August, 2023

LINK 101

SR 101 CORRIDOR PROJECT
SOUTHEAST INDIANA

Draft Purpose and Need Statement

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CHAPTER 1 – INTRODUCTION

The purpose and need statement establishes "why" a project is being proposed and sets the foundation for the alternatives development and evaluation process. The statement identifies specific transportation problems (needs) to be addressed and describes the specific desired outcomes (purposes). The purpose and need statement helps determine a reasonable range of alternatives and establishes performance measures that are used to determine if these alternatives meet the project's purpose and need. Any alternatives that do not meet the project purpose and need are eliminated from further consideration. For the Link 101 project purpose and need analysis, the following transportation conditions were evaluated: travel distance and time, geometric deficiencies, safety, and traffic.

1.1 DESCRIPTION OF PROJECT AREA

SR 101 Northbound at Markland Dam Bridge

The Link 101 project was initiated to consider improvements to north-south connectivity in southeastern Indiana. The project area used in the evaluation of the purpose and need for the Link 101 project is bounded by the Ohio River on the south and east, SR 129 on the west, and US 50 on the north and includes Switzerland, Ohio, Dearborn, and Ripley counties (Figure 1.1-1). In the southern end of the project area, SR 101 extends across the Indiana portion of the Markland Dam Bridge over the Ohio River and ends at the SR 156 intersection. In Kentucky, the Markland Dam Bridge connects to Kentucky Route 1039, which extends south to I-71. The nearest bridge crossings of the Ohio River from the Markland Dam Bridge are 39 river miles upstream at I-275 and 25 river miles downstream at US 421. As a result, the SR 101 crossing of the Ohio River at the Markland Dam Bridge is the project's southern logical terminus. At the northern end of the project area, SR 101 resumes at US 50 and continues north to I-74. The entire length of US 50 within the project area has been identified as the project's northern logical terminus because it is a significant destination and change in roadway classification. In addition to SR 101, the project area includes SR 156 and SR 56, which are part of the Ohio River Scenic Byway, and SR 129, SR 250, SR 62, and SR 262, all of which are two-lane roads. US 50, which is part of the National Highway System and Indiana's Historic Pathways and is designated a National and State Scenic Byway, is the only four-lane, divided highway in the project area.

The project area has a rural setting with steep, hilly terrain, ravines, and plateaus. The dominant land uses are forest and farmland. There are numerous streams, the largest of which, Laughery Creek, extends east-west across the northern portion of the project area and features a wide floodplain and a designated floodway. There are three incorporated towns (Vevay, Versailles, and Dillsboro) and two incorporated cities (Rising Sun and Aurora) in the project area.

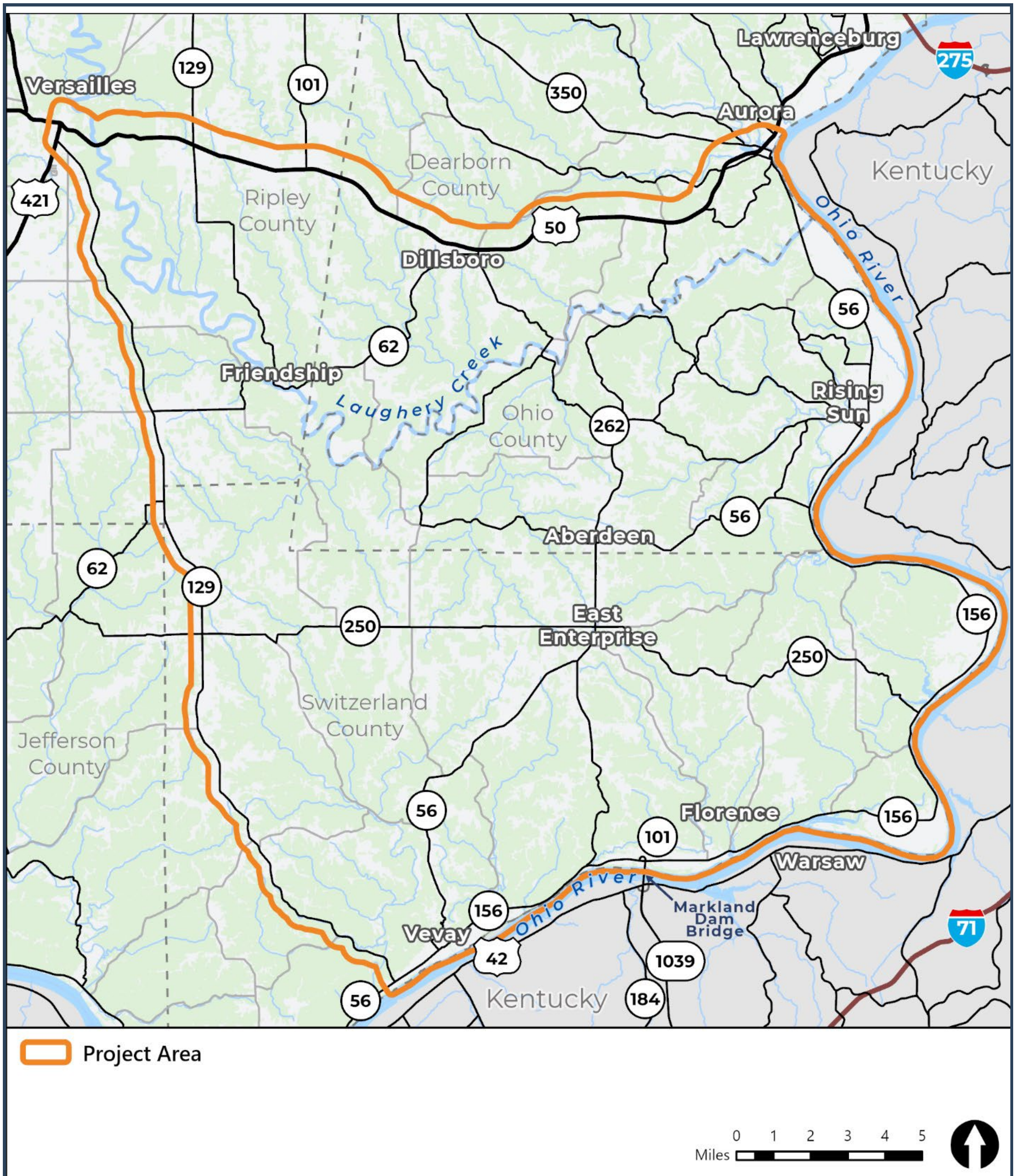


Figure 1.1-1. Link 101 Project Area

1.2 PROJECT HISTORY

In 2002, INDOT initiated a planning-level study, referred to as a feasibility study, for the SR 101 corridor in southeast Indiana in accordance with *Indiana's Streamlined EIS Procedures* (2001). The intent of using the streamlined procedure was to eliminate the duplication of effort by carrying out the planning process in a manner that would allow elements such as purpose and need and screening of alternatives to be carried forward into a future National Environmental Policy Act (NEPA) process. The goal of the SR 101 feasibility study was to help in the identification of potential transportation improvement projects and the level of NEPA documentation (i.e. project scope), which could then be used to obtain transportation programming and funding.

As part of the SR 101 feasibility study, INDOT prepared a *Draft Statement of Purpose and Need for the SR 101 Corridor Improvement Feasibility Study*, which was undertaken to assess the implications of limited north-south access and to identify feasible improvement alternatives. The study area limits for that analysis included I-74 to the north, US 421 to the west, and the Ohio River and Indiana state line to the south and east. In 2003, INDOT subsequently prepared the *SR 101 Corridor Improvement Feasibility/NEPA Study*, which evaluated various build alternatives and updated the 2002 purpose and need statement to include the following two project needs:

- Improve roadway safety and reduce accident frequency; and
- Improve regional accessibility and connectivity

All the build alternatives were developed with two segments, a southern and northern segment. The southern segments extended from the southern end of the study area to US 50 and were designated as "A" alternatives. The northern segments extended from US 50 to I-74 and were designated as the "B" alternatives. Alternatives were evaluated for key factors (safety/accessibility) and secondary factors (mobility/environmental/economic). The Feasibility/NEPA Study recommended constructing the project in phases and that the southern sections of the recommended alternatives (i.e., Alternatives 2A and 3A) be constructed before the northern sections. No further action was taken following the completion of the Feasibility/NEPA Study in 2003.

The project was reinitiated in 2021 by Indiana Governor Eric Holcomb, with the commitment of $200 million dollars to the development and construction of the project. The governor cited the safety and economic benefits that an improved connection would provide for southeastern Indiana. Since the announcement, the Southeast Indiana Regional Economic Acceleration and Development Initiative (SEI READI), a coalition of cities, towns, and counties in southeastern Indiana has developed the *SEI READI Regional Development Plan*, which identifies this project as a catalyst for the region and includes a number of complementary projects. Based on the 2003 Feasibility/NEPA Study's recommendations, the reinitiated project will focus on the southern section between US 50 and SR 101 at Markland Dam Bridge. The most significant modification to the project limits was reducing the western limit from US 421 to SR 129 because the 2003 Feasibility/NEPA Study did not identify any reasonable alternatives west of SR 129. These new project limits are described in Section 1.1 and represent the project area for this purpose and need analysis. Due to the length of time that has passed since the 2003 Feasibility/NEPA Study, the decision was made to update key information concerning traffic, safety, mobility, and resources in the study area, and reassess the project's purpose and need. The results of this analysis are presented in this report.

1.3 STAKEHOLDER ENGAGEMENT

Since the project kicked off in late 2022, the following efforts have been made to engage with the public, key stakeholders, and agencies to present the project's preliminary purpose and need. Input received as a result of these coordination efforts was used in further developing the project's purpose and need as presented in this report.

- Public Information Meeting #1 (in-person and virtual)
- Community Advisory Committee (CAC) Meeting #1
- Environmental Justice (EJ) Working Group Meeting #1
- Early Agency Coordination Letters
- Resource Agency Coordination (RAC) Meeting #1
- Section 106 Consulting Party Meeting #1
- Project website

Public Information Meeting #1

Approximately 250 to 300 people attended the in-person Public Information Meeting #1 on January 18, 2023, with an additional 78 attending the virtual meeting on January 19, 2023. The meeting initiated a 30-day comment period that ended on February 17, 2023. During that time, people could submit comments via a comment form at the meeting, in-person at the project office, by mail or email, or via the project website. During the comment period, 132 comment forms were submitted, 145 emails were received, and five people visited the project office to offer comments. Additional detail regarding these comments is provided in the *Public Information Meeting #1 Summary*, available on the project website.

Based on the comments received, the following themes related to purpose and need were identified:

- Improve travel time/connectivity
- Improve emergency response times in rural portions of the project area
- Provide a safe route for trucks
- Provide a route that meets current design standards and improves safety
- Improve economic opportunities for East Enterprise, Dillsboro, Rising Sun and the rest of southeast Indiana
- Improve safety for non-motorized vehicles including bicycles and horse-drawn vehicles
- Improve access, especially for emergency responders during flood events
- Avoid or minimize impacts to the existing rural landscape.

It's important to note that many commenters expressed concern that the transportation needs in the project area did not warrant the cost and potential impacts that may result from the project.

CHAPTER 2 – PROJECT NEED ANALYSIS

For the Link 101 project, the identification and analysis of transportation and mobility needs within the project area focused on travel distance and time, geometric deficiencies, safety, and traffic. The following sections summarize the results of the analysis of these transportation issues. Based on this analysis, a project need statement was developed (see Section 2.5).

2.1 TRAVEL DISTANCE AND TIME

There is currently no direct route that extends from SR 101 at the Markland Dam Bridge to US 50. As discussed in Section 1.1, a short section of SR 101 extends across the Indiana portion of the Markland Dam Bridge and ends at the SR 156 intersection at the southern end of the project area. At the northern end of the project area, SR 101 ends at US 50. For vehicles travelling between the Markland Dam Bridge and US 50, the existing fastest and shortest route consists of the combination of routes listed below from south to north. This route is also shown in Figure 2.1-1. The roadway functional classification and posted speed limit is provided for each route.

- SR 101 (Markland Dam Bridge) (rural minor arterial, 40 mph)
- SR 156 (rural minor arterial, 55 mph)
- Markland Pike (rural major collector, 45 mph)
- SR 56 (rural major collector, 45-55 mph, 30 mph in East Enterprise)
- Cass Union Road (rural major collector, 45 mph)
- SR 262 (to US 50 in Dillsboro) (rural major collector, 45-55 mph)

Based on Google Maps and field trial runs, this route is 22.5 miles long and takes approximately 34 minutes to travel, which results in an average speed of about 40 miles per hour (mph). For comparison, a hypothetical corresponding straight-line route between these same two points is 17 miles long and would take approximately 19 minutes to travel, based on an assumed average speed of 55 mph. As a result, the travel time and distance along the existing fastest and shortest route is 15 minutes (79 percent) and 5.5 miles (32 percent) longer than the straight-line route. This substantial disparity reflects the circuitous nature of the existing fastest and shortest route, the numerous substandard curves, and other geometric deficiencies (see Section 2.2) that require slower speeds. Because the entire project area consists only of roads with similar characteristics, any other routes or combinations of routes would be more circuitous and take even longer. This reflects the overall lack of efficient connectivity within the project area.


Markland Pike Northbound

As discussed in Section 2.2, trucks are prohibited on Markland Pike and Cass Union Road. Due to these restrictions, along with truck restrictions on other roads throughout the project area, there are no

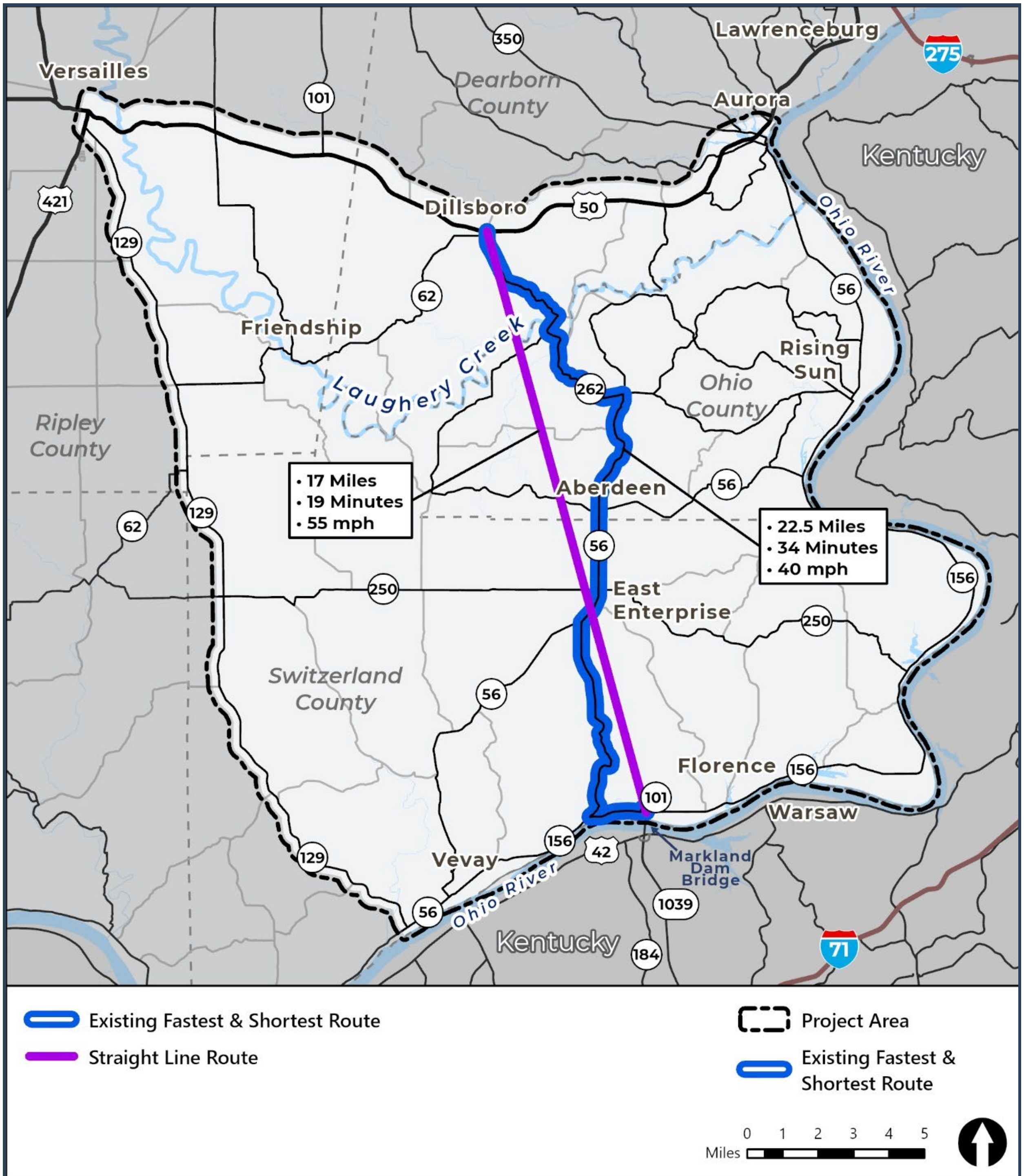


Figure 2.1-1. Travel Distance and Time

north-south routes for trucks traveling within the central part of the project area. As a result, trucks must use either (1) a western route that follows SR 156 and SR 56, through the Vevay Historic District, and SR 129 or (2) an eastern route that follows SR 156 and SR 56 through the small town of Patriot, the Rising Sun Historic District, and the Aurora Historic District. Compared to the existing fastest and shortest route shown in Figure 2.1-1, the western and eastern routes increase the trucks' length of travel between the Markland Dam Bridge and US 50 by 12.5 miles and 9.7 miles, respectively.

Based on the evaluation of travel time and distance, the following has been identified as a project need:

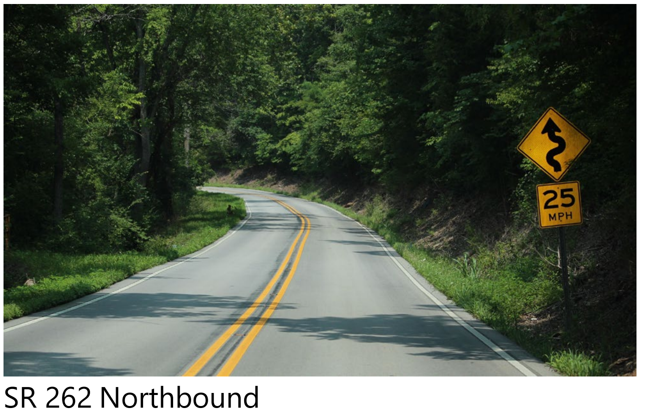
- Travel time and distance along the existing fastest and shortest route from SR 101 at the Markland Dam Bridge and the SR 262/US 50 intersection near Dillsboro is 15 minutes (79 percent) and 5.5 miles (32 percent) longer compared to a corresponding straight-line route. Due to truck restrictions on this route and many others in the project area, the routes for trucks are even longer.

2.2 GEOMETRIC DEFICIENCIES

The existing fastest and shortest route between the Markland Dam Bridge and US 50 identified in Section 2.1 was evaluated for geometric deficiencies based on the *Indiana Design Manual* (2013). As shown in Figure 2.2-1, the route includes the following geometric deficiencies and roadway restrictions.

- Substandard lane and shoulder widths (i.e., narrow lanes and shoulders or no shoulders)
- 62 substandard horizontal curves (i.e., sharp curves)
- 234 substandard vertical curves (i.e., crest of a hill that can limit sight distance)
- 1,520 feet of substandard grade (i.e., steep hills)
- The southern roadway approach to the SR 262 bridge over Laughery Creek is below the 100-year flood elevation.

Due to these numerous geometric deficiencies, 19 warning signs are present along the existing fastest and shortest route that identify slower speeds, sharp curves, steep grades, and narrow roads. As a result, trucks are prohibited on Markland Pike and Cass Union Road.



SR 262 Northbound

It was also determined that all crossings of Laughery Creek within the project area, including SR 262, have roadway approaches and/or bridges that are below the 100-year flood elevation (Figure 2.2-1). During a 100-year flood event, it is possible that many or all of these crossings could be flooded, thereby resulting in lengthy detours. In such a flood event, SR 129 would be the only available south-north route.

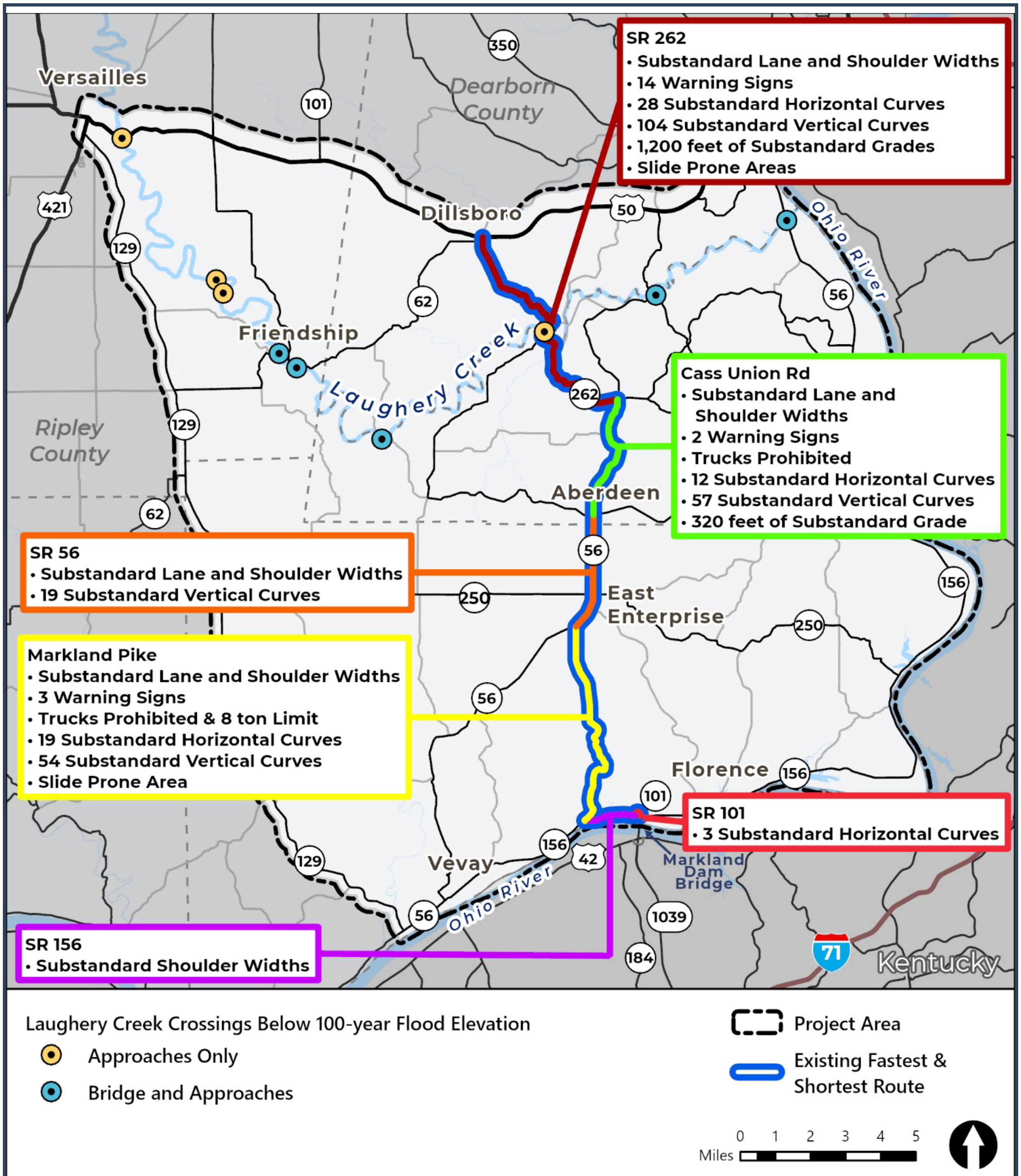


Figure 2.2-1. Existing Fastest and Shorted Route – Geometric Deficiencies

Due to geologic features and the original design and construction of the roads within the project area, slides are a common occurrence throughout the project area and not just along Markland Pike and Cass Union Road. In addition to being a major safety concern, these slides also result in the closure of roads and lengthy detours that affect access.

SR 262 Southern Approach within 100-Year Floodplain and Bridge Over Laughery Creek

The geometric deficiencies and roadway restrictions associated with the existing fastest and shortest route are a representative sample of the roadway conditions that exist throughout the project area. Every route in the project area includes these geometric deficiencies and roadway restrictions, which negatively affects safety, mobility, connectivity, and access within the project area.

Based on the evaluation of geometric deficiencies, crossings of the Laughery Creek 100-year floodplain, and slide-prone areas within the project area, the following have been identified as project needs:

- The existing fastest and shortest route has numerous geometric deficiencies such as narrow lanes, narrow or no shoulders, sharp curves, and poor sight distances that contribute to poor safety outcomes, travel times, and connectivity.
- All of the crossings of Laughery Creek within the project area have roadway approaches and/or bridges that are below the 100-year flood elevation, jeopardizing access and safety during flood events.
- Slide-prone areas within the project area and along the existing fastest and shortest route create potential access and safety issues.
- There is no route that provides reliable, safe, and efficient connectivity through the project area.

2.3 SAFETY

2.3.1 INDEX OF CRASH FREQUENCY AND INDEX OF CRASH COST

Using the Road Hazard Analysis Tool (RoadHAT), Version 4.1, recent crash data for Dearborn, Ohio, Ripley, and Switzerland counties[1] was used to determine the Index of Crash Frequency (ICF) and Index of Crash Cost (ICC) for roadway segments and intersections within the project area. The ICF is a measure of the number of crashes while the ICC is measure of the severity of the crashes based on the cost of the crashes. This method compares observed crash rates and costs to expected crash rates and costs based on roadway type and traffic volumes. An ICF and ICC of 0

[1] Crash data for Dearborn and Ohio counties was collected from January 2017 through July 2022. Crash data for Ripely and Switzerland counties was collected from January 2017 to March 2022.

and below indicates the number of crashes and costs are as expected or better than expected for that particular roadway or intersection. An ICF and ICC above 0 indicates the number of crashes and costs are above what is expected for that particular roadway or intersection, which indicates an elevated crash or cost location. The higher the number above or below 0 represents the degree to which the number of crashes and costs deviate from what is expected.

For this study, only roadways that were classified as minor collectors or higher were evaluated. A roadway segment was any section of a road between two other roads. For intersections, only intersections between roads that were classified as major collectors or higher were evaluated. In addition, any crashes that occurred within 300 feet of the intersection were included as part of the intersection and not the roadway segment.

As shown in Figure 2.3-1, most of the roadways (64 percent) in the northern half of the project area were identified as elevated crash locations based on crash frequency. By contrast, most of the roadways (78 percent) in the southern half of the project area were not identified as elevated crash locations. In total, however, 44 percent of the roadways in the project area were identified as elevated crash locations. When looking at the existing fastest and shortest route, 35 percent of the route length consists of roadway segments identified as elevated crash locations, most of which are located in the northern half of the route. As for the intersections within the project area, of the 41 intersections evaluated, 18 (44 percent) of them are considered elevated crash locations. Of the nine intersections evaluated along the existing fastest and shortest route, five (56 percent) of them are considered elevated crash locations.

As shown in Figure 2.3-2, most of the roadway segments and intersections were not identified as elevated crash cost locations, indicating that most of the crashes are less severe. Along the existing fastest and shortest route, there is only one roadway segment on SR 262 and one intersection (SR 56 and Markland Pike) that have been identified as elevated crash cost locations.

Based on the evaluation of crashes within the project area and along the existing fastest and shortest route, the following have been identified as project needs:

- Thirty-five percent and 56 percent of the roadways and intersections, respectively, along the existing fastest and shortest route have an ICF greater than 0 and are considered elevated crash locations.
- Forty-four percent of the roadways and intersections within the project area have an ICF greater than 0 and are considered elevated crash locations.

2.3.2 CRASH TRENDS

The crash types were also evaluated within the project area and along the existing fastest and shortest route to determine any general crash trends. Within the project area, more than 80 percent of the crashes fell into six categories: ran off road (24 percent), collision with deer (20 percent), rear end (13 percent), backing crash (11 percent), not categorized (8 percent), and right angle (5 percent) (Figure 2.3-3). The most common crash type involved vehicles that ran off the road, which is likely associated with most of the roads having narrow lanes, narrow or no shoulders, and numerous sharp curves. The high number of deer collisions is expected given the

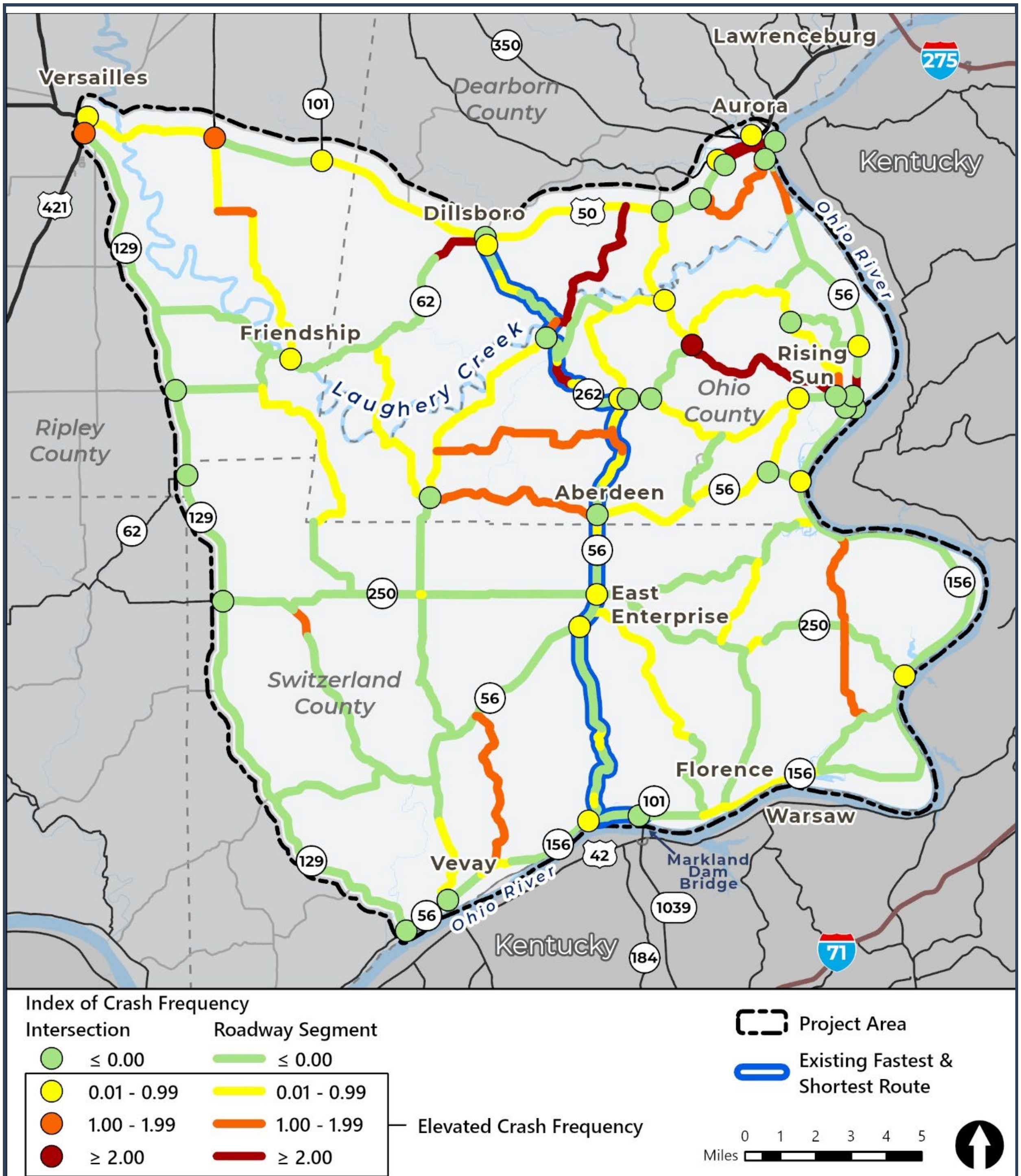


Figure 2.3-1. Index of Crash Frequency

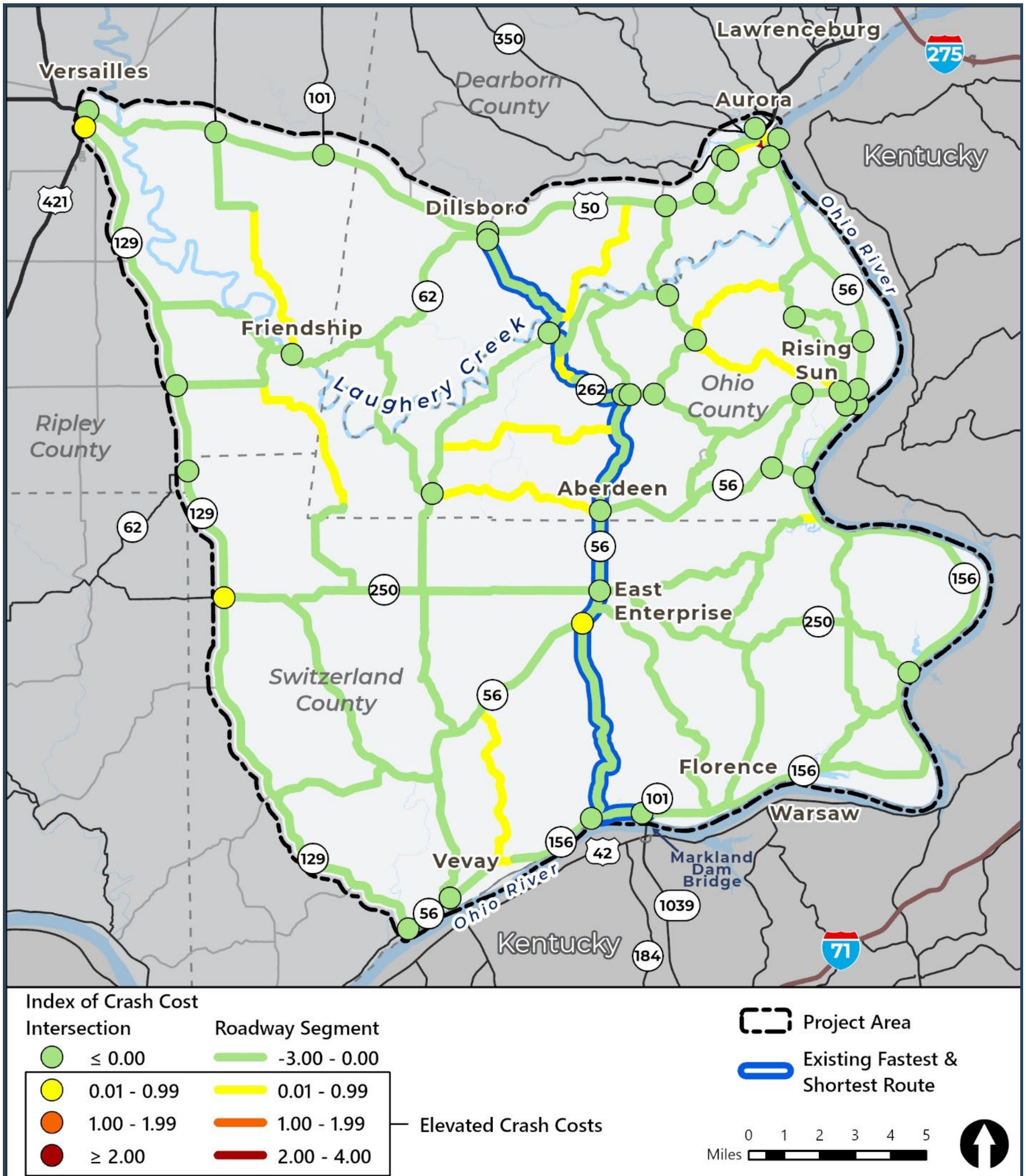


Figure 2.3-2. Index of Crash Cost

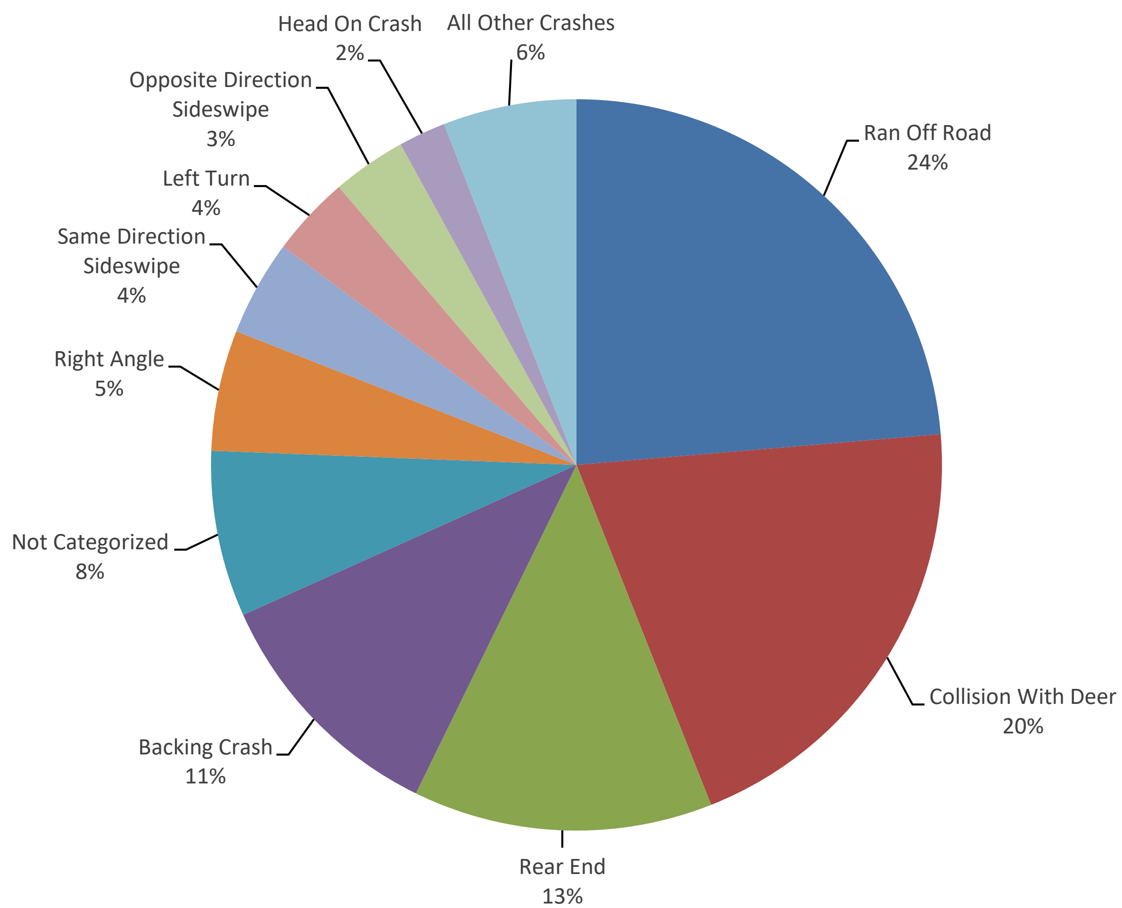


Figure 2.3-3. Crash Types – Project Area

rural setting and mix of forested habitat and farmland within the project area. Some of the other more common crash types such as rear end, backing crash, and right angle, are likely associated with the numerous uncontrolled access points (e.g., driveways), lack of left turn lanes, and limited sight distance.

Along the existing fastest and shortest route, more than 80 percent of the crash types fell into four categories: ran off road (51 percent), collision with deer (14 percent), rear end (10 percent), and right angle (7 percent) (Figure 2.3-4). The most common crash type by far involved vehicles that ran off the road, Some of the other more common crash types included rear end and right angle.

When looking at the number of cars involved in a crash, the majority of the crashes involved only one car in both the project area (53 percent) and, more significantly, along the existing fastest and shortest route (69 percent). This is consistent with the higher percentages of the crash type that involved a vehicle running off the road.

Regarding the severity of the crashes, the project area had 19 fatal crashes, representing 0.5 percent of the total crashes within the project area, while there were no fatal crashes along the existing fastest and shortest route (Table 2.3-1). For crashes involving injuries, the project area had approximately 13 percent of crashes involving injuries while the existing fastest and shortest route had 18 percent. Crashes involving only property damage comprised the vast majority of the total crashes in the project area (87 percent) and along the existing fastest and shortest route (82 percent).

Table 2.3-1. Severity of Crashes

CRASH TYPE	PROJECT AREA	EXISTING FASTEST AND SHORTEST ROUTE
Fatal	19 (0.5%)	0 (0%)
Injury	494 (13%)	28 (18%)
Property Damage Only	3,416 (87%)	130 (82%)

2.4 TRAFFIC

2.4.1 LEVEL OF SERVICE

This study assessed traffic operations for the years 2019 (i.e., existing/counted) and 2050 (i.e., future/forecasted) by performing a level of service (LOS) analysis on all roadways within the project area where traffic data is available from INDOT's Traffic Count Database System. Roadway congestion is categorized into a LOS ranging from A (free-flow conditions) to F (heavy congestion). According to INDOT, for rural roadways, LOS A, B, and C are considered acceptable while LOS D, E, and F are unacceptable.

A planning-level analysis was conducted utilizing maximum traffic volumes for a stated LOS that is representative of the prevailing roadway and traffic characteristics. This maximum traffic volume methodology is adopted in the *Highway Capacity Manual*, which recommends procedures contained in the National Cooperative Highway Research Program (NCHRP) report titled *NCHRP*

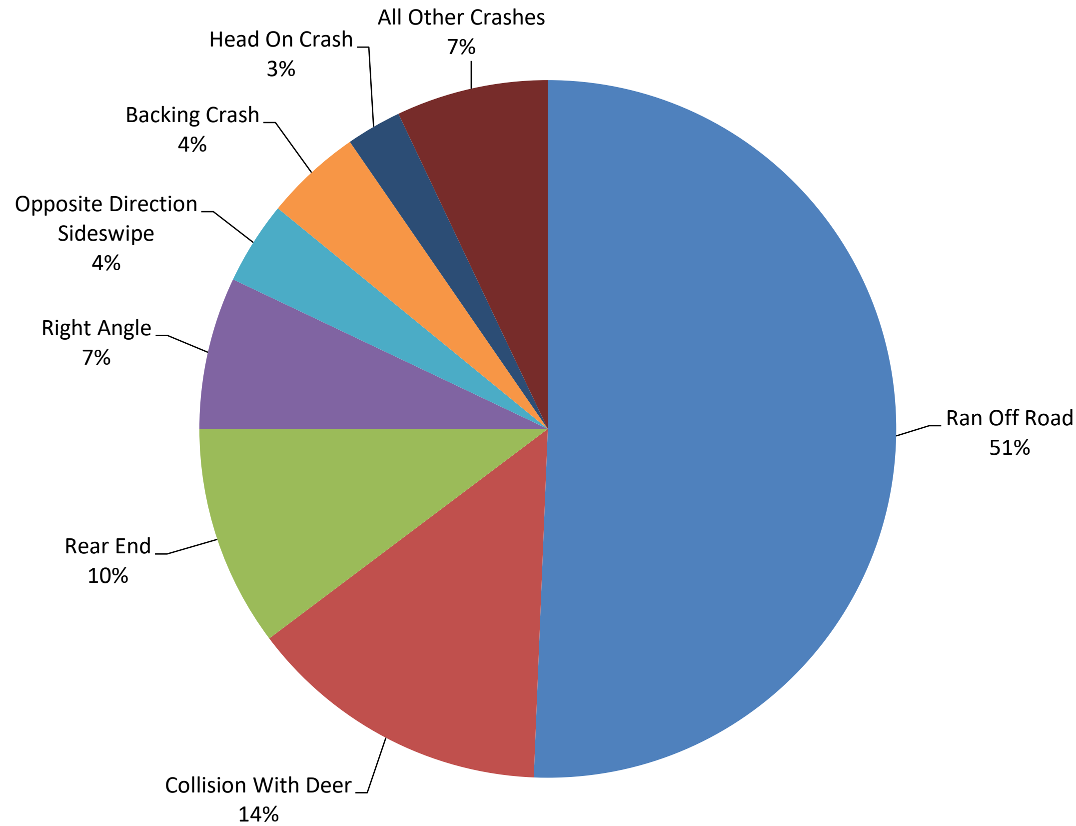


Figure 2.3-4. Crash Type – Existing Fastest and Shortest Route

Report 825 Planning and Preliminary Engineering Applications Guide to the Highway Capacity Manual (2016). For this study, if the 2019 traffic volumes from INDOT's Traffic Count Database System or the 2050 forecasted traffic volumes are under the stated maximum traffic volume for a given LOS, then it is reasonable to assume the LOS has been achieved. Conversely, if the 2019 or 2050 forecasted traffic volumes exceed the maximum traffic volume for a stated LOS, then that LOS may not be achieved. In that case, it is recommended that a more detailed analysis be conducted to determine the LOS. For this study, none of the maximum traffic volumes exceeded the stated LOS so a more detailed analysis was not required.

Table 2.4-1 presents the maximum annual average daily traffic (AADT) volumes for LOS A to E for two- and four-lane roadways. The four-lane volumes were used to evaluate US 50; all other roadways were evaluated using the two-lane volumes. The traffic volumes are generalized, meaning they represent approximate volumes for a given set of conditions. Characteristics of a specific roadway may warrant traffic volumes that are higher or lower than what is shown in the table. Thus, the generalized service volumes in Table 2.4-1 are intended as a screening tool to identify potential problem segments that may warrant a more detailed investigation.

Based on the information provided in Table 2.4-1 and the existing and future traffic volumes within the project area, all the roadways within the project area are and will be functioning at acceptable levels of service (i.e., LOS C or better)[2]. Therefore, traffic congestion is not considered a project need.

Table 2.4-1. Maximum Annual Average Daily Traffic Volumes (Two-Way) and Levels of Service for Rural Areas

	LOS A-C	LOS D	LOS E
Two Lanes[1]	7,100	13,100	24,900
Four Lanes[2]	36,800	45,600	52,000

Source: *NCHRP Report 825 Planning and Preliminary Engineering Applications Guide to the Highway Capacity Manual (2016)*.

[1]Assumes a Class II Highway Type on rolling terrain with a base free-flow speed of 50 mph and 60% no-passing zones.

[2]Assumes rolling terrain with a free-flow speed of 60 mph, 12% trucks, 0% buses, and 0% recreational vehicles.

2.4.2 TRAVEL PATTERNS

As noted in Section 2.1 - Travel Distance and Time, north-south mobility within the project area is lacking. This is underscored by the Markland Dam Bridge providing the only connection across the Ohio River between US 421, which is 25 river miles downstream, and I-275, which is 39 river miles upstream. An understanding of existing travel patterns in the region is sought to add context to the north-south mobility concern, and in turn, help further gauge overall project need.

[2] The assumptions regarding traffic and roadway characteristics provided in Table 2.4-1 (e.g., 50 mph free-flow speed, 60% no-passing zones, 12% trucks, etc.) may not apply to all the roadways within the project area. For example, some roadways may have higher or lower free-flow speeds, no-passing zones, and/or percent trucks. However, because the existing and forecasted traffic volumes are well below the thresholds provided in the table, it was determined that any changes to traffic volumes based on variations in the traffic and roadway characteristics would not be significant enough to exceed the thresholds and change the resulting LOS.

StreetLight Data[3] was used to comprehensively measure existing travel patterns. The analysis spans all weekdays in 2019 and, therefore, represents an average weekday in that year. The year 2019 was chosen as it represents a stable, recent analysis year. Starting in 2020, travel patterns have shown greater fluctuation due to the COVID-19 pandemic and may not have fully stabilized in the one year prior to 2021, when the most recent data is available.

To measure existing (2019) travel patterns, the StreetLight Data was used to provide an analysis of vehicular travel across the Markland Dam Bridge. This site is chosen because all trips utilizing the bridge travel through at least a portion of the project area. Figure 2.4-1 illustrates the 2019 average weekday travel patterns measured by StreetLight Data for trips traveling north across the Markland Dam Bridge into the project area (i.e., 2,450 vehicles).

Key findings about the travel patterns exhibited in Figure 2.4-1 include:

- Nearly nine out of ten vehicles crossing the Markland Dam Bridge are local to the project area, suggesting the project would serve primarily local needs. Although this traffic disperses along the four routes according to destination, half of it utilizes the Markland Pike route, which is centrally located and correlates to the existing fastest and shortest route within the project area.
- Vevay is the most popular destination. Roughly one-third of the traffic (830 out of 2,450 vehicles) crossing the Markland Dam Bridge traverses SR 56 into Vevay. About 28 percent of the 830 vehicles continue past Vevay either north on SR 129 or west on SR 56.
- There are four primary route choices available to motorists crossing the Markland Dam Bridge and heading generally north into southern Indiana (as opposed to going to Vevay), with the choice of route depending on the ultimate destination.
    - SR 129 – serving the western portion of the project area, including Versailles and points north. This route captures about 19 percent of the vehicular traffic (140 out of 730 vehicles) heading north.
    - Markland Pike – serving the middle portion of the project area and Dillsboro. About half (52 percent) of the vehicular traffic (380 out of 730 vehicles) heading north utilizes Markland Pike.
    - Turtle Creek Road – serving the southeastern portion of the project area generally south of SR 250, but not including the area along the Ohio River. This route captures about 18 percent of the vehicular traffic (130 out of 730 vehicles) heading north.
    - SR 156 – serving the far eastern portion of the project area along the Ohio River. About 11 percent of the vehicular traffic (80 out of 730 vehicles) utilize SR 156 to reach their destination.

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[3] StreetLight Data is a mobility analytics platform utilizing "big data" from mobile devices and on-board GPS to facilitate various transportation-related analyses including origin-destination patterns. The data are passively and anonymously collected. More information can be found at http://www.streetlightdata.com.

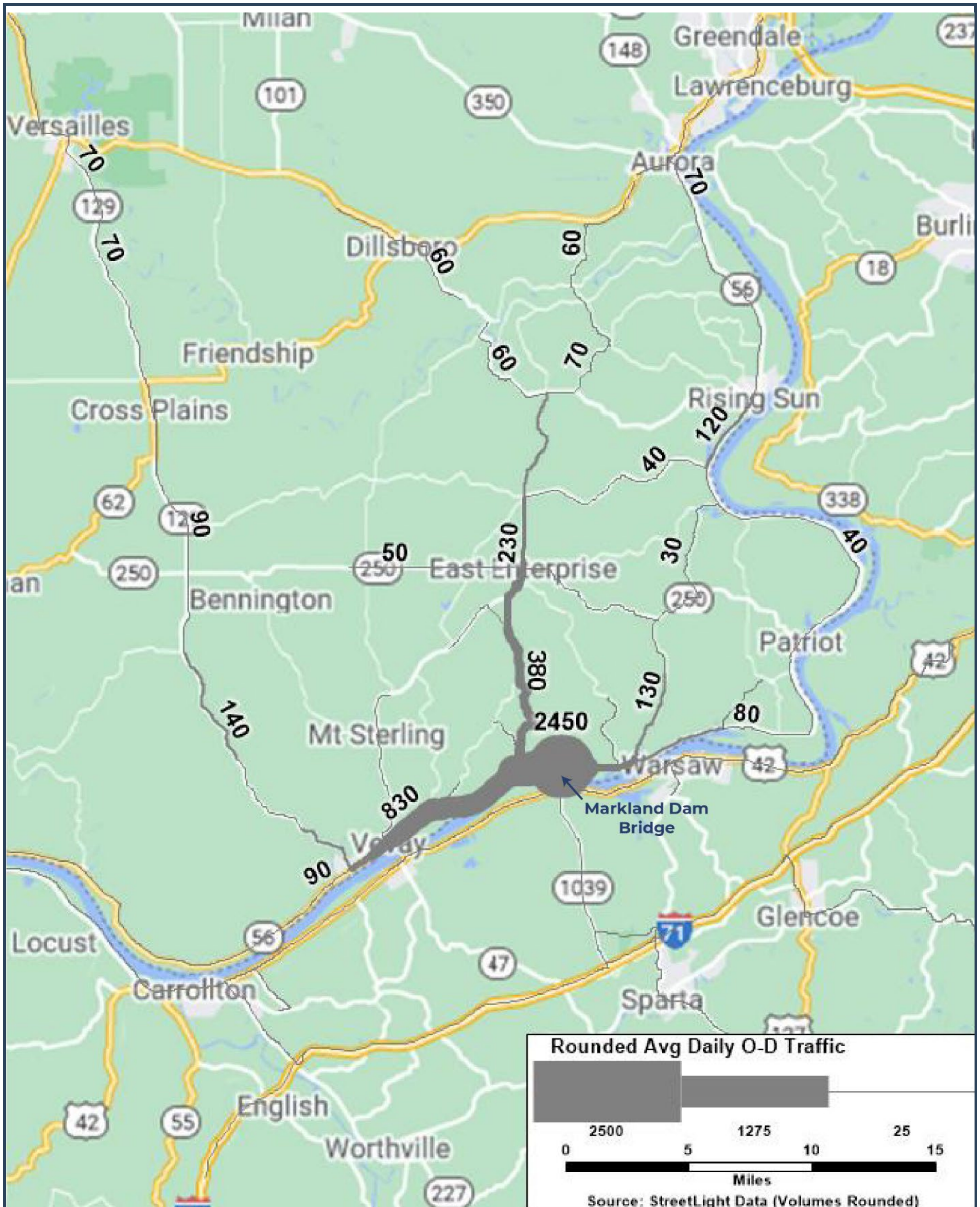

Figure 2.4-1. Travel Patterns (2019) – Northbound from Markland Dam Bridge

- About 11 percent of the Markland Dam Bridge northbound traffic (260 out of 2,450 vehicles) is through trips, meaning the vehicles have a destination along or north of US 50. The through traffic to US 50 is relatively evenly distributed between the western, central, and eastern portions of the project area, with about 3 percent traveling to Versailles and beyond, 2 percent traveling to Dillsboro and beyond, 2 percent traveling to the US 50/Cole Lane intersection and beyond, which is located between Dillsboro and Aurora, and 3 percent traveling to Aurora and beyond.
- The overall low percentage of through traffic (i.e. 11 percent) in the project area could indicate that the circuitous conditions (Section 2.1) and geometric deficiencies (Section 2.2) associated with the roadways in the project area impedes and discourages through traffic.

2.5 PROJECT NEED STATEMENT

Based on analysis of travel time and distance, safety, geometric deficiencies, and traffic, the following existing and projected conditions in the project area result in the identification of project needs:

- Travel time and distance along the existing fastest and shortest route from SR 101 at the Markland Dam Bridge and the SR 262/US 50 intersection near Dillsboro is 15 minutes (79 percent) and 5.5 miles (32 percent) longer compared to a corresponding straight-line route. Due to truck restrictions on this route and many others in the project area, the routes for trucks are even longer.
- The existing fastest and shortest route has numerous geometric deficiencies such as narrow lanes, narrow or no shoulders, sharp curves, and poor sight distances that contribute to poor safety outcomes, travel times, and connectivity.
- All of the crossings of Laughery Creek within the project area have roadway approaches and/or bridges that are below the 100-year flood elevation, jeopardizing access and safety during flood events.
- Slide-prone areas within the project area and along the existing fastest and shortest route create potential access and safety issues.
- There is no direct route that provides reliable, safe, and efficient connectivity through the project area.
- Thirty-five percent and 56 percent of the roadways and intersections, respectively, along the existing fastest and shortest route have an ICF greater than 0 and are considered elevated crash locations.
- Forty-four percent of the roadways and intersections within the project area have an ICF greater than 0 and are considered elevated crash locations.

CHAPTER 3 – PROJECT PURPOSE

Based on the project's needs, the following primary project purposes were developed.

Primary

- Reduce travel time within the project area by improving connectivity.
- Improve safety within the project area by reducing vehicle miles traveled (VMT) on roadways with elevated crash locations.
- Provide a roadway that meets current design standards.
- Provide a roadway that is above the Laughery Creek 100-year floodplain elevation and minimizes the risk of slides.

Based on initial public input, the following secondary project purposes are recommended. It is desirable, but not required, that the project satisfy these secondary project purposes.

Secondary

- Accommodate pedestrian, bicycle, and horse-drawn vehicle traffic as needed.
- Provide a roadway that is compatible with the existing rural landscape.
- Provide a roadway that supports economic development in southeast Indiana.

CHAPTER 4 – PERFORMANCE MEASURES FOR SATISFYING PURPOSE AND NEED

Based on the project's purposes, the following primary performance measures were developed to evaluate whether an alternative satisfies the project's purpose and need. These performance measures will assist in the identification of a range of project alternatives that will be considered in detail in the NEPA document. The screening of potential alternatives, including additional public and agency input, will be conducted based on an alternative's ability to meet all of these primary performance measures.

- Reduce travel time between SR 101 at Markland Dam and US 50.
- Reduce vehicle miles traveled (VMT) on roadway segments identified as elevated crash locations.
- Provide a roadway that meets current design standards for a 55 mph roadway.
- Provide a roadway that is above the Laughery Creek 100-year floodplain and minimizes the risk of slides.

Secondary performance measures will also be considered but will not contribute directly to the screening of potential alternatives. These measures are desirable to enhance the project's features and will be accommodated as practicable.

To meet the secondary performance measures, the proposed transportation improvements should:

- be compatible with the existing rural landscape;
- include features that accommodate pedestrian, bicycle, and horse-drawn vehicles, as/where needed; and
- support economic development in southeast Indiana.