

Road Safety Audit

Jefferson Street (US-52) & Joyce Road

Prepared For:
Will County
Division of Transportation
16841 W. Laraway Road
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1 EXECUTIVE SUMMARY

This Road Safety Audit (RSA) is being conducted on behalf of Will County, Illinois, with support and funding from the Chicago Metropolitan Agency for Planning (CMAP). CMAP and Will County are acting as the regional planning body and project sponsor for Will County's Safety Action plan and subsequent tasks. Preferred alternative[s] identified in this document are considered predecisional, pending the agreeance of the organization governing each roadway. This document is intended to serve as a guide for subsequent surveys, design, environmental, right-of-way, and other project activities leading to construction

On November 19th, 2025, consultant WSP led a Road Safety Audit (RSA) at the Jefferson Street (US-52) and Joyce Road intersection located in Joliet, Illinois. The RSA location was selected based on project priority location scoring and stakeholder input. Between 2018 and 2024, seventeen (17) injury crashes occurred at the intersection. Of these seventeen crashes, two (2) resulted in a major or incapacitating injury.

Based on the analysis, discussion with stakeholders, and the field review conducted the following short-term and long-term improvements are recommended at the intersection:

- Short-term: **Restrict intersection to a three-quarter access (3/4 access)**
 - The northbound approach would be restricted to right-out only
 - The westbound left-turn movement would remain.
 - Pavement markings, signing, bollards, and modular curb/medians would be used to provide necessary geometric changes.
- Long-term:
 - Option #1: **Install a traffic signal at the intersection**
 - Complete turning movement count and evaluate signal warrants
 - Coordinate with IDOT to ensure a signal is permitted once warranted
 - Option #2: **Permanently restrict to a ¾ access**
 - Same operations as the ¾ access discussed in the short-term improvement.
 - Construct concrete curbs and medians to restrict access.

The estimated costs of the short-term improvements is between **\$25,000** and **\$50,000**. The anticipated cost for the long-term options are summarized below:

- Option #1: between **\$800,000** and **\$1,200,000**.
- Option #2: between **\$200,000** and **\$300,000**.

2 INTRODUCTION

This Road Safety Audit (RSA) is being conducted on behalf of Will County, Illinois, with support and funding from the Chicago Metropolitan Agency for Planning (CMAP). The objective of this study was to conduct a formal safety performance examination of the Jefferson Street and Joyce Road intersection in Joliet, Illinois. RSAs are a proactive approach to addressing the safety of all road users, and involve identifying both safety issues and developing potential mitigation measures. The RSA followed the Federal Highway Administration's (FHWA) eight-step process, which is detailed in **Figure 1** below.



Figure 1. RSA Eight-Step Process

The objectives of the RSA are to:

- Review road safety within the study area;
- Identify physical and operational issues that may affect road safety, and
- Develop and provide potential countermeasures to reduce the frequency and severity of collisions.

The following sections will detail the RSA process, the methodology for this analysis, and the data obtained throughout the study. The report will also present all significant findings and safety issues, as well as provide recommended mitigation strategies.

2.1 ROAD SAFETY AUDIT TEAM

The following team members and stakeholders were involved in some capacity of the RSA process. The RSA team members conducted this audit to their best professional abilities within the on-site time and information/data available at the time of the audit. **Table 1** provides an overview of the RSA team, including their title, organization, and involvement in the RSA process.

Name	Title	Organization	Involvement
Dan Silverman	Transportation Planner	WSP USA	Kickoff, Field Visit
Kornel Gwiazdowski	Transportation Engineer	WSP USA	Kickoff, Field Visit
Elaine Bottomley	Deputy Chief of Staff	Will County	Kickoff, Field Visit
Stephen Ostrander	Senior Planner	CMAP	Kickoff
Russ Lubash	Traffic Engineer	City of Joliet	Kickoff, Field Visit
Greg Ruddy	Director of Public Works	City of Joliet	Kickoff
Sean Mikos	Deputy Director of Public Works	City of Joliet	Kickoff

Table 1. RSA Team

2.2 ROAD SAFETY AUDIT PROCESS AND TIMEFRAME

An **RSA kickoff** was held virtually on September 30th, 2025. There were seven people in attendance. Members of the consultant team presented a brief PowerPoint presentation that contained an overview of information about the corridor, touching on crash history, crash types, and incident reports. The remainder of the meeting was spent in conversation regarding what improvements have been made to date to improve safety at the intersection, and a discussion on factors that lead to accidents.

A **Site Visit** was held on November 19th, 2025. Representatives from Will County, City of Joliet, and WSP were in attendance. Activities included walking each leg of the intersection, walking along the trail, and standing behind the northbound stop bar to judge site distance. A conversation was held on-site that set the foundation for findings and recommendations documented in this report.



Draft results were presented via virtual meeting to relevant stakeholders from Will County, City of Joliet, and CMAP on December 15th, 2025. At this meeting, the WSP team conveyed their safety assessment, provided traffic safety countermeasures recommendations, and recommended implementation steps. The recommendations include both short term / low cost and long term / high cost solutions. Stakeholders provided valuable feedback that shaped this final report.

3 EXISTING CONDITIONS

3.1 SITE LOCATION

The focus of this RSA is the intersection of Joyce Road and W Jefferson Street (IL-52) in urban Joliet, Illinois.



Characteristic	Location Description
Roadway	Joyce Road and West Jefferson Street (US-52)
Municipality	Joliet
County	Will
Area Type	Urban

3.2 ROADWAY CHARACTERISTICS

W. Jefferson Street is an east-west roadway that functions as the major street of the intersection and is classified as an Other Principal Arterial by the Illinois Department of Transportation (IDOT). Two (2) 12-foot through lanes are provided in each direction. The posted speed limit on Jefferson Street in the study vicinity is 35 miles per hour (MPH). The average annual daily traffic (AADT) along W. Jefferson Street ranges between 19,700 vehicles per day to 26,200 vehicles per day.

Joyce Road is a north-south roadway that is classified as a Major Collector. The roadway functions as the minor road of the intersection with Jefferson Street. One (1) 11-foot through lane is provided in each direction on Joyce Road, with left-turn lanes provided at major access points, and a painted median is present between access points. The posted speed limit on Joyce Road in the study vicinity is 25 MPH. The AADT along Joyce Road is approximately 3,600 vehicles per day.

The intersection of Jefferson Street and Joyce Street is an unsignalized intersection surrounded by commercial and retail uses. The intersection is stop-controlled on the northbound approach (Joyce Road). A dedicated left-turn and a dedicated right-turn lane are provided on the northbound approach. A dedicated westbound left-turn lane from Jefferson Street onto Joyce Road is provided at the intersection.

The west leg of the intersection contains an 11-foot-wide raised concrete median that provides a pedestrian refuge for pedestrians crossing the Joliet Junction Trail. The trail crosses the west leg of the intersection and continues on the west side of Joyce Road. Curb ramps and painted crosswalks with varying degrees of wear exist across the southern and western legs.

Characteristic	Existing Conditions	
	Jefferson Street	Joyce Road
<i>Functional Classification</i>	Other Principal Arterial	Major Collector
<i>Speed limit</i>	35 MPH	25 MPH
<i>AADT</i>	19,700 – 26,200	3,600
<i>Number of through lanes</i>	2-lanes EB/WB	1-lane NB/SB
<i>Lane widths</i>	12-foot	11-foot
<i>Total pavement width (curb to curb)</i>	60-feet	36-feet
<i>Sidewalks / Trails</i>	5-foot sidewalks on both sides	5-foot sidewalk on east side 12-foot trail on west side

4 CRASH ANALYSIS

Crash data was provided by the Illinois DOT to identify crash patterns and trends that have occurred at the intersection. The time frame for crash data ranged from January 1, 2018, through December 31, 2024. The data provided detailed location, vehicle, and roadway characteristics of each crash. The crashes were summarized by crash severity, type, contributing factor, and environment. Figure 2 illustrates the location of the injury crashes that occurred in that timeframe at the intersection.



Figure 2. Crash Location Map

4.1 CRASH TRENDS

Crashes were categorized using the KABCO scale, which is used to classify the observed crash severity. The letters represent injury levels as follows:

- K: involves a fatal injury,
- A: an incapacitating injury
- B: a non-incapacitating injury
- C: reported/not-evident injury
- O: No indication of injury

As part of the audit, only crashes that resulted in an injury (KABC) were evaluated. Between 2018 – 2024, there were a total of seventeen (17) crashes that resulted in an injury. Of these seventeen crashes, two (2) resulted in a major/incapacitating injury, six (6) resulted in a minor injury, and eight (8) resulted in a possible injury. One of the six minor injuries involved a pedestrian crossing the intersection. **Table 2** below summarizes the number of crashes by severity.

Crash Severity	K	A	B	C
All-Modes	0	3	6	8
Pedestrian	0	0	1	0

Table 2. Crash Severity Summary

Of the seventeen crashes that occurred, 63% of the crashes were categorized as turning crashes. These crashes predominantly include a northbound vehicle attempting to make a left turn onto Jefferson Street and colliding with an eastbound or westbound vehicle on Jefferson Street. A summary of the crash types is provided on **Figure 3**.

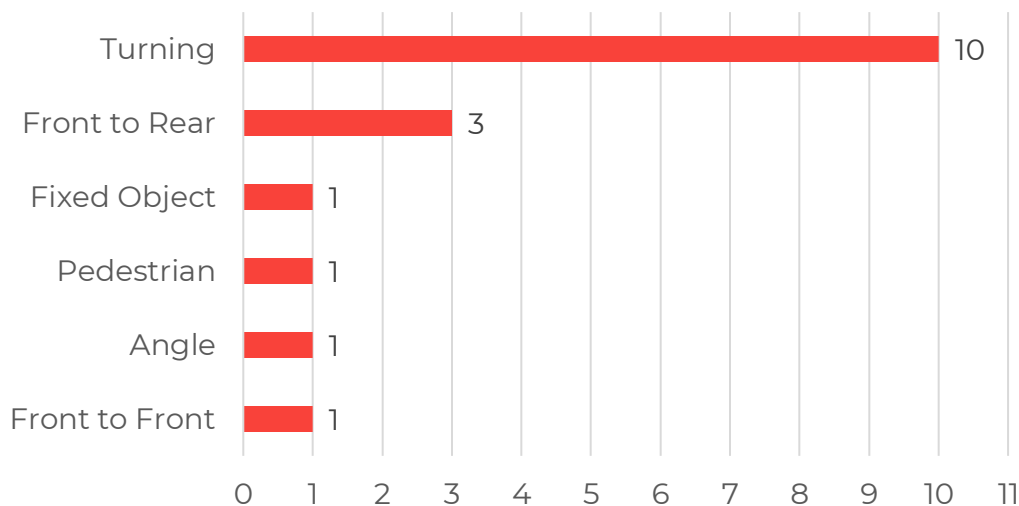


Figure 3. Crash Type Summary

Multiple factors can contribute to crash causation. Between 2018 and 2024, the majority of the crashes occurred due to drivers failing to yield the right of way. The second-highest contributing factor was a lack of driver skill/knowledge/experience. The second factor is likely due to the intersection’s proximity to the Illinois Department of Motor Vehicles (DMV) facility. The crash contributing factors are summarized on **Figure 4**.

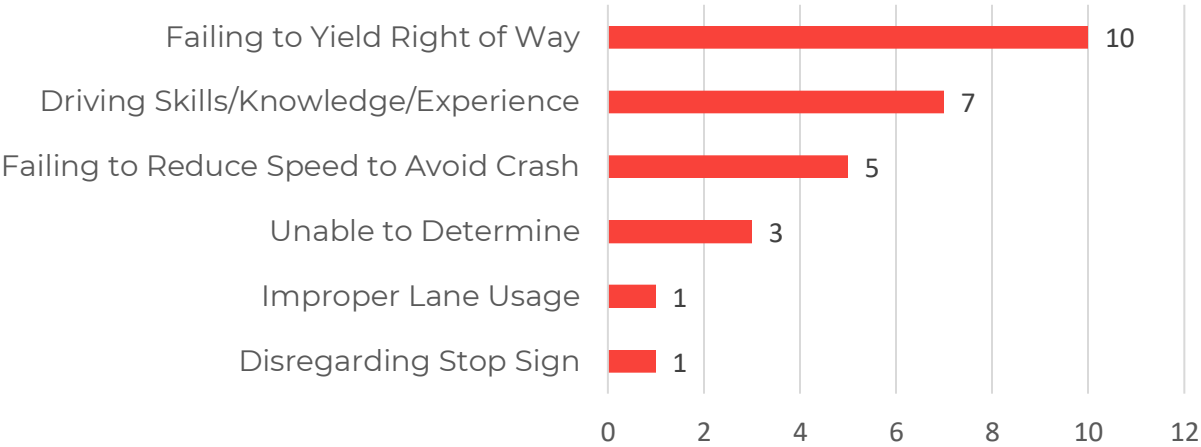


Figure 4. Contributing Factor Summary

Environmental conditions, including the weather and the lighting conditions, were evaluated in the analysis to determine if they factored into the crashes occurring at the intersection. The findings indicate that most crashes occurred on clear days during daylight. The weather and light conditions of crashes are summarized on **Figure 5**.

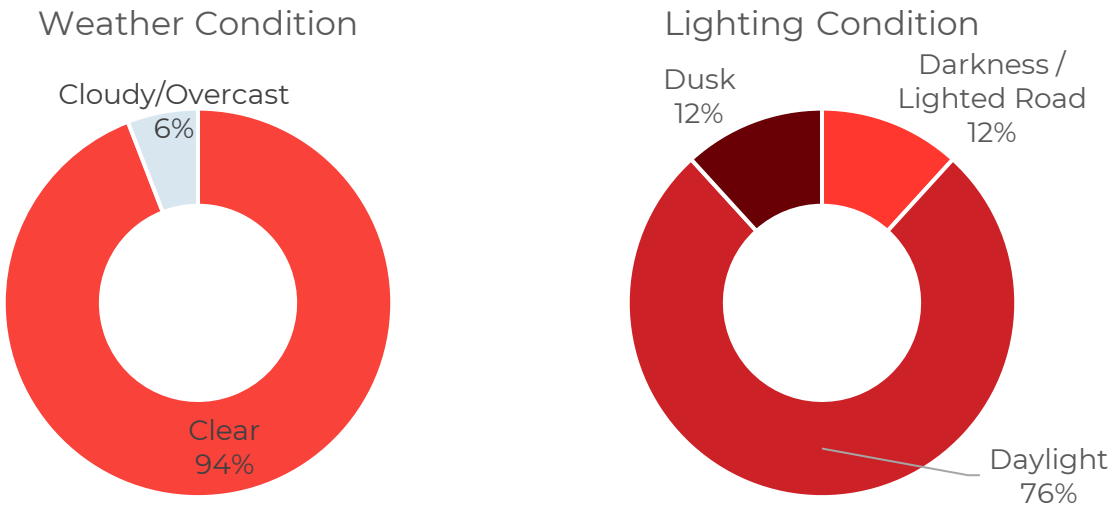


Figure 5. Weather & Lighting Conditions Summary

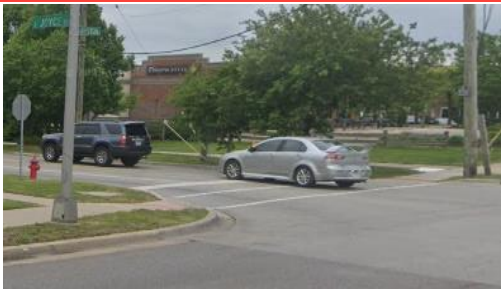
5 FIELD OBSERVATIONS

5.1 SITE VISIT / FIELD REVIEW

The field review was conducted on November 19th, 2025. Site observations were facilitated through a field review by driving and walking the study intersection and utilizing the facilities to gain an understanding of their existing safety measures and to identify concerns. The following two sections summarize the existing safety measures that were present and the safety concerns that were observed.

5.2 EXISTING SAFETY MEASURES

The measures and characteristics in the **Table 3** below have been identified as having a presence or positive impact on safety at the study intersection.

Safety Measure		Image
Sidewalks & ADA Ramps	Sidewalks are present on both sides of Jefferson Street and the east side of Joyce Road. ADA-compliant ramps are provided at all crossings.	
Marked Trail Crosswalk	A marked trail crosswalk is present on the west leg of the intersection. This allows the crossing to be more visible to the drivers.	
Pedestrian Refuge Island	A pedestrian refuge island is provided to allow trail users to cross Jefferson Street in two stages.	

Safety Measure	Image
Bicycle Crossing Warning Sign (W11-1)	Bicycle Crossing warning signs are present EB and WB on Jefferson Street as you approach the trail crossing to alert drivers of the trail crossing. 
Trail Crossing Signs	Signs to warn trail users of the crossing and to stop users at the crossing are present in both directions. 
Bus Shelter/Transit Facility	A bus shelter is present on the west leg of the intersection, providing protection during inclement weather, and includes a concrete pad to facilitate an accessible path to the bus. 
Lighting	Overhead lighting is provided at the intersection to provide sufficient nighttime visibility. 

Table 3. Summary of Existing Safety Measures

6 SAFETY CONCERNS & TREATMENTS

The following sections detail safety concerns identified during the RSA, along with targeted treatment recommendations for each. Five primary safety concerns have been identified based on existing conditions observed and conversations with stakeholders, with specific issues detailed under each category. The safety concerns, notes regarding the issue, and potential countermeasures are summarized in **Table 4** below.

Safety Concern	Notes	Safety Treatment(s)
Sight view obstructions	The ATI Physical Therapy sign on the SE corner and on the SW corner the bus shelter, utility poles, and trees obstruct sight lines for NB drivers The two-lane approach on Joyce Road creates an environment where two vehicles compete for sight lines	• Create clear sight lines by relocating the sign and bus shelter • Consider narrowing the northbound approach on Joyce Rd to one lane
Turning Radius	Numerous vehicles were observed having difficulty making the eastbound-to-southbound movement without overtracking to the northbound lanes.	• Narrow the northbound approach on Joyce Rd to allow for adequate turning paths
Trail crossing	Lack of enhanced traffic control creates an uncomfortable environment for trail users, as vehicles aren't forced to yield to them. Crossing warning signs on the trail aren't distinctive or noticeable	• Consider enhanced traffic control at the crossing, such as an RRFB, PHB, or intersection signalization • Increase the size of the warning signs on the trail • Add lighting EB/WB ahead of the trail
Speeding	Per conversations with stakeholders, most drivers travel 5 – 10 MPH over the speed limit on Jefferson Street	• Stripe pavement edge lines to narrow lanes to 11 feet • Add a speed feedback sign ahead of the trail crossing • Targeted speed enforcement
Gap acceptance & aggressive behavior	Due to the high volumes on Jefferson Street, there are minimal gaps in traffic for vehicles turning left from Joyce Road. Aggressive driving behavior was noted as drivers feel pressured to accept shorter and unsafe gaps	• Add a "Cross Traffic Does Not Stop" (W4-4P) sign • Restrict the intersection to a R/O or $\frac{3}{4}$ access • Signalize the intersection upon MUTCD signal warrants being met

Table 4. Summary of Safety Concerns & Countermeasures

6.1 SHORT-TERM IMPROVEMENTS

Based on the crash analysis conducted, input from stakeholders, and field observations conducted, the northbound left-turn movement from Joyce Road onto Jefferson Street poses the largest safety concern at the intersection. The left-turn movement from this approach is difficult for drivers of all varying experience due to the lack of available gaps in traffic on Jefferson Street, and the high number of conflicting movements (eastbound/westbound traffic and trail users) requires drivers to navigate a complex environment.

The short-term recommendations to improve safety for all users and reduce the number of conflicts is to restrict the intersection to three-quarter access (3/4 access) with the northbound approach becoming a right-turn only. This configuration would be installed in a quick-build project using pavement markings, signing, flexible delineators, and modular curb/medians to provide the necessary geometric changes to restrict the approach. The short-term improvement is estimated to cost between **\$25,000** and **\$50,000** in material costs. An exhibit of the recommended short-term improvement is shown on **Figure 6** below.

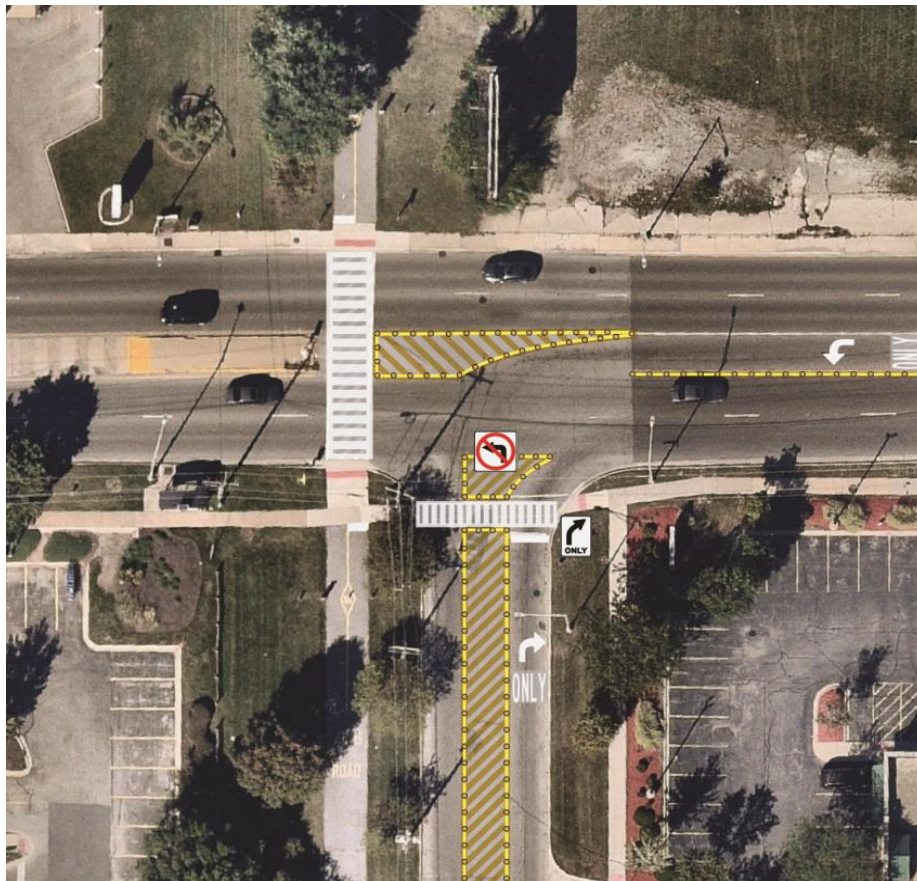


Figure 6. Short-term Improvement Exhibit

6.2 LONG-TERM IMPROVEMENTS

Two long-term improvement options were considered at the intersection. The first option considered installing a traffic signal at the intersection. However, due to uncertainty about whether signal warrants would be met and whether IDOT would allow for the signal to be constructed, a second option was considered. The second option evaluated constructing permanent medians and curbs to create a $\frac{3}{4}$ access, as shown for the short-term option.

6.2.1 OPTION #1: INSTALL A TRAFFIC SIGNAL

A traffic signal at this location would provide trail users with clear cues of when to cross Jefferson Street safely and provide the necessary gaps and time for northbound traffic from Joyce Road. A preliminary signal warrant evaluation was completed using data from Replica; however, this platform provides planning-level accuracy, thus traffic counts should be completed at the intersection, and signal warrants should be evaluated before further steps are taken to design and construct the signal. Coordination with IDOT is required to ensure that a signal will be permitted at the location if warranted. The improvement is estimated to cost between **\$800,000** and **\$1,200,000**. An exhibit of the recommended long-term improvement is shown on **Figure 7** below.

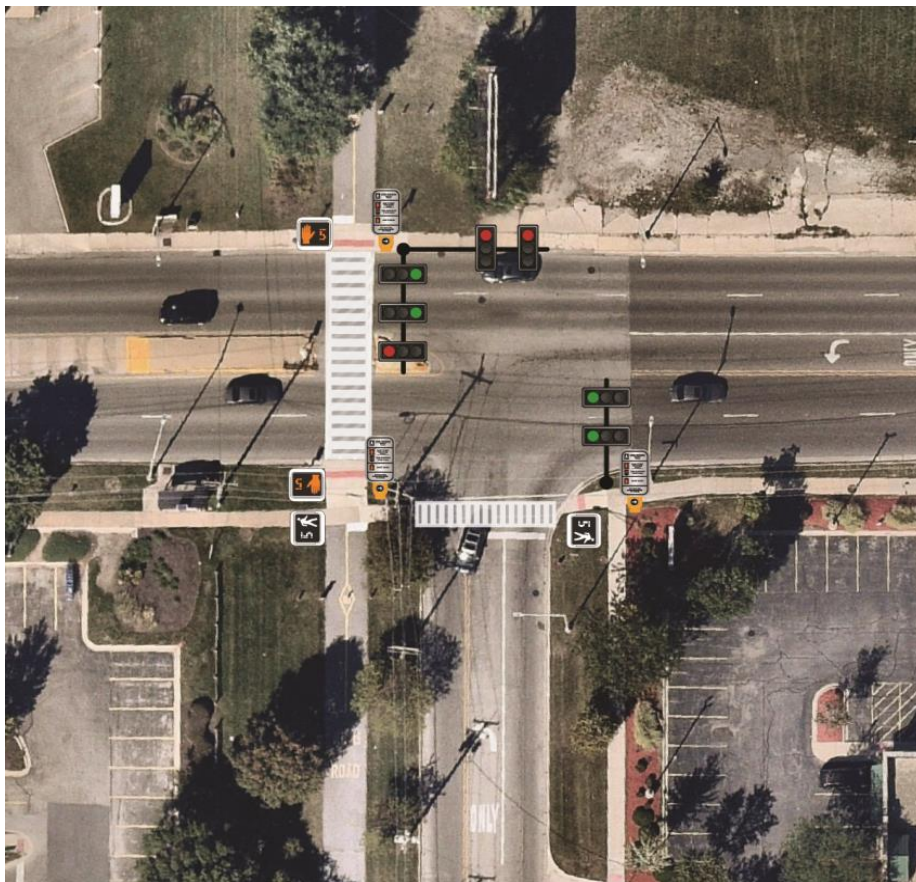


Figure 7. Option #1: Traffic Signal

6.2.2 OPTION #1: PERMANENTLY RESTRICT TO A $\frac{3}{4}$ ACCESS

If signal warrants are not met at the intersection upon completing a count at the intersection and/or IDOT does not permit a signal to be constructed at this location, a permanent $\frac{3}{4}$ access may be considered. This option would provide the same safety benefits as described in the short-term improvement recommendation. With the permanent option, concrete medians and curbs would be constructed to restrict the left-turn movement from Joyce Road by extending the pedestrian refuge island to the east and by constructing a splitter island that forces drivers to take a right-turn from Joyce Road. The improvement is estimated to cost between **\$200,000** and **\$300,000**. An exhibit of the recommended long-term improvement is shown on **Figure 8** below.

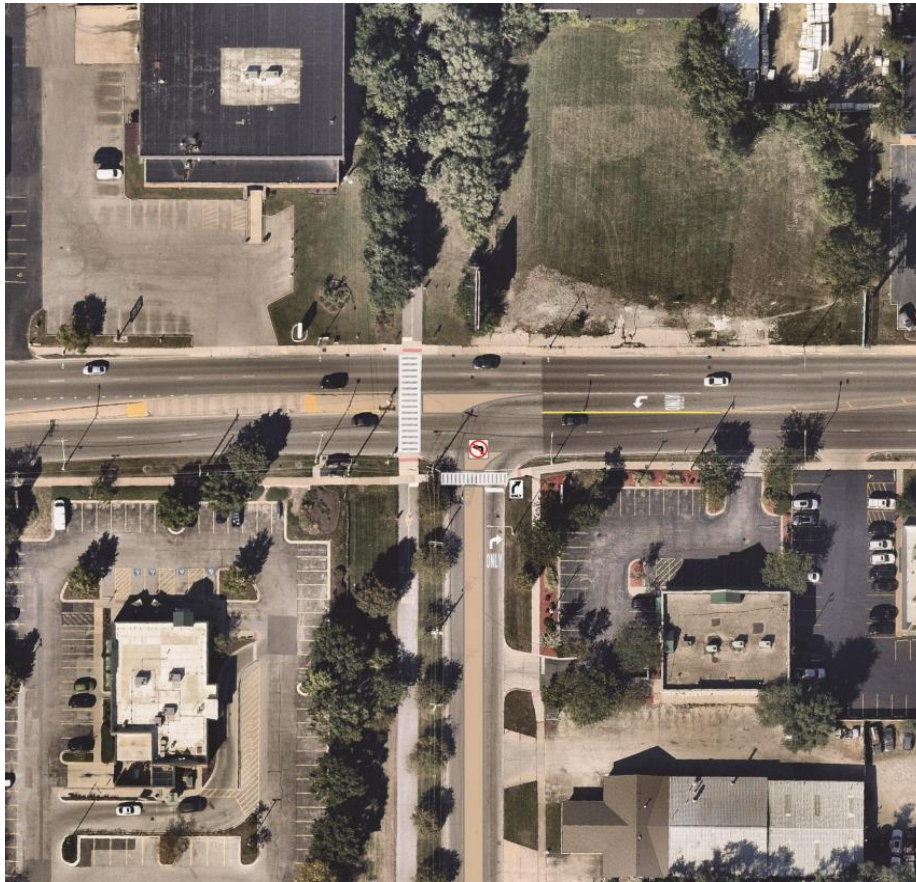


Figure 8. Option #2: Permanent $\frac{3}{4}$ access

6.3 OTHER CONSIDERATIONS

Although historically the left-turn northbound movement has resulted in the majority of the crashes and presents the highest safety concern, there were secondary concerns that were identified during the field review and conversations with stakeholders. As previously noted, the visibility and distinctiveness of the signs on the trail when approaching the crossing is poor due to their location and size. It is recommended that the signs be relocated to a more visible location and the size of the signs be increased to make trail users more aware of the crossing ahead. Additionally, lighting near or at the crossing may be installed to improve visibility of the crossing. Examples from other trail crossings are provided on **Figure 9** below.



Figure 9. Trail Crossing Treatment Examples

Another safety concern that was noted during the field review and conversations with stakeholders was speeding on Jefferson Street. Currently, Jefferson Street is posted at 35 MPH; however, most drivers travel the corridor at 40 MPH to 45 MPH. In order to slow down drivers along the corridor, a speed feedback sign may be added to make drivers aware of their traveling speed. Another potential treatment to slow down drivers is to stripe the edge lines along Jefferson Street to make the lanes feel narrower. This countermeasure prompts drivers to shift closer to the centerline and slow down for safety and comfort. An example of this countermeasure is provided on **Figure 10**. Lastly, targeted speed enforcement, using radar or visible police presence, may be considered as a strategy to reduce speeds on the corridor. These improvements may be completed by applying for National Highway Traffic Safety Administration (NHTSA) grants.



Figure 10. Speed Reduction Treatment Examples

7 SUMMARY & CONCLUSION

WSP conducted a Road Safety Audit (RSA) at the intersection of Jefferson Street and Joyce Road in Joliet, Illinois. The RSA was conducted at this location based on crash frequency and severity, identification in county transportation plans, and stakeholder input. The audit team reviewed the intersection to help identify opportunities to improve safety performance for all road users.

Between 2018 and 2024, seventeen (17) injury crashes occurred at the intersection. Of these seventeen crashes, two (2) resulted in a major or incapacitating injury. Ten of the seventeen crashes were categorized as turning crashes that resulted as a result of failure to yield right of way.

Based on the crash analysis, field review conducted at the intersection, and the discussions with stakeholders and steering committee the following safety concerns were identified by the audit team at the intersection:

- Sight view obstructions
- Turning radius
- Trail crossing conflicts
- Speeding
- Gap acceptance & aggressive behavior

From the various safety treatments evaluated, a short-term and long-term improvement recommendation was determined. These improvements are summarized below with their respective estimated cost:

- Short-term: **Restrict intersection to a three-quarter access (3/4 access)**
 - The northbound approach would be restricted to right-out only
 - The westbound left-turn movement would remain.
 - Pavement markings, signing, bollards, and modular curb/medians would be used to provide necessary geometric changes.
 - Cost: \$25,000 – \$50,000
- Long-term:
 - Option #1: **Install a traffic signal at the intersection**
 - Complete turning movement count and evaluate signal warrants
 - Coordinate with IDOT to ensure a signal is permitted once warranted.
 - Coordinate the signal with adjacent signals on the corridor.
 - Cost: \$800,000 – \$1,200,000



- Option #2: **Permanently restrict to $\frac{3}{4}$ access**
 - Same operations as the $\frac{3}{4}$ access discussed in the short-term improvement.
 - Construct concrete curbs and medians to restrict access.
 - Cost: \$200,000 – \$300,000
- Other considerations:
 - Modify trail-facing signage and add lighting at the crossing.
 - Consider speed reduction treatments such as speed feedback signs, marked edge lines, and targeted speed enforcement.