
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	6	558	25	19.15%	0.00%
Westbound	0	8	633	4	34.98%	0.00%
Southbound	0	0	8	4	25.33%	0.00%
Northbound	0	10	9	4	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.06	1	Good	Excellent
Two-Way Stop Control E-W	0.24	2	Fair	Good
Displaced Left Turn	0.24	3	Good	Excellent
Partial Displaced Left Turn E-W	0.25	4	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.25	4	Good	Excellent
Median U-Turn E-W	0.25	4	Good	Excellent
Traffic Signal	0.26	7	Good	Excellent
Partial Median U-Turn E-W	0.26	7	Good	Excellent
Quadrant Roadway N-E	0.38	9	Good	Excellent
Quadrant Roadway N-W	0.38	9	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Old US 30 West
Date:	2045 AM
Number of Intersection Legs:	3
Which leg is the minor street?	S

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	1	468	0	37.00%	0.00%
Westbound	0	5	573	0	28.75%	0.00%
Southbound	0	0	0	0	0.00%	0.00%
Northbound	0	0	9	0	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.02	1	Good	Excellent
Continuous Green T S	0.19	2	Good	Excellent
Two-Way Stop Control E-W	0.21	3	Fair	Good
Traffic Signal	0.21	4	Good	Excellent
Partial Displaced Left Turn E-W	0.21	4	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.21	4	Good	Excellent
Median U-Turn E-W	0.21	4	Good	Excellent
Partial Median U-Turn E-W	0.22	8	Good	Excellent
Quadrant Roadway N-E	0.36	9	Good	Excellent
Quadrant Roadway N-W	0.36	9	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Old US 30 West
Date:	2045 PM
Number of Intersection Legs:	3
Which leg is the minor street?	S

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	1	575	0	20.00%	0.00%
Westbound	0	6	633	0	33.68%	0.00%
Southbound	0	0	0	0	0.00%	0.00%
Northbound	0	0	4	0	50.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.02	1	Good	Excellent
Continuous Green T S	0.20	2	Good	Excellent
Two-Way Stop Control E-W	0.24	3	Fair	Good
Traffic Signal	0.24	4	Good	Excellent
Partial Displaced Left Turn E-W	0.24	4	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.24	4	Good	Excellent
Median U-Turn E-W	0.24	4	Good	Excellent
Partial Median U-Turn E-W	0.25	8	Good	Excellent
Quadrant Roadway N-E	0.39	9	Good	Excellent
Quadrant Roadway N-W	0.39	9	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	LaPorte CR 300 W / Long Lane
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	2	457	3	37.04%	0.00%
Westbound	0	1	541	0	33.00%	0.00%
Southbound	0	1	0	6	0.00%	0.00%
Northbound	0	11	2	0	7.69%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.03	1	Good	Excellent
Two-Way Stop Control E-W	0.20	2	Fair	Good
Displaced Left Turn	0.21	3	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.21	3	Good	Excellent
Median U-Turn E-W	0.21	3	Good	Excellent
Traffic Signal	0.22	6	Good	Excellent
Partial Displaced Left Turn E-W	0.22	6	Good	Excellent
Partial Median U-Turn E-W	0.22	6	Good	Excellent
Quadrant Roadway N-E	0.35	9	Good	Excellent
Quadrant Roadway N-W	0.35	9	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	LaPorte CR 300 W / Long Lane
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	2	559	8	19.87%	0.00%
Westbound	0	1	623	2	34.99%	0.00%
Southbound	0	2	3	1	0.00%	0.00%
Northbound	0	2	1	0	33.33%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.02	1	Good	Excellent
Two-Way Stop Control E-W	0.23	2	Fair	Good
Partial Displaced Left Turn E-W	0.24	3	Good	Excellent
Displaced Left Turn	0.24	3	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.24	3	Good	Excellent
Median U-Turn E-W	0.24	3	Good	Excellent
Partial Median U-Turn E-W	0.24	3	Good	Excellent
Traffic Signal	0.25	8	Good	Excellent
Quadrant Roadway N-E	0.37	9	Good	Excellent
Quadrant Roadway N-W	0.37	9	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	SR 39
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	3	432	27	40.01%	0.00%
Westbound	0	77	393	15	38.74%	0.00%
Southbound	0	14	45	2	12.31%	0.00%
Northbound	0	56	87	13	10.08%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Partial Displaced Left Turn E-W	**0.24**	**1**	**Good**	**Excellent**
Displaced Left Turn	**0.24**	**1**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.25**	**3**	**Good**	**Excellent**
Median U-Turn E-W	**0.27**	**4**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.29**	**5**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn E-W	**0.30**	**6**	**Good**	**Excellent**
Traffic Signal	**0.35**	**7**	**Good**	**Excellent**
Quadrant Roadway N-E	**0.38**	**8**	**Good**	**Excellent**
Quadrant Roadway N-W	**0.38**	**8**	**Good**	**Excellent**
Split Intersection E-W	**0.41**	**10**	**Good**	**Excellent**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	SR 39
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	2	479	97	25.21%	0.00%
Westbound	0	132	502	32	27.41%	0.00%
Southbound	0	15	111	3	5.30%	0.00%
Northbound	0	49	52	22	2.86%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Partial Displaced Left Turn E-W	**0.27**	**1**	**Good**	**Excellent**
Displaced Left Turn	**0.27**	**1**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn E-W	**0.31**	**3**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.32**	**4**	**Good**	**Excellent**
Median U-Turn E-W	**0.33**	**5**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.35**	**6**	**Good**	**Excellent**
Traffic Signal	**0.36**	**7**	**Good**	**Excellent**
Quadrant Roadway N-E	**0.37**	**8**	**Good**	**Excellent**
Quadrant Roadway N-W	**0.41**	**9**	**Good**	**Excellent**
Split Intersection E-W	**0.42**	**10**	**Good**	**Excellent**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Starke CR 750 E
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	47	468	2	37.39%	0.00%
Westbound	0	5	423	43	34.40%	0.00%
Southbound	0	18	2	31	8.84%	0.00%
Northbound	0	1	3	8	3.25%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.13	1	Good	Excellent
Partial Displaced Left Turn E-W	0.20	2	Good	Excellent
Displaced Left Turn	0.20	2	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.21	4	Good	Excellent
Traffic Signal	0.22	5	Good	Excellent
Two-Way Stop Control E-W	0.22	6	Fair	Good
Median U-Turn E-W	0.23	7	Good	Excellent
Partial Median U-Turn E-W	0.23	7	Good	Excellent
Quadrant Roadway S-E	0.39	9	Good	Excellent
Bowtie E-W	0.41	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Starke CR 750 E
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	3	565	8	32.37%	0.00%
Westbound	0	7	671	7	38.38%	0.00%
Southbound	0	12	1	19	3.38%	0.00%
Northbound	0	6	1	2	13.33%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.13	1	Good	Excellent
Two-Way Stop Control E-W	0.26	2	Fair	Good
Displaced Left Turn	0.27	3	Good	Excellent
Partial Displaced Left Turn E-W	0.28	4	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.28	4	Good	Excellent
Median U-Turn E-W	0.28	4	Good	Excellent
Traffic Signal	0.29	7	Good	Excellent
Partial Median U-Turn E-W	0.29	7	Good	Excellent
Quadrant Roadway N-E	0.43	9	Good	Excellent
Quadrant Roadway S-E	0.54	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	SR 23 / N 1000 E
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	9	468	7	43.23%	0.00%
Westbound	0	12	416	5	36.05%	0.00%
Southbound	0	12	19	17	7.23%	0.00%
Northbound	0	11	13	36	9.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.17	1	Good	Excellent
Two-Way Stop Control E-W	0.19	2	Fair	Good
Displaced Left Turn	0.20	3	Good	Excellent
Partial Displaced Left Turn E-W	0.22	4	Good	Excellent
Median U-Turn E-W	0.22	4	Good	Excellent
Traffic Signal	0.23	6	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.23	6	Good	Excellent
Partial Median U-Turn E-W	0.23	6	Good	Excellent
1NS X 2EW Roundabout	0.27	9	Good	Excellent
Split Intersection E-W	0.41	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	SR 23 / N 1000 E
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	22	526	10	34.31%	0.00%
Westbound	0	51	625	29	35.63%	0.00%
Southbound	0	7	52	22	5.85%	0.00%
Northbound	0	9	30	30	1.74%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Partial Displaced Left Turn E-W	**0.26**	**1**	**Good**	**Excellent**
Displaced Left Turn	**0.26**	**1**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn E-W	**0.29**	**3**	**Good**	**Excellent**
Unsignalized Restricted Crossing U-Turn E-W	**0.29**	**3**	**Good**	**Excellent**
Median U-Turn E-W	**0.29**	**3**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.29**	**6**	**Good**	**Excellent**
Traffic Signal	**0.32**	**7**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.38**	**8**	**Good**	**Excellent**
Split Intersection E-W	**0.44**	**9**	**Good**	**Excellent**
Quadrant Roadway S-E	**0.51**	**10**	**Good**	**Excellent**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Queen Road
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	3	428	74	33.79%	0.00%
Westbound	0	0	336	18	47.46%	0.00%
Southbound	0	48	80	4	1.82%	0.00%
Northbound	0	33	23	4	6.12%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Displaced Left Turn	**0.19**	**1**	**Good**	**Excellent**
Partial Displaced Left Turn E-W	**0.21**	**2**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.21**	**2**	**Good**	**Excellent**
Median U-Turn E-W	**0.22**	**4**	**Good**	**Excellent**
Traffic Signal	**0.25**	**5**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn E-W	**0.28**	**6**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.28**	**7**	**Good**	**Excellent**
Quadrant Roadway N-E	**0.34**	**8**	**Good**	**Excellent**
Quadrant Roadway N-W	**0.34**	**8**	**Good**	**Excellent**
Quadrant Roadway S-E	**0.36**	**10**	**Good**	**Excellent**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Queen Road
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	7	538	47	37.44%	0.00%
Westbound	0	2	592	51	31.36%	0.00%
Southbound	0	32	50	6	0.00%	0.00%
Northbound	0	50	48	6	0.96%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Displaced Left Turn	**0.25**	**1**	**Good**	**Excellent**
Partial Displaced Left Turn E-W	**0.27**	**2**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.27**	**2**	**Good**	**Excellent**
Median U-Turn E-W	**0.28**	**4**	**Good**	**Excellent**
Traffic Signal	**0.30**	**5**	**Good**	**Excellent**
Unsignalized Restricted Crossing U-Turn E-W	**0.30**	**5**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn E-W	**0.30**	**7**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.35**	**8**	**Good**	**Excellent**
Quadrant Roadway N-E	**0.44**	**9**	**Good**	**Excellent**
Quadrant Roadway N-W	**0.44**	**9**	**Good**	**Excellent**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Pioneer Drive
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	32	363	40	40.89%	0.00%
Westbound	0	92	319	56	34.84%	0.00%
Southbound	0	50	22	40	44.38%	0.00%
Northbound	0	77	24	63	9.16%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

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TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Partial Displaced Left Turn E-W	**0.23**	**1**	**Good**	**Excellent**
Displaced Left Turn	**0.23**	**1**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.26**	**3**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.28**	**4**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn E-W	**0.28**	**5**	**Good**	**Excellent**
Median U-Turn E-W	**0.31**	**6**	**Good**	**Excellent**
Traffic Signal	**0.33**	**7**	**Good**	**Excellent**
Quadrant Roadway N-E	**0.35**	**8**	**Good**	**Excellent**
Split Intersection E-W	**0.39**	**9**	**Good**	**Excellent**
Quadrant Roadway S-W	**0.42**	**10**	**Good**	**Excellent**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Pioneer Drive
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	41	507	24	27.77%	0.00%
Westbound	0	124	594	70	25.22%	0.00%
Southbound	0	49	38	68	32.10%	0.00%
Northbound	0	38	29	142	2.33%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

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TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Partial Displaced Left Turn E-W	0.29	1	Good	Excellent
Displaced Left Turn	0.29	1	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.35	3	Good	Excellent
Median U-Turn E-W	0.37	4	Good	Excellent
Partial Median U-Turn E-W	0.39	5	Good	Excellent
1NS X 2EW Roundabout	0.41	6	Good	Excellent
Traffic Signal	0.43	7	Good	Excellent
Quadrant Roadway N-E	0.48	8	Good	Excellent
Split Intersection E-W	0.48	8	Good	Excellent
Bowtie E-W	0.58	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Oak Drive
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	113	373	66	35.77%	0.00%
Westbound	0	86	399	41	34.45%	0.00%
Southbound	0	30	151	83	8.42%	0.00%
Northbound	0	35	152	46	11.58%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

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TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Partial Displaced Left Turn E-W	**0.25**	**1**	**Good**	**Excellent**
Displaced Left Turn	**0.25**	**1**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.30**	**3**	**Good**	**Excellent**
Median U-Turn E-W	**0.33**	**4**	**Good**	**Excellent**
Traffic Signal	**0.35**	**5**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn E-W	**0.35**	**5**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.36**	**7**	**Good**	**Excellent**
Bowtie E-W	**0.51**	**8**	**Good**	**Excellent**
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Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Oak Drive
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	148	422	66	24.42%	0.00%
Westbound	0	43	451	93	34.19%	0.00%
Southbound	0	80	260	214	3.25%	0.00%
Northbound	0	77	288	110	2.99%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

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TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Displaced Left Turn	**0.30**	**1**	**Good**	**Excellent**
Partial Displaced Left Turn E-W	**0.31**	**2**	**Good**	**Excellent**
Median U-Turn E-W	**0.40**	**3**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.40**	**3**	**Good**	**Excellent**
Traffic Signal	**0.49**	**5**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn E-W	**0.60**	**6**	**Good**	**Excellent**
Bowtie E-W	**0.67**	**7**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.76**	**8**	**Good**	**Excellent**
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Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Plymouth Goshen Trail
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	1	456	10	38.08%	0.00%
Westbound	0	1	536	8	33.44%	0.00%
Southbound	0	0	0	20	13.00%	0.00%
Northbound	0	0	0	36	3.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

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TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.09	1	Good	Excellent
Two-Way Stop Control E-W	0.20	2	Fair	Good
Signalized Restricted Crossing U-Turn E-W	0.21	3	Good	Excellent
Displaced Left Turn	0.22	4	Good	Excellent
Median U-Turn E-W	0.22	4	Good	Excellent
Partial Displaced Left Turn E-W	0.23	6	Good	Excellent
Partial Median U-Turn E-W	0.23	6	Good	Excellent
Traffic Signal	0.24	8	Good	Excellent
Quadrant Roadway N-E	0.37	9	Good	Excellent
Bowtie E-W	0.43	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Plymouth Goshen Trail
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	1	742	13	30.03%	0.00%
Westbound	0	1	720	11	35.71%	0.00%
Southbound	0	0	0	41	3.00%	0.00%
Northbound	0	0	0	49	5.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.20	1	Good	Excellent
Two-Way Stop Control E-W	0.27	2	Fair	Good
Displaced Left Turn	0.30	3	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.30	3	Good	Excellent
Partial Displaced Left Turn E-W	0.31	5	Good	Excellent
Median U-Turn E-W	0.31	5	Good	Excellent
Partial Median U-Turn E-W	0.31	5	Good	Excellent
Traffic Signal	0.32	8	Good	Excellent
Quadrant Roadway N-E	0.57	9	Good	Excellent
Bowtie E-W	0.59	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	King Road / W 9A Road
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	19	363	75	39.79%	0.00%
Westbound	0	46	321	1	38.34%	0.00%
Southbound	0	0	24	39	3.71%	0.00%
Northbound	0	88	19	50	36.76%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Displaced Left Turn	**0.21**	**1**	**Good**	**Excellent**
Partial Displaced Left Turn E-W	**0.23**	**2**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.25**	**3**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.26**	**4**	**Good**	**Excellent**
Median U-Turn E-W	**0.27**	**5**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn E-W	**0.28**	**6**	**Good**	**Excellent**
Traffic Signal	**0.31**	**7**	**Good**	**Excellent**
Quadrant Roadway N-W	**0.33**	**8**	**Good**	**Excellent**
Quadrant Roadway N-E	**0.34**	**9**	**Good**	**Excellent**
Split Intersection E-W	**0.35**	**10**	**Good**	**Excellent**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	King Road / W 9A Road
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	30	463	105	32.13%	0.00%
Westbound	0	45	385	2	32.43%	0.00%
Southbound	0	0	25	38	9.22%	0.00%
Northbound	0	73	33	45	40.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Displaced Left Turn	**0.23**	**1**	**Good**	**Excellent**
Partial Displaced Left Turn E-W	**0.24**	**2**	**Good**	**Excellent**
Partial Median U-Turn E-W	**0.28**	**3**	**Good**	**Excellent**
Median U-Turn E-W	**0.29**	**4**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn E-W	**0.31**	**5**	**Good**	**Excellent**
1NS X 2EW Roundabout	**0.32**	**6**	**Good**	**Excellent**
Traffic Signal	**0.34**	**7**	**Good**	**Excellent**
Quadrant Roadway N-W	**0.38**	**8**	**Good**	**Excellent**
Quadrant Roadway N-E	**0.40**	**9**	**Good**	**Excellent**
Split Intersection E-W	**0.41**	**10**	**Good**	**Excellent**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Fir Road
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	1	443	3	38.65%	0.00%
Westbound	0	1	384	10	31.11%	0.00%
Southbound	0	10	7	5	10.45%	0.00%
Northbound	0	4	12	1	0.00%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.05	1	Good	Excellent
Two-Way Stop Control E-W	0.17	2	Fair	Good
Displaced Left Turn	0.18	3	Good	Excellent
Median U-Turn E-W	0.18	3	Good	Excellent
Traffic Signal	0.19	5	Good	Excellent
Partial Displaced Left Turn E-W	0.19	5	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.19	5	Good	Excellent
Partial Median U-Turn E-W	0.19	5	Good	Excellent
Quadrant Roadway N-E	0.35	9	Good	Excellent
Quadrant Roadway N-W	0.35	9	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Fir Road
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	7	598	4	33.39%	0.00%
Westbound	0	1	514	15	33.94%	0.00%
Southbound	0	13	19	10	2.71%	0.00%
Northbound	0	4	3	2	11.11%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Unsignalized Restricted Crossing U-Turn E-W	0.11	1	Good	Excellent
Two-Way Stop Control E-W	0.22	2	Fair	Good
Displaced Left Turn	0.23	3	Good	Excellent
Traffic Signal	0.24	4	Good	Excellent
Partial Displaced Left Turn E-W	0.24	4	Good	Excellent
Median U-Turn E-W	0.24	4	Good	Excellent
Partial Median U-Turn E-W	0.24	4	Good	Excellent
Signalized Restricted Crossing U-Turn E-W	0.25	8	Good	Excellent
Quadrant Roadway N-E	0.45	9	Good	Excellent
Quadrant Roadway N-W	0.45	9	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	9A Road
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	North-South

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	0	0	79	8.00%	0.00%
Westbound	0	0	0	7	0.00%	0.00%
Southbound	0	1	487	120	21.05%	0.00%
Northbound	0	153	674	12	24.81%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Two-Way Stop Control N-S	0.26	1	Fair	Good
Unsignalized Restricted Crossing U-Turn N-S	0.26	1	Good	Excellent
Partial Displaced Left Turn N-S	0.28	3	Good	Excellent
Displaced Left Turn	0.28	3	Good	Excellent
Signalized Restricted Crossing U-Turn N-S	0.29	5	Good	Excellent
Traffic Signal	0.30	6	Good	Excellent
Median U-Turn N-S	0.34	7	Good	Excellent
Partial Median U-Turn N-S	0.35	8	Good	Excellent
Quadrant Roadway S-E	0.48	9	Good	Excellent
Bowtie N-S	0.59	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	9A Road
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	North-South

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	0	0	93	2.00%	0.00%
Westbound	0	0	0	9	0.00%	0.00%
Southbound	0	1	837	121	16.85%	0.00%
Northbound	0	82	831	6	17.45%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Two-Way Stop Control N-S	**0.27**	**1**	**Fair**	**Good**
Partial Displaced Left Turn N-S	**0.33**	**2**	**Good**	**Excellent**
Displaced Left Turn	**0.33**	**2**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn N-S	**0.33**	**2**	**Good**	**Excellent**
Traffic Signal	**0.36**	**5**	**Good**	**Excellent**
Median U-Turn N-S	**0.38**	**6**	**Good**	**Excellent**
Unsignalized Restricted Crossing U-Turn N-S	**0.38**	**6**	**Good**	**Excellent**
Partial Median U-Turn N-S	**0.38**	**8**	**Good**	**Excellent**
Quadrant Roadway S-E	**0.61**	**9**	**Good**	**Excellent**
Bowtie N-S	**0.62**	**10**	**Good**	**Excellent**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Michigan Road
Date:	2045 AM
Number of Intersection Legs:	3
Which leg is the minor street?	W

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	3	0	113	2.92%	0.00%
Westbound	0	0	0	0	0.00%	0.00%
Southbound	0	1	636	2	22.93%	0.00%
Northbound	0	141	740	0	22.32%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Two-Way Stop Control N-S	**0.25**	**1**	**Fair**	**Good**
Partial Displaced Left Turn N-S	**0.32**	**2**	**Good**	**Excellent**
Displaced Left Turn	**0.32**	**2**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn N-S	**0.32**	**2**	**Good**	**Excellent**
Traffic Signal	**0.33**	**5**	**Good**	**Excellent**
Continuous Green T W	**0.33**	**5**	**Good**	**Excellent**
Unsignalized Restricted Crossing U-Turn N-S	**0.36**	**7**	**Good**	**Excellent**
Quadrant Roadway N-W	**0.37**	**8**	**Good**	**Excellent**
Median U-Turn N-S	**0.38**	**9**	**Good**	**Excellent**
Partial Median U-Turn N-S	**0.39**	**10**	**Good**	**Excellent**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	Michigan Road
Date:	2045 PM
Number of Intersection Legs:	3
Which leg is the minor street?	W

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	6	0	141	4.80%	0.00%
Westbound	0	0	0	0	0.00%	0.00%
Southbound	0	1	817	6	19.85%	0.00%
Northbound	0	152	827	0	22.89%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Two-Way Stop Control N-S	0.32	1	Fair	Good
Partial Displaced Left Turn N-S	0.38	2	Good	Excellent
Displaced Left Turn	0.38	2	Good	Excellent
Signalized Restricted Crossing U-Turn N-S	0.38	2	Good	Excellent
Traffic Signal	0.40	5	Good	Excellent
Continuous Green T W	0.40	5	Good	Excellent
Quadrant Roadway N-W	0.43	7	Good	Excellent
Median U-Turn N-S	0.43	7	Good	Excellent
Partial Median U-Turn N-S	0.44	9	Good	Excellent
Unsignalized Restricted Crossing U-Turn N-S	0.63	10	Good	Excellent

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	275750
Location:	13th Road / Michigan Road
Date:	2045 AM
Number of Intersection Legs:	4
Major Street Direction	North-South

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	20	4	4	4.86%	0.00%
Westbound	0	2	9	132	6.24%	0.00%
Southbound	0	89	648	8	19.92%	0.00%
Northbound	0	4	697	1	25.81%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Partial Displaced Left Turn N-S	**0.31**	**1**	**Good**	**Excellent**
Displaced Left Turn	**0.31**	**1**	**Good**	**Excellent**
Quadrant Roadway N-W	**0.34**	**3**	**Good**	**Excellent**
Median U-Turn N-S	**0.34**	**3**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn N-S	**0.35**	**5**	**Good**	**Excellent**
Partial Median U-Turn N-S	**0.36**	**6**	**Good**	**Excellent**
Traffic Signal	**0.37**	**7**	**Good**	**Excellent**
Unsignalized Restricted Crossing U-Turn N-S	**0.55**	**8**	**Good**	**Excellent**
Bowtie N-S	**0.61**	**9**	**Good**	**Excellent**
Two-Way Stop Control N-S	**1.01**	**10**	**Fair**	**Good**

Capacity Analysis for Planning of Junctions

Summary Report

Project Name:	US 30 West PEL Studies
Project Number:	0
Location:	13th Road / Michigan Road
Date:	2045 PM
Number of Intersection Legs:	4
Major Street Direction	North-South

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	3	4	1	0.00%	0.00%
Westbound	0	0	2	97	9.80%	0.00%
Southbound	0	102	846	19	17.17%	0.00%
Northbound	0	1	860	0	24.97%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor		**Suggested = 2.00**	2.00
Multimodal Activity Level		**Low**	
Critical Lane Volume Threshold	2-phase signal	**Suggested = 1800 (Urban), 1650 (Rural)**	**1800**
	3-phase signal	**Suggested = 1750 (Urban), 1600 (Rural)**	**1750**
	4-phase signal	**Suggested = 1700 (Urban), 1550 (Rural)**	**1700**

Capacity Analysis for Planning of Junctions

Summary Report

# # # # # # # # # # # # #

TYPE OF INTERSECTION	Overall v/c Ratio	V/C Ranking	Pedestrian Accommodations	Bicycle Accommodations
Two-Way Stop Control N-S	**0.30**	**1**	**Fair**	**Good**
Quadrant Roadway N-W	**0.37**	**2**	**Good**	**Excellent**
Partial Displaced Left Turn N-S	**0.37**	**2**	**Good**	**Excellent**
Displaced Left Turn	**0.37**	**2**	**Good**	**Excellent**
Signalized Restricted Crossing U-Turn N-S	**0.37**	**2**	**Good**	**Excellent**
Median U-Turn N-S	**0.38**	**6**	**Good**	**Excellent**
Partial Median U-Turn N-S	**0.39**	**7**	**Good**	**Excellent**
Traffic Signal	**0.40**	**8**	**Good**	**Excellent**
Unsignalized Restricted Crossing U-Turn N-S	**0.54**	**9**	**Good**	**Excellent**
Bowtie N-S	**0.69**	**10**	**Good**	**Excellent**

APPENDIX C: DESIGN CRITERIA

MEMORANDUM

Date: October 2, 2023

To: INDOT and Consultant Advisor Team

From: US 30 West ProPEL Study Consultant Team

US 30 WEST DESIGN CRITERIA AND PREFERENCES

The intent of this memorandum is to outline the design criteria and preferences for conceptual design to be used in the US 30 West ProPEL Study, which includes segments of both US 30 and US 31. The main design criteria and preferences for US 30 and US 31 are described below to guide the conceptual design efforts of this study. The premise of the topics enclosed are taken from HNTB's US 31 South Design Criteria and Preferences document and modified accordingly for the US 30 West ProPEL Study.

DESIGN CRITERIA

US 30 and US 31 design criteria for three separate scenarios from the Indiana Design Manual (IDM) are necessary for this study. The three design criteria utilized were Rural Arterial (IDM Fig 55-3A), Rural Freeway (3R) (IDM Fig 54-2A), and Rural Freeway New Construction (IDM Fig 53-1). The design criteria from the IDM are included in Attachment A. The three design criteria tables each serve different purposes within the study outlined below.

Table 1: Design Criteria for Concepts

Rural Arterial 3R	Rural Freeway (3R or 4R)	Rural Freeway New Construction
• New Signalized Intersections • Upgrades to Existing Traffic Signals • Reduced Conflict Intersections • Boulevard Left Intersections • Roundabouts • Adding or Extending Turn Lanes • Jughandle Intersections • Right-In/Right-Out & Two-Way Stop Controlled (TWSC) Intersections • Quadrant Roadways • Median Safety Improvements	• Auxiliary Lanes • Adding/Extending Accelerations Lanes • Green T or Offset T Intersections • Displaced Left Turn Intersections • Modifications to Existing Interchange Ramps or Ramp Terminals	• New Interchange • New Overpass/Underpass • Freeway

Other existing roadways within the study area should use 4R design criteria for the appropriate functional classification as provided in Chapter 54 of the IDM. New local access roads should use design criteria for rural or urban local roads provided in Chapter 53 of the IDM.

ACCESS MANAGEMENT

US 30 and US 31 are designated as a Tier 1 facility per the INDOT Access Classification System. The type and spacing of driveways, intersections, and interchanges are governed by current access management and driveway permitting guidelines along with IDM Chapters 46 and 48. These guidelines are summarized in Table 2 below. These guidelines have been expanded to apply to freeways and expressways, which are being considered in this study.

Table 2: Access Management Guidelines

Facility Type	Driveways	Unsignalized Intersections	Signalized Intersections	Interchanges
Arterials	• Residential; Right In/Right Out Only • Commercial; Full Access (1 per parcel) • 495 ft (min) spacing for all driveways for posted speed 60 mph	670 ft (min) spacing	½ mile (min) spacing	• Rural: 3 miles (min) spacing • Urban; 1 mile (min) spacing
Expressways	No Driveways allowed	• Right-In/Right-Out Access Only • ¼ mile (min) spacing	½ mile (min) spacing	• Rural: 3 miles (min) spacing* • Urban; 1 mile (min) spacing
Freeways	No Driveways allowed	No unsignalized Intersections Allowed	No signalized Intersections Allowed	• Rural: 3 miles (min) spacing* • Urban; 1 mile (min) spacing

*The Guide states 2 miles minimum spacing, but coordination with INDOT resulted in the desire for 3 mile minimum spacing for rural interchanges.

Additionally, the INDOT Access Management Guide specifies that median openings may exist along a Tier 1A Mobility Corridor, such as US 30 and US 31, where all of the following conditions exist:

- A 400 ft (min) spacing between median openings is provided
- The median opening will improve safety
- There is sufficient space for left turn lanes and recovery tapers
- The median opening will operate acceptably

ANTICIPATED DESIGN EXCEPTIONS

The ProPEL US 30 West study is a planning study. As a result, the study team will not prepare or request design exceptions as part of the study. However, the study team will develop design concepts assuming some design exceptions will be requested and received as part of any reasonable alternatives advanced from the PEL study. These assumptions are detailed in this subsection.

US 30 has three different median widths along the corridor:

- US 30 from SR 49 to US 421 = 26’-0”
- US 30 from US 421 to 1900’ W. of CR S 900 W = 40’-0”
- US 30 from 1900’ W. of CR S 900 W to Beech Road = 50’-0”

US 31 has two different median widths along the corridor

- US 31 from US 30 to 13th Road = 50'-0" to 52'-0"
- US 31 from 13th Road to CR 700 N = 60'-0"

These median widths meet design criteria for Rural Arterials (3R) and Rural Freeway (3R and 4R) but does not meet criteria for Rural Freeway New Construction. Should alternatives requiring Rural Freeway New Construction design criteria advance beyond this PEL study, it is assumed the designer will prepare and receive a Level 2 Design Exception for not meeting the required median width of 54.5 ft.

The right-of-way width requirements for the US 30 corridor ranges from 188 ft (min) for Rural Arterials to 192.5 ft (min). These widths are based on the design criteria provided in Attachment A and clear zone requirements provided in IDM Fig 49-2A. The need for new ditches, as described in a subsequent discussion on drainage, is not accounted for in these cross sections. Existing right-of-way widths were determined using existing plans. This information indicates that the existing right of way width is 200 ft, 100 ft either side of the centerline of the roadway. Should alternatives advance beyond this PEL study that require additional acquisition of right of way to satisfy clear zone requirements, it is assumed the designer would utilize guardrail to avoid acquiring right of way, if possible. The only exception may be right of way being required for frontage roads and other access connections.

The right-of-way width requirements for the US 31 corridor ranges from 188 ft (min) for Rural Arterials to 192.5 ft (min). These widths are based on the design criteria provided in Attachment A and clear zone requirements provided in IDM Fig 49-2A. The need for new ditches, as described in a subsequent discussion on drainage, is not accounted for in these cross sections. Existing right-of-way widths were determined from existing plans. This information indicates that the existing right of way widths vary from 150 ft to 300 ft. Should alternatives advance beyond this PEL study that require additional acquisition of right of way to satisfy clear zone requirements, it is assumed the designer would utilize guardrail to avoid acquiring right of way, if possible. The only exception may be right of way being required for frontage roads and other access connections.

There are several horizontal curves along each of the US 30 and US 31 corridors within the study limits. All existing curve radii exceed the required radius values based on a maximum superelevation rate of 8%.

Superelevation rates for interchange ramps vary widely from a minimum of 4.3% to a maximum of 9.8%. IDM Chapter 48 references 8% as the maximum for rural settings.

There are a substantial number of vertical curves within the US 30 W study limits. These vertical curves meet/exceed the design speeds along each corridor.

Along the mainline of US 30 there is one substandard vertical clearance where SR 331 crosses over US 30. The current vertical clearance is 15.33' while the requirement is 16.5 ft. Should the PEL study alternatives identify improvements in this area, it is assumed the designer will address the vertical clearance deficiency by lowering US 30 under the bridge.

Along the mainline of US 31 there is one substandard vertical clearance where US 31 crosses over the CFE Railroad and two adjacent county roads. The current vertical clearance is 13.56 ft over the county roads while the requirement is 16.5 ft. Should the PEL study alternatives identify improvements in this area, it is assumed the

designer would prepare and receive a Level 1 Design Exception to avoid full reconstruction of US 31 over the county roads.

DESIGN ASSUMPTIONS

Pavement Treatments

Pavement treatments along US 30 and US 31 in the study area may vary slightly based on intersection, interchange, and corridor improvements. Table 3 below summarizes the anticipated pavement treatments according to the improvement type. All improvements with full depth widening are assumed to include resurfacing of existing pavement within the limits of the improvement.

Table 3: Pavement Treatments per Improvement Type

Resurfacing **Single Lift Mill and Overlay**	**Full Depth Widening** **Multi-Lift Mill and Overlay**	**Full Reconstruction and New Construction** **Full Depth Replacement**
• New Signalized Intersections • Upgrades to Existing Traffic Signals	• Adding or Extending Turn Lanes • Auxiliary Lanes • Added/Extending Acceleration Lanes • Reduced Conflict Intersections • Modifications to Existing Interchange Ramps or Ramp Terminals • Green T or Offset-T Intersections • Median Safety Improvements	• Roundabouts • New Interchange • New Overpass/Underpass • New/Modified Local Access Road • Freeway

US 30 and US 31 Cross Sections

In addition to the design criteria in Attachment A, the following assumptions apply to the cross sections of US 30 and US 31.

- All open medians should be depressed and should include cable barrier to prevent cross over crashes
- Maximum side slope behind guardrail or beyond the clear zone will be 2:1
- Retaining walls should be used to avoid impacts to environmental sensitive areas (e.g. historic properties, churches, cemeteries, resources). Retaining walls should not be used to avoid impacts to commercial or residential properties, unless there are concerns associated with underserved populations.

Crossroads

Design speed for crossing roadways will be the posted speed limit if posted within a ½ mile of US 30 or US 31. If not posted, a 55 mph miles per hour (mph) design speed will be used.

Right of Way Acquisition

Total takes of parcels shall be assumed when the proposed right of way line falls within 10 ft of an existing house or when the remaining parcel is considered unusable.

Drainage

The existing drainage patterns should be maintained along the corridor with the use of a roadside ditch on each side of US 30 and US 31, along with a median ditch. Existing ditches are assumed to be sufficient depth for underdrain outlet where required for pavement construction.

If no new additional impervious areas are being added, the existing drainage network is assumed to be sufficient, and no ditch modifications will be needed.

Drainage detention needs will not be analyzed as part of the study. Runoff from additional impervious area should be routed via an 8' flat bottom ditch with 2:1 side slopes and a depth of 2 ft. Runoff should be routed to an interchange area utilized for both post construction storm water measures and to mitigate additional run-off from new impervious area, or additional right of way must be provided to account for post construction stormwater measures and peak flow mitigation. This applies to both existing roads and additional pavement or new local access roads.

All new or existing infrastructure must have a minimum elevation above the 100-year flood elevation (1% exceedance probability) plus an additional 2 ft of freeboard throughout the corridor at or near any waterbody.

Existing culverts are assumed to be extended or replaced in-kind in pavement replacement or new pavement areas.

Bridges

It is anticipated that existing bridges throughout the study limits will not require full replacement by the time construction occurs based on current overall sufficiency ratings. The typical section of any required new bridges shall match that of the adjacent roadway. The length of new bridges should be sized based on the following guidelines.

- Bridge over roadways
    - Bridge openings should, if possible, satisfy the required clear zone width for the roadway it crosses
    - Bridges should include slope walls that eliminate the need for guardrail along the underpass road
- Bridges over Waterways
    - For new bridges near an existing bridge
        - If less than 50 ft from an existing bridge, the utilize 1:1 expansion ratio based on the distance from the existing bridge
        - If more than 50 ft from existing bridge, then utilize a 2:1 expansion ratio based on the distance from the existing bridge
    - For new bridges not near an adjacent bridge:
        - If the new bridge length is greater than the mapped floodway or stream, utilize the floodway limits as the bridge length

- If there is no mapped floodway but a mapped floodplain, utilize the floodplain limits as a bridge length if the calculated value is greater than the floodplain width.

- In almost no case should a proposed bridge be smaller than an existing bridge over the same waterway.

Bridges are assumed to be prestressed precast concrete beams with a structure depth of 8 ft or composite steel plate girders with a structure depth of 6 ft. Two span structures are assumed for bridges spanning over US 30 and US 31. Wall pier shall be utilized in the median. All new bridges shall assume slopewall for cost estimating purposes. Bridge aesthetics are not anticipated as part of this study.

Interchanges

For freeway alternatives, the preferred interchange type for use in the corridor is a diamond interchange unless other interchange types are required for capacity requirements or adjacent impacts are significant. Along US 30, there is an airport adjacent to US 30 near the SR 49 interchange. Throughout a significant portion of US 30 west of Plymouth, there is an active railroad line running parallel along the south side of the roadway. For the interchange terminals, the spacing shall be 800'. The interchange type is assumed to be the starting point for all interchange concepts developed in this PEL study. Refinements to this interchange type should be made, as necessary, to minimize impacts to the surroundings. The amount of design refinement suggested for the Level 2 and Level 3 screenings are documented in the ProPEL US 30/31 Conceptual Design and Cost Estimating Memorandum prepared by HNTB.

For non-freeway alternatives, low-cost interchange solutions are preferred over that of a diamond interchange. An example of a low-cost interchange type is the US 35 and Old SR 25 interchange near Logansport where right-in/right-out freeway ramps connect to the side streets at full access intersections.

Regardless of interchange type or facility type, the first access point along the crossroad should be located 750 ft or more from the off ramp of the interchange per IDM 48-6.06. The first full access point along US 30 or US 31 from the ramp terminal should be a minimum of 1,320 ft and the first right-in/right-out access point should be 750 ft minimum.

Roadway Lighting and ITS

Roadway lighting and ITS will not be included in the conceptual design process of this PEL study as it has no significant impact on the cost or footprint of the alternatives being evaluated.

Intersections At-Grade

All intersections should be designed using the Indiana Design Vehicle (WB-65) per IDM Fig 46-1E.

Intersections are intended to provide adequate intersection sight distance per IDM 46-10.

Acceleration and deceleration lanes will be provided for all intersections with right-in-right-out access per IDM 46-3.02(05).

Reduced Conflict Intersections (RCI)

The study corridors, including both US 30 and US 31, provide a U-turning radius of 62 ft for U-turns originating in a left turn lane when the median is 50 ft. wide. This width is less than 82 ft radius required for a WB-65 design vehicle

as stated in IDM Figure 46-12K. For this reason, all U-turn movements at Reduced Conflict Intersections (RCI) should provide a 20 ft bulb out for accommodating U-Turns. Should median openings be closed, considerations should also be given to providing this bulb-out at remaining median openings where U-turn movements are expected.

Acceleration lanes should be provided to aid accelerating upon completion of their U-turn movement. These should be provided due to the high-speed nature of the US 30 and US 31 corridors. These acceleration lanes may also serve dual purpose as right turn lanes at RCI's.

Spacing of U-turn lanes at RCI's should be 800 ft (max) based on INDOT's 2022 presentation for Design Considerations for RCI Intersections at the INDOT Highway Design Conference.

Left turn lanes from the mainline to the crossroad should not be provided unless capacity issues are expected at the downstream U-turn movement.

Attachment A

US 30 West ProPEL
Design Criteria

US 30 West ProPEL Design Criteria	Rural Arterial (3R)	Rural Freeway (3R)	Rural Freeway (Recon)	Rural Local Road
IDM Design Criteria	IDM Fig 55-3A	IDM Fig 54-2A	IDM Fig 53-1	IDM Fig 53-5
Design Speed, mph	60 (posted speed)	60 (posted speed)	70	35
Travel Lane Width	12 ft	12 ft	12 ft	10 ft
Travel Lane Cross slope	2%	2%	2%	2%
Shoulder Right	Paved: Desirable 10 ft / Min 8 ft Usable: Desirable 11 ft / Min 9 ft	Usable: 11 ft / Paved 10 ft	Usable: 11 ft / Paved 10 ft	Usable: 2 ft
Shoulder Left	Paved: Min 4 ft Useable: Min 5 ft	Paved: Min 4 ft Useable: Min 5 ft	Paved: Desirable 8 ft / Min 4 ft Usable: Desirable 9 ft / Min 5 ft	N/A
Shoulder Cross slope	Paved Width $\leq$ 4 ft: 2% Paved Width > 4 ft: 4% 6% Sealed Aggregate	Paved Width $\leq$ 4 ft: 2% Paved Width > 4 ft: 4%	Paved Width $\leq$ 4 ft: 2% Paved Width > 4 ft: 4%	2%
Auxiliary Lane Width	Des: 12 ft / Min: 11 ft	12 ft	12 ft	10 ft
Auxiliary Shoulder Width	Same as next to travel lane (Min 2 ft)	Left & Right: Des: 12 ft / Min: 6 ft	Right 10 ft (6 ft Min) / Left 4 ft	4 ft
Median Width Depressed	Existing	Existing	Des: 100 ft / Min: 54.5 ft	N/A
Median Flush w/ CMB	Existing	Existing	Des: 30.5 ft / Min: 26.5 ft	N/A
Ditch and Sideslope (cut)	2:1 or flatter, existing, 2:1 or flatter	2:1 or flatter, existing, 2:1 or flatter	6:1 , 4 ft , 4:1	4:1 , 4 ft , 4:1
Sideslopes (fill)	2:1 or flatter	2:1 or flatter	6:1 to clear zone, 3:1 max to toe	4:1
Median Slopes	Des: 8:1 / Max: 4:1	Des: 8:1 / Max: 4:1	Des: 8:1 / Max: 5:1	N/A

APPENDIX D: LEVEL 2 SCREENING REPORT COMMENTS RECEIVED AND RESPONSES

The table below lists all comments received through the active Draft Level 2 Screening Report public comment period, which extended from March 27th through April 30th, 2024. *Please note that comment text in the table reflects submission content verbatim, except for personally identifiable information which has been redacted for the privacy of the commenter.*

Topics	Comment #	Comment	Date Received	Response
Level 2 Screening Report	1	Hello Anna, Thank you for forwarding level two for Propel 30. I am a bit disheartened that on page 231 of the report, the documents states that there were no specific public comments with regard to the 31/Michigan Road intersection. I know that at least 3 or 4 of us have submitted comments through the on-line portal. Could you please clarify why the document states that no public comments were received [Redacted]	4/1/2024	Comments received from the Historic Michigan Road Association have been summarized and added to page 231 of the Level 2 Report. Alternatives advancing from the Level 2 screening include Convert to Interchange and Add/Lengthen turn lanes. Both of these alternatives would allow the Historic Michigan Road Scenic Byway to maintain connectivity to US 31 and allow the byway to remain continuous through this area.
Level 2 Screening Report	2	Intersection 5: I would rather see an overpass instead of taking my farm ground and wetland. Close Illinois Street in Wanatah.	4/9/2024	The study team has noted your comment regarding Illinois Street and it has been documented as part of the official study record. At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. Unfortunately the location of the farm ground and wetland referenced is unclear. The focus of the *Level 2 Screening Report* is the primary intersections in the study area, which have a larger influence on roadway operations in the study area. Secondary intersections, which includes Illinois Street in Wanatah, will be analyzed as part of the Level 3 screening.
Level 2 Screening Report	3	5. 4-15 not RCI 5. 4-13 (checkmark) 6. 4-16 DO NOT REMOVE BP We have commercial plans to do extensive remodel starting in June of 24. So is there only going to be 1 access to 30 on Main St. What happens to IN, Ohio, Lincoln, streets 7. 4-18 Why are we protecting Caseys with a interchange alternative and running lanes and possibly running through BP 6. 4-16 If you want to do median safety improvement move it all north you have a business owner ready to retire, open lot and a union mall 8. 4-24 Cross overpass/underpass with a cloverleaf to access 500 When we close a road for example 421 and 2 are closed why wouldn't we have the railroads get fixed at same time so the road doesn't need to be closed twice.	4/9/2024	The study team has noted your comment and it has been documented as part of the official study record. An RCI is one of eight intersection improvements advancing for consideration at US 30 and SR 23. For the ProPEL US 30 West study area, unsignalized intersection improvements (including RCIs) would address a majority of the identified transportation needs. As a result, this improvement alternative was advanced to the Level 2 screening for further analysis. All of the alternatives presented in the *Level 2 Screening Report* were analyzed, in part, because of their ability to address the safety issues at this intersection. RCIs roadways are proven to improve safety and save lives by reducing the number of conflict points at an intersection, which helps minimize the number of right-angle crossing points where the most severe crashes typically occur. RCIs are considered a reasonable alternative due to their safety benefits and ability to maintain local access. RCIs would also have minimal environmental impacts. At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. The focus of the *Level 2 Screening Report* is the primary intersections in the study area, which have a larger influence on roadway operations in the study area. Secondary intersections, which include Indiana, Ohio, Lincoln and Starke CR 500, will be analyzed as part of the Level 3 screening. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range

Topics	Comment #	Comment	Date Received	Response
				of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions. Protection of one business over another has not been a consideration in determining which alternatives to advance. Report Section 4.16 relates to the intersection of US 30 and Queen Road. Median Safety Improvements have been eliminated from consideration at this location. The analysis at US 30 and Fir Road indicates that major changes to the existing intersection are unnecessary. . As such, no interchange alternative was considered for evaluation. However, an overpass is moving forward along with turn lane modifications. INDOT does not have authority over the railroads and is not able to direct when their maintenance work is completed.
Level 2 Screening Report	4	A lot of thought seems to have been put into this. I personally for safety at CR 600W and CR300W would prefer an overpass. Especially with young drivers from South Central School on 600W. SR 39 and US 30, in my opinion, would benefit from an overpass especially with the RR south of US 30 I hope a lot of thought is put into disrupting emergency services as little as possible.	4/9/2024	The study team has noted your comment regarding the intersection improvement alternatives at CR 600 W, SR 39, and CR 300 W, and it has been documented as part of the official study record. The focus of the *Level 2 Screening Report* is the primary intersections in the study area, which have a larger influence on roadway operations in the study area. The US 30 intersection at SR 39 is a primary intersection. Secondary intersections, which include CR 600W and CR 300W will be analyzed as part of the Level 3 screening. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions. The PEL Study is soliciting input and feedback from first responders to ensure recommendations consider emergency services and response routes.
Level 2 Screening Report	5	I live just south of #8. I own (2) businesses at that location. The limited access option would potentially limit my clients access to my business unless 700N or similar would still allow access to Hwy 30. The intersection of 30 and 600 (#8) is so dangerous. Trying to cross over it, with traffic always driving over the speed limit, is like playing the game frogger. The median is so large that drivers do not know how to use it. Are there addition signs that can be put up? There are so many things wrong with the intersection it's hard to write it out. Maybe we do a clover leaf? It would really help!	4/9/2024	The study team has noted your comment regarding the intersection improvement alternatives at CR 700 N and CR 600 N and it has been documented as part of the official study record. The focus of the *Level 2 Screening Report* is the primary intersections in the study area, which have a larger influence on roadway operations in the study area. Secondary intersections, which includes CR 700 N and CR 600 N, will be analyzed as part of the Level 3 screening. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is

Topics	Comment #	Comment	Date Received	Response
		This all needs to accommodate tractors and semis combines (See drawing)		anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions. All improvement alternatives considered in the *Level 2 Screening Report* will accommodate a WB-65 design vehicle. A WB-65 design vehicle is equivalent to an interstate semitrailer that is over 73 feet in length. This means that all alternatives considered as part of this PEL study will accommodate larger vehicles and trucks, as well as most large farm equipment that would need to navigate the intersection. Spot roadway lighting and warning systems are both complementary concepts advancing at this location.
Level 2 Screening Report	6	I was encouraged to share my thoughts regarding this project even though I am not a business owner, farmer or homeowner. I live on South Main St. The problem getting onto U.S. 30 is the increased traffic, speeding, and semis. Many do 70 MPH in a 30 zone! Safety is an issue! I hope that the changes in the future will deal with this issue that many of us little people will benefit from.	4/10/2024	The study team has noted your comment and it has been documented as part of the official study record. Maximizing the safety of our roads is a priority for INDOT. Current and projected (i.e., year 2045) roadway operating conditions were analyzed as part of the study. This information can be found in the ProPEL US 30 West Existing Transportation Conditions Report, which is available on the study website (propelus30.com/30doclibrary/). Based on the analysis, safety was identified as a concern throughout the study area. As a result, the study team is evaluating alternatives to improve safety along US 30 by reducing the number and severity of crashes in the study area. Speed data indicates that traffic often operates at or above the posted speed limit. While enforcement is outside of INDOT's control and requires actions on the part of others, INDOT will continue to coordinate with the appropriate agencies to support and encourage speed enforcement to improve safety.
Level 2 Screening Report	7	Bypass to the north, parallel with existing U.S. 30 (Wanatah) eliminate numerous intersection projects and numerous objections. Solves numerous problems.	4/10/2024	The study team has noted your comment regarding a bypass to the north of Wanatah, and it has been documented as part of the official study record. The future facility type for US 30 has not been determined. During the Level 3 screening, several different facility types will be analyzed, including Free Flow with no or partial access control, Expressway (i.e., no direct residential driveway connections), and converting US 30 to a limited access highway (i.e., a freeway). The bypass alternative is being carried forward for further consideration because of its potential application in Wanatah as part of the freeway facility type only.
Level 2 Screening Report	8	We need for the Regional News to put a map in the paper explaining where they want to close (possibly) access to 30. Not talk about the budget or length of time. 30/421 needs additional lanes put in, so they can add longer turning lanes with all the heavy semi traffic. It would be best to add or lengthen lanes. Making people go down half a mile to a light then turn to go the opposite direction is crazy or confusing. The town has no room for an access roads. Even an access road out by Dollar General would take business away, if people missed their turn to get there. I would hope that the planners come out to Wanatah especially during planting season to see how many farmers need full access to the roads. Do they realize how large the tractors and plows are?? I don't mean to sound flippant however, having a roundabout or having to get rid of turning lanes to go down 1/4 of a mile to then make a turn to go in the	4/10/2024	The study team has noted your comment regarding the intersection improvement alternatives at US 421 and it has been documented as part of the official study record. The future facility type for US 30 has not been determined. During the Level 3 screening, several different facility types will be analyzed, including Free Flow with no or partial access control, Expressway (i.e., no direct residential driveway connections), and converting US 30 to a limited access highway (i.e., a freeway). All improvement alternatives considered in the *Level 2 Screening Report*, including roundabouts will accommodate a WB-65 design vehicle. A WB-65 design vehicle is equivalent to an interstate semitrailer that is over 73 feet in length. This means that roundabouts considered as part of this PEL study will accommodate larger vehicles and trucks, as well as most large farm equipment that would need to navigate the intersection. Additional acceleration lanes and additional turn lanes are both alternatives advancing to Level 3 at US 30 and US 421.

Topics	Comment #	Comment	Date Received	Response
		opposite direction will not be conducive for all the semi traffic and farm equipment. This is a farming community. It's people's livelihoods.		
Level 2 Screening Report	9	Intersection 6 on map. US 30 and Main St. in Wanatah, IN. There is a bp station/convenience store on the southwest corner of this intersection owned by Marlene Mitzer. This station built in the 50s was a 2 bay standard station. Then in 1987 this station was purchased by my husband and I and continued to an Amoco convenience store (the J-Mart bp currently). This has been a small family business now for 37 years seeing U.S. 30 travelers and the local community. Changing access to our station would greatly change our traffic patterns and hurt our business drastically. We have plans in the near future to return to original... and many personal dollars will be invested in the changes. This new limited access plan of the state will definitely hurt our small rural town and my business. Many other small family businesses will be hurt or put out of business. Small town American is the backbone of our society as are small family businesses in our rapidly changing nation. Granted, the traffic is bad on US30 and steps need to be taken to improve - but not by limiting access to a business such as mine. I will appreciate you re-thinking the plan for US30 changes in Wanatah, IN. Wanatah is a small, thriving town of approx. 1,000 people, established in 1865 in LaPorte County. As a life-long member of the Wanatah community, I thank you for your attention to keep our town safe and secure, but not at my expense.	4/10/2024	The study team has noted your comment regarding the intersection improvement alternatives at Main Street and it has been documented as part of the official study record. At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. The focus of the *Level 2 Screening Report* is the primary intersections in the study area, which have a larger influence on roadway operations in the study area. Secondary intersections, which includes many of the side roads in Wanatah besides Main St and US 421, will be analyzed as part of the Level 3 screening processThe Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, such as Main Street and US 421, secondary intersections like CR 1100 W, Lincoln St, and Ohio St, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions. The potential changes to the intersection of US 30 and Main Street (intersection 6) depend upon which alternative is recommended for that intersection. Alternatives advancing at US 30 and Main Street include Access Management, Median Safety Improvements, and Added Turn Lanes. Access to the BP station would be maintained under each of these alternatives. However, a single recommendation at Main Street – or any other study area intersection – is not anticipated at the conclusion of this study. A stated goal of the PEL study is to identify a reasonable range of alternatives and eliminate unreasonable alternative(s) from consideration.
Level 2 Screening Report	10	Intersection 5 Moving intersection of CC RJ. East add expense of maintaining RJ particularly to LaPorte County. Overpass with clover leaf would make it easier for emergency vehicles and farm use. Intersection 6 U.S. 30 and Main St. Longer turn lanes and possible acceleration lanes for incoming traffic. Closing off access to some roads would hurt emergency response. The County Ambulance... is on Main St.	4/10/2024	The study team has noted your comment and it has been documented as part of the official study record. An interchange alternative was not considered at the intersection of US 30 and County Line Road (Intersection 5) given projected traffic volumes. Adding/lengthening turn lanes and adding acceleration lanes are both alternatives that are advancing at the intersection of US 30 and Main Street in Wanatah. The US30W PEL study is coordinating with emergency responders and taking into account emergency response routes as part of the analysis and recommendations made by the PEL.
Level 2 Screening Report	11	I own the farm at 800 W and U.S. 30 in Clinton Twp (280 ac) grain. On our farm is a State of Indiana Public Safety Radio Tower (IPSC) which 500 in height and contains all emergency radio communications in a 3 county area. When the state adds/removes antennas from the tower, a very large heavy crane is needed to raise and lower the units. This crane enters the farm from U.S. 30. This access will have to remain in place as this is the only way to get the crane into the property. It will not be able to make the turn from an access road. I would like to meet personally with you to view the property. Thank you.	4/10/2024	The US 30W study team is aware of the IPSC tower and access considerations at this location. A study team representative will contact you to discuss the egress issues. The focus of the *Level 2 Screening Report* is the primary intersections in the study area, which have a larger influence on roadway operations in the study area. Secondary intersections, which includes CR 800W, will be analyzed as part of the Level 3 screening. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range

Topics	Comment #	Comment	Date Received	Response
				of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions.
Level 2 Screening Report	12	Please inform us when this project will begin and if driveway access will be allowed. We are in Zone Intersection 5.	4/10/2024	At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. With regard to potential changes in the level of access, any roadway or driveway connections with US 30 could be limited to right-in/right-out or completely closed. Further information on this topic will be available in the Level 3 screening. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions.
Level 2 Screening Report	13	Left turn lane needed at 1350 S Hanna and (Long Lane) 300W East and West bound. Left turn lane would be helpful at Dollar General store in Wanatah (Eastbound, sorry don't know the road intersection.)	4/10/2024	The study team has noted your comment and it has been documented as part of the official study record. The focus of the *Level 2 Screening Report* is the primary intersections in the study area, which have a larger influence on roadway operations in the study area. Secondary intersections, which include CR 1350S/Long Lane and CR 1100W in Wanatah, will be analyzed as part of the Level 3 screening. The added turn lanes alternative is advancing at the primary intersection of US 30 and CR 300W. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 31 than existing conditions. However, a single recommendation at US 30 and 1350 S and US 30 and 300 W – or any other study area intersection – is not anticipated at the conclusion of this study. A stated goal of the PEL study is to identify a reasonable range of alternatives and eliminate unreasonable alternative(s) from consideration.
Level 2 Screening Report	14	I am disappointed with the decision to take a bypass off the table, when in every angle I look at it, it solves the most problems while causing the least problems. It is expensive, but so are the numerous band-aid approach projects. It seems to me the considerations are limited to, what can we do to physically improve the existing highway (and my comments are directed specifically to the West US30 area). Another reference would be the Hoosier Heartland Highway. Four brand new lanes from Lafayette to Fort Wayne. It is/was built like a commercial US30 but more limits to access although they didn't do-away with all the	4/12/2024	Thank you for sharing your detailed thoughts and concerns. As part of the Universe of Alternatives (Level 1) screening, all potential solutions that address the Purpose and Need were evaluated. A freeway (free-flow facility with full control of access) would address all of the study area transportation needs and was advanced to the Level 2 screening for further analysis. The Bypass alternative addresses one of the identified needs, is neutral on one, and is practical. Therefore, this will be carried forward for further consideration as a complementary concept because of its expected application as a bypass of Wanatah as part of the Freeway primary concept only.

Topics	Comment #	Comment	Date Received	Response
		cross-intersections. That whole HH hwy is a bypass in a way, as it does not run through any of the towns the original roads (25, 34, 24) ran through. So THAT must've been expensive, but, if I were to guess I would say the thought was, we need an expressway or some sort of multilane highway connecting Fort Wayne with Lafayette. So they built one, that would naturally follow along the same path, roughly, that existing 2 lane roads follow going to-from that direction. So, I am not sure where the genesis of the PropelUS30/US31 came from. It seems like 20 minutes into a conversation with road engineers about improving intersections, one of them at least would have just said there are too many hot spots, why don't we just bypass all of them with a new limited access expressway?. The current direction is like killing one bird with 20 stones. The bulk of the complaints, and you saw I was talking to several peeps one on one, -was noise, amount of traffic, speed of traffic, type of traffic. NONE of the options in the Propel studies address any of those directly or, in my opinion, effectively. Anyway, you get the idea. The Level 2 proposals will cause numerous construction delays, aggravation, probably more accidents, on the only road from Valpo to Fort Wayne. By the way, if you think of how they built the Kokomo Bypass, they built most of it without affecting ANY of the existing US31, until the end when they tied to two ends together with the new configuration. The big picture... is a BIG picture. INDOT should not look at improving one intersection slightly (x20), but rather, look at the bigger dynamics at play, current and future traffic problems and most of all, in addition to safety, the efficiency of the entire US30 in the area of interest. Do not spend a dollar to save a quarter. Spend 2 dollars and save 100 dollars over time. Besides, if it will take YEARS for actual construction to get started, by then US 30 will be a disaster.		Maximizing the safety of our roads is a priority for INDOT. Current and projected (i.e., year 2045) roadway operating conditions were analyzed as part of the study. This information can be found in the ProPEL US 30 West Existing Transportation Conditions Report, which is available on the study website (propelus30.com/30doclibrary/). Based on the analysis, safety was identified as a concern throughout the study area. As a result, the study team is evaluating alternatives to improve safety along US 30 by reducing the number and severity of crashes in the study area.
Level 2 Screening Report	15	RT 328 30 Intersection Page 146 added acceleration lanes would improve and better warn US lights on 30	4/16/2024	The study team has noted your comment regarding the SR 23 intersection and it has been documented as part of the official study record. The adding/extending acceleration lanes, spot roadway lighting, and warning systems are all alternatives advancing at the intersection of US 30 and SR 23.
Level 2 Screening Report	16	4.13 Lengthening lanes for acceleration/deceleration should suffice given the interchange that is already there. 4.14 Lengthening turn lanes on and off 30 should be done. Railroad crossing should have crossing arms/signal. Do not feel there is enough traffic to warrant an overpass or underpass. 4.15 No roundabout. Would rather have it made into an interchange than have traffic signals.	4/16/2024	The study team has noted your comment regarding the US 35, CR 750, and SR 23 intersections and it has been documented as part of the official study record. The adding/lengthening acceleration/deceleration lanes alternative is advancing at the intersection of US 30 and US 35. The lengthening turn lanes alternative is advancing at US 30 and CR 750 E.

Topics	Comment #	Comment	Date Received	Response
				There are no factors that support an interchange at the location of US 30 and SR 23 as a standalone alternative. However, given further bundled improvements anticipated to be analyzed in Level 3 as part of a planning segment, this location was identified as a potential interchange due to the relatively high traffic volume observed here and State Route status of the roadway, as well as the proximity to the community of Grovertown.
Level 2 Screening Report	17	Has CDL since 1998 and grew up on family farm. Primary concerns 1100 E passing over 30 W at Grovertown. Not in favor overall of changes on 30 in Starke County until L3 is announced. Not bad at 900. On 23 decel lanes may be ok. A roundabout is a joke and should be off the table. Does not visit Valpo/Warsaw due to roundabouts. Make intersections wider. Driver education is more important. Past correction on 31 was a nightmare.	4/16/2024	The study team has noted your comment and it has been documented as part of the official study record. The focus of the *Level 2 Screening Report* is the primary intersections in the study area, which have a larger influence on roadway operations in the study area. Secondary intersections, which include CR 1100 E will be analyzed as part of the Level 3 screening. The acceleration/deceleration lanes alternative is advancing at the intersection of US 30 and SR 23. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions. Roundabout is one of several innovative intersection types advancing at the intersection of US 30 and SR 23. A roundabout is typically considered in locations with safety concerns as it eliminates crossing conflict points which lead to more serious crashes. All improvement alternatives considered in the *Level 2 Screening Report*, including roundabouts, will accommodate a WB-65 design vehicle. A WB-65 design vehicle is equivalent to an interstate semitrailer that is over 73 feet in length. This means that roundabouts considered as part of this PEL study will accommodate larger vehicles and trucks, as well as most large farm equipment that would need to navigate the intersection. Any recommendations for intersection improvements within the corridor will include widening the intersection, if necessary, so that the upgraded intersection meets the minimum standards and specifications of the Indiana Design Manual.
Level 2 Screening Report	18	U.S. 30/U.S. 35 intersection 13 is ok as is U.S. 30/CR 750 E Intersection #14 - instead of over/under passes, consider just adding longer turn lanes and intersection lighting. This would improve intersection functionality and still maintain access. U.S. 30/SR 23 intersection 15 - A grade separated intersection would be a good improvement here as long as full access is maintained. Noticeably absent was improvements to the intersection of U.S. 30 and C.R. 600E/Starke St. on the North side of Hamlet. Longer turn lanes and intersection lighting would be a welcome improvement at this intersection. Any intersection changes that restrict or limit or eliminate access through Starke Co. will have negative impacts Starke Co.	4/16/2024	The study team has noted your comment regarding the intersections of US 35, CR 750 E, SR 23, and CR 600 E and it has been documented as part of the official study record. Added acceleration/deceleration lanes is being advanced at the intersection of US 30 and US 35 because the westbound acceleration lane does not meet design standards and could be extended. No other alternatives are being advanced at this location. The added turn lanes alternative is being advanced at the intersection of US 30 and CR 750E, in addition to the overpass/underpass alternative. The convert to interchange alternative is being advanced at the intersection of US 30 and SR 23, which would create a grade separated condition while also maintaining access. The focus of the *Level 2 Screening Report* is the primary intersections in the study area, which have a larger influence on roadway operations in the study area. Secondary intersections, which includes Starke CR 600 E, will be analyzed as part of the Level 3 screening.

Topics	Comment #	Comment	Date Received	Response
				The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions. A consistent theme among public comments received has to do with maintaining access in Hamlet.
Level 2 Screening Report	19	Overpass at SR 23 would remove the whole town.	4/16/2024	Thank you for your comment regarding the intersection of US 30 and SR 23; it has been entered into the project record. The overpass/underpass alternative is not advancing at the intersection of US 30 and SR 23.
Level 2 Screening Report	20	Served on local Hamlet Fire Dept. for 23 years. Concerned about the ability and availability of # of crossings to Rt 30 for not only EMS and Fire and Police, but also ag community and school buses to have safe accessibilities. Long ago Rt 30 bypass had a huge negative effect on local business to the point of nearly killing the town. Further isolation of Rt 30 access throughout the length of Rt 30 through Starke Co. (one of poorest counties) will further deteriorate the county's viability. Very concerned about cutting off the county into a north and south Starke Co. because of limiting already limited safe intersections.	4/16/2024	Improving safety and meeting the mobility needs of residents, businesses, and service providers in the study area – which includes both the ability to access US 30 and cross-highway connectivity – were two of the identified purposes of the study, and will be considered during each level of screening. Emergency response, school bus routes, and agricultural access are all being considered before recommendations are made by the study team.
Level 2 Screening Report	21	We met in Argos last summer and had spoken by phone prior. Our driveway feeds directly onto US 31 between 13th Rd and 12B Rd, east side of US 31, 1/2 mile long. We discussed that there was no plan for egress from our property on any of the plan maps. I have plans to improve my property and add structures, but without plans for US 31 and my driveway make me stall my plans, which I would like to do this summer versus paying more a year or two from now. I need some information ASAP so I know how to plan. Any info appreciated.	4/17/2024	At this time, no decisions have been made about the future of US 31 or US 30, and no projects related to the PEL study have been funded by INDOT. With regard to potential changes in the level of access, any roadway or driveway connections (particularly those near an interchange) could be limited to right-in/right-out or completely closed. Further information on this topic will be available in the Level 3 screening. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions.
Level 2 Screening Report	22	From Intersection 16 to Intersection 20 on map, install access roads to access local facilities therefore not impeding thru highway traffic. Intersection 20 to Intersection 22 Overpass to give emergency traffic access to east side of county One problem of overpass at intersection 22 is access to Pilot truck stop. Have not seen a good plan to do both access to east side of county and to Pilot truck stop. Only way is to have an interchange. Intersection 25 - Overpass for emergency access to east side of county.	4/17/2024	The study team has noted your comments regarding the intersection improvement alternatives at Plymouth Goshen Trail, US 31, King Road, and 9a Road and it has been documented as part of the official study record. Frontage Roads are not under consideration within this stretch of US 30. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions. Overpasses are being considered at Plymouth Goshen Trail (#20) and King Road (#22), and US 31 (#21) is an existing interchange.

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		Note: Pilot has added a new tire shop building south of truck stop by 22 intersection		Multiple alternatives are advancing at King Road which would improve safety at this location as well as provide access to the Pilot Truck Stop and the east side of Marshall County. The study team acknowledges the existence of a new tire shop building at King/9A Road. The primary concept advancing at intersection 9a Road (#25) is the overpass alternative.
Level 2 Screening Report	23	Location Intersection 21: 30 E to 31 N. A) The acceleration lane is so short that no traffic heading N on 31 get in the left lane so the cloverleaf traffic can safely pull onto 31N Before 31N traffic can decelerate to get B) on 30 E. cloverleaf (see drawing)	4/17/2024	The study team has noted your comments regarding the existing interchange at US 30 and US 31 and it has been documented as part of the official study record. The existing interchange at US 30 and US 31 has been identified as having substandard acceleration lanes. The primary concept advancing at this location is to add or lengthen acceleration lanes.
Level 2 Screening Report	24	At the intersection of US 30 and Cedar Road in Marshall County there is no deceleration lane on the eastbound lane turning North on Cedar. There is a deceleration lane on the eastbound lane turning South on Cedar. When traveling east on US 30 and slowing down to turn north on Cedar Road can lead to a dangerous situation when traffic is heavy and both eastbound lanes are full of vehicles. Please construct a deceleration lane on US 30 to enable east traveling vehicles to safely slow down and turn north on Cedar Road and 12th Road which immediately Ts into Cedar Road at that intersection.	4/17/2024	The study team has noted your comments regarding the Cedar Road intersection and it has been documented as part of the official study record. The focus of the *Level 2 Screening Report* is the primary intersections in the study area, which have a larger influence on roadway operations in the study area. Secondary intersections, which includes Cedar Road, will be analyzed as part of the Level 3 screening. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions.
Level 2 Screening Report	25	Intersection 22 - U.S. 30 and King Rd Previous plans have voted this location is recommended for an interchange. It should move from recommended to mandatory or acceptable alternative like 4.22.3.3.. It is noted that a truck stop is a recently constructed stop; that is false. It has been a truck stop for over 70 years. A new tire shop only compounds the issue. Alternatives that should be carried forward to Level 3 are: Consideration of crossroad overpass/underpass Reduced conflict intersection (at minimum, this is a must, mandatory improvement) Warning systems that are enforced Implementation of 4.22.3.3. Any other modification that reduces accidents at a very dangerous location	4/17/2024	The study team has noted your comments regarding the intersection of King Road/9A Road and it has been documented as part of the official study record. Locating an interchange at the intersection of US 30 and King/9A Road would violate INDOT's interchange spacing requirements (3 miles between interchanges in rural areas) due to its proximity to the existing interchange at US 30 and US 31. The PEL study will make recommendations for improvements only and none of the recommendations will be considered "mandatory." While the truck stop has been located at this intersection for many years, the building has recently undergone renovations and the tire shop behind the gas station is new construction; this has been clarified in the revised report. Thank you for your feedback on potential alternatives. The overpass/underpass, RCI, and Warning Systems alternatives are each advancing at the location of US 30 and King/9A Road. Other primary concepts advancing include add/lengthen turn lanes, add accel/decel lanes, boulevard left turn intersection, restricted crossing U-turn intersection, and roundabout.

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		A delineation emphasized between state recommendations/obligations/responsibility and county responsibility. You cannot get an answer to issues as one blames the other.		The PEL study will make recommendations for improvements and any future projects that may be programmed will include coordination between all entities.
Level 2 Screening Report	26	Intersection 23 U.S. 30 and Fir Rd. On the north side of 30 I have concerns about how an overpass will affect my driveway which is just north of where an overpass shows on page 223. It can't (the driveway) be moved to the north side of the house because the tile and septic system and LP tank are there. My farm originally 80 acres was divided by US 30 (is now 72 acres). On the south side of US 30: Do you realize there's a state owned right of way which we keep moved that the [unknown] Farm has an easement to his farm. That easement cannot be closed. It's the entry to my farm. The entry to my farm can't be closed because to move it further south - the field is too wet to use for large equipment and semi trucks. The semis would have to be parked on the road (Fir Rd) to get from the north part of the farm to the south. We would have to go 2 miles to 331 and through Bourbon with the large farm equipment to Lincoln Highway (old US 30) then north on Fir Rd OR to King Rd and back on Lincoln Highway. An overpass will also affect my farm income - reducing it. To get to my grandson's home south of US 30 on Fir Rd I will have to go 5 miles out of my way and the same to my granddaughter's home on Fir Rd south. Most accidents that happen at Fir and 30 are caused by people's carelessness.	4/17/2024	The study team has noted your comments regarding the intersection of Fir Road and it has been documented as part of the official study record. The farm location north of the US 30 and Fir Road intersection is identified in the Level 2 report as a constraint; access to the farm is being considered as recommendations are being made by the study team. In addition to the overpass alternative, added turn lanes are also being considered at this location. 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. Figures 4-69 and 4-70 of the *Level 2 Screening Report* illustrate a high-level estimation of the intersection improvement limits (i.e., a footprint) for the intersection alternatives at US 30 and Fir Road. These figures should help provide a better sense of potential encroachment effects as it relates to the subject properties. Please note that all alternatives shown in the *Level 2 Screening Report* are preliminary and subject to change. Future studies will determine the actual configuration of all intersection and interchange improvements. With regard to potential changes in the level of access, any roadway or driveway connections (particularly those near an interchange) could be limited to right-in/right-out or completely closed. Further information on this topic will be available in the Level 3 screening. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions.
Level 2 Screening Report	27	Fig 4-69: US 30 and Fir Rd Add or lengthen turn lanes - overpass removes all access to US 30 adding much more driving times. Overpass affects farming more negatively when farm ground is split on both sides of 30.	4/17/2024	The study team has noted your comments regarding the intersection of Fir Road and it has been documented as part of the official study record. In addition to the overpass alternative, added turn lanes are also being considered at this location. With regard to potential changes in the level of access, any roadway or driveway connections (particularly those near an interchange) could be limited to right-in/right-out or completely closed. Further information on this topic will be available in the Level 3 screening. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions.
Level 2 Screening Report	28A	Dear US 30 Coalition,	4/29/2024	The study team has noted your comments regarding multiple intersections in Marshall County and they have been documented as part of the official study record.

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		The Level 2 Screening Report for US 30 West was released on March 27th, 2024. Representatives and community leaders have come together to produce the following collective comments in response to the current proposals that will have significant mobility and economic development impacts on Marshall County. In comparison between the Level 2 Screening Report and the Marshall County 30/31 Planning Study 2023 (attached), many of the primary intersections (including the few secondaries as studied) are in relative alignment, but there are a couple intersections of note that could have significant impact with the future plans of Marshall County. Queen Road, Plymouth Goshen Trail, 9A Road, Michigan Road North and 13th Road intersection all align or include results that we believe to be favorable to the design and intent of the future of US 30 and 31. Where we see deviations or missing considerations when it relates to the plan that was developed locally include Oak and Pioneer Roads, King Road, Fir Road and Lincoln Highway. We appreciate the time you took to review our US 30 and US 31 Planning Study (2023) but believe that there were some misunderstandings when it came to the specific intersection types. The intention of identifying interchanges, bridges, and cul-de-sac were to intend a specific level of connectivity be preserved at different intersections to service the region for residences, businesses, and agricultural operations. Interchanges were intended to maintain full access through the intersection whether it be at grade or grade separated. Bridges were intended to promote cross access with the understanding that adjacent intersections would be likely fully cut off (cul-de-sac) and that an interchanges would be nearby to complete service connectivity. Beyond the improvements to the individual intersections being considered primary investments, the secondary investments into the local supporting infrastructure will be just as impactful to the local and regional network.		We have noted that the ProPEL US 30 West Level 2 Screening Report and the Marshall County 30/31 Planning Study (2023) are in relative alignment at the US 30 intersections with Queen Road, Plymouth Goshen Trail, and 9A Road, and the US 31 intersections with Michigan Road North and 13th Road, as well as deviations at Oak Road, Pioneer Road, and Fir Road on US 30 and King Road and Lincoln Highway on US 31.
Level 2 Screening Report	28B	Intersection Screening Analysis US 30 Intersections Queen Road The Queen Road intersection and association with a Western Plymouth Interchange (at or grade separated and coordinated with the Pioneer Drive Through Michigan Road improvements) is pertinent to be managed as a collective to provide the best future for the Western access to Plymouth including industrial development, emergency services connectivity and access to regionally beneficial recreation amenities. Marshall County is supportive of a bridge at Queen Road with the understanding of an adjacent interchange that will be best located through the Level 3 study as referenced in the Level 2 study. The	4/29/2024	The study team has noted your comment regarding Queen Road and it has been documented as part of the official study record.

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		alignment is left to best engineering practices so long as reasonable access is provided as part of the improvements to the network.		
Level 2 Screening Report	28C	Pioneer Drive - Michigan Road There are significant safety concerns at Pioneer and Oak Drives that can benefit from safety improvements and the volume of traffic would warrant an interchange. The consolidation of access will have impacts to the commercial businesses but could be alleviated with complimentary network improvements. A concept that has been shared includes turning the existing segments of frontage road on the North and South sides of US 30 and connecting them to create entire corridors linking all of the businesses across the railroad tracks. Though this concept has environmental complications, the increase in connectivity should far outweigh those impacts. When combining the Pioneer and Oak Drives to create complimentary access improvements, those improvements should extend to Michigan Road. The intersection of the access points to US 30 along with adjacent curb cuts and Skylane Drive need to be improved to promote the safety of the traveling public by vehicles, bicyclists and pedestrians.	4/29/2024	The US 30 West Level 2 Screening Report included both an overpass and interchange option at US 30 and Pioneer Drive. Only an overpass was included at US 30 and Oak Road because Oak Road is too close to the existing interchange at Michigan Road to be a standalone interchange. Creating a collector-distributor (C-D) road by converting existing segments of frontage road on the north and south side of US 30 and connecting them to link all of the businesses across the railroad tracks, as detailed in your letter, is a possibility but has not been evaluated as part of the PEL study. We expect that this type of detailed engineering evaluation of potential C-D roads is most appropriate to occur in the future during the National Environmental Policy Act (NEPA) phase if and when a project is programmed to implement the PEL study recommendations.
Level 2 Screening Report	28D	Plymouth Goshen Trail Plymouth Goshen Trail has been recently improved but continues to be mis-used by the traveling public creating safety issues which can be mitigated in their entirety through the use of grade separation. It would also promote more and safer travel for pedestrians and bicyclists between the subdivision North of US 30 and Centennial Park.	4/29/2024	The study team has noted your comment regarding Plymouth Goshen Trail, and it has been documented as part of the official study record.
Level 2 Screening Report	28E	US 30 and 31 No improvements were suggested or reviewed as a part of the County's analysis.	4/29/2024	The study team has noted your comment regarding the US 30/US 31 interchange, and it has been documented as part of the official study record.
Level 2 Screening Report	28F	9A/King Road Retaining full connectivity through the intersection is of importance to both local and the traveling public. Seeing that the intersection is being proposed to receive safety improvements along with retention of full intersection access is supportable by Marshall County, but we believe that the long-term fiscal responsibility should plan for the adjustment of the intersection to meet distance requirements between two interchanges. As Plymouth continues to grow (with most residential development heading Easternly) the 9A/King Road intersection will be a region of importance before the development gets there.	4/29/2024	The US 30 West Level 2 Screening Report includes an overpass at the existing intersection of US 30 and King Road/9a Road along with other at-grade improvements. An interchange is not advancing at this location due to the proximity to the existing interchange at US 30 and US 31.
Level 2 Screening Report	28G	Fir Road-SR 331 The intersection of Fir Road as it sits today would benefit from grade-	4/29/2024	The US 30 West Level 2 Screening Report includes an overpass at the existing intersection of US 30 and Fir Road along with a turn lane modifications alternative. An interchange at Fir Road would be too close to the

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		separation creating a safer crossing as a North/South axis that compliments SR 331 between Bourbon and Bremen, but full access should be strongly considered. It is understood that SR 331 can serve as a point of access for Bourbon onto US 30, but as Bourbon grows and expands, additional access will be needed and warranted. The majority of Bourbons industry is concentrated on or near Elm Road. If access onto US 30 is concentrated through SR 331, significant roadway geometry will need to be improved for routes through downtown Bourbon. This was showcased during the sink hole on US 30 reroute causing damage to intersection infrastructure on multiple accounts. Improvements will be warranted along Elm and 11B roads and at their associated intersections getting to SR 331. Pending the upcoming studies to include Elm Road, an advisable improvement for safety into and out of Bourbon via SR 331 would be intersection improvements at 11B Road.		existing interchange at SR 331. Although parallel route or local network improvements are important considerations, inclusion of those potential improvements is beyond the scope of this PEL study. Secondary intersections, such as 11B Road, will be analyzed in Level 3 screening.
Level 2 Screening Report	28H	US 31 Intersections 9A Road and Lincoln Highway Marshall County is supportive of the cross access created by an over/underpass connecting the East and West sides of US 31. This will also provide for better and quicker emergency response from Plymouth to the subdivision and truck stop. The interchange proposal was proposed for Lincoln Highway which already has the grade separation, and the only matter missing is the connection onto US 31. Without this access at this location to serve Eastern Plymouth, the potential for urban and fiscally responsible development will be substantially hindered and contradictory to Plymouths Comprehensive Plan (2023). We believe that the interchange concept be reevaluated under the Level 3 analysis.	4/29/2024	The US 30 West PEL study recommends the overpass at the existing intersection of US 30 and Lincoln Highway be maintained. A new interchange at US 30 and Lincoln Hwy would be too close to the existing US 30 and US 31 interchange per INDOT's interchange spacing guidelines. General statement about interchange proximity – According to the Indiana Design Manual, the minimum separation between interchanges is one mile in urban areas and three miles in rural areas (from end of ramp to end of ramp), but in practice these distances can be much longer. There are not typically interchanges every 3 miles in rural areas, for instance. The US 30 intersections with King and Fir are within two miles of existing interchanges. The US 30 intersection with Oak and US 31 intersection with Lincoln Highway are within one mile of existing interchanges.
Level 2 Screening Report	28I	Michigan Road North-14th Road This collection of 4 intersections with US 31 (Michigan Road North, 12B Road, 13th Road, and 14th Road) should collectively be considered for intersection improvements. Most of the 4 intersections are independently functioning within certain terms, but when coupled together can be operated in a safer and more efficient manner. One of the proposals was to tie Michigan Road North to 13th Road via a frontage road. 12B Road has significant safety issues with no turning lanes causing cars to turn into the median while in the left travel lane, which can be better served as a bridge east to west tying into the Michigan Road North frontage road. This would then collectively work with a new interchange at 13th Road creating safer regional access to US 31. It would also create a separation of cross traffic that services the Homestead Dairy that has roughly a split acreage of 50% on either side of US 31. A complimentary improvement to the trio of intersection North of the railroad tracks would be a bridge at 14th road servicing the east and west side of US 31 North of Argos.	4/29/2024	The study team has noted your comment this stretch of US 31, and it has been documented as part of the official study record. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions.

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Level 2 Screening Report	28J	Level 3 Screening Points of Interest There are multiple intersections that serve as complimentary projects to the Primary intersections given consideration under the Level 2 analysis, and those that were of higher interest in Marshall County include the following intersections. Union Road services The Center at Donaldson which is a significant retreat center and university that would benefit significantly from continued full access even if a grade separated interchange is not considered. 12th and 12B Roads are of importance as US 30 East completes its analysis because of the promotion of cross connectivity between Marshall and Kosciusko Counties is significantly intertwined and dependent on SR 19s access to US 30. Beech Road is an eastern termini of the US 30 West Study area but is also the location of a recently renovated truck stop, where closure would lead to the significant and negative impact on local roads. With the operation recently coming online, access management is going to need to be studied in more detail as it comes to the Level 3 study. 14 C Road is the last intersection before approaching SR 10 impacted interchange improvements and would be the last viable intersection for connectivity North of Argos before approaching the collaborative intersection improvements at Michigan Road North through 14th Road.	4/29/2024	The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions.
Level 2 Screening Report	28K	Conclusion At the heart of the concern Marshall County wants to affirm that the concerns of local residents, businesses and the traveling public are heard and are given strong consideration when the improvements that are proposed to make multi-decade impacts to multiple communities along US 30 and 31. Multiple Comprehensive Plans, development projects and business/farming operations hang in the balance of what recommendations will come out of the Propel US 30 Final Report. Thank you for all of your considerations and should there be any way that we can be of assistance please let us know.	4/29/2024	Thank you for your feedback and input on this US 30 West PEL study. The study team have noted your comments, and they has been documented as part of the official study record.
Level 2 Screening Report	29A	As President of the US 30 Coalition, I would like to thank you for receiving comments in response to the Propel US 30 Level 2 Screening document. The US 30 Coalition, made up of elected officials and business leaders from seven counties (Porter to Allen) who live on and use US 30. We know that this road is not just an urban highway but a major freight corridor. We view the US 30 corridor holistically, as major highway corridors should be. We were encouraged when the PEL process started, and it was stated that this study would examine innovative and creative ways to improve US 30. We were asked to envision what we wanted the roadway to look like in 2045. We were told to be bold and forward thinking. The compelling outcomes of the PELs recently finalized Purpose and Need documents (US 30 East and US 30 West) was the suboptimal performance of the at grade intersections, the unacceptable crash rates	4/30/2024	Thank you for your comments on the Level 2 Screening document. The study team have noted your comments, and they has been documented as part of the official study record.

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		at 62 of 92 US 30 East intersections and the roadway deficiencies and unsafe conditions on US 30 West. Safe, reliable, and efficient mobility for all users should stimulate a bold solution of the future respecting both safety and economic prosperity for this corridor. We remain hopeful that a holistic approach is reflected in the next level of alternatives as we approach the final report. But heading into the home stretch of the study, as we examine the Level 2 Screening document, a bold visionary goal has not emerged. Consider the following examples of what we would respectfully consider reasoning that does not address the actual utilization and future of the corridor. 1. The Level 2 Screening document states, Concepts that are expected to produce poor operating conditions were eliminated from further consideration. However, we note that reduced conflict intersections were rarely discarded especially at urban intersections with high volumes of cross-traffic even when an RCI will clearly not work. For example, daily counts at Parker Street and US30 are almost 40,000 with 14,000 originating on Parker. It appears that RCIs are the default improvement choice on the east end of US 30, which the Coalition strongly opposes.		Initial screenings in Level 2 indicated that RCIs would not operate well and were anticipated to be removed from the intersections with higher cross traffic. However, given the uncertainty with combining intersections within Level 3 screening and the desire to not eliminate an alternative in Level 2 that would be reintroduced in Level 3, it was decided to keep RCIs as alternatives with the caveat that they would most likely be used in temporary scenarios or in combination with other improvements and not as stand-alone solutions. The Level 3 screening will define combinations of improvements within a planning segment, as well as analyze the operations in greater detail, which will allow for the final inclusion or elimination of RCIs at each intersection location. RCIs were not considered a default improvement choice, and we regret that the desire for a comprehensive and transparent analysis led to a misunderstanding.
Level 2 Screening Report	29B	2. A roundabout is yet another example of an alternative that is contrary to a bold vision for the future, and as an improvement option, makes no sense for the purpose of the US 30 corridor. We understand that it was included as a traffic calming device in response to comments, but clearly US 30 is not used in such a manner. One of the main purposes of the road, as evidenced by its designations (Preferred Freight Corridor, Major Mobility Corridor, State Mobility Corridor), is the movement of goods which is strictly at odds with traffic calming.	4/30/2024	As this planning study was initiated, it was described that it would approach the roadway with a clean slate. Knowing that the roadway has been frequently studied in the past, with declarations made and designations assigned, INDOT desired a chance to review all of the information and decide a path forward based on public input and current data. The data available is showing that the roadway serves dual purposes – regional mobility carrying passenger vehicles and freight over longer distances, as well as local traffic traveling within a city/town or between cities/towns. Utilizing roundabouts in select locations to reduce traffic speeds closer to posted limits would address the local mobility portion of the roadway, while providing an access-controlled facility would improve regional mobility. Level 3 will continue to analyze a wide range of potential solutions that meet the needs of the roadway in order to better compare impacts and benefits the various alternatives.
Level 2 Screening Report	29C	3. We strongly disagree with the idea that an overpass is given a negative grade for not meeting the identified criteria of local mobility. Page 28, Propel US 30 East Level 2 Screening Report describes the performance measure for local mobility as to Maintain or improve operations for local trips, accessing, crossing, or turning left onto US 30.. The NO rating somehow ignores that performance measure. As it now exists, safely crossing US 30 is a dangerous impediment to local mobility. Downgrading the overpass/underpass alternative because it does not maintain or improve performance is simply ludicrous. At a minimum, overpasses, where appropriate, should be considered neutral. Blanket designations for improvement types do not consider aspects of the traffic at specific locations. The bias is noticeable.	4/30/2024	Local mobility, such as crossing, was not a performance measure for US 30 West. Local access was viewed as whether a road allowed or removed access from US 30 or US 31.

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Level 2 Screening Report	29D	4. While we understand that this is a planning study, there is no consideration given to potential changes in the alignment of the corridor. If INDOT were to decide to build freeway segments, the alignment may not follow the existing roadway in individual locations. Therefore, to automatically discard the interchange option because of the exact alignment of the existing road does not give the full picture.	4/30/2024	Given the constraints of the PEL study timing and the potential range of improvements, there are some limitations to the number of alternatives considered at each location. The need to consider multiple types of improvements at each location limits the number of interchange alternatives considered in the Level 2 screening. Detailed avoidance and/or minimization for an interchange footprint would occur during any subsequent project development study.
Level 2 Screening Report	29E	5. We are disappointed that the cost of a project is the sole measure of the fiscal impact, ignoring any cost benefit consideration of an improvement. The exclusion of the cost benefit of a project guarantees that a vision for the corridor will not be considered. In addition to those issues, we have also been concerned about data errors.	4/30/2024	While cost is identified within the Level 2 report, the benefits and costs will be further analyzed within the Level 3 Screening Report. Alternatives have not been screened out at any stage of the PEL study based solely on costs, and the Level 3 Screening Report will continue with the same approach.
Level 2 Screening Report	29F	6. Some maps that are utilized are out of date. For example, in Columbia City multiple businesses have been built on the corridor that are not shown. This is true in other locations as well. We ask that the latest maps be incorporated into the study.	4/30/2024	The latest publicly-available mapping was used for each study section. We will investigate additional options that provide more current mapping while working on the Level 3 Screening Report.
Level 2 Screening Report	29G	7. The speed data used is an average for a particular section, and not based on individual locations. This leads to improper decision making at those locations where the speeds are significantly higher. We ask that the speed data be given a second look.	4/30/2024	The speed data and analysis were based on standard engineering practice, utilizing average speeds to reduce the impacts of outliers. When the data is presented, it is often accompanied by an acknowledgement that individual vehicles are going much faster than the average, but the data as presented highlights the impacts of traffic control on the segment speeds.
Level 2 Screening Report	29H	8. Traffic Data errors were pointed out to the PEL team during the universe of alternatives by the Michiana Area Council of Governments that inadvertently understated current conditions. We assume those errors were corrected in the preparation of the level 2 document.	4/30/2024	No response provided as this comment is not relevant to the US 30 West study.
Level 2 Screening Report	29I	9. Traffic and Truck counts at CR 600 N and US 30 have been underestimated from actual counts done at the local level due to significant seasonal use.	4/30/2024	All traffic volumes used in the ProPEL study process have been counted by INDOT and analyzed in accordance with standard traffic engineering pracTce. While there are locaTons with significant seasonal use across the study areas, INDOT does not use the highest volumes recorded as the basis for design as this would result in over-designed roadways for the majority of the year and put a strain on the overall budget for improvements. However, this shouldn't be interpreted as ignoring the seasonal significance of roadways - idenTfying and documenTng where seasonal paVerns occur helps the study teams make decisions about the importance of access. All study teams have connected with County, District, and Regional Farm Bureaus to beVer understand key roadways and connecTons within the study areas, as farming operaTons are an example of seasonal events that can place a strain on the roadway network.
Level 2 Screening Report	29J	In summary, the Coalition is concerned that the alternatives being examined discount who is utilizing the US 30 corridor. We understand that the PEL study is a chance to start with a clean slate and develop improvements to make US 30 safer. While US 30 may not have been originally designed or even envisioned to be the freight corridor it is today, we cannot ignore that fact. We must improve it as it is being used, and that is as a freeway, serving the economic transportation needs of our state. Traffic calming measures proposed on a corridor that is utilized to achieve speed to market, seems illogical. Truck volumes are	4/30/2024	Thank you for the Coalition's continued involvement in the ProPEL study process, and for your thoughtful review of the Draft Level 2 Screening Report. Through the nearly two years that the study teams have been seeking public input and analyzing available data, we recognize the importance of the roadway to Northern Indiana and the wide range of users that the roadway serves every day. As the studies progress into the Level 3 analysis, the teams will continue to refine the analysis and incorporate public comments with the goal of providing INDOT a range of reasonable alternatives to address the needs of US 30.

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		only projected to increase. We are aligned from one end of the corridor to the other. The economic benefits of a future freeway cannot be achieved with segmental free flow. Unless there is a full freeway, US 30 East traffic volumes will overwhelm a corridor that is not free flow and the stated need for safe, high-quality mobility for freight trips through and beyond the corridor is lost. We ask that as INDOT moves into the Level 3 screening, bold improvements become the focus. We understand that the comprehensive approach will take time to finance and build, but are convinced that any less of a solution would not meet the future needs of our state and our communities. Thank you for the chance to comment, and we respectfully request these comments be addressed in the Level 3 screening.		
Level 2 Screening Report	30	Of the various alternatives provided in the Level 2 Screening report for the intersection of 31 and 13th/Michigan Rd, I support no build or turn lane extensions only. I own the rental property at the southwest corner of the intersection. Any other changes will severely impact my financial stability. My income level is below the federal poverty line even when this property is rented. Negatively impacting local access to my property will severely limit my ability to keep this property rented.	4/22/2024	The study team has noted your comments regarding the intersection of 13th/Michigan Road and it has been documented as part of the official study record. Multiple alternatives are advancing at the location of US 31 and 13th/Michigan Road which will maintain access to the property in the southwest corner of the intersection. Maximizing the safety and accessibility of our roads is a priority for INDOT. Current and projected (i.e., year 2045) roadway operating conditions were analyzed as part of the study. This information can be found in the ProPEL US 30 West Existing Transportation Conditions Report, which is available on the study website (propelus30.com/30doclibrary/). Based on the analysis, safety was identified as a concern throughout the study area. There are safety concerns identified at this intersection that need to be addressed. To ensure these concerns are met, various alternatives are being carefully evaluated to improve overall safety and traffic flow while minimizing impacts on local properties.
Safety, Level 2 Screening Report	31	These comments all refer to the US 30 and SR 39 intersection. I do not believe that the Partial Displaced Left Turn Alternative, Restricted Crossing U-Turn Intersection Alternative, or the Reduced Conflict Intersection Alternative should be considered. All of these solutions seem to make things safer for a non signaled intersection. Since this intersection is already signaled, these solutions would just make the intersection less safe as vehicles will need to ultimately cut across all lanes of traffic to cross 30 on 39. This becomes an even bigger issue with farm equipment and semi trucks. As your report states, the predominant crash type was rear-end crashes. This does not indicate that it's cars crossing 30 on 39. This indicates that vehicles are either not prepared for the traffic light or not paying attention. I believe an early warning system like rumble strips, maybe more predominate flashing lights. Something to wake up the motorists when they fall asleep driving. Along with the early warning systems, Add or Lengthen Turn Lanes Alternative and Add/Extend Acceleration Lanes Alternative would be good options.	4/4/2024	The study team has noted your comment regarding SR 39 and it has been documented as part of the official study record The crash frequency index at US 30 and SR 39 is slightly elevated, indicating an opportunity for safety improvements at the intersection. Of the intersection crashes occurring, the predominant crash type was rear-end crashes. These crashes may be related this signalized intersection being a surprise after a long run of unsignalized intersections. For this reason, several unsignalized alternatives are being advanced at this location. Furthermore, the improvements recommended here have been proven to improve safety. Warning systems and spot roadway lighting are also being advanced as complementary alternatives. All improvement alternatives considered in the *Level 2 Screening Report* will accommodate a WB-65 design vehicle. A WB-65 design vehicle is equivalent to an interstate semitrailer that is over 73 feet in length. This means that all alternatives considered as part of this PEL study will accommodate larger vehicles and trucks, as well as most large farm equipment that would need to navigate the intersection.

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Safety, Overall US 30 Corridor, Level 2 Screening Report	32	Looking at your proposals the only thing that makes sense is To extend and add turn and acceleration lanes on the intersections of US 30 and 600, US 30 and 300, and US 30 and ST Rd 39. US 30 and 39 would benefit from rumble strips on US 30 both east and west to inform drivers that they are coming to a light. Most of the accidents, stated by you, are rear-end issues and all of your other options would only increase those types of accidents.	4/4/2024	The study team has noted your comment regarding the CR 600 E, CR 300 N, and SR 39 intersections and it has been documented as part of the official study record. The intersection of US 30 and CR 600 is a secondary intersection and will be evaluated in Level 3. The add/lengthen turn lanes alternative is advancing at the intersections of US 30 with CR 300 and SR 39. Traffic control visibility upgrades and pavement marking improvements are both design elements being considered at US 30 and SR 39.
Safety	33	As a Volunteer Firefighter in the Wanatah area, and as a UPS driver for 31 years, safety while driving is a high priority. At the intersections of US 30 and US 421 in Wanatah, Pilot Truck stop and Industrial Drive in Valparaiso, these light all have sensors in the roadbed. None of them work correctly. Turn lanes are green and no traffic in them. If IDOT would fix them, traffic would not be stopped as long. Pretty easy fix I would think. They have the controller boxes at these intersections.	4/10/2024	The study team has noted your comment regarding US 421, Pilot Truck Stop, and Industrial Drive and it has been documented as part of the official study record. Signal timing updates/coordination are complementary concepts which are advancing at the intersections of US 30 and US 421 and US 30 and Industrial Drive. The secondary intersection located at US 30 and the Pilot Truck Stop in Valparaiso will be evaluated in Level 3, however signal timing updates/coordination are expected to be recommended as complementary concepts at all intersection locations.
Safety	34	If you want to improve US 30, try better speed limit enforcement. My property abuts US 30 and I have lived here over 30 years. People routinely travel at speeds of 75 mph or more. This is NOT an expressway.	4/27/2024	Maximizing the safety of our roads is a priority for INDOT. Current and projected (i.e., year 2045) roadway operating conditions were analyzed as part of the study. This information can be found in the ProPEL US 30 West Existing Transportation Conditions Report, which is available on the study website (propelus30.com/30doclibrary/). Based on the analysis, safety was identified as a concern throughout the study area. As a result, the study team will evaluate alternatives to improve safety along US 30 by reducing the number and severity of crashes in the study area. Speed data along US 30 in the study corridor indicates that traffic typically operates at or above the posted speed limit. Speed enforcement can provide an effective means of reducing speed differentials in the study corridor, which can improve safety for all roadway users. Although enforcement is outside of INDOT's control and requires actions on the part of others, INDOT will continue to coordinate with the appropriate agency/entity to share information, including public input received during the study, as a means to support and encourage enforcement as a means to improve safety.
Safety	35	From 49 in Porter County to 600 West in LaPorte County, and maybe even to the town of Hanna, I think you need to do something to avoid the crossovers. Honestly, there are many times of day that crossing over one set of lanes to reach another is hazardous, even when the road seems clear. Many times on the south side of the road, when I want to go west, I will actually take an eastern turn, find the next intersection, and then cross back over to go west. The rate of speed is high. I honestly do not know what the solution is, maybe j intersections? Working in LaPorte County, I have experienced too many accidents involving our neighboring school and I cannot sit idly by without saying this.	4/29/2024	The study team has noted your comment and it has been documented as part of the official study record. The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions. The ProPEL US 30 West Level 2 Screening Report includes recommendations for innovative intersections, such as RCIs and directionals, at many locations along US 30. Conversion to these intersection types, in combination with implementation of other traffic calming measures to reduce speed and speed differentials, are anticipated to improve safety through the corridor. In addition, it is anticipated that the ProPEL US 30

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				West Level 3 screening will include, among other options, consideration of a fully access controlled facility; in this case the median crossovers would be removed, if implemented, and access would be provided at designated interchanges along the corridor.
Safety	36	At the Main St and US 30 intersection in Wanatah, I think you should consider leaving Illinois Street as the access to US 30 open instead of Main St. That street passes through the town limits and continues through town out to county roads. Main Street curves around and dead ends into Illinois street anyway. People have access to any of the other streets in town from Illinois street. Also, although I am aware that traffic thrown wanatah on US 30 has increased tremendously over the years, none of these changes would be necessary if speed limits through the wanatah area would just be enforced. The only people that slow down to the speed limit through here are residents of wanatah! We do not have law enforcement in our town, therefore it is rarely patrolled by county or state officers. SPEED is the number one killer! If people drove slower through these intersections, it would be easier to pull out onto 30, but when people are flying through these intersections, it Is much more difficult to do so. Thank you for your consideration.	4/30/2024	The study team has noted your comment regarding the Main Street intersection and it has been documented as part of the official study record. Maximizing the safety of our roads is a priority for INDOT. Current and projected (i.e., year 2045) roadway operating conditions were analyzed as part of the study. This information can be found in the ProPEL US 30 West Existing Transportation Conditions Report, which is available on the study website (propelus30.com/30doclibrary/). Based on the analysis, safety was identified as a concern throughout the study area. As a result, the study team will evaluate alternatives to improve safety along US 30 by reducing the number and severity of crashes in the study area. Speed data along US 30 in the study corridor indicates that traffic typically operates at or above the posted speed limit. Speed enforcement can provide an effective means of reducing speed differentials in the study corridor, which can improve safety for all roadway users. Although enforcement is outside of INDOT's control and required actions on the part of others, INDOT will continue to coordinate with the appropriate agency/entity to share information, including public input received during the study, as a means to support and encourage enforcement as a means to improve safety.
Safety, Overall US 30 Corridor	37	There is no issue on this area of road. Very few people travel eastbound on this stretch on a regular basis. Please work on solutions to get us to Illinois where there are jobs that pay. US30 in Lake county is a mess, and 65/94 in Lake county is an even bigger mess.	4/11/2024	The study team has noted your comment and it has been documented as part of the official study record. US 30 and 65/94 in Lake County are outside the limits of this Study. The Universe of Alternatives (Level 1) screening process considered 55 transportation improvement alternatives, including the No-Build alternative, for the ProPEL US 30 West study area. These alternatives were qualitatively evaluated against the study area purpose and need and evaluated for practicality. The No-Build Alternative does not address any of the identified needs; however, it is required to be considered in the PEL study, as well as any subsequent environmental reviews conducted in accordance with the NEPA. Therefore, this alternative will be carried forward for further consideration in the PEL study and will serve as a baseline for comparison to build alternatives. You are encouraged to stay engaged as the study moves forward. Upcoming public meetings, community office hours, and additional study information will be posted on the study website when it is available (www.propelUS30.com).
Mobility, Safety, Overall US 30 Corridor	38	It is hoped that the intersection of King Rd and US 30 will garner serious discussion on how we might PROPEL this very hazardous intersection into a safer crossing. The intersection houses a Pilot Service Center and newly constructed Tire facility. Traffic in general has increased exponentially in the last year to year and a half, trucks habitually run the red light on 30 as well as block the intersection (the sign on the post is all of 18 inches wide and bent) on King Rd as well as ignore the posted speed limit on 30. The Department has been out after numerous complaints and there report	4/6/2024	The study team has noted your comment regarding King Road and it has been documented as part of the official study record. The ProPEL US30 West Level 2 Screening Report identifies this location as having an elevated crash frequency index, which indicates there are opportunities to improve this intersection. Many of the concerns mentioned in this comment are identified and discussed in the Level 2 Screening Report. Primary concepts advancing for consideration at this location include: added/lengthened turn lanes, added acceleration/deceleration lanes, over/underpass, convert to interchange, and multiple intersection improvement alternatives.

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		suggests that all is okay with no required changes needing addressed. The person issuing the report must have sat there all of ten minutes to make such a misguided and non-satisfactory report. He/ She needs to sit unidentified for two or three hours to understand the issues that a correction at this intersection could potentially address. It is a horrible intersection.		Complementary concepts advancing at this location include signal timing updates/coordination, warning systems, and spot roadway lighting.
Mobility, Safety, Overall US 30 Corridor, Level 2 Screening Report	39	Consider interchange at US 30 and 600W in LaPorte County to accommodate for high volume of traffic between the 2 roads. A simple overpass without highway access makes it nearly impossible for vehicles to get to the school from Hwy 30, a main thoroughfare for a good number of the school district as well as any visitors or visiting schools.	4/29/2024	The study team has noted your comment regarding CR 600 W and it has been documented as part of the official study record. Current and projected (i.e., year 2045) roadway operating conditions were analyzed as part of the study. An interchange concept was not considered because the existing intersection configuration is expected to handle future traffic volumes.. Add/lengthen turns lanes is an alternative advancing at the intersection of US 30 and CR 600W in LaPorte County, in addition to the overpass alternative. The turn lanes alternative would maintain local access. An overpass would provide safe crossing of US 30 for school bus routes. If an overpass was selected at this location, school buses could still access US 30 easily at CR 700 W less than 1 mile to the east.
Mobility, Overall US 30 Corridor, Level 2 Screening Report	40	At the south east corner of US 30 and Fir road the state owns about 50ft south of the fence. They had purchased this to allow an easement to the property to the East. The land owner at this time would have been landlocked. So the current land owner still has this easement and does not use it but still has an easement. The state does not maintain this easement either. I personally have to mow it and maintain it. So if there is an overpass in how is the state going to handle this easement and access? I also lose my access to my field. More southern entrance is steeper and wet for semis to get in and out. On the north side of US 30 and Fir road is my mothers house and drive way. concerned about the overpass and how far north does the drive need to be. US 31 and 9A road and farm equipment access to 9A west of 31. We farm there also. To get our large farm equipment we must come off 31. Access from WEST is not possible to get to with our equipment. The first problem in the clearance height under US 31 and Old 30 (Lincoln Highway) is only about 12' (dont quote me on exact measurement). I just know the sprayer just barely goes under and the larger quad trac tractors and combine will not clear. So if we close 31 and 30 to limited access it could make it almost impossible to gain access to our ground on 9A road.	4/29/2024	The study team has noted your comment regarding Fir Road and it has been documented as part of the official study record. The farm location north of the US 30 and Fir Road intersection is included in the Level 2 report as a potential design consideration. More specifically, access to the farm is being considered as alternatives are developed and analyzed. In addition to the overpass alternative, added turn lanes are also being considered at this location. Please note that while recommendations resulting from the PEL may suggest closing or limiting driveway or farm field access as part of a recommended improvement, actual access impacts and mitigation will be determined in the future during the National Environmental Policy Act (NEPA) phase if and when a project is programmed to implement the PEL study recommendations. Agricultural equipment access and mobility is being considered throughout the PEL study as it is understood that this is the primary industry within the US 30 West study area.
Mobility, Safety, Overall US 30 Corridor, Level 2 Screening Report	41	30/49 comments - Deceleration lane from US 30 East to 49 North —Left turn in front of oncoming US 30 Westbound causes backups Lane is too short and doesn't allow enough deceleration or enough room for vehicles at peak times leading to build up of stopped traffic in the left hand lane - US49 South to US30 West -Trying to merge to make the turn into Walmart can be difficult. When traffic is stopped at the traffic light for Walmart, trying to merge across and make the light is difficult. US30 and 325 - Fire department uses this as an access south to Division road to access the Fair grounds and as alterative access to Industrial drive. This Route is an	4/30/2024	The study team has noted your comment regarding SR 49 and it has been documented as part of the official study record. The acceleration lane from SR 49 northbound to US 30 eastbound does not meet current INDOT design standards. The improvement alternative under consideration would improve the safety at the interchange of US 30 and SR 49 by providing a longer dedicated lane for vehicles entering US 30 eastbound from SR 49 northbound to reach the design speed before merging with through traffic on US 30. This would decrease

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		alternative access from our station on SR2 is 450 E south to US 30 West (right turn) to 325 E South (left turn) - This is safer then crossing US 30 at 450E or 400E We have to cross both Eastbound and Westbound traffic. Oncoming traffic often does not yield to our lights/siren at 450E/US30 400E and Division road is a difficult intersection to navigate (due to crossing the railroad tracks) and we tend to avoid if possible. We tend to not turn onto 400E from US30 (westbound). Installation of a traffic light seems like it would increase the frequency of rear end collisions and with the high rate of speed of semi-trucks through this corridor has the potential for severe injuries.		the risk of rear-end crashes. This alternative would also improve operations by reducing the differential speed between mainline and entering ramp traffic. Multiple alternatives are advancing from Level 2 for the intersection of US 30 and CR 325E which would benefit emergency service access at this location, including Median Safety Improvements, add/lengthen turn lanes, overpass/underpass, and various intersection improvement alternatives including RCUT, RCI, signalized intersection, and roundabout. Similarly, multiple alternatives are advancing from Level 2 for the intersection of US 30 and CR 400E which would benefit emergency service access at this location, including median safety improvements, add/lengthen turn lanes, overpass/underpass, convert to interchange, and RCI. The secondary intersection of US 30 and CR 450E will be evaluated in Level 3.
Mobility, Safety, Overall US 30 Corridor	42	**US 30 at SR 49 Interchange** The EB (US 30) to NB SR 49 movement is relatively dangerous due to drivers crossing WB US 30 traffic to access the NB on ramp. Probably due to geometric constraints at the time of construction (this quadrant being an acute angle and the RR to the South, a normal cloverleaf ramp was not provided for this movement. In the intervening 50 years Valparaiso has expanded significantly, with much more development on US 30 just west of SR 49, and the traffic volumes on this ramp have increased noticeably. While I don't have crash data available, I am anecdotally aware of crashes at this location which are high-severity T-bone crashes. (US 30 traffic has a 55 mph speed limit at this location.) Ideally, and expensively, a true right-side exit cloverleaf ramp would be considered here to remove this crossing maneuver. If this left turn remains, the deceleration/storage lane for it is inadequate. Vehicles are routinely slowing down in the through lanes of US 30 before the aux lane begins. Extending this lane 300 feet or more to the west would be helpful. Additionally, the SB SR 49 to EB US 30 ramp acceleration lane (on US 30) is not long enough and should be extended to link up with the NB SR 49 to EB US 30 ramp, which you are also proposing to be extended to the east. There is heavy truck traffic entering EB US 30 from SB SR 49 and the merge distance under the bridge is short causing vehicles to move left at relatively low speeds impacting the EB thru movement. And all of this just after vehicles are slowing to enter the EB to NB left turn lane, essentially impacting both thru lanes of EB US 30. **US 30 at Industrial Drive in Porter County** This intersection is the source of a large amount of traffic delay, particularly westbound. The proposed concepts to remove the left turn phases from the signal timing would be helpful (Partial Displaced Left Turn, etc.). A large percentage of westbound traffic at this intersection is aiming for the upcoming ramp to NB SR 49 and the right thru lane queue is often sizeable, extending back to the Pilot traffic signal. Trucks make up a large portion of this queue, exacerbating the delay caused at this location due to their slower acceleration. Removing the left turn phases from the signal will help extend the green for the through movements, easing the congestion at	4/30/2024	The study team has noted your comments regarding all locations and it has been documented as part of the official study record. The acceleration lane from SR 49 northbound to US 30 eastbound does not meet current INDOT design standards. The improvement alternative under consideration would improve the safety at the interchange of US 30 and SR 49 by providing a longer dedicated lane for vehicles entering US 30 eastbound from SR 49 northbound to reach the design speed before merging with through traffic on US 30. This would decrease the risk of rear-end crashes. This alternative would also improve operations by reducing the differential speed between mainline and entering ramp traffic. The study is focused on the east side of the SR 49 interchange and its interaction with US 30. Alternatives advancing at US 30 and Industrial Drive include Median Safety Improvements, which entails widening the median to provide more space for vehicles crossing or making turns. Add/lengthen turn lanes is also being considered at US 30 and Industrial drive, since existing lanes do not provide sufficient deceleration length. This would provide more space for vehicles to slow before making a turn; the left turn lanes could be lengthened and right turn lanes added. Intersection Improvement alternatives advancing at US 30 and Industrial Drive include Partial Displaced Left Turn, Restricted Crossing U-Turn Intersection (RCUT), and Reduced Conflict Intersection (RCI).

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		this location. Adding an additional westbound through lane starting at the Pilot signal and extending through this signal and connecting to the NB SR 49 ramp might also help, allowing turning traffic to clear the through lanes in advance of the SR 49 exit, reducing the delays on US 30. Due to the large truck volume using the SR 49 ramp, reconfiguring that ramp entrance to allow for dual entry lanes might also be helpful, the proposed new third westbound lane could become exit only at the ramp, and the existing far right WB lane could be continue to be an optional exit onto the ramp. This would allow non truck traffic to move past the slower dedicated right lane and still use the ramp, avoiding getting caught in the truck backup that starts at the current Industrial Dr signal. An additional comment is that the current signal goes into all-way flash when preempted by the RR, which is obviously inefficient and less safe. Reprograming the RR preemption to hold green for US 30 traffic after a clearance interval would be an immediate, and not costly, improvement. **US 30 at Pilot Truck Stop** This commercial use is a large source of delay on the corridor, and obviously the location of a signal here increases the crash rate. As small of a truck stop as this is, I would suggest that purchasing the property and removing the access and signal would create a lot of benefit and be worth it. Once access is closed INDOT can sell the remainder of the parcel for commercial development to companies that are fine with access from CR 100 N. **US 30 at CR 325 E** An overpass/underpass would be ideal here. Left turns from and to US 30 are problematic at all times with the inadequate space for vehicles to queue in the median. Widening the median would help, but not as much. The proposed alternate intersection options relocating the left turns would all be much improved over the current design. **US 30 at CR 400 E** The very narrow median at this intersection, as at all of them in this section, is problematic for left turns on to and off of US 30. The following proposed options would be the most helpful at this location: Cross Road Overpass/Underpass, Convert to Interchange, Reduced Conflict Intersection. A new CAT Rental store has been developed to the NW of this intersection (connected to Fletcher Dr) which means there will probably be a lot more semi-trailer traffic using this intersection. Given the difficulty of left turns onto US 30 currently, the additional trailer traffic would seem to exacerbate the trouble here. If the interchange option is promoted, then I would suggest CR 325 E be cul-de-saced and that traffic can use the much safer interchange. As CR 450 E also has the same left turn operational issues, perhaps a single interchange concept in this area can serve all three current cross roads.		The US 30 at Pilot Truck Stop intersection is a secondary intersection that will be analyzed in Level 3. Thank you for your comments. Alternatives advancing at the intersection of US 30 and CR 325E include median safety improvements, add/lengthen turn lanes, cross road overpass/underpass, and several intersection improvement alternatives, including RCUT, signalized intersection, roundabout, and RCI. Alternatives advancing at the intersection of US 30 and CR 400E include median safety improvements, add/lengthen turn lanes, cross road overpass/underpass, convert to interchange, and RCI. The secondary intersection at US 30 and CR 450E will be analyzed in Level 3.

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		US 30 at Main Street and US 421 Wanatah on US 30 is a mess. There are obviously far too many public road approaches and driveways to maintain efficient through movements. Even with a few spot improvements, this will remain a restricted speed segment with inadequate median widths to allow all the numerous access points to safely turn left. While a high cost alternative, I would suggest that a Bypass be considered at Wanatah. this is noted on page 24 as a Complementary Concept for US 30 and Considered where impacts of bypass may be better than impacts of improvement in existing small town. According to this definition, it seems like a good location to consider it. I would suggest that the bypass pass north of Wanatah, diverging from the existing alignment near County Line Road on the west, passing through the undeveloped land north of Wanatah proper and south of the homes around CR 1100 S (and extending a bit south of there along CR 1025 W), passing about 1/2 mile north of the existing US 421 intersection where an interchange can be built, and then remaining about 1/2 mile north of US 30 until approximately CR 600 W. This section of US 30 from County Line Road to CR 600 W has many direct driveway connections (even outside of Wanatah) to US 30 that would be eliminated by using this bypass. By my count, this would remove 71 driveway access points and 12 public road intersections. The current US 30 could then be relinquished and the town and county could exert local control over this commercial corridor, maintaining unrestricted access to the businesses there and likely allowing new, future access points to boost economic development. The proximity of the proposed new US 30 interchange at US 421 to the existing intersection means the Burger King, DQ and Casey's at that corner would remain economically viable. **US 30 at Thompson St and RR** My primary concern in this area is the RR grade crossing. Given the inherent danger of at-grade crossings on busy multi-lane highways with high truck volumes, as witnessed recently on US 31 south of Plymouth (also in this study area), I would like to see at least one concept advanced that shows a grade separation over the RR. I regularly see propane and fuel trucks stopping at this crossing and it definitely causes issues with operations; last minute lane changes, aggressive braking, etc. If a grade separation is looked at, then it will obviously have some effects on the Thompson St intersection as well. With the required 23' of clearance over the tracks, US 30 will also be going over Thompson St in that scenario. With the difficulties of fitting in ramps near a RR, in the case of a grade separation, perhaps closing the Thompson St access and creating ramp access at CR 450 W (or CR 1350 S) would be a safer option. As an Interchange option is already being looked at at US 30 and Old US 30, just to the east, then I think having one good interchange at Hannah and a grade separation over the RR would be the idea option.		Alternatives advancing at the intersection of US 30 and US 421 include access management, add/lengthen turn lanes, add/extend acceleration/deceleration lanes, convert to interchange, and multiple intersection improvement alternatives, including partial displaced left turn, quadrant roadway intersection, and roundabout. The bypass complementary concept is advancing and may be considered for the Wanatah area in Level 3. Alternatives advancing at the intersection of US 30 and Thompson Street include add/lengthen turn lanes and RCI. As a complementary concept, reviewing possible added lanes for vehicles that stop at the railroad may be included with the alternatives in Level 3.

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		US 30 at Old US 30 As noted above, I am fully in support of an interchange in the area somewhere between Thompson and Old US 30 to serve Hannah. I frequently see school buses headed into or out of Hannah at this road (or CR 1350 S), and the left turns onto US 30 is dicey for them. There was also a bad crash at this location last month, closing eastbound US 30 for hours.		The location of the interchange in this area will be determined in the Level 3 Screening Process.
		US 30 at CR 300 W (Long Lane) I support the overpass option here. I don't see a lot of traffic using this intersection, and if, once again, there is a full, safer, interchange just to the west (see above) then an overpass makes sense here.		The alternatives advancing at CR 300 W (Long Lane) includes the Cross Road Overpass/Underpass alternative.
		US 30 at SR 39 This intersection causes a fair amount of delay for US 30 through traffic. The clearance timing required at the signal with the northbound stop bar placed south of the RR is quite large which contributes significantly to the delay on US 30. Eliminating the left turn phases from the signal under some of the intersection modification plans will help, but I would prefer to see an interchange here as it is a state route and has a fair bit of truck traffic to/from the south and the quarries.		Alternatives advancing at the intersection of US 30 and SR 39 include add/lengthen turn lanes, add/extend acceleration/deceleration lanes, convert to interchange, and multiple intersection improvement alternatives, including partial displaced left turn, RCUT, and RCI.
		US 30 at CR 600 E and CR 600 N in Starke County I don't see this intersection noted in the study but I think it should also be looked at. With commercial uses nearby this intersection has a fair bit of traffic, and both the north and south approaches have intersections and driveways within the functional limits. I would recommend looking at options that restrict movements from directly crossing US 30 on the side road (north/south) as my observations are they are the most dangerous, with crossing vehicles shooting the gap in US 30 traffic. A grade separation would also be good, though US 30 would probably have to go over the county road given the proximity of businesses.		The secondary intersection of US 30 and Starke CR 600 will be analyzed in Level 3.
		US 30 at Queen Rd in Marshall County I support the alternative of converting this intersection to an interchange. There is substantial traffic on Queen Rd both crossing US 30 and coming to/from it at this location. The current traffic signal leads to frequent delays on US 30, which an interchange would alleviate. Removing the signal at this point would also allow the speed limit on US 30 from this point east to be raised back to 60 mph, improving LOS to the east for at least a mile until Pine Rd.		Alternatives advancing at the intersection of US 30 and Queen Road includes the Interchange Alternative.
		US 30 at Pioneer Dr in Marshall County I support the Interchange or overpass alternatives at this location. While the area grows commercially, the current signalized intersection has had a number of crashes. The large truck volumes to/from the north are an issue and require long cycle		Alternatives advancing at the intersection of US 30 and Oak Drive includes the Interchange Alternative.

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		lengths for the EBL phase and the N/S phases, making the signal relatively inefficient. **US 30 at Oak Dr in Marshall County** I support the option of converting this intersection to an Overpass/Underpass and agree that the area could be served fairly well by access from other directions, though I doubt the businesses north of US 30 would agree. If the County finally completes the extension of Veterans Parkway to Pine Road, access to this area even with an overpass at Oak Rd would probably be ok. I would also disagree that an interchange at this location is not viable due to its proximity to the Michigan Rd Interchange though it will be very challenging given the r/w restrictions. The INDOT rule used to be that interchanges shouldnt be closer than one mile, and Oak Rd and Michigan are 0.9 miles apart, but the Michigan St ramps loop on the far side of Michigan St. The US 30 termini of the ramps (both EB and WB) could be extended to the west to connect to ramps at a new Oak road interchange (with the widening of the bridge over Western Ave). This would create basically continuous C-D lanes between the two interchanges. All that said, this would be an expensive option, and probably require a SPUI with US 30 elevated on MSE walls. RR Grade Crossing West of Oak Rd in Marshall County No alternative was noted in the study to address the safety issues at this RR grade crossing. About three years ago two people were killed at this grade crossing when an EB propane truck stopped at this crossing and a vehicle was smashed between it and a semi that did not stop. This also, I believe, led to an extensive hazardous chemical spill in the wetland to the south of US 30 at this location. As noted before, with the problematic grade crossing on US 31 also being part of this study area, it would seem to be important to discuss options as part of this large look at the corridor. As a grade separation is the only way to effectively deal with the danger of stopped vehicles on such a busy highway, the only option I see here is for US 30 to go over the RR. The high ground water table witnessed by the wetlands nearby precludes the option of US 30 going under the RR. If US 30 going over the RR is the only viable option, then US 30 will also have to go over Oak Rd as there is not enough distance to return US 30 to grade by the time it reaches Oak Rd. US 30 is already on an embankment to the east of Oak Rd, and this embankment could be extended and connected to that needed to raise US 30 over the RR and Oak Rd. **US 30 at Ply-Goshen Trail in Marshall County** I support the overpass alternative at this location. **US 30 at US 31 in Marshall County** I support the extension of acceleration lanes in this interchange, and would also recommend that continuous accel/decel lanes be added to the interchange linking the initial exit/decel		Alternatives advancing at the intersection of US 30 and Oak Drive include add/lengthen turn lanes, add/extend acceleration/deceleration lanes, add cross road overpass/underpass, and two intersection improvement alternatives; partial displaced left turn and boulevard left turn. The sole alternative advancing at the existing interchange of US 30 and Michigan Street is add/extend acceleration/deceleration lanes. Alternatives advancing at the intersection of US 30 and Plymouth – Goshen Trail include add acceleration/deceleration lanes, add/extend turn lanes, add cross road overpass/underpass and RCI. The existing interchange at US 30 and US 31 has acceleration lanes that do not meet current design standards and could be extended, so that alternative is advancing at this location.

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		lanes in each direction of travel to the center weaving lane and on to the entrance/accel lanes. This option would allow not only for additional acceleration and merging time, but also allow advanced deceleration time for vehicles preparing to use the central cloverleaf ramps. **US 30 at 9A and King Rd in Marshall County** I support an underpass/overpass at this location. With the high truck volumes, none of the at-grade intersection options seem likely to work. I would also disagree that an interchange at this location is not viable. Given the high truck traffic, this would be the safest and most efficient option. Aligning a new overpass along the original King Rd alignment north-south would allow a diamond interchange to be constructed by pushing the ramp/King road terminals east of the existing intersection in an area with more available r/w (away from the Pilot truck stop). 9A Rd could then be looped to the south to connect to King Rd south of the new ramp intersection. The County owns a fair bit of the land south of this location.		The alternatives advancing at the intersection of US 30 and 9a/King Road include add/lengthen turn lanes, add acceleration/deceleration lanes, add cross road overpass/underpass, and multiple intersection improvements, including boulevard left turn, RCUT, RCI, and roundabout. At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. The future facility type for US 30 has not been determined. During the Level 3 screening, several different facility types will be analyzed, including Free Flow with no or partial access control, Expressway (i.e., no direct residential driveway connections), and converting US 30 to a limited access highway (i.e., a freeway). The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions. INDOT plans to hold public information meetings once the Draft Level 3 Screening Report is published for public comment.
Mobility, Safety, Level 2 Screening Report	43	As an Ag Producer, I am not agreeing with increasing our travels times on county roads by not having a crossing of some kind across US 30 between King Road and Fir Road. You have by this design made it more convenient for the traffic, yet increased the risk and travels time of not only farm equipment but all the semi's hauling grain/fertilizer across US 30 to the farm bases. There needs to be a crossing somewhere in the middle of that design between the two projected interchanges. In addition you are making it really difficult for farmers to get parts at either one of the farm equipment dealers, depending on location by not allowing us access across 30. Farm equipment is very dangerous on county and state roads, and we need to minimize that risk at all times.	4/8/2024	The study team has noted your comment regarding Fir Road and it has been documented as part of the official study record. The US30 West Level 2 report did not recommend interchanges at either 9A/King Road or Fir Road. Based on the Level 2 recommendations, farm equipment would still be able to cross at both referenced locations. Access between these two intersections will be analyzed further in Level 3; however, agricultural access is a primary consideration of the study. At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. The future facility type for US 30 has not been determined. During the Level 3 screening, several different

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				facility types will be analyzed, including Free Flow with no or partial access control, Expressway (i.e., no direct residential driveway connections), and converting US 30 to a limited access highway (i.e., a freeway). The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions. INDOT plans to hold public information meetings once the Draft Level 3 Screening Report is published for public comment. All improvement alternatives considered in the *Level 2 Screening Report* will accommodate a WB-65 design vehicle. A WB-65 design vehicle is equivalent to an interstate semitrailer that is over 73 feet in length. This means that alternatives considered as part of this PEL study will accommodate larger vehicles and trucks, as well as most large farm equipment that would need to navigate the intersection.
Economic Development, Safety, Overall US 30 Corridor, Level 2 Screening Report	44	These Comments are provided by [redacted], Member of the ProPEL US 30 West Stakeholder Advisory Committee. As shared in our Teleconference of 4/10, I recite my following Comments made during the Teleconference: 1. Suggestion to define Environmental Justice Concern within the Document. 2. On Draft Pages 57 and 67, it is stated that The Porter County Airport recommended grade separations at this intersection. The comments of the Airport to date have been related to the findings and recommendations of the Conexus-Northwest Regional Logistics Council: Advancing Northwest Indiana's Logistics As The Gateway to the World Report (September 2015) Project 6404: Porter County Airport Rail Road Grade Separations. I would request that both these areas of the Draft (Page 57 and 67) be amended to identify the Study forwarded by the Airport during the collection of existing Plans and Studies early in the ProPEL US 30 West process. If you have any questions, please don't hesitate to contact me.	4/10/2024	Environmental Justice concerns pertain to low-income and minority populations, as identified using census data as well as through public involvement efforts. This definition has been added to the Level 2 report. Clarification and correct citation have also been added to the Level 2 report for Conexus-Northwest Regional Logistics Council: Advancing Northwest Indiana's Logistics As The Gateway to the World Report (September 2015) Project 6404: Porter County Airport Rail Road Grade Separations.
Economic Development, Mobility, Safety, Overall US 30 Corridor, Level 2 Screening Report	45	Hello, After reading the screening report. I still believe that US 30 should be become an insterstate highway for safety and economic growth.	4/27/2024	INDOT is not including or considering applying interstate design standards along the US 30 West study corridor. At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. The future facility type for US 30 has not been determined. During the Level 3 screening, several different facility types will be analyzed, including Free Flow with no or partial access control, Expressway (i.e., no direct residential driveway connections), and converting US 31 to a limited access highway (i.e., a freeway).
Economic Development, Mobility, Safety, Overall US 30 Corridor, Level 2 Screening Report	46	PROPEL US 30 COMMENTS I am a resident that lives in Wanatah, IN. I believe that the Town of Wanatah (Town) does not have any major issues with the U.S. 30 corridor. There are some accidents as there are with any major highway, but I do not believe the frequency warrants any major changes to the corridor through the Town. I think that the majority of the issues result from the disregard of traffic laws that are currently in place.	4/30/2024	The study team has noted your comment regarding crashes through the Town of Wanatah and this has been documented as part of the official study record.

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		People speed through Town. It is my opinion that a majority of these alternatives will only serve to increase the speed of those traveling through Town. MAIN STREET INTERSECTION Regarding the Propel US 30 Report, in 4.6.1, it states the following regarding the intersection of U.S. 30 and Main Street: The crash frequency and crash cost indices indicate that there are no major safety concerns at the intersection. If this is the case, then why adversely affect the local economy and potentially increase the speed of those traveling through the Town by further limiting access to the highway? Several of the businesses listed in the report rely on trucks to receive supplies. Limiting access (as described in the Access Management Alternative) to these businesses will make it harder (or potentially impossible) for them to receive their supplies, damaging the few businesses that we have in Town. I believe this would cause more harm than good. If this were to be carried through, maybe also look at holding Illinois Street instead of Main Street. Illinois is a through street to South Wanatah, while Main Street 90 degree turns into Illinois at the end. Local preference would be to keep both open. I would also be concerned about increased traffic on Main Street, being the only entrance to Town. This would increase traffic on this road so the state should do pavement cores to ensure that the road is designed well enough to handle the additional traffic and still hold up. If not, the state should assist in the improvement of Main Street as well, should it become an arterial or larger collector street. The Median Safety Improvements Alternative is not being carried through, which is good. While it would be good to have a wider median, that ship has sailed and there should not be adjustments made that affect the local businesses or residences. That being said, there are more viable businesses and more residences on the south side of US 30, than on the north side. If this alternative were to reappear, shifting the highway to the north (and holding the south side) to make room, should be considered rather than widening the right-of-way on both sides. Additional lighting and safety/warning features could benefit the intersection. If lighting were to be installed, I would recommend directional lighting pointing down at the intersection to limit light pollution, and no rumble strips in the lanes of traffic as a warning alternative to contribute to the already loud noise pollution from Highway 30. US 30 AND US 421 I agree on the comments regarding noise pollution, drivers failing to follow traffic laws, and especially the ignoring of reducing speed postings. While I generally do not have as strong of an opinion on this intersection as the one on main street, the lesser the impact the better. Closing access at Illinois, Main, Ohio, and Condon would effectively remove almost all access to the Town of Wanatah via US 30.		A primary objective of this study is to develop alternatives that provide a safe and high-quality corridor for all passengers utilizing the US 30 and US 31 corridors. Safety is a priority for INDOT on all roadways under their jurisdiction and is major transportation need of this project. Although the US 30 and Main Street intersection was not found to have elevated crash frequency or crash severity, the Level 2 report identified several issues at this location. The intersection functional area is inconsistent with INDOT access management guidelines. The existing median does not meet IDM requirements and should be widened. As stated in the report, widening the median would maintain local access. The existing turn lanes do not provide sufficient deceleration length and should be lengthened. This improvement alternative would also maintain local access. The secondary intersection of US 30 and Illinois street will be analyzed in Level 3 with all other secondary intersections. Spot roadway lighting and warning systems concepts are advancing at US 30 and Main Street. The study team has noted your comment regarding Main Street and US 421 and it has been documented as part of the official study record.

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		This is not a viable option, in my opinion. That would devastate Town businesses and bisect the Town entirely. Additional or lengthened turning and acceleration lanes would benefit the intersection. This would make the intersection safer for all. I like this as option, as long as it is not detrimental to the Town or the local businesses. I do not believe that US 30 should overpass 421, because that alternative would adversely impact the Town. I believe that US 421 passing over US 30 would make more sense if an interchange option would be explored. US 421 is already passing over the railroad to the south and it would affect fewer access points to the Highway. I would like more information on the Partial Displaced Left Turn Alternative, Quadrant Roadway Southwest and Southeast before I can form an opinion on them as I am not familiar with those. I do not believe a roundabout would be a good option either, due to the heavy truck traffic. It could potentially cause more harm than good. MY REQUEST I request that you look at the opinions and preferences of local residents and weigh them higher than the opinions and preferences of those that pass through. We are the ones that have to deal with the consequences of any decisions more than anyone else. This is our home and our livelihood. Dont jeopardize that because someone needs to get from Point A to Point B more efficiently, or because people passing through cant obey the speed limit or stop at a traffic light. The Town of Wanatah was here before US 30 was. Thank you		The intersection of US 30 and US 421 experiences the most delay of any intersection in the US 30 West study area. The add or lengthen turn lanes and add/extend acceleration lanes alternatives are both advancing at this location. The cross road overpass/underpass alternative was eliminated at this location because there are no locations within approximately 2 miles with equal or better access based on the functional classification of the route that local traffic can use to access the corridor. The roundabout alternative is advancing at this location as it is anticipated to reduce delay and improve intersection operations while maintaining local access and improving safety by reducing speeds and lowering the risk of right-angle crashes. The roundabout alternative would be expected to have a traffic calming effect for westbound US 30 traffic approaching Wanatah from the east. Please note that while recommendations resulting from the PEL may suggest closing or limiting driveway or farm field access as part of a recommended improvement, actual access impacts and mitigation will be determined in the future during the National Environmental Policy Act (NEPA) phase if and when a project is programmed to implement the PEL study recommendations.
Economic Development, Safety, Level 2 Screening Report	47	I am extremely concerned with the route through to town of Wanatah. Concerns are many including the closure of most of the streets in town, the increased traffic on Main Street, the requirement of semi deliveries to businesses having to enter town on Main Street and meander through town to make a delivery. The probability of most of the businesses closing due to the lack of accessibility to their business. Some businesses being shut down due to acquisition of property by INDOT. Concern about how the route to Valpo for wanatah residents can even work under this plan. Concerned about the county roads being closed. The 30/421 intersection is of additional concern. Not sure how it can realistically be accomplished without additional business closures or other designs which will affect all the citizens of wanatah. Finally the600 west intersection is of concern for safety and it is questionable just how the kids will get to school easily. I am concerned about the property values of the homes with this plan.	4/30/2024	The ProPEL US 30 West Level 2 Screening Report did not make any recommendations for closure of streets, including in those in Wanatah. The secondary intersection of US 30 and CR 600 West will be analyzed in Level 3 and will include recommendations for improvement(s). In the Level 3 Screening Report, the US 30 West study corridor will be divided into “Planning Segments” in which traffic characteristics and context are similar, and where alternatives at one intersection could influence adjacent intersections. Impacts to characteristics such as those to businesses, residents, and property values are anticipated to be better assessed at that time. Please note that while recommendations resulting from the PEL may suggest closing or limiting driveway or farm field access as part of a recommended improvement, actual access impacts and mitigation will be determined in the future during the National Environmental Policy Act (NEPA) phase if and when a project is programmed to implement the PEL study recommendations.
Economic Development, Safety, Overall US 30 Corridor, Level 2 Screening Report	48	These comments will be limited to the portion of the Level 2 Screening Report Draft pertaining to Starke County only. I am shocked that only three intersections in Starke County are mentioned in the document. The omission of the intersection of County Road 600 East is especially jarring given its significance as the town of Hamlets primary access to US 30, and the number of fatalities that have occurred at that intersection in recent years.	5/1/2024	The study team has noted your comment regarding the intersections within Starke County and it has been documented as part of the official study record. The focus of the Level 2 Screening Report is the primary intersections in the study area, which have a larger influence on roadway operations in the study area. Secondary intersections, which include CR 600 E (and others) will be analyzed as part of the Level 3 Screening.

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		I believe the suggestion to extend the acceleration and deceleration lanes at the intersection of US 35 is appropriate. Traffic speeds in that area, especially traffic travelling westbound, seem to regularly exceed seventy miles an hour. Extending the acceleration and deceleration lanes would allow traffic to more safely enter and exit US 30 at that intersection. The only reasonable alternative for the intersection of State Road 23 would be a full interchange upgrade. Anything less would exacerbate the nightmare that is crossing US 30 both northbound and southbound on State Road 23. A full interchange should be justified by the fact that State Road 23 is a direct road from Starke County to the major commerce centers located in and around the South Bend area in St. Joseph County. The intersection of County Road 750 East is one that needs further evaluation. Since it is the road that provides the most direct access to US 30 to the Oregon-Davis Schools, the safety of traffic travelling through and around that area is paramount. I would prefer to see an extension of the frontage road currently located north of US 30 extended to travel from 600 East to 750 E, and an interchange installed at a point along that stretch of highway, be it near the 600 E intersection, the intersection of the eastern end of Old US 30 in Starke County, or near the intersection of 750 E. This would provide both the needed safety upgrades to that area around US 30, as well as maintain the opportunities for the development of commerce and other economic activity in the Hamlet area. There are several other intersections outside of these mentioned in the level 2 screening document that need to be evaluated, and I look forward to commenting on how those should be addressed when the level 3 screening document is published.		Because no other improvement alternatives were identified at the existing intersection of US 30 and US 35, the extension of acceleration and deceleration lanes is expected to advance through the Level 3 screening. The conversion of US 30 and SR 23 to an interchange is advancing to the Level Screening; however, there are other alternatives advancing at this location which would also be expected to improve safety and operations of the intersection, with varying impacts on local access depending on the alternative. At this time the add/lengthen turn lanes and crossroad overpass alternatives are advancing at the intersection of US 30 and CR 750 E. The overpass alternative would provide significant safety benefits, considering that CR 750 E provides direct access to Oregon Davis Schools. Regarding other suggested improvements, the Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions. INDOT plans to hold public information meetings once the Draft Level 3 Screening Report is published for public comment.
Economic Development, Overall US 30 Corridor, Level 2 Screening Report	49	Is there truly a need for this? I drive 30 from Wanatah to Valparaiso 5 days a week. I stop at my favorite gas station, THE J-MARt BP. I hope that this does not affect that gas station, nor any other business in Wanatah that are locally owned. DON'T LET THIS HURT THE SMALL, FAMILY BUSINESSES The Casey's that causes accidents at 421 and 30 should never have been allowed to be built. US 30 is not overly busy. It seems improved safety and patrol to slow some of the high speeds would be sufficient. The only time it is crowded is when it's down to one lane (now) for repairs and there are not one but TWO detours going thru (one feom 49 and one from 421. What is the timeline of this project?	4/30/2024	The study team has noted your comment regarding the need for the study, as well as the intersection improvement alternatives at US 421 and it has been documented as part of the official study record. At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. The future facility type for US 30 has not been determined. During the Level 3 screening, several different facility types will be analyzed, including Free Flow with no or partial access control, Expressway (i.e., no direct residential driveway connections), and converting US 30 to a limited access highway (i.e., a freeway). Please note that while recommendations resulting from the PEL may suggest closing or limiting driveway or farm field access as part of a recommended improvement, actual access impacts and mitigation will be determined in the future during the National Environmental Policy Act (NEPA) phase if and when a project is programmed to implement the PEL study recommendations.

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Economic Development, Level 2 Screening Report	50	In reviewing your report the proposed construction would close our business, The J-Mart Bp at 10300 W in Wanatah. We are located at Main Street & US 30. The convenience store has been at the location since 1987 when my father-in-law remodeled it from a 2 bay repair shop. At this time it supports 3 of our families and 4 employees. Your plans look to save our competitors at the 421 intersection by building around their sites. Can you please consider any alternatives to save our business. Highway 30 could be routed to the north as there are business on that side would be easier to relocate. Thank You [Redacted]	4/30/2024	The study team has noted your comment regarding the intersection improvement alternatives at Main Street and it has been documented as part of the official study record. At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. The future facility type for US 30 has not been determined. During the Level 3 screening, several different facility types will be analyzed, including Free Flow with no or partial access control, Expressway (i.e., no direct residential driveway connections), and converting US 30 to a limited access highway (i.e., a freeway). The ProPEL US 30 W study is intended to identify the potential impacts, benefits, and costs of various improvement alternatives so that an informed recommendation can be made. As part of the study, avoidance and minimization of adverse impacts, such as those to existing homes and businesses, have been considered to the extent feasible in a planning study. These efforts will continue throughout the duration of the study and will also be a focus of any subsequent project development activities, including the NEPA environmental review. Please note that while recommendations resulting from the PEL may suggest closing or limiting driveway or farm field access as part of a recommended improvement, actual access impacts and mitigation will be determined in the future during the National Environmental Policy Act (NEPA) phase if and when a project is programmed to implement the PEL study recommendations.
	51	Intersection 12 Expand turn and excel lanes. Add rumble strips and extend time for the light to turn. Intersection 8 to 12 Expand excel and turn would be the most helpful and least expensive. Intersection 5 Same thing - just extend turn lanes and add exceleration lanes	4/9/2024	The study team has noted your comment regarding the intersections of CR 600 W (Intersection 8), SR 39 (Intersection 12), and County Line Road (Intersection 5) and it has been documented as part of the official study record.
	52	I live a block worth of Hwy 30. At the present time the noise level is so bad that I cannot be in my backyard. Any added lanes would make things worse! As in intersection 6 and 7. The only suggestion I can make is to bypass the Town of Wanatah to the north with Hwy 30. Thank you, [redacted] On Pg 90 of the Screening Report paragraph 4.7.3.1 access management closing access to Hwy 30 on Condon Rd would eliminate the only access to Hwy 30 for the entire north subdivision in Wanatah.	4/10/2024	The study team has noted your comment regarding the intersection improvement alternatives at Main Street and US 421 and it has been documented as part of the official study record. At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. The future facility type for US 30 has not been determined. The added turn lanes alternative would only involve lengthening or extending existing turn lanes and does not require additional capacity improvements, such as adding a new lane. During the Level 3 screening, several different facility types will be analyzed, including Free Flow with no or partial access control, Expressway (i.e., no direct residential driveway connections), and converting US 30 to a limited access highway (i.e., a freeway).
	53	750 E ... overpass 600 E make access to Hamlet on and off ramps US 35 as is on and off access 300 E over pass end 23 exchange make access to on and off ramps At 45-6 spots, maybe another one further, last Indiana 23	4/16/2024	The study team has noted your comment regarding the intersection improvement alternatives at CR 750 E, CR 600 E, US 35, CR 300 E and SR 23 and it has been documented as part of the official study record. The overpass alternative is advancing at CR 750 E. The secondary intersection of CR 600 E will be analyzed in Level 3. The Level 2 Screening Report recommends add/extend acceleration/deceleration lanes at US 35 because the existing US 30 westbound acceleration lane does not meet design standards and could be extended. Level 2 analysis revealed that a stand-alone interchange is not supported at SR 23; however,

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				further analysis in Level 3 is anticipated to recommend “improvement packages.” This location was identified as a potential interchange as a part of an improvement package due to the relatively high traffic volume observed here and state route status of the connecting roadway, as well as the proximity to the community of Grovertown.
	54	US 30 and US 35 - looks ok US 30 and CR 750 E - Needs an overpass. But we should not limit people getting to Henslers from 30. US 30 and SR 23 - no roundabout	4/16/2024	The study team has noted your comment regarding the intersection improvement alternatives at US 35, CR 750 E, and SR 23 and it has been documented as part of the official study record. The Level 2 Screening Report recommends add/extend acceleration/deceleration lanes at US 35 because the existing US 30 westbound acceleration lane does not meet design standards and could be extended. The overpass alternative is advancing at CR 750 E. Maintaining access to Henseler’s Nursery has been a repeated comment received by the study team, and preliminary designs maintain the existing access to Hensler Nursery from CR 750 E. A roundabout would improve intersection operations and improve safety by reducing conflicts points at the primary intersection. Because it would improve safety and operations while maintaining access, it was considered a reasonable alternative and recommended for further study in the Level 3 screening at SR 23.
	55	As a former city council member in Knox Indiana and own property and gas station on US 30 and Starke St by Dollar General I think it would be bad for Hamlet if you close US 30 and Starke St. Hamlet has had a lot of no growth for years and I think business might come to Hamlet if they have access to town on US 30. I think it should have a exchange for Hamlet. And US 30 and SR 23 if they would out stagger access. 30 has accidents at 23 and 500N at 90 degree curves and eliminate them and meet up on other side access 30.	4/16/2024	The study team has noted your comment regarding the intersection improvement alternatives at Starke Street, SR 23, and CR 500 N and it has been documented as part of the official study record. The focus of the *Level 2 Screening Report* is the primary intersections in the study area, which have a larger influence on roadway operations in the study area. Secondary intersections, which includes Starke Street and CR 500 N will be analyzed as part of the Level 3 screening. More specifically, the Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 30 than existing conditions. Please note that while recommendations resulting from the PEL may suggest closing or limiting driveway or farm field access as part of a recommended improvement, actual access impacts and mitigation will be determined in the future during the National Environmental Policy Act (NEPA) phase if and when a project is programmed to implement the PEL study recommendations.
	56	What I want to see change and to move forward hopefully by both our new Governor and our U. S. Transportation Pete Buttigieg work together as a team to make Indiana become a Central Time Zone state in all 92 counties, especially how busy our Interstate Highways and US 30 going West etc. going West bound towards Chicago into other route connections and etc.. I also seriously recommend to go into WWW.HoosiersForCentralTime.Com you will really and truly learn a lot why Indiana needs to be on Central Time I guarantee it.	4/24/2024	Thank you for your comments; they have been entered into the official study record. However, recommendations to modify the time zones is outside of the scope of the PEL study.
	57	It appears to me the problem that is on the east end has been created by the east end !! So in turn everyone gets to pay for the possible mistakes in	4/26/2024	The study team has noted your comment and it has been documented as part of the official study record.

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		commercial development that have allowed the current traffic nightmares. Plymouth for instance US 30 is still a limited access highway as designed they have commercial development but it is limited to a few intersections with traffic signals. 4 traffic signal controlled intersections on the stretch of us 30 in Marshall county, as opposed to 20, 30 maybe more in Warsaw. As far as the west end of this corridor is to proceed within the next 20 years the west end needs to be dealt with first. Or the west end will never be addressed. I am not for a random closing of every intersection in starke and Laporte counties by any means. Some of the county roads intersecting with Us 30 have more than likely such a low daily traffic count is it worth spending millions of dollars for that ?		At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. The future facility type for US 30 has not been determined. During the Level 3 screening, several different facility types will be analyzed, including Free Flow with no or partial access control, Expressway (i.e., no direct residential driveway connections), and converting US 30 to a limited access highway (i.e., a freeway). The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. The area between CR 400 S and CR 300 S is one of the roadway sections that will be evaluated as part of the Level 3 screening. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 31 than existing conditions. INDOT plans to hold public information meetings once the Draft Level 3 Screening Report is published for public comment. Please continue to check the website to stay informed about the study. Upcoming public meetings, community office hours, and additional study information will be posted on the study website when it is available (www.propelUS31.com).
	58	What happened to old 30 west coming out of hamlet we talked about it at the first meeting making it at least merge into 30west but you give Hanna access to 30 they have no traffic	4/29/2024	At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. The future facility type for US 30 has not been determined. During the Level 3 screening, several different facility types will be analyzed, including Free Flow with no or partial access control, Expressway (i.e., no direct residential driveway connections), and converting US 30 to a limited access highway (i.e., a freeway). The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. As a secondary intersection, Old US 30 W near Hamlet will be analyzed in Level 3. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 31 than existing conditions. INDOT plans to hold public information meetings once the Draft Level 3 Screening Report is published for public comment. Please continue to check the website to stay informed about the study. Upcoming public meetings, community office hours, and additional study information will be posted on the study website when it is available (www.propelUS31.com).
Bike and Pedestrian, Safety, Level 2 Screening Report	59	The overpass idea at 30 and 750 in Hamlet is a great one but it needs to include a bike lane, This is the school road and there should be safe transportation for bike riders and walkers to school for the other side of the highway. I believe the extended lane idea will not make much	4/19/2024	The study team has noted your comment regarding the intersection improvement alternatives at CR 750 E in Hamlet and it has been documented as part of the official study record. The inclusion of non-motorized facilities such as bike and pedestrian trails will be included in the Level 3 analysis.

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		difference in safety with the amount of high school drivers that dart across the highway. Most US school children do not have to drive on a freeway to school and neither should our children. Either make 750 and 30 way safer or close it. and give us a walk/bike only bridge there.		
Overall US 30 Corridor	60	I believe in heavy traffic areas three lanes should be the minimum. Semi trucks should have one travel lane in the center of three lanes so as to not restrict access to turning lanes. Reduce access points. Small businesses should not have a traffic signal, instead an access road. No at grade railroad crossings.	4/22/2024	At this time, no decisions have been made about the future of US 30, and no projects related to the PEL study have been funded by INDOT. The future facility type for US 30 has not been determined. Current and projected (i.e., year 2045) roadway operating conditions were analyzed as part of the study. The operational analysis indicated that the corridor is expected to operate acceptably through the design year of this study and additional capacity was not needed. During the Level 3 screening, several different facility types will be analyzed, including Free Flow with no or partial access control, Expressway (i.e., no direct residential driveway connections), and converting US 30 to a limited access highway (i.e., a freeway). The Level 3 screening will develop and analyze improvement packages for sections of the study area. These sections, which will be called planning segments, will consider treatments at primary intersections, secondary intersections, and the roadway sections between them. INDOT will develop and evaluate a range of access management approaches for planning segments in the study area to better understand costs, benefits, and impacts of different access management strategies along the study corridor for all users. It is anticipated the Level 3 screening will present a range of improvement packages – some with less access and some with similar access to/from US 31 than existing conditions. INDOT plans to hold public information meetings once the Draft Level 3 Screening Report is published for public comment. Please continue to check the website to stay informed about the study. Upcoming public meetings, community office hours, and additional study information will be posted on the study website when it is available (www.propelUS31.com).
Level 2 Screening Report	61	TMBCI THPO office concurs after review of the submitted information “no affect “ will occur to historic properties during project ProPel US 30 WEST.	4/2/2024	The study team noted your comment, and it has been documented as part of the official study record.
Level 2 Screening Report	62	Thank you for continuing to keep the Coast Guard informed and allowing us to comment on the ProPEL US 30 West Draft Level 2 Screening Report. We have reviewed the report and identified 55 potential waterway crossings that might be affected by further alternatives developed as a result of the Level 3 Screening. They are outlined in the table below. They are referenced to the Section of the Level 2 Screening Report for the study area addressed, the location for each area, and the number of crossings as referenced by reviewing the imagery for each area and identifying the potential number of waterway crossings on the map for each area. Separately, we have reviewed and acknowledge the portion of the ProPEL US 30 West Study Consultant Teams 2 October 2023 memo where the Team states that existing bridges throughout the study limits would not require full replacement by the time construction occurs. The Coast Guard does not object to moving forward any of the alternatives identified in the Level 2 Screening Report for Level 3 analysis. There is no indication that a	4/30/2024	We appreciate the information provided and your continued engagement with the PEL study.

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		proposed alternative would cross a navigable waterway over which the Coast Guard exercises jurisdiction as it pertains to our bridge permitting authorities. However, should any of the preferred alternatives developed from this study cross a waterway, INDOT would need to seek a jurisdictional determination for each waterway that could be partially or fully crossed by the proposed work prior to design and construction. Additionally, should any project cross a waterway over which the Coast Guard exercises its jurisdiction as it pertains to its bridge permitting authorities, the Coast Guard strongly recommends the development of alternatives that would not reduce the vertical or horizontal navigational clearances of the proposed structure. Please continue to keep us informed on the progress of this study development of alternatives. If you have any questions, please let us know. Thank you.		