Agenda
Village of Glen Ellyn
Capital Improvements Commission Meeting
Wednesday, August 13, 2025
7:00 PM
Glen Ellyn Civic Center, Room 301

Any individual with a disability requiring a reasonable accommodation in order to participate in a meeting should contact The Village of Glen Ellyn ADA Coordinator, 630-469-5000, at least five (5) business days in advance of the next scheduled meeting. All matters on the Agenda may be discussed, amended, and acted upon.

A. Call to Order

B. Public Comment

C. Approval of Minutes

1) Motion to approve the June 11, 2025 Capital Improvements Commission Meeting Minutes

D. Current Business

1) DuPage County Safety Action Plan

E. Trustee Liaison's Report

F. Other Business

G. Public Works Report

H. Project Report

1) Engineering Division Project Activity Report August 8, 2025

I. Adjourn

Glen Ellyn Capital Improvements Commission
535 Duane Street
Glen Ellyn, IL 60137

Meeting 8/13/2025 7:00 PM
Department: Public Works - Internal Services
Department Head:
Category: Minutes
Prepared By: Richard Daubert

AGENDA ITEM (ID # 2025-673)

DOC ID: 2025-673

Motion to approve the June 11, 2025 Capital Improvements Commission Meeting Minutes

Statement of the Issue:
The draft meeting minutes for the June 11, 2025 Capital Improvements Commission Meeting are attached hereto for review and consideration of approval.

Analysis:

Budget Impact:

Contribution to Strategic Plan

Action Requested:

Attachments:
1. CIC Meeting Minutes June 11 2025 - Draft

Village of Glen Ellyn

DRAFT

Meeting Minutes
Village of Glen Ellyn
Capital Improvements Commission
June 11, 2025
7:02 PM
Glen Ellyn Civic Center Room 301

Board or Commission: Capital Improvements

Date: June 11, 2025

Meeting: Regular

Called to Order: 7:02 p.m.

Quorum: Yes

Adjourned: 8:36 p.m.

Member Attendance:

Rocco Zucchero	Chair	Present
Joel Baldin	Commissioner	Present
Tom Drapinski	Commissioner	Absent
Orion Galey	Commissioner	Absent
John MacDonald	Commissioner	Present
Adil Saeed	Commissioner	Absent
David Warnick	Commissioner	Present
Jill Ziegler	Commissioner	Present
Donna Jean Simon	Trustee Liaison	Present
Richard Daubert	Staff Liaison/Professional Engineer	Present

Also Present:

Dave Buckley	Public Works Director
Elisa Pollina	Recording Secretary

A. CALL TO ORDER

The June 11, 2025 meeting of the Capital Improvements Commission was called to order by Chairman Zucchero at 7:02 p.m. at the Glen Ellyn Civic Center.

Engineer Daubert introduced the new Commissioner, David Warnick. Warnick shared that he is an attorney for ComEd, focusing on environmental cases. As a Glen Ellyn resident, he joined the commission to give back to his community. The CIC members then took a moment to introduce themselves and welcomed Warnick to the commission.

Engineer Daubert informed that Commissioner Lindquist was unable to attend the meeting but has officially stepped down from his position to fully enjoy retirement with his wife. Daubert shared that

Lindquist expressed his appreciation for the work the Commission has accomplished over the years. The CIC extended its sincere thanks to him for his longstanding dedication and service.

Commissioner Zucchero has been appointed into the role of Chair of the CIC. Engineer Daubert noted that there is currently one vacancy on the commission, and one candidate is under consideration and will be reviewed with Chairman Zucchero. Additionally, several Commissioners are approaching the end of their terms, and the Village will be reaching out to confirm their interest in continuing.

B. PUBLIC COMMENT – None

C. APPROVAL OF MINUTES

APPROVAL OF APRIL 9, 2025 CAPITAL IMPROVEMENTS COMMISSION MEETING MINUTES

MOTION TO APPROVE THE APRIL 9, 2025 CAPITAL IMPROVEMENTS COMMISSION MEETING MINUTES

MOTION BY: Commissioner MacDonald
SECOND BY: Commissioner Baldin
AYES: Zucchero, Baldin, MacDonald, Ziegler
ABSTAIN: Warnick (was not present at April 9, 2025 Meeting)

RESULT: APPROVAL

D. CURRENT BUSINESS

1. Metra Station and Multimodal Access Improvements Project – Warming Shelter Revisions

   Engineer Daubert provided a high level update on project. He noted significant progress has been made on critical path items in the recent months. The project recently received the required cultural clearance for design approval, and Final Section 4(f) approval has also been secured.

   Union Pacific (UP) required the Village to apply for a variance for the underpass, which has been approved by the railroad. The project is moving in the right direction, and Daubert is optimistic that Phase 1 design approval will hopefully be obtained within the next few months. The Village Board also approved Amendment 3 to the engineering assignment, as was recommended by the Capital Improvement Commission. The main component of Amendment 3 being the Land Acquisition efforts.

   Land acquisition will continue to be a challenge. We know that UP was requesting Glen Ellyn to purchase the depot prior to allowing for demolition and lease agreements. That may or may not be supported by IDOT and Federal Highway Administration. The Village regardless needs to work through the land acquisition process with the likely real estate rights including temporary and permanent easements along with lease agreements. Following inquiries from members of the CIC, Engineer Daubert noted he feels that the most cost-effective approach would be securing a lease agreement for construction of the improvements on UP property rather than purchasing the underlying property. Upcoming meetings with IDOT will explore options, particularly given the complexities of working with a Class 1 railroad.

Engineer Daubert overviewed the 60% design cost estimate of $46,357,700 which estimated the depot at ~$7.5M, the underpass at ~$17.1M, the platforms at ~$6.3M, warming shelters at ~$920K, and streetscape phase 4, utilities, parking lot, and plaza at ~$14.5M.

Engineer Daubert elaborated that one specific project cost under review is the proposed warming shelters, which are currently estimated at $919,500. The project currently proposes two 136-square-foot warming shelters which are fully enclosed and feature a full cast-in-place footing and foundation, hollow structural steel framing and roof trusses, brick-faced and cast stone faced exterior walls with brick veneer interior walls, tongue and groove roof decking with asphalt shingles, interior lighting, infrared heaters, ventilation fans, and a fire alarm system with telemetry. To reduce costs, staff is exploring eliminating the inbound warming shelter. For the outbound shelter, staff is suggesting consideration of a prefabricated alternative to the fully enclosed warming shelter. The outbound shelter would be surface-mounted, offer less shelter than the original design, but still feature the necessary components including on-demand heat. The cost savings of these measures are conservatively estimated to be north of $500,000. Daubert presented images of the prefabricated option.

Commissioner MacDonald inquired about alternative roof designs, and Commissioner Baldin asked if the initial shelter design could simply be scaled back. MacDonald noted the importance of the roof matching the style of the main station and expressed comfort with the proposed glass panels. Trustee Simon also agreed.

Daubert also clarified that the warming shelters were initially intended to serve as temporary station during construction. An alternative temporary station may be necessary during construction on the inbound side. Other cost-saving opportunities are also being explored, such as replacing the $140,000 terrazzo flooring with polished concrete.

Regarding the platform, the current estimate of $6.3 million is considered high. Daubert believes the cost can be brought below $4 million based on force account estimates by UP. Chairman Zucchero asked whether platform work could begin sooner to avoid cost escalations and potential funding risks. Daubert noted concerns with the portion of the platform near the underpass being compromised by construction but that this can be further evaluated as the project nears construction.

Commissioner Baldin raised a question about potential impacts to federal funding. Daubert responded that federal funding remains secure at this time, though $3 million in community funding is currently in question. However, the staff continues to pursue additional funding sources. The state recently announced $400 million in available infrastructure funding, providing another possible source that the Village will pursue.

Daubert emphasized the importance of completing the design phase as the next key step.

In summary, the Commissioners expressed their support of the warming shelter revisions/cost-savings proposal that staff is pursuing with the warming shelters. Staff will continue to work with CDM Smith on the matter in consideration of the Commission feedback.

E. TRUSTEE'S REPORT – Trustee Simon shared several updates, noting that the Village Board recently approved multiple items recommended by the Capital Improvement Commission. One key topic being revisited is the use of e-bikes. A new ordinance has been enacted with restrictions placed on bikes, e-bikes, and micromobility devices. During the discussion, Commissioner Baldin expressed concern that the ordinance may be too restrictive and suggested that an educational component should be included as part of the solution. In response, Trustee Simon explained that the Village must align with state regulations and cannot enact ordinances that are less restrictive than what the state mandates.

Trustee Simon also noted that an ADA survey of Glen Ellyn's sidewalk network has been conducted, and the Village is currently awaiting the results.

F. OTHER BUSINESS – None

G. PUBLIC WORKS REPORT – Public Works Director Buckley provided several updates. The department is continuing lead water service line replacements in coordination with roadway projects and is actively pursuing funding for this 10–12-year initiative. A facility assessment is underway for public works, along with plans for a space needs analysis.

Preparations are also being made for winter, including securing salt contracts. Crews are still in the process of removing holiday lights from trees. With tree planting and event season now underway, Public Works teams are fully engaged in seasonal operations.

Director Buckley also noted that the meridian barriers on Duane and Hill are now available to enhance pedestrian and event safety, and the Village is looking to purchase an additional nine barriers.

Finally, the Fourth of July parade will return to downtown this year. "No Parking" signs will be posted several days in advance to notify the public.

H. PROJECT REPORT – Engineer Daubert provided updates on several ongoing projects: Motor Fuel Tax Funded Resurfacing Project: Phase 1 is nearing completion, with paving finalized on Evergreen, Newton, Cottage, Anthony, and storm sewer on Kenilworth. Most of the work in this area is now complete, with the remaining items expected to be finished by mid-August.

2025 Utility & Roadway Project: The contractor is currently working on sanitary sewer replacements, lead service line replacements, and additional sewer improvements. All work is targeted for completion by November 15.

Streetscape Project: Alamp has completed the punch list items with the exception being some concrete issues on Pennsylvania and Main Street, along with necessary brick repairs. In collaboration with the Environmental Commission, staff is also re-evaluating native plantings in the planters. Some selected plants have not thrived, and alternative, more sustainable options are being considered.

Roosevelt Road Project: Traffic control measures have been installed, and a lane closure is in place; however, no physical work has started yet. The delay is due to pending state approvals, and staff is actively following up.

Crescent/Glenwood Parking Lot: Staff is aiming to release the project for bid later this month, with the goal of presenting it to the Village Board for consideration of approval shortly thereafter.

Traffic Signal Modernization: Contractors have begun work by deploying traffic monitoring cameras. The first bid package is expected to be ready by fall. Given the long lead times for materials, early bidding is a priority.

I. **ADJOURNMENT** – Commissioner MacDonald motioned and Commissioner Baldin seconded to adjourn the meeting. The motion is unanimously approved, and meeting adjourned at 8:36 p.m.

Submitted by Elisa Pollina, Recording Secretary
Reviewed by: Richard Daubert, Professional Engineer

Glen Ellyn Capital Improvements Commission
535 Duane Street
Glen Ellyn, IL 60137

Meeting 8/13/2025 7:00 PM
Department: Public Works - Internal Services
Department Head:
Category: Discussion Item
Prepared By: Richard Daubert

AGENDA ITEM (ID # 2025-674)

DOC ID: 2025-674

DuPage County Safety Action Plan

Statement of the Issue:

On June 24, 2025, DuPage County adopted its Safety Action Plan through the attached resolution. The Safety Action Plan identifies surface transportation safety issues along with countermeasures and policy recommendations, with a goal of an annual 2% reduction in fatalities and serious injuries.

The Capital Improvements Commission has a vested interest in this plan as it relates to its input on the Village's Capital Improvement Plan. Staff and members of the CIC have expressed a desire to discuss the plan and any relevant items that should be considered incorporating into present and future projects.

Analysis:

Plan Overview

The safety action plan, and its appendix, are attached for reference. If preferred, the materials can also be viewed on the web at:https://engage.cmap.illinois.gov/dupage.

The plan provides a high-level introduction, summary of safety conditions, summary of engagement, recommended countermeasures and policies, and performance measures. The appendix includes more backup on policies, crash types, high injury networks, railroad-related incidents, and some challenges/limitations with the crash data.

The action plan is built off of the Federal Highway Administration's Safe System Approach which is particularly focused on vulnerable road users, speed management, high injury networks/priority locations.

Items of emphasis in the plan that are relevant to Glen Ellyn past, present, and future projects include:

Speed management: Enforcement Measures, Radar Speed Signs, Curb Extensions, Lane Narrowing

Intersection Improvements: Curb Extensions, Traffic Signal Modernization Including Signal Timing, Access Management In Particular Closely Reviewed With Development Projects

Pedestrian Accommodations: Upgrading Intersection Sidewalks To Comply With PROWAG (Public Right-of-Way Accessibility Guidelines), Closing Sidewalk Gaps/Constructing New Sidewalk, Curb Extensions, High Visibility Crosswalks, Crosswalk Consolidation, New Crosswalk Construction, Keeping Crosswalks And Intersections Clear Of Parked And Stopped Vehicles

Cyclists: Shared Lanes, Sharrow Pavement Markings

Railroad Crossings: Pedestrian Underpass, Fencing, Bringing Sidewalk and Signage Up To PROWAG and MUTCD Compliance

Relevant Additional Items that Glen Ellyn Can Continue To Consider: Adjusted Speed Limits, Improved Street Lighting, Additional Educational Campaigns, Bike Plan and East Branch Trail Project, ADA Transition Plan.

Budget Impact:

Contribution to Strategic Plan

Action Requested:

CIC Input is requested on the safety action plan with staff looking for any particular input on matters that should be more strongly considered with capital projects. Direction can be provided more holistically or also looked at with specific capital projects in mind.

Attachments:

1. DuPage County Resolution Adopting Safety Action Plan
2. DuPage County Safety Action Plan
3. DuPage County Safety Action Plan Appendix

File #: DT-R-0020-25, **Version:** 1

RESOLUTION TO ADOPT THE DUPAGE COUNTY
SAFETY ACTION PLAN

WHEREAS, the Chicago Metropolitan Agency for Planning (CMAP) has undertaken a federally funded project to develop Safety Action Plans for each of the Chicagoland counties as part of the federal Safe Streets for All program; and

WHEREAS, the DuPage County Safety Action Plan (hereinafter “Safety Action Plan”) was developed in collaboration with CMAP’s consultant, the DuPage County Division of Transportation, representatives of various county departments, and other stakeholders with a role in safety for roadway users; and

WHEREAS, crashes that result in death or serious injury are not inevitable but largely preventable, and steps can be taken by using a proactive approach that prioritizes traffic safety and treats severe crashes as a public health issue; and

WHEREAS, on average 44 people die each year in DuPage County as a result of a traffic crash, with more than 340 sustaining a serious injury requiring hospitalization; and

WHEREAS, the Safety Action Plan provides a framework to support the reduction and elimination of fatal and serious injury traffic crashes, which promotes the quality of life and opportunity for the residents and visitors of DuPage County; and

WHEREAS, it is the role of government to do its part to serve and protect the populace; and

WHEREAS, the Illinois Department of Transportation (IDOT), through its Strategic Highway Safety Plan, has the goal of eliminating roadway fatalities in the State of Illinois; and

WHEREAS, DuPage County has demonstrated a strong commitment to prioritizing roadway safety for all users through its Long-Range Transportation Plan, ongoing Capital Improvement Program and through the development of the Safety Action Plan; and

WHEREAS, the Safety Action Plan recognizes that eliminating fatal crashes in DuPage County will require a comprehensive Safe Systems Approach that acknowledges human error and vulnerability, emphasizing the need for protective road infrastructure, effective speed management, and post-crash care; and

WHEREAS, DuPage County, through its Division of Transportation, is prepared to accept the Safe Systems Approach, setting an example that other roadway jurisdictions can follow; and

WHEREAS, the Safety Action Plan acknowledges that reducing and eliminating fatal traffic crashes will require the continued support of the County’s Health Department, Sheriff's Office, State's Attorney Office, and municipal partners; and

WHEREAS, the support of residents, business owners, students, and visitors to DuPage County, acting as individuals and collectively through neighborhood or advocacy organizations, will be important to improve the safety, comfort, and usability of roads and streets for all users; and

WHEREAS, the DuPage County Division of Transportation will collaborate with IDOT on incorporating elements of the Safety Action Plan into future projects to enhance the safety of all road users; and

WHEREAS, the Safety Action Plan will serve as a framework and a resource for DuPage County and all its municipalities in their efforts to develop projects and initiatives that incorporate safe systems strategies and support the collective effort to reduce and eliminate traffic deaths; and

WHEREAS, adopting the Safety Action Plan will allow DuPage County and its municipalities to be eligible for a wider range of federal safety grants, thereby reducing the burden on local taxpayers to implement safety countermeasures as part of projects and initiatives.

NOW, THEREFORE BE IT RESOLVED, by this County Board of DuPage County, Illinois, that it hereby adopts the DuPage County Safety Action Plan and supports the efforts of the various county departments, including the Division of Transportation, to develop projects and initiatives that support the elimination of fatal crashes on the county transportation system; and

BE IT FURTHER RESOLVED, that the DuPage County Clerk shall submit a copy of this Resolution and the Safety Action Plan to all local and regional transportation agencies, and DuPage County communities, by and through the DuPage County Division of Transportation.

BE IT FURTHER RESOLVED, that the County Clerk transmit an original of this Resolution to the Authority, by and through the Division of Transportation.

Enacted and approved this 24th day of June, 2025 at Wheaton, Illinois.

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DEBORAH A. CONROY, CHAIR
DU PAGE COUNTY BOARD

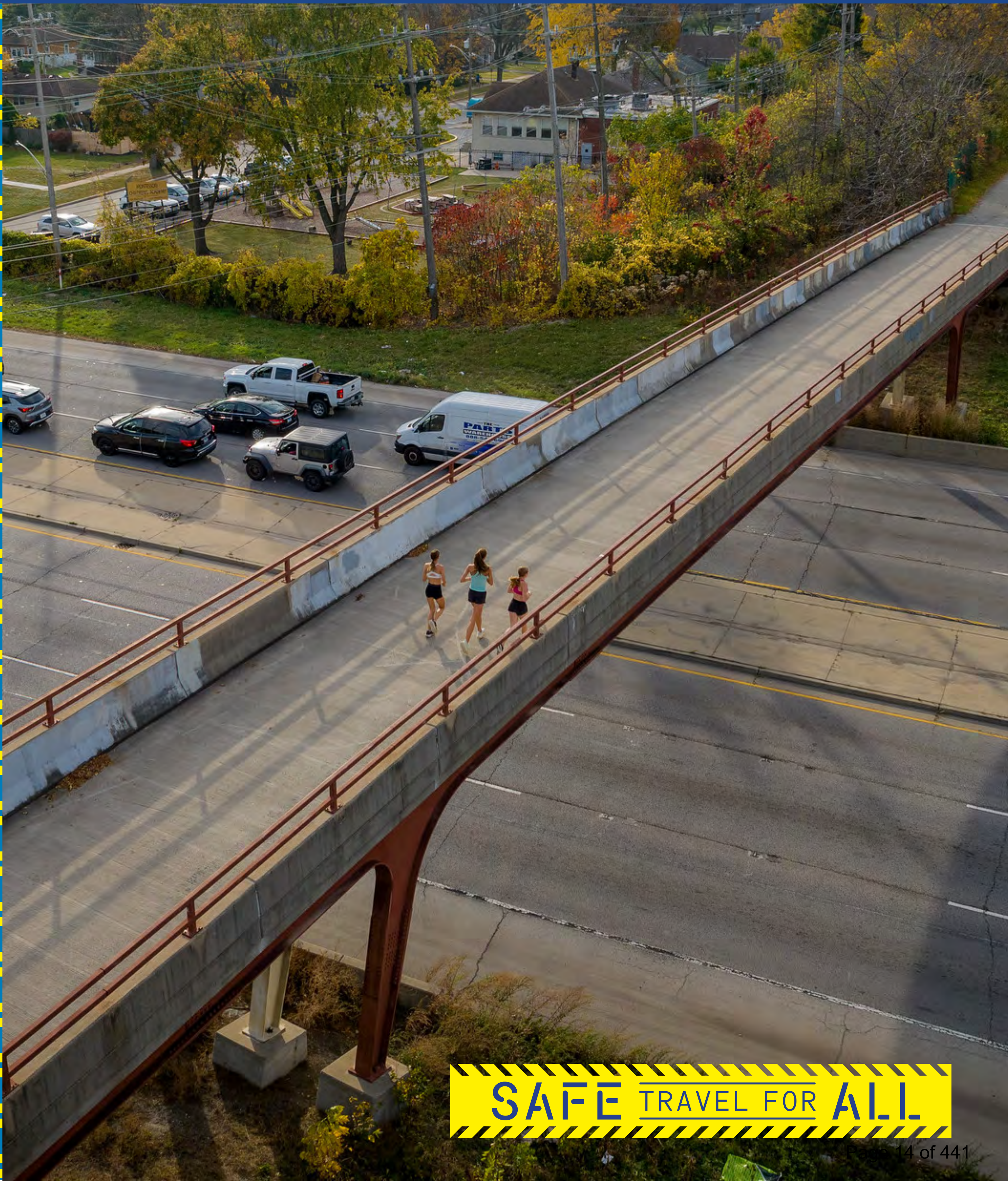
Attest: ______________________________
JEAN KACZMAREK, COUNTY CLERK

DuPage County Safety Action Plan

MAY 2025

Contents

1 Introduction



Our Commitment

A Future of Traffic Safety

The **DuPage County Safety Action Plan** is part of a region-wide initiative to reduce and mitigate serious injuries and deaths on northeastern Illinois' roads. The safety action plan will improve travel for all road users, including for people walking, rolling, biking, taking transit, and driving.

DuPage County recognizes the importance of making roads safer for all people and is committed to eliminating roadway fatalities, guided by the Safe System Approach. **DuPage County envisions a future where no one loses their life or is seriously injured while using the transportation network within the county including all public roads, sidepaths and trails. The aim is for a 2% annual reduction on a five-year rolling average for all fatalities and serious injuries including pedestrians and bicyclists.**

Our Commitment

Safe Systems Approach

A future in which no one dies or is seriously injured in traffic crashes in DuPage County requires system-level changes to how transportation systems are planned, designed, and maintained.

Far too often traditional traffic safety approaches emphasize reducing crashes and human errors to address roadway deaths. Recognizing that reducing or mitigating deaths or serious injuries will require a new approach, the Federal Highway Administration (FHWA) created the **Safe System Approach (SSA)**.

The Safe System Approach aims to eliminate fatal and serious injury crashes for everyone on the road, especially the most vulnerable. It differs from the traditional approach in that it recognizes that humans make mistakes and works to a design a system with redundancies to protect all road users. The approach takes a holistic view of the transportation system, advocating for many layers of protection to that reduce the impact of crashes, mitigate the number of crashes and their severity, and reframe traffic safety as the responsibility of all road users.

The Safe System Approach serves as a guiding framework for this plan and plays a vital role in helping DuPage County prevent deaths and serious injuries on its roadways.

Safe System Principles

A Safe System designs for the most physically vulnerable user anticipated.

To mitigate harm, the most effective variable to address is speed.

A Safe System has multiple layers of redundancy that mitigate severe crash risk.

The people who design and manage the system must prioritize the lives of the people who use the system.

Safe System Approach

Image source // FHWA

Plan Structure

Acknowledgments

The DuPage County Safety Action Plan is in partnership with the Chicago Metropolitan Agency for Planning (CMAP) and CMAP's larger effort to develop a traffic safety framework for northeastern Illinois.

Within the planning process, DuPage County organized two committees to oversee and guide plan development: **Steering Committee** and **Technical Committee**. The Steering Committee was made up of representatives from community non-profit organizations, municipalities, and state agencies. The Technical Committee was comprised of public servants from county and state board agencies and departments.

The project team would like to acknowledge the contribution of the following Steering Committee and Technical Committee representatives along with the DuPage County community members who shared their time and insights to shape the DuPage County Safety Action Plan.

Chicago Metropolitan Agency for Planning

Steering Committee

Access DuPage // Joel Jara
Autonomy Work // Karrie Pece
City of Elmhurst // Anthony Cuzzone
City of Naperville // Jennifer Louden
City of Wheaton // John Tebrugge
DuPage Senior Citizens Council // Marylin Krolak
DuPage Mayors and Managers Conference // Matthew Pasquini
Elmhurst Bicycle Club // Armaline Mirretti, Kimberly Messina
Illinois Commerce Commission // Steve Laffey
Illinois Department of Transportation // Johnathan Lloyd, Phillip Domines
National Safety Council // Sergey Sinelnikov
Village of Addison // Chris Weinbrenner
Village of Bensenville // Kurtis Pozsgay
Village of Glen Ellyn // Rich Daubert

Technical Committee

DuPage County Board // Mary Ozog, Transportation Committee Chair
DuPage County Health Department // Adam Forker
State's Attorney's Office for DuPage County // Barbara Reynolds
Clerk of the Circuit Court // Candice Adams
DuPage County Office of Homeland Security and Emergency Management // Craig Dieckman
DuPage County Administration // Jason Blumenthal
DuPage County Division of Transportation // William Eidson, John Loper, Steven Zulkowski
Emergency Telephone Service Board // Linda Zerwin

Consultant Team

TYLin
Rudd Resources
Jacobs
AECOM
Daylight

Executive Summary

A holistic, data-driven roadmap for a safer transportation system

What is the Safety Action Plan?

The DuPage County Safety Action Plan is **a comprehensive but targeted approach** for the County and its partners to achieve a future in which no one loses their life or is seriously injured in a traffic crash. All six counties in the CMAP Region – DuPage, Cook, Kane, Lake, McHenry, and Will – will be covered by such safety action plans, creating a shared basis to work collectively, but implement solutions individually to make the transportation system in northeastern Illinois safe for all users.

The Safety Action Plan **continues the work** other County and municipal plans and initiatives started, aligning those efforts with the Safe System Approach and charting a course of action for the next ten years. As with the DuPage County Long Range Transportation Plan, DuPage Mobility Framework, DuPage Trails Plan, and other plans that informed it, continuous improvement is at the core of the Safety Action Plan. **DuPage County and its partners remain committed to be proactive and responsive**, continuing the daily work of addressing known safety needs and asking what can be done better in the future to head off existing and emerging safety challenges. The Safety Action Plan will be updated in the future to reflect accomplishments, lesson learned, and to adapt to changing safety trends throughout the region.

The Safety Action Plan **focuses on the most severe crashes** – those that result in deaths and serious injuries – recognizing that they are unacceptable and largely preventable. It includes data-driven, systemic, and proactive recommendations that address observed traffic safety issues in the form of infrastructural and behavioral safety strategies and tools that can be applied across DuPage County.

What is in the Safety Action Plan?

The Safety Action Plan, developed between Spring 2024 and Spring 2025, is broken down into four sections covering all the requirements of a comprehensive safety action plan as laid out through the United States Department of Transportation's Safe Streets and Roads for All program:

- **Existing Safety Conditions**
- **Engagement and Collaboration**
- **Countermeasures and Policy Recommendations**
- **Benchmarks & Safety Performance**

These sections are briefly summarized in the Executive Summary, with substantially more detail provided in each section.

Existing Safety Conditions

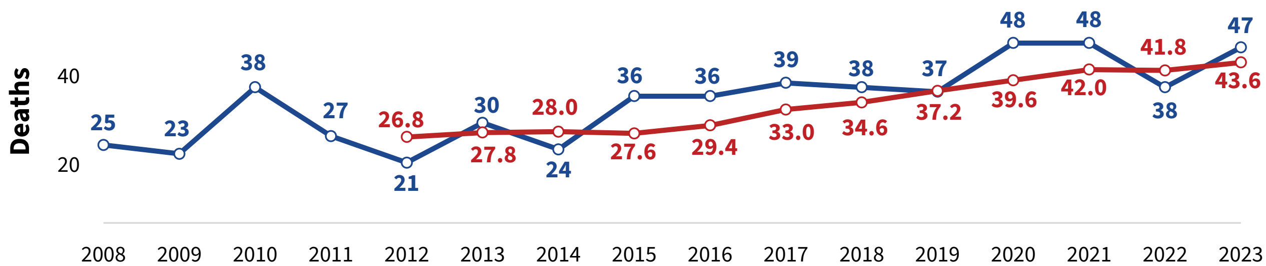
Severe Crash Trends

Consistent with the Safe System approach, the DuPage County Safety Action Plan focuses on the crashes that result in deaths and serious injuries. Crash data from the Illinois Department of Transportation (IDOT) illustrate past severe crash trends, emphasis areas, and hotspots across all public roadways in DuPage County.

Every year more than 400 lives were changed

Due to traffic crashes, between 2018 and 2022, **more than 400 lives were irreversibly changed every year**, on average in DuPage County. Over this period, nearly 42 people were killed and another 372 people were seriously injured in an average year.

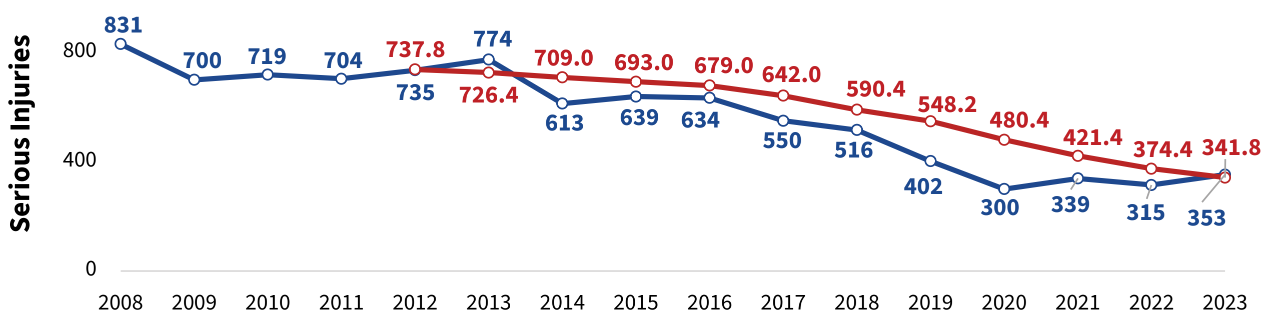
Traffic Crash Deaths



Total deaths
Five-year moving average
Source: IDOT, 2008 - 2023

The number of people per year who lost their lives in traffic crashes in DuPage County **has increased since 2008.** This outpaces national and state trends but is consistent with those in northeastern Illinois. This trend is led by motorist deaths with pedestrian and bicyclist deaths rising, but at a somewhat slower pace.

Traffic Crash Serious Injuries



Total serious injuries
Five-year moving average
Source: IDOT, 2008 - 2023

While fatalities have risen, **serious injuries in DuPage County have fallen over 50% since 2008**. This trend, which outpaces the state level decrease in serious injuries, illustrates that **a safer transportation system is possible**. To sustain this downward trend, County government and its partners will continue to think collaboratively and proactively to tackle difficult and emerging safety challenges.

Existing Safety Conditions

Key Findings

Emphasis Areas

Emphasis areas enable the County, municipalities, and partners to focus on the most prevalent and concerning types of severe crashes. At least one of the four emphasis areas was identified in **85% of fatal and serious injury crashes** between 2018 and 2022.

Speeding
46% of serious injury and fatal crashes

Intersections
47% of serious injury and fatal crashes

Older drivers
65+
21% of serious injury and fatal crashes

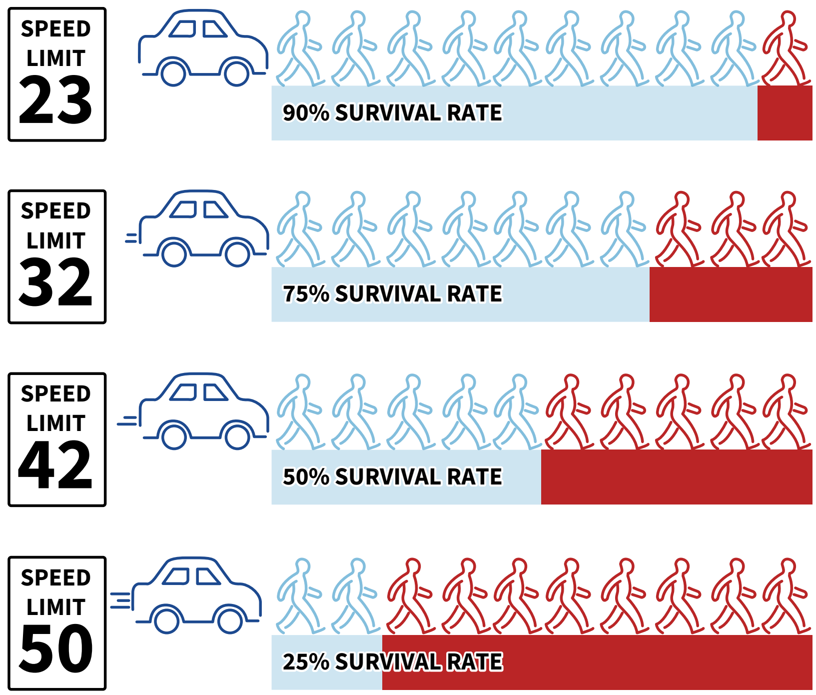
Pedestrians & bicyclists
14% of serious injury and fatal crashes

Behaviors
To supplement the emphasis areas, the safety analysis indicates that several aggressive driving behaviors are contributing causes in most fatal and serious injury crashes.

Aggressive driving and severe injury crashes

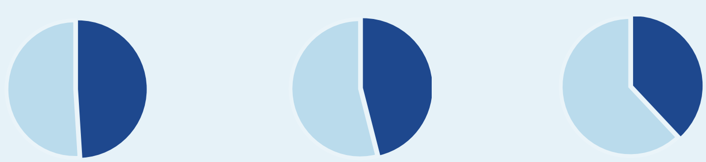
71%
of severe crashes involve **aggressive driving behaviors** (disregarding signs, speeding, failure to yield, etc.)

A focus on speed
The Safe System Approach emphasizes safe speeds since the probability that a crash will result in death rises exponentially with speed. The likelihood of a pedestrian surviving when hit by a vehicle traveling at...



Source: FHWA

In DupPage County **speeding** was associated with…



49% of all fatal crashes

46% of all fatal & serious injury crashes

38% of all fatal pedestrian crashes

Existing Safety Conditions

Priority Locations

Severe Crash Hotspots

Location matters. Where fatal and serious injury crashes occur is not random. Prioritizing safety assessments and interventions on the roadways and intersections with the greatest number of deaths and serious injuries will help build momentum to traffic safety goals. The Safety Action Plan zooms out to identify the streets and intersections with the highest severe crash risk across the whole county regardless of roadway ownership or municipal boundaries.

The most severe crashes most commonly occur on the **biggest** streets.

58%

of severe crashes occur on arterial streets...

13%

...which represent only 13% of street miles in the County.

High Injury Network

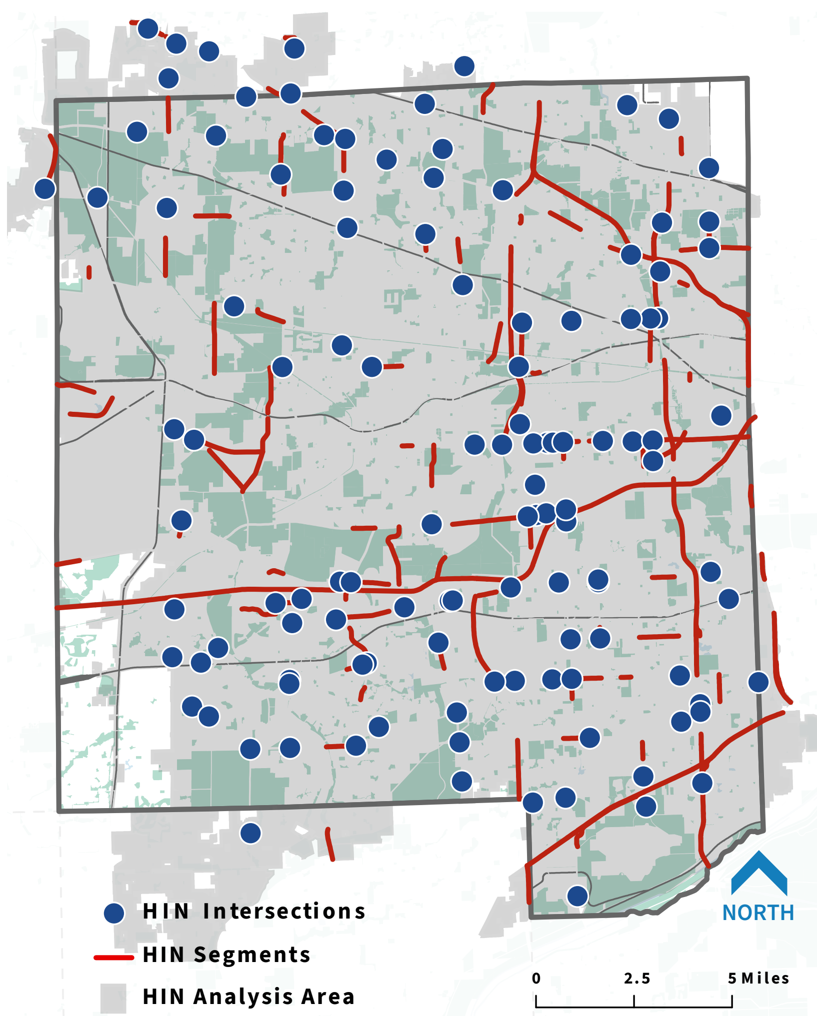
The High Injury Network (HIN) is a tool to identify the small number of intersections and segments that represent a disproportionate number of deaths and serious injuries, enabling planners and engineers to assess safety issues, collaborate across jurisdictions, and concentrate resources in the areas of greatest need.

DuPage County's High Injury Network by the numbers

133.3 centerline miles //
3.4% of roadways

117 intersections //
0.6% of all intersections

967 deaths and serious injuries
2018 - 2022 //
44.9% of all severe crashes



Each municipality is included in one County Safety Action Plan. For example, the City of Aurora falls within the Kane County Safety Action Plan while the Village of Wayne and City of Naperville are within this DuPage County Safety Action Plan.

Engagement & Collaboration

What We Heard

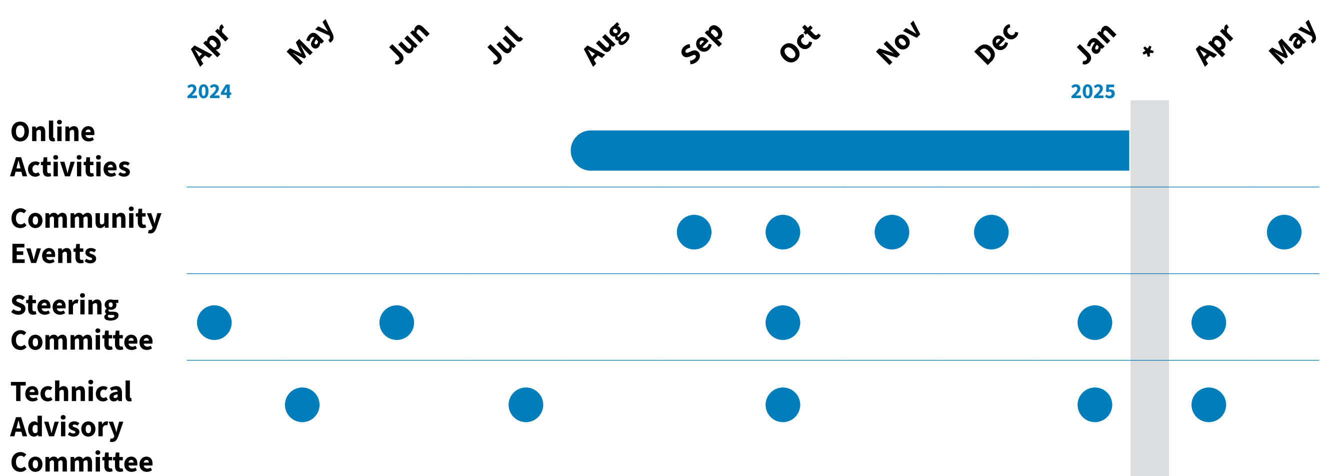
Community engagement was essential in guiding and informing the DuPage County Safety Action Plan. Engagement activities and input provided valuable insights to community needs, challenges, and hopes for enhanced traffic safety in DuPage County.

Engagement activities included:

- **Community events**
- **Steering Committee & Technical Advisory Committee meetings**
- **Online engagement**

Community and stakeholder engagement activities took place between April 2024 and May 2025. In-person community events and online engagement activities provided multiple ways for members of the public across the county to inform the plan.

Engagement Timeline



In January 2025, CMAP paused the Safety Action Planning work until they could ensure compliance with the Unleashing American Energy Executive Order.

Engagement & Collaboration

What We Heard

Community Events

DuPage County hosted four pop up events, two in-person open house events, and one virtual open house. All events provided interactive activities and discussions, gathering input from community members on traffic safety concerns, ideas, locations, and priorities for the Safety Action Plan.

Conversations

500+
people were engaged at community events

Steering and Technical Committees

To position DuPage County for success in developing an impactful, actionable plan, two committees – a County Technical Committee and a Safety Action Plan Steering Committee – were created. Jointly, these multi-disciplinary committees oversaw the plan development informing strategies, policies, and actions.

Online

Through the project engagement website, online engagement was able to parallel the community events. DuPage County shared a survey that focused on ways to improve traffic safety in northeastern Illinois. The online survey included 19 questions to capture public feedback, ideas, beliefs, and understanding of traffic safety needs, garnering 237 responses. Survey findings helped identify and confirm enhanced traffic safety concerns and priorities.

In addition to the survey, the project engagement website hosted a safety hotspots map. Community members were invited to pinpoint intersections, roads, or streets that felt unsafe or dangerous. Over 620 unique pins were collected, revealing intersections, sidewalks and crossings, and roads where participants experienced safety concerns.

Safety Hotspots

620+
map pins were located on the Safety Hotspots Map

Community members shared...

- Concern about **dangerous driving behaviors** (speeding, distracted driving, failure to yield, disregarding signs/ signals).
- That the addition of **traffic calming** and complete **pedestrian and bicycle networks** would make them feel safer while walking and biking in their communities.
- **Intersections are a top safety concern** due to limited visibility, road configuration, or other elements.

Countermeasures & Policy

Themes & Strategies

The DuPage County Safety Action Plan outlines a comprehensive set of goals, priorities and recommendations which include specific policy, programmatic, and infrastructure solutions to lead agencies within the county towards their desired outcomes. To guide the recommendations, the plan provides a holistic framework made up of **themes** (or goals) and **strategies** that work to reduce or mitigate severe crashes in DuPage County.

Reaching DuPage County's goals

Themes are high-level goals that support the DuPage Safety Action Plan target – to reduce and mitigate serious injuries and deaths on DuPage County's roads networks. They provide a framework for decision-making and guide the selection and development of strategies.

Strategies are solutions and approaches to implement themes and achieve or advance their respective desired outcomes. The strategies go on to identify Actions, representing the starting point for implementation, further analysis, or partnership to put the strategy into motion.

Countermeasures & Policy

Themes & Strategies

Theme 1 // Encourage Safer Speeds

To reduce crash severity, it is essential to manage and lower vehicle speeds that are inappropriate for surrounding contexts and create safer road conditions for all.

Strategies

1. Manage speeds on major roads through design, education, and enforcement
2. Set speed limits that are appropriate for the surrounding context and safety for all users
3. Utilize strategic enforcement to target speeding

Theme 2 // Design & Build Roads and Streets that Prioritize Safety for Vulnerable Users

Making a safer place to walk, bike, and roll is supported by improved accessibility, applied Complete Streets principles, and completed networks through best practice design.

Strategies

1. Provide systemic approaches to pedestrian and bicycle improvements
2. Complete pedestrian and bicycle network gaps, prioritizing separated or protected facilities
3. Incorporate Complete Streets into policy and design
4. Improve accessibility through Public Right of Way Accessibility Guidelines compliance under the Americans with Disabilities Act
5. Advance safe access to trail systems

Theme 3 // Enhance Partnerships & Collaboration

Implementation of the Safety Action Plan requires coordination with government agencies, healthcare providers, non-profits, community organizations, and stakeholders.

Strategies

1. Improve interagency coordination
2. Provide capacity-building resources for stakeholders
3. Foster partnerships with and between community and institutional organizations

Theme 4 // Champion a Culture of Safety

Traffic safety is a shared responsibility. Building a county wide commitment to traffic safety benefits from applying the Safe System Approach with messaging, outreach, and actions.

Strategies

1. Integrate traffic safety goals as a priority across jurisdictions and planning areas
2. Improve safety, access, and mobility for aging road users
3. Provide targeted traffic safety education and engagement
4. Provide prompt emergency response and post-crash care

Theme 5 // Take a Data-driven, Transparent Approach to Safety

Effective improvements to the transportation system will rely on enhanced data collection and analysis to target investments where they are most needed and a commitment to continuous improvement and open dialogue about what's going well and what needs improvement

Strategies

1. Prioritize safety resources in areas with the greatest safety needs
2. Increase the accessibility and use of regional transportation data
3. Support a county-wide road safety audit program
4. Pursue projects along the 'high injury network'
5. Systemically deploy safety countermeasures
6. Design enforcement strategies that are regularly evaluated for their effectiveness

Countermeasures & Policy

Systemic Countermeasures Toolbox

The Systemic Countermeasures Toolbox is a **prioritized set of safety treatments** designed to address severe crash trends in DuPage County. It informs safety practitioners, decision-makers, and the public about effective interventions for the multimodal transportation system in the county. These countermeasures focus on proactive, scalable safety measures targeting common risk factors before serious incidents occur.

Key characteristics of systemic countermeasures include the potential for broad application across multiple locations, cost-effectiveness, and a risk-based approach rather than a reactive one. They address recurring patterns of risk, such as high-risk intersection designs and areas prone to speeding.

The toolbox prioritizes infrastructure improvements, physical separation between motor vehicles and vulnerable road users, speed reduction efforts, and signal coordination to enhance safety. It aims to protect vulnerable road users and mitigate severe crash types.

Systemic Countermeasures Toolbox by Emphasis Area

	Speed	Intersections	65+ Older Drivers	Pedestrians & Bicyclists
High-Visibility Speed Enforcement Programs	●	●	●	
Access Management		●		●
Lighting		●	●	●
Intersection Daylighting		●	●	●
Pedestrian Refuge Islands		●		●
Raised Pedestrian Crossings & Speed Tables	●	●	●	●
Corner Treatments	●	●		●
Separated Bicycle Lanes & Shared-Use Paths				●
High-Visibility Crosswalks		●	●	●
Road Diets/Rightsizing	●		●	●
Sign Visibility & Signal Head Retro-Reflectivity Enhancements		●	●	
Sidewalks				●
Lane Narrowing	●			●
Centerline Hardening	●	●	●	●
Positive Offset Turn Lanes		●	●	
Speed Management Plan	●			●
Coordinated Signal Timing	●	●		
Protected Left-Turn Phasing		●	●	●
Pedestrian Signal Equipment		●		●
Flashing Yellow Arrows		●	●	

Countermeasures & Policy

Where to Apply Systemic Countermeasures

Not all systemic countermeasures are impactful on all streets. To help the various roadway owners in DuPage County identify the right tools to use, the Safety Action Plan defines several **roadway typologies**. These typologies reflect groupings of land use and roadway characteristics commonly found in DuPage County that are associated with a higher risk of severe crashes. They illustrate how various countermeasures can be combined to tackle safety challenges specific to different types of roadways or intersections. They serve as references for diagnosing problems and developing comprehensive lists of countermeasures.

Derived from analyses of the DuPage County High Injury Network and consultations with implementers like DuPage County Division of Transportation and municipal public work engineers, these typologies capture common roadway characteristics and traffic safety concerns. They **guide the systemic application of countermeasures** through site-specific examples and identification of shared risk factors.

Each typology is detailed by characteristic land uses and roadway features, safety concerns, and potential applications for systemic safety countermeasures.

DuPage County Typologies

Intersections

1. Major Arterial Intersections
2. Uncontrolled Bicycle & Pedestrian Crossings
3. Unsignalized Intersections

Segments

1. Major Arterials
2. Speed Transitions
3. Rural Roads

Zones

1. School & Park Zones
2. Local Downtowns & Main Streets

Applying Systemic Countermeasures to Typologies

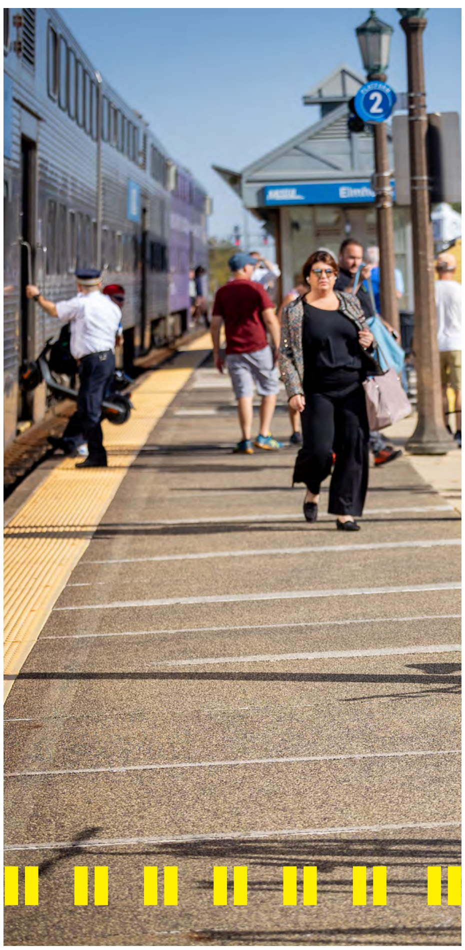
Example Systemic Countermeasures

		Pedestrian Signal Equipment	Lighting	High-Visibility Crosswalks
Intersections	Major Arterial Intersections	●		
	Uncontrolled Bicycle & Pedestrian Crossings		●	●
	Unsignalized Intersections		●	●
Segments	Major Arterials			
	Speed Transitions		●	
	Rural Roads		●	
Zones	School & Park Zones	●	●	●
	Local Downtowns & Main Streets	●	●	●

Benchmarks & Safety Performance

Tracking Progress

DuPage County and its partners **commit to monitoring safety performance** across the County and accountability in tracking progress on the Safety Action Plan strategies and actions. This action plan is a starting point to realize the countywide commitment to reduce or mitigate deaths and serious injuries. Ongoing assessment and adjustment of safety initiatives by DuPage County, CMAP, and local and statewide partners are anticipated in future years.



Performance Measures

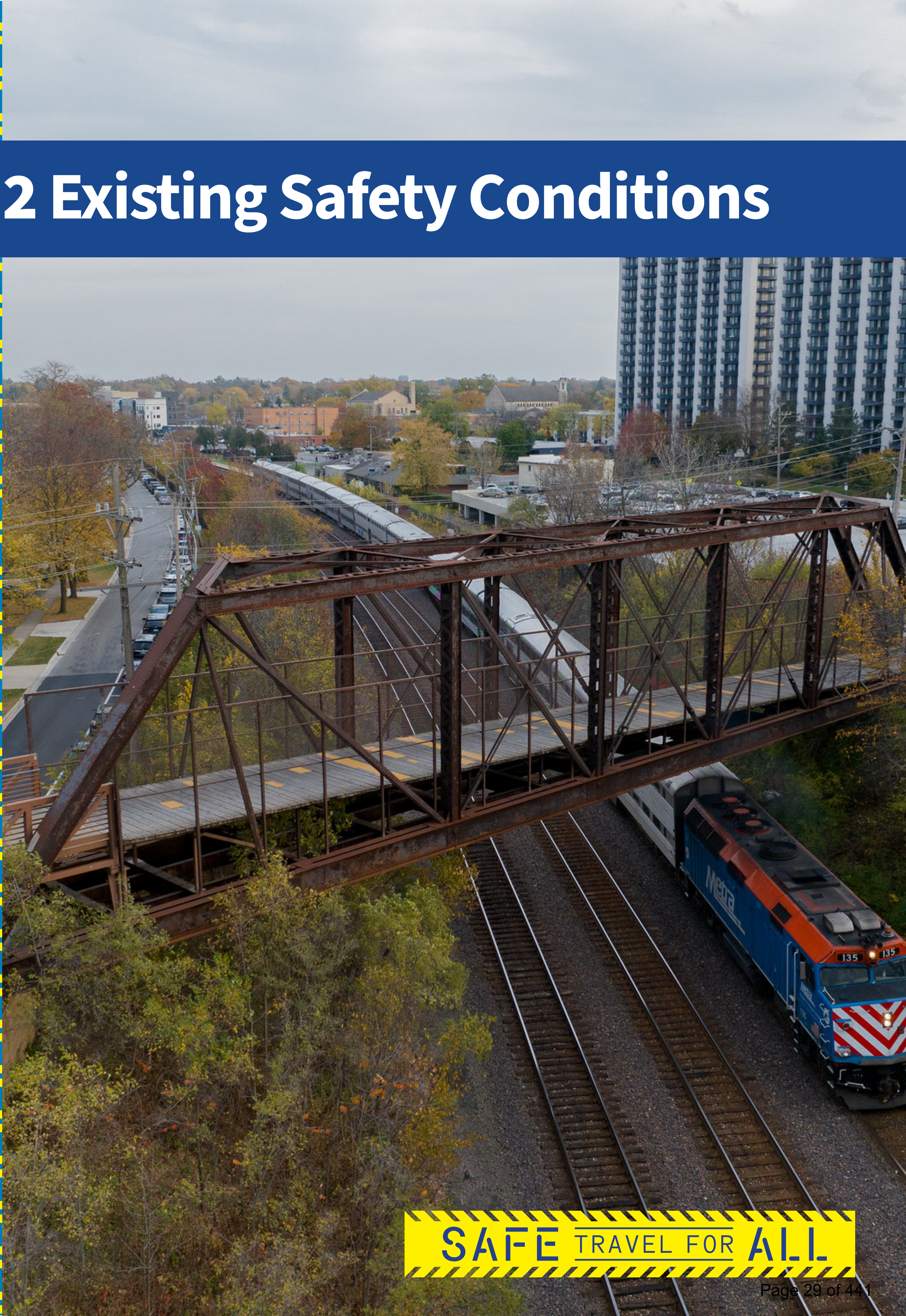
The DuPage County Safety Action Plan **performance measures include metrics to track progress** toward the countywide target to reduce or mitigate deaths and serious injuries from traffic crashes, regional safety targets consistent with Federal Highway Administration (FHWA) requirements, and supplemental measures specific to DuPage County's emphasis areas. All performance measures will be available to the public.

Performance Measure	Baseline	Frequency	Data Source
Total Fatalities and Serious Injuries	385.4	Annual	IDOT
Total Fatalities	43.6	Annual	IDOT
Fatality Rate (per hundred million vehicle miles traveled, HMVMT)	0.57	Annual	IDOT
Total Serious Injuries	341.8	Annual	IDOT
Serious Injury Rate (per HMVMT)	4.415	Annual	IDOT
Non-motorized Total Fatalities + Serious Injuries	51.4	Annual	IDOT
Speed-related Fatalities and Serious Injuries	144.8	Annual	IDOT
Older User (65+) Fatalities and Serious Injuries	55.0	Annual	IDOT
Fatalities Per Capita – All Residents	4.50/100,000	Annual	NHTSA/ US Census
Fatalities Per Capita – Black Alone	10.91/100,000	Annual	NHTSA/ US Census
Fatalities Per Capita – Hispanic or Latino	6.73/100,000	Annual	NHTSA/ US Census

Accountability

Keeping the diverse array of safety partners focused on crash emphasis areas and systemic strategies requires coordination and transparency. Action plan implementation will be an agenda item for DuPage Mayors and Managers Conference (DMMC) TransTech committee. Through this forum, roadway owners across the county can provide updates on actions taken, track safety investments, develop collaborative work plans, and reflect on success and challenges in implementing the plan.

2 Existing Safety Conditions



Existing Safety Conditions Contents

1 Introduction

The Existing Safety Conditions (ESC) section uses historical crash data to evaluate key safety issues, high crash locations, and high-risk roadway characteristics. The ESC is not a comprehensive analysis of existing conditions or an exhaustive crash analysis. The ESC provides a data-driven snapshot, informed by lived experience, of the highest priority transportation safety issues facing DuPage County. The ESC lays the path forward for the development of strategies, policies, projects, and actions for the County and its partners to implement.

The ESC incorporates requirements of the United States Department of Transportation (USDOT) Safe Streets and Roads for All (SS4A) action plans, the Chicago Metropolitan Agency for Planning's (CMAP) safety action plan framework, and the input and direction of CMAP and DuPage County staff. The ESC fulfills USDOT's SS4A Self-Certification Eligibility Worksheet requirement #3: Safety Analysis as well as portions of #5: Policy and Process Changes.

The ESC is divided into six sections: **Existing Conditions Overview**, **High Injury Network**, **Systemic Safety Conditions**, **Railroad-related and Grade Crossing Incident Safety Analysis**, and **Data Recommendations**.

Data Sources

Unless otherwise noted, all crash data analyzed and presented in the following sections were obtained from the Illinois Department of Transportation (IDOT) via their Safety Portal and were sourced from the Illinois State Police and other local and regional enforcement agencies as provided by CMAP on April 1, 2024 within the boundary of DuPage County. Crash data cover the years of 2018 to 2022, the most recent available from IDOT at time of analysis, are used as-is for analysis purposes, and should be interpreted accordingly. In addition, the period of analysis overlaps with the onset of the Covid—19 pandemic in March 2020 and is impacted by resulting changes to travel and behavior. All figures, tables, and data points included in the ESC are based on this data set, unless otherwise noted.

Crashes that were not reported to law enforcement, do not meet IDOT's reportability criteria as laid out in the *Illinois Traffic Crash Report SR1050 2019 Instruction Manual for Law Enforcement Agencies*[i] or do not meet the American National Standards Institute (ANSI) definition of a motor vehicle crash[ii] are not included in the analyses in this memo. By ANSI and IDOT definitions, a crash must involve at least one motor vehicle. This includes multiple vehicle crashes, single vehicle crashes, and crashes involving a vehicle and another roadway user such as a pedestrian or bicyclist. A collision between a bicyclist and a pedestrian, a single bicyclist, and other collisions not involving a motor vehicle do not meet ANSI crash definitions and are thus not reflected in these analyses. Crashes that are not reported or do not meet reporting criteria (crashes in which no one is injured and property damage costs are very low) are not included. Underreporting is a major issue, especially for crashes involving a bicyclist or pedestrian. Research indicates that police data, for example, likely underreport the number of bicycle and pedestrian crashes, even those resulting in emergency room visits,[iii] and likely underrepresent pedestrian crash injury incidence.[iv] Furthermore, crash report form fields do not contain every data point that analysts may be interested in, such as detailed socioeconomic and demographic info, disability status, and other key data points. While some of this information may be included in death certificates and crash narratives, these data points are not available to analysts in an aggregated format.

2 Existing Conditions Overview

The existing conditions overview covers current plans and policies constituting a representative picture of the state of transportation safety practice and outcomes in DuPage County. The broad scope of the overview, which serves to identify the animating ideas and understand how they have been operationalized through policy, process, procedure, and/or ordinance, will provide ideas for strategies and actions to address the identified severe crash trends in latter stages of safety action plan development.

The overview has three sections: **plan review**, **policy and process assessment**, and **severe crash analysis**.

The overview covers the SS4A requirements for Safety Analysis "analysis of existing safety conditions and historical trends" and "analysis of the location where there are crashes, the severity, as well as contributing factors and crash types" in addition to Policy and Process Changes "assessment of current policies, plans, guidelines, and/or standards to identify opportunities to improve how processes prioritize safety."

Plan Review

State Plans

IDOT produces multiple statewide plans that set goals and describe strategies for roads and highways under its jurisdiction and for the broader multimodal transportation system.

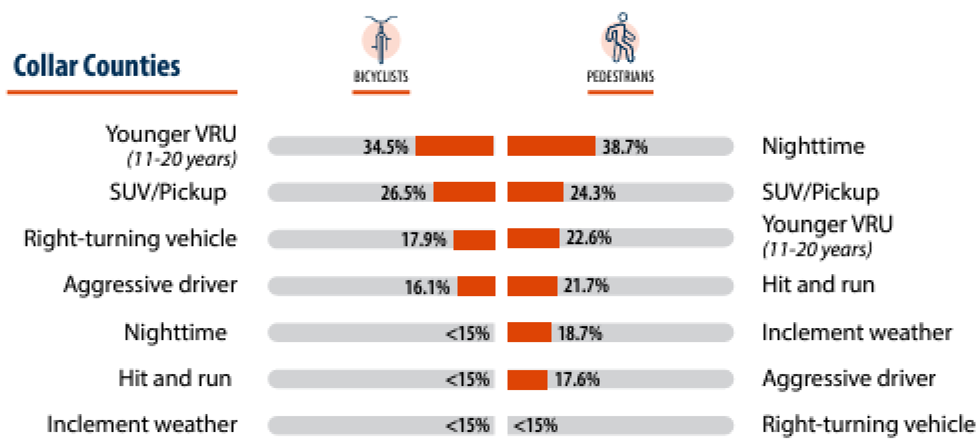
Illinois Vulnerable Roadway User Safety Assessment (2023)

IDOT completed a vulnerable roadway user (VRU) assessment in furtherance of requirements set out in the Bipartisan Infrastructure Law (BIL). The VRU assessment includes quantitative analysis, consultation, and a program of projects and strategies to meet its vision: "a future where no one loses their life or is seriously injured while biking, walking, and rolling so that IDOT can achieve the goal of zero fatalities and serious injuries on public roadways in Illinois."

The VRU assessment includes a bicyclist and pedestrian High Injury Network (HIN), which breaks out intersections and segments of elevated crash risk based on different areas of the state, including a category for collar counties, the five counties that border Cook County (DuPage, Kane, Lake, McHenry, and Will Counties). The top three routes, County Farm Road, Cass Street, and Illinois Route 59, pass through DuPage County. The analysis also includes cluster locations for pedestrians and bicyclists, with the top two locations – York, Vallette to Seminole and Geneva & County Farm, both Illinois Prairie Path crossings – located in DuPage County.

Systemic analysis reveals that, within the collar counties, the highest proportion of bicyclist and pedestrian crashes occur at unsignalized intersections. Specific contributing factors are also assessed by mode, as shown in Figure 1. Bicyclist crashes involving younger users, SUV/pickup trucks, and right-turning vehicles led the list of contributing factors. For pedestrians, night-time crashes, SUV/pick-up, and younger users constituted the top three.

Figure 1: Contributing Factors



Source: IDOT VRU Assessment 2023, Pg. 2-23

The systemic analysis matches up the identified crash types with facility characteristics to identify areas of high risk for proactive assessment and improvement. Within the collar counties, bicyclist right-turning vehicle crashes were most likely to occur on four-lane arterials with 15,000-30,000 annual average daily traffic (AADT), 30-35 MPH speed limit, and commercial land use. Pedestrian nighttime crashes were most likely to occur on two-lane arterials with 15,000-30,000 AADT, 30-35 MPH posted limits, and commercial land use.

The VRU assessment concludes by matching countermeasures to significant VRU crash types with an emphasis on countermeasures that align with the Safe System Approach, including increasing separation between users (i.e., safer roads) and setting and encouraging safer speeds. Additional design countermeasures include roundabouts, turn prohibitions, signal timing, enhanced crosswalks, and geometric improvement as well as systemic improvements like improved public transit access, speed enforcement, emergency response, data collection for exposure, legislation on speed limit setting, and Complete Streets policies.

Illinois Strategic Highway Safety Plan 2022-2026 (2022)

The *Strategic Highway Safety Plan* (SHSP) sets IDOT's vision for eliminating traffic fatalities and serious injuries for all users for the transportation system and identifies performance measures, emphasis areas, and a program of strategies that leverage design, technology, behavioral, and policy approaches to achieve them. The SHSP is a state-level plan, encompassing all roadways in Illinois regardless of jurisdiction. Thus, its general findings may differ from those found for individual counties like DuPage or municipalities. However, it serves as an instructive baseline for the state of the practice in Illinois and a benchmark for county- and local-level comparisons.

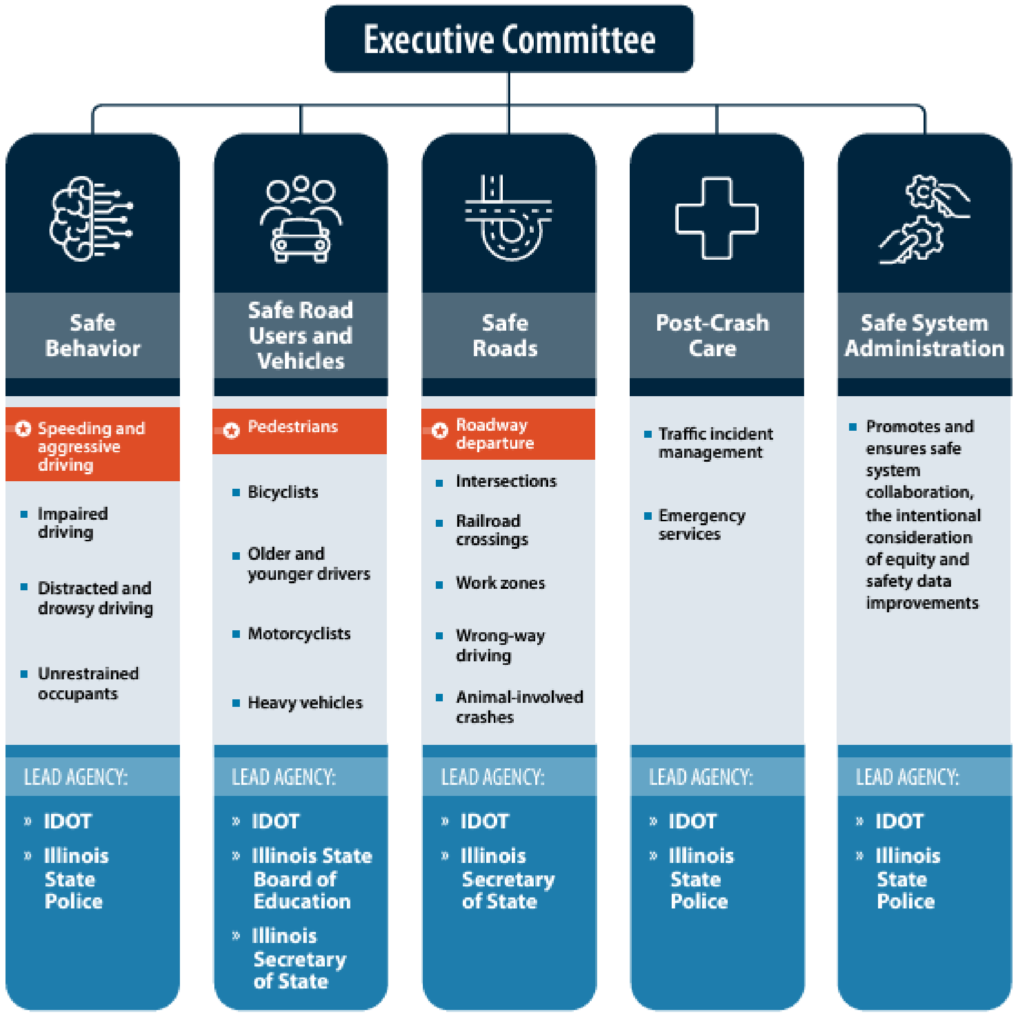
The SHSP is structured around five pillars consistent with Safe System Approach, Safe Behavior, Safe Road Users and Vehicles, Safe Roads, Post-Crash Care, and Safe System Administration, with three priority focus areas: speeding and aggressive driving, pedestrians, and roadway departure. Emphasis areas consistent with past SHSPs are also discussed and sorted under each of the five pillars. While all emphasis areas are associated with strategies and countermeasures, the three priority focus areas receive heightened attention. Recommended countermeasures are summarized in Table 1.

The SHSP assigns implementation responsibilities for the five pillars across state departments, as shown in Figure 2. Consistent with the Safe System Approach, this leadership structure reflects shared responsibility across departments for making safety the priority performance measure of the State transportation system.

Table 1: SHSP Countermeasures by Priority Focus Areas

Focus Area	Countermeasure
Roadway Departure	Countermeasures to keep vehicles from encroaching on the roadside along tangents (e.g., enhanced edge lines, shoulder rumble strips, widened shoulders)
	Countermeasures to keep vehicles from encroaching on the roadside at curves (e.g., chevrons, advanced signing, improved lighting, high friction surface treatment)
	Countermeasures to keep vehicles on the road via speed management (e.g., speed pavement markings, updated speed-limit setting policy, education)
	Countermeasures that may be implemented to reduce likelihood of crashing into an object or overturning (e.g., safer slopes, centerline rumble strips, median barriers, guardrails)
	Comprehensive effective countermeasures for mitigating roadway departure crashes (e.g., road safety audits, review design practices, stakeholder inclusion)
Speeding	Countermeasures to detect speeding and support law enforcement (e.g., strengthen speed detection, explore automated enforcement, conduct high visibility enforcement)
	Additional law enforcement resources (e.g., purchase, deploy, and use speed measuring devices, use law enforcement liaisons to link partners)
	Judicial and legislative countermeasures (e.g., support legislation to strengthen penalties, strengthen adjudication of speed citations)
	Incorporate infrastructure treatments to reduce aggressive and speeding behavior (e.g., employ traffic calming, prepare Complete Streets policies, use dynamic messaging signs)
	Improve understanding and awareness of the impacts of speed and crash outcomes (e.g., provide additional education and public information)
Pedestrians	Countermeasures to reduce pedestrian exposure (e.g., sidewalks, curb extensions, countdown times, leading pedestrian intervals, road diets, protective barrier systems)
	Countermeasures to improve visibility and awareness (e.g., crosswalk enhancements and illumination, transit stop visibility and accessibility, pedestrian hybrid beacons)
	Countermeasures for improving awareness of pedestrian safety (e.g., education, outreach, training, road safety audits, update highway design manual)
	Safe speed or slowing vehicle countermeasures (e.g., traffic calming, reduce statutory speed limits, allow creation of pedestrian safety zones, speed management training)

Figure 2: IL SHSP Leadership Structure



Source: IDOT SHSP 2022-2026, Pg. 6-2

Countywide Plans

DuPage County supplied the most recent and relevant county-level plans for review. The project team summarized each plan below, breaking out recommendations and policy directions related to safety and the Safe System Approach.

DuPage County Trails Plan (2024)

The *DuPage County Trails Plan*, developed by the DuPage County Division of Transportation (DuDOT), outlines the framework for the ownership, operations, and maintenance of DuPage County's regional trail network. This plan primarily focuses on three regional trails: the Illinois Prairie Path, Great

Western Trail, and Southern DuPage Regional Trail. The Plan aims to enhance the county's trail network by focusing on planning goals organized across path maintenance, permitting management, environmental conservation, engineering practices, unique trail elements, and creation of an accessible living document to enable interagency coordination. Strategies and action items include establishing trail crossing guidelines, implementing signage and wayfinding toolkits, and focusing on user experience to enhance opportunities for recreation and safety across the trail network.

The plan envisions DuDOT as the steward of a seamless, engaging, and well-maintained regional trail network that fosters safety, accessibility, and environmental sustainability. Regarding safety in particular, DuPage County residents identified concerns around crossings and routes where at-grade trails create conflicts with automobile traffic, indicating that high-visibility signage and clear sight lines are desired features near at-grade crossings. To standardize trail crossing enhancement guidance, DuDOT uses a table based on IDOT's *TRA-23: Guidelines for Establishing Pedestrian Crossings* policy to recommend safety countermeasures based on a roadway's posted speed limit and AADT – these include features such as high-visibility crosswalks, raised crosswalks, yield/stop lines, in-street pedestrian crossing signs, curb extensions, pedestrian refuge islands, rectangular rapid flashing beacons (RRFBs), road diets, and pedestrian hybrid beacons. Other safety themes include discomfort near high-speed bicyclists and e-bikes, as well as safe passing and trail etiquette issues.

DuPage County Mobility Framework Plan (2023)

The *DuPage County Mobility Framework Plan* lays out a comprehensive, long-term vision for enhancing the county's transportation network to meet the evolving needs of its population. Addressing challenges posed by the pandemic, the plan focuses on foundational goals and strategies while emphasizing collaboration between DuDOT, individual communities, and transit agencies. Informed by other regional planning initiatives (*CMAP Mobility Recovery Action Plan*, *RTA Transit is the Answer*, etc.) as well as community engagement, the plan identifies specific transportation needs targeted toward seniors, disabled individuals, students, and the general population.

Regarding safety, the *Mobility Framework Plan* emphasizes the role of public transportation and alternative modes like biking and walking in creating a safer and more accessible transportation network through its eight Planning Themes. Theme 8, Safety, involves enhancing the safety of transit riders, bikers, and pedestrians by improving network connectivity and implementing system safety standards. Safety interventions include improved road and rail crossings, enhanced lighting conditions, advanced warning pedestrian beacons, and protected bikeways. The plan acknowledges suburban development patterns, wide arterials, expressways, and complex intersections as barriers to pedestrian and bicyclist safety and proposes collaborative efforts between communities, service providers, and IDOT to improve infrastructure.

DuPage County Local Road Safety Plan (2021)

As fatalities and serious injuries have trended downwards in DuPage County since 2014, it remains among the top 30 counties in the state with the highest number of severe crashes. To address this issue, the *DuPage County Local Road Safety Plan* (LRSP) brought together key stakeholders to identify safety-oriented projects linked to factors contributing to severe crashes. The plan includes a system-wide safety analysis, priority emphasis areas, analysis of distinct crash types according to each emphasis area, low-cost safety treatments, and potential project locations for interventions to be deployed.

The LRSP outlines five key emphasis areas drawn from the larger list in IDOT's SHSP, including intersections, aggressive driving/speeding, older drivers, pedestrians, and pedalcyclists. The plan outlines proven strategies for each emphasis area, utilizing a framework that integrates the Four Es of Traffic Safety: engineering, enforcement, education, and emergency services. The LRSP identifies 55 miles of roadway segments and 113 intersections as potential safety improvement candidates. The plan's ultimate vision is to continuously improve safety systems, reduce fatal and serious injuries, and work towards zero deaths on local roads in DuPage County.

Table 2 summarizes the four LRSP emphasis areas, with associated goals and objectives. Two of the four emphasis areas in the LRSP, bicycle and pedestrian safety and speeding and aggressive driving align with the statewide emphasis areas defined in the SHSP.

Table 2: DuPage 2021 Local Road Safety Plan Emphasis Areas, Goals, and Objectives

Emphasis Area	Goal	Objectives
Intersections	Reduce/eliminate high severity crash types including turn, angle, and head on crashes at intersections	Monitor locations with sustained frequency of high severity crashes and evaluate intersections with high probability of future crashes
		Perform safety assessments at intersections with sustained incidence
		Identify effective countermeasures to reduce or eliminate risk and implement improvements
Bicycle and Pedestrian Safety	Ensure safety of all non-motorized transportation system users	Assess non-motorized movements and evaluate potential conflict locations
		Attain compliance with current ADA standards regarding the pedestrian environment and coordinate LRSP with established ADA Transition Plans
		Enhance pedestrian and bicycle facilities (i.e., crossings and on road facilities) with warning devices and user assists that clearly separate and prioritize non-motorized user safety
Speeding and Aggressive Drivers	Reduce speeding and aggressive behaviors that place all transportation system users at risk	Locate areas with speeding and aggressive driving clusters and assess causes
		Evaluate high severity crash risk and possible countermeasures
		Design regulatory and enforcement responses to curtail aggressive behavior and address compliance
Older Drivers	Determine locations and conditions where older drivers and non-motorized users may have difficulty safely navigating the transportation system and provide system enhancements that afford greater security	Communicate with senior users and representatives to determine their concerns regarding transportation systems
		Determine locations and network features that present confusion and risk to seniors and examine/implement improvements that provide clear guidance and consistency
		Implement senior driver and user advisory systems and encourage local information and messaging

DuPage County Long Range Transportation Plan (2021)

The *Long Range Transportation Plan* (LRTP) sets the stage for transportation infrastructure investments between 2021 and 2040, facilitating a countywide, cooperative planning process. The LRTP includes an analysis of existing travel trends and assets, projected future conditions, needs, and fiscal resources. The LRTP structure investments around five goals informed by public and stakeholder engagement, national, regional, and state goals, the *DuPage County Strategic Plan*, and other local plans: Improve Safety, Provide Mobility Choice, Efficient Operations and Maintenance, Promote Access to Opportunity and Increase Economic Vitality, and Foster Sustainability and Resilience.

Improve Safety is the first goal area in the LRTP with a vision to "improve safety on the transportation system across all modes for motorized and non-motorized users. This includes maintaining a state of good repair through continual evaluation and timely repair." The safety goal is supported by four objectives:

- Ensure a state of good repair for transportation infrastructure
- Reduce roadway incidents involving passenger and freight vehicles and non-motorized users
- Incorporate safety considerations in all transportation plans and design elements, both non- and motorized users
- Evaluate and prioritize projects that maximize safety benefit

The LRTP emphasizes that safety is DuPage County's highest priority and stresses the importance of state of good repair, with emphasis on bridges. The LRTP also references the LRSP and the importance of achieving ADA compliance for the safety of all road users. Accordingly, performance measures for the plan include pavement and bridges rated in fair to excellent condition, curb ramps upgraded to ADA standards, fatal and injury crash trends including breakouts for bicyclists and pedestrians, traffic signals modernized or repaired, and number of improvements at high crash locations.

DuPage County ADA Transition Plan (2020)

The DuPage County ADA Transition Plan, developed by DuDOT, seeks to ensure accessibility for all individuals, particularly people with disabilities, across its transportation infrastructure. The plan focuses on compliance with the Americans with Disabilities Act (ADA) and the Public Right of Way Accessibility Guidelines (PROWAG), addressing barriers in the county's 200-mile pedestrian network that includes sidewalks, curb ramps, and signalized intersections. It establishes a comprehensive framework for self-evaluation, public engagement, and an actionable strategy to improve accessibility within DuDOT rights-of-way and on the DuPage County Campus.

This plan prioritizes barrier removal and infrastructure upgrades that directly benefit vulnerable road users, such as individuals with disabilities, older adults, and children. By incorporating ADA standards into maintenance, capital programming, and permitting processes, DuDOT seeks to create a safer, more inclusive pedestrian environment. The plan also aligns with broader county goals of enhancing multimodal transportation, supporting economic self-sufficiency, and improving access to community services. Through public input, designated ADA coordinators, and a transparent self-evaluation and monitoring process, DuDOT will chart its progress toward a fully accessible transportation system that improves mobility for all.

Elgin O'Hare Regional Bicycle and Pedestrian Plan (2017)

The plan, prepared for DuPage County and CMAP, covers an approximately 70-square mile region near O'Hare Airport inclusive of 10 communities in DuPage and Cook Counties. The plan seeks to provide a vision and framework for multimodal connections along and across the Elgin-O'Hare Expressway, one of the biggest transportation network changes in decades. The core principles of the plan are as follows: Elgin O'Hare Western Access/IL 390 and I-355/I-290 will not be barriers to non-motorized travel and the plan will be multi-jurisdictional.

Applying low-stress bike- and pedestrian-friendly infrastructure to the existing street network and expanding the off-street network are the chief foci of the plan's recommended improvements. Low-stress facilities include sidepaths, separated bike lanes, and intersection improvements. The plan recommends 79 miles of multi-use paths, 22 miles of separated bike lanes, 21 miles of bike lanes, 16 miles of neighborhood greenways, 10 miles of shared lane markings, seven miles of wayfinding, traffic calming and/or streetscaping, and 4 miles of trails. The plan also includes programmatic and policy goals including commercial driver education and commuter education, pedestrian and bicycle counts in high crash areas, and Complete Street policies.

Local Plans

The project team obtained several ongoing or recently completed local plans relevant to the safety action plan. Many, but not all, municipalities in DuPage County have completed an active transportation plan. This is discussed in more detail in the Policy and Process Assessment.

Glendale Heights Bicycle & Pedestrian Plan (2024)

The *Glendale Heights Bicycle and Pedestrian Plan*, developed by the Village in partnership with CMAP, aims to create complete, connected, and safe networks for walking and biking in Glendale Heights, IL. The plan includes recommendations for bikeways, pedestrian networks, intersections, and crossings to improve safety, access, and connectivity. The plan recommends traffic calming measures, policies and programs to support walking and biking (such as Safe Routes to School), and funding and maintenance strategies to guide implementation toward a safer, more comfortable walking and bicycling experience for all residents.

One of the key aspects of the plan is the development of a future bike network, which includes adding or enhancing 28 miles of bikeways across the Village. The primary routes identified as Tier 1 facilities include shared use paths along Fullerton Avenue and Mill Pond Drive/Exchange Boulevard/Windy Point Drive, a separated bike facility along President Street, and a greenway along Belden Avenue. In addition to these bikeway recommendations, the plan addresses pedestrian infrastructure by identifying and prioritizing sidewalk gaps, especially along corridors with high pedestrian activity and at intersections and crossings near parks and schools. Project locations are prioritized based on community input, analysis of access to important destinations, and evaluation of barriers and crash hot spots. Together, the strategies and projects identified in the plan set the stage for a more walkable and bikeable Glendale Heights and align the Village with CMAP's principles of inclusive growth, resilience, and prioritized investment.

Bensenville Active Transportation Plan (2016)

The *Bensenville Active Transportation Plan* outlines a series of strategies and actions to promote active mobility options among the Village's residents. The plan encompasses various elements to enhance mobility options and improve access to local destinations. The planning process involved a six-month period of community engagement and input gathering to determine priority areas for improvement and identify major themes to guide implementation. Specific projects include the recently completed streetscape project on Irving Park Road, which has created a more pedestrian-friendly environment, and the development of a shared-use path on Church Road to improve bicycle and pedestrian connectivity. The *Bensenville Active Transportation Plan* seeks to build on this momentum and establish a robust network of streets and trails to complement these recent successes by identifying future infrastructure improvements, developing supportive policy frameworks (such as defining snow-removal responsibilities and establishing bicycle parking ordinances), and clarifying funding sources. By improving local active transportation options, Bensenville aims to help residents improve their quality of life and enable them to access local regional destinations on foot or by bike.

Policy and Process Assessment

Policy affects DuPage County's ability to reach traffic safety goals at nearly all levels. Internal municipal processes, municipal and County ordinances, control and management of right-of-way, and County and IDOT design policies shape how safety projects and programs are delivered and the safety countermeasures available to the County and municipalities alike.

This assessment focuses on the areas that DuPage County and municipalities within the county have authority over: ordinances, typical practices, standard operating procedures, and engineering guidelines, among others. The project team, however, recognizes that responsibility for creating a safe system is shared more broadly and that policies outside of the direct purview of DuPage County should be assessed. This is especially applicable as certain external policies, such as IDOT design guidelines, have local impacts and in fact influence the policy decisions of local agencies. The Safety Action Plan ultimately recommends strategies and actions incorporating improvements to traffic safety policy within the county going forward.

Assessment Process

To assess policy across levels of government, the project team reviewed documentation of existing local traffic safety policies, conducted targeted conversations with County and municipal staff, and collected input from an online survey.

Existing Surveys and Policy Inventories

The project team reviewed CMAP resources, including municipal surveys and inventories of key policies and plans, to understand the state of the practice and municipal policy priorities and sentiments within the boundaries of DuPage County. To guide its Local Technical Assistance (LTA) program and other activities, CMAP conducts a biennial survey sent to the 284 communities within the region. The project team also reviewed the *Chicagoland Bike Walk Policy & Plan Tracker*,[v] which catalogues existing Complete Streets and active transportation plans in Illinois, developed by the Active Transportation Alliance on behalf of CMAP.[vi] The project team drew on the 2022 edition of the survey.

Safety Action Plan Municipal Safety Policy Survey

The project team created an online survey about safety practices and policy needs, which DuPage County staff distributed through the DuPage Mayors and Mangers Conference (DMMC). A total of nine municipalities submitted responses. Respondents were asked to share information about existing guidance they rely on to make decisions about safe street design, barriers to achieving safe streets, and areas where they could use additional guidance.

All respondents were engineers or public works directors. While the respondents are well-qualified people in the municipalities to answer questions about the street design process and barriers, the shared background of the people filling out the survey limits the perspectives gathered.

Interviews

Project staff conducted three interviews with municipal engineering staff to gather additional details and context not captured in the survey. In addition, the project team held an interview with County transportation staff to better understand the safety policy landscape in DuPage County, including past and ongoing policy efforts and known gaps, barriers, and opportunities.

Assessment Findings

The following section catalogs the topics and themes that surfaced in the policy review. Major policy issues and opportunities that municipal and County staff raised in taking a Safe System Approach to traffic safety fell into several categories: Complete Streets and active transportation plans, speed management, jurisdiction and ownership, crash data, and design guidance.

Complete Streets and Active Transportation Plans

Many streets and roads across northeastern Illinois and in DuPage County were designed primarily to meet the needs of motorists and to facilitate their mobility. In areas outside of traditional downtowns and more urban contexts, the built environment largely lacks safe, accessible, connected, and convenient facilities for walking, rolling, and biking. While contemporary transportation planners, engineers, elected officials, and policymakers recognize the importance of designing systems that work for all users, changes to policies and practices are still underway. Designing safe streets for people outside of vehicles will continue to require intentional and consistent commitment, echoed in many recent plans completed by the County and DuPage municipalities. Creating truly multimodal networks also requires overcoming past land use decisions and permitting and regulatory challenges. Complete Streets policies and active transportation plans are key tools in delivering these safe networks for all users.

DuPage County has historically been a leader in Complete Streets, adopting its first county-level Complete Streets policy in 2004 (known as the Healthy Roads Initiative) and its first Regional Bike Plan in 1984. The policy was updated in 2008, and its first Trails Plan was completed in 2024. Other work, including an updated Active Transportation plan for the county, is ongoing.

Within DuPage County, the County government and 19 municipalities have existing Complete Streets policies (see Table 3) based on information collected through the *Chicagoland Policy Tracker*. Four communities have active transportation plans but don't yet have Complete Streets policies. Several municipalities that overlap with areas of persistent poverty in DuPage County currently lack Complete Streets policies. The institutionalization and impact of existing policies varies, as some municipalities have adopted a minimal Complete Street policy largely to meet funding requirements.

In pursuit of safe and complete networks that meet the needs of people of all ages and abilities, practitioners have significantly improved the state of the Complete Streets practice since the early 2000s. Organizations like Smart Growth America have tracked these changes and incorporated them into their Complete Streets policy ratings.[vii] Revisiting and refreshing older policies may be beneficial. Tools like Complete Streets Design Guides, Action Plans, and Checklists are also critical to moving a policy into consistent implementation across planning, design, operations, and maintenance. Assessing policies for updates on a regular schedule, no greater than ten years, embodies the principle of continuous improvement central to the Safe System approach.

Table 3: Municipal Complete Streets Policies and Active Transportation Plans

Municipality	Complete Streets Policy or Plan		Active Transportation Plan	
Addison	No	N/A	No	N/A
Aurora	Complete Streets Policy	2020	City of Aurora Bicycle & Pedestrian Plan	2009
Bartlett	Complete Streets Policy (p. 35)	2017	Bartlett & Streamwood Bicycle and Pedestrian Plan	2022
Batavia	Complete Streets Policy	2020	City of Batavia Bike and Pedestrian Plan	2023
Bensenville	Complete Streets Policy	2016	Bensenville Active Transportation Plan	2016
Bloomingdale	Complete Streets Policy	2020	No	N/A
Bolingbrook	No	N/A	No	N/A
Burr Ridge	No	N/A	No	N/A
Carol Stream	No	N/A	No	N/A
Clarendon Hills	No	N/A	No	N/A
Darien	No	N/A	No	N/A
Downers Grove	No	N/A	Village of Downers Grove Bicycle and Pedestrian Plan	2013
Elk Grove	Complete Streets Policy	2019	Elk Grove Village Bicycle Plan	2022
Elmhurst	No	N/A	City of Elmhurst Bicycle & Pedestrian Plan	2020
Glen Ellyn	Complete Streets Policy	2019	Move Glen Ellyn Active Transportation Plan	2014
Glendale Heights	Yes	2020	Glendale Heights Bicycle & Pedestrian Plan	*Anticipated 2024*
Hanover Park	Hanover Park Comprehensive Plan Update	2010	No	N/A

Municipality	Complete Streets Policy or Plan		Active Transportation Plan	
	(p. 68)			
Hinsdale	No	N/A	No	N/A
Itasca	No	N/A	No	N/A
Lemont	Complete Streets Policy	2011	Lemont Active Transportation Plan	2012
Lisle	No	N/A	Lisle Bicycle & Pedestrian Plan	2020
Lombard	Complete Streets Policy	2014	Lombard Village-wide Bicycle and Pedestrian Master Plan	2016
Naperville	Complete Streets Policy	2019	No	N/A
Oak Brook	No	N/A	No	N/A
Oakbrook Terrace	No	N/A	No	N/A
Roselle	No	N/A	No	N/A
Schaumburg	Complete Streets Policy	2018	Schaumburg Bikeways Plan	1999
St. Charles	City of St. Charles Comprehensive Plan – Ch. 7: Transportation Plan (p. 71)	2013	No	N/A
Villa Park	Complete Streets Policy	2020	Villa Park Bicycle & Pedestrian Master Plan	2018
Warrenville	Complete Streets Policy	2019	City of Warrenville Bikeway Implementation Plan	2008
Wayne	No	N/A	Bicycle Plan for Wayne Township	2015
West Chicago	No	N/A	No	N/A
Westmont	No	N/A	No	N/A
Wheaton	Complete Streets Policy	2021	Wheaton Bicycle Plan	2011
Willowbrook	No	N/A	No	N/A
Winfield	Complete Streets Policy	2016	Bicycle Plan Winfield	2014
Wood Dale	Wood Dale Comprehensive Plan (p. 83)	2018	No	N/A
Woodridge	No	N/A	No	N/A

Source: Metropolitan Planning Council Bike Ped Database

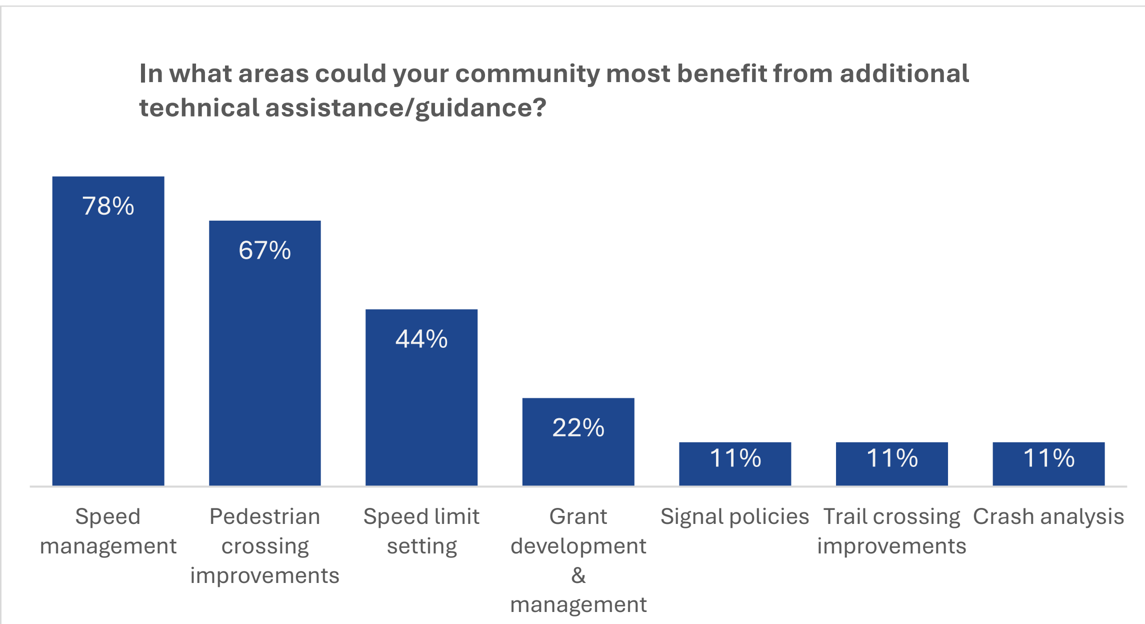
Note: The City of Chicago was removed from this list, as only unpopulated portions of O'Hare International Airport lie within the DuPage County boundary.

Speed Management

High speeds are a persistent issue at both the municipal and county level on streets across jurisdictions. As noted later in this section, speed is a leading contributor to crashes resulting in death or serious injury in DuPage County and are a priority emphasis area in the 2021 LRSP. To assess the state of speed management policy in DuPage County, transportation and safety professionals at multiple levels of government were surveyed about their current practices and technical needs.

Speed management strategies and speed limit setting guidance were two of the most requested areas for potential technical guidance in the SAP municipal survey responses, as shown in Figure 3. This finding is also supported by the results of the CMAP municipal survey, where most municipalities reported considering speeding as a high priority, with all but five considering speed management at least a low priority.

Figure 3: Municipal Technical Assistance Needs



The results of the biennial CMAP survey also indicate that many municipalities are concerned about speeding but do not connect it with Complete Streets policies and infrastructure; while most considered speeding an issue, many municipalities have yet to discuss Complete Streets policies. Municipal and County staff who participated in policy interviews noted that lowering or adjusting posted speeds should be paired with infrastructure changes that provide environmental cues to drivers to slow down.

The Illinois Vehicle Code allows municipalities to alter speed limits on local roadways based on an engineering or traffic investigation. Special speed limit zones around schools can also be established through proper signage. Opportunities for speed limit reductions are increasing as the 11th edition of the *Manual of Uniform Traffic Control Devices* (MUTCD) de-emphasizes speed limit setting based on prevailing speeds in favor of a context-sensitive approach that accounts for land use, crash history, and other factors. County and some local practitioners are awaiting IDOT to reflect these changes in their Policy on Establishing and Posting Speed Limits on the State Highway System,[viii] which models the way for many practitioners in lieu of an alternate available procedure.

Municipalities in DuPage County are taking action to set speed limits that are safe for all roadway users and consistent with residents' desires for high quality of life. In 2018, Wheaton lowered the speed limit for residential neighborhoods to 25 mph via a City Council vote. The speed limit was lowered based on a traffic study conducted by an engineering firm. Signage on the affected streets was updated, and messaging on the change was disseminated via yard signs and electronic message boards.

Several municipalities have utilized traffic calming on residential streets, predominantly using speed humps. The City of Naperville has adopted a *Traffic Calming Toolkit* that is known to safety practitioners throughout the county.[ix] City staff shared concerns about expanding traffic calming tools, especially those that utilized vertical deflection, out of concern for impacts on emergency responders.

Illinois law currently limits the use of automated safety enforcement to specific locations near parks and schools within the City of Chicago and in work zones by IDOT and the Illinois Tollway.[x,xi] In interviews with municipal and County staff, they noted that this nearly statewide prohibition renders this proven tool inaccessible and shuts down any conversations about its benefits. State law also limits the use of variable, time-of-day, speed limits. Both tools are included in FHWA's *Proven Safety Countermeasures* and are enabled in multiple states.[xii]

Jurisdiction and Funding Requirements

Many roads in DuPage County with safety concerns fall outside of local or County jurisdiction. Addressing safety issues at these locations requires substantial coordination across jurisdictions and/or does not have clear solutions. For instance, many roads and intersections are constructed to accommodate the largest vehicles and mitigate congestion, tackling these locations will require a different approach to balance safety with these current priorities. Many respondents to CMAP's municipal survey indicated that resources supporting cross-jurisdictional coordination are needed.

Intersections where state-jurisdiction roads meet municipal or County roads can prove particularly challenging for funding and design. Highway Safety Improvement Program (HSIP)-Local (HSIP-L) is the main engine for moderate-sized safety projects in DuPage County. If the County or municipalities want to address a multi-jurisdictional intersection through an HSIP-funded project, they are typically only able to modify the local legs of the intersection unless they partner with IDOT, which has a separate funding allocation for HSIP projects on state routes (HSIP-S). Joint funding applications like this are rare, per staff knowledge. Based on the safety history of multi-jurisdictional intersections, these coordination challenges are concerning gaps. Other opportunities for coordinated improvements, like the STP-Shared Fund also exist and can be leveraged for future safety improvements.

Barriers exist to expanding the sidewalk network in DuPage County. While 2021 Illinois State legislation removed the local match requirement for walking and biking infrastructure on state roads, unincorporated areas fall through the cracks per County staff feedback.

Survey respondents noted challenges associated with delivering projects that utilize state and federal funds. Given the built-out nature of roadway rights-of-way in DuPage County and constrained staffing at multiple levels of government, project development timelines for many projects continue to increase. With the extended durations for coordination, reviews, permitting, design, and land acquisition, many local agencies struggle to establish and control their project budgets and timelines.

Crash Data

The format in which traffic crash data are disseminated to the County and municipalities is difficult to navigate, making incorporating safety in day-to-day work a challenge. This sentiment was shared across jurisdictions. Respondents would particularly benefit from tools that enable staff to quickly access and view crash narratives and diagrams and to assess crash patterns at the project level. These concerns were also reflected in the CMAP municipal survey, where improved access to crash data was one of the top three resources requested.

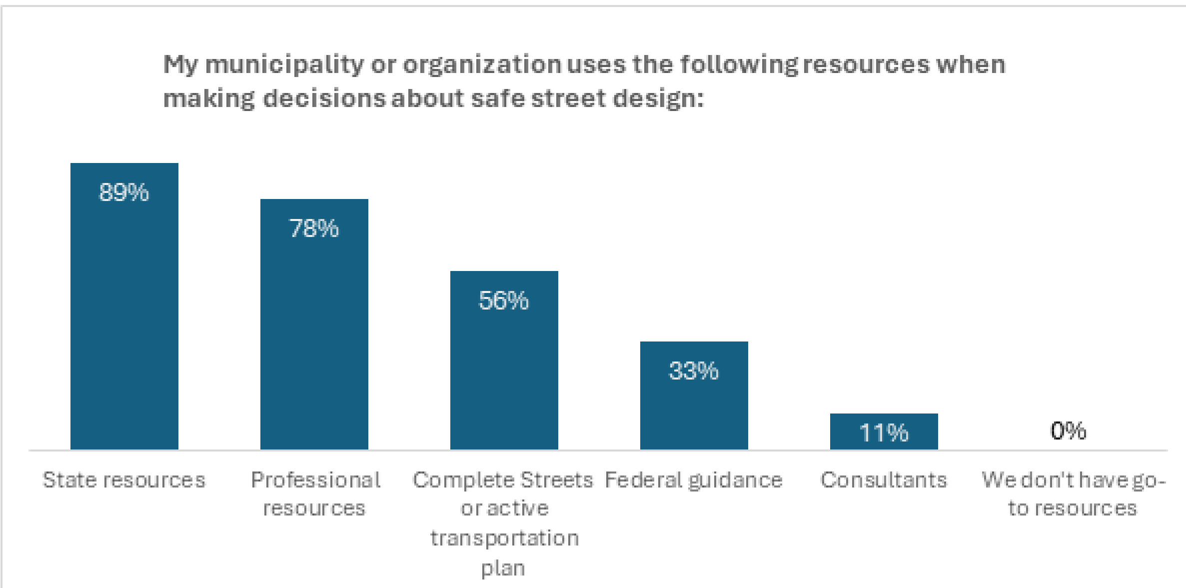
DuPage County has hosted a user-friendly online traffic crash system that allows all local agencies access to the latest crash data and system information. This online portal allows anyone to analyze localized as well as system-wide issues.

Design Guidance

There are existing and well-documented procedures, guidelines, and staff roles as part of the State and County funding processes. Many municipalities feel comfortable navigating these processes as part of their regular work. At the same time, state and federal funding requirements and timelines often impact the ability of local agencies to deliver safety projects on the schedule desired by stakeholders.

The extent to which these traffic safety infrastructure interventions are implemented on local streets in the county varies widely based on available budget, staff resources, and level of public interest and priority. In the CMAP municipal survey, respondents expressed the most interest in resources for identifying gaps in the roadway network for vulnerable road users. SAP municipal survey respondents expressed that they have access to safe streets design resources, with nearly all municipalities relying on State resources like IDOT's Bureau of Design and Environment (BDE) and Bureau of Local Roads and Streets (BLRS) manuals, as displayed in Figure 4. While these resources are standards within the state and based on commonly used guides like the American Association of State Highway and Transportation Officials (AASHTO) *Policy on Geometric Design of Highways and Streets* ("Green Book"), they are oriented toward facilitating the movement of motor vehicles rather than prioritizing safe streets for all users, including vulnerable road users. Encouragement of design flexibility and adoption of context-sensitive guidance like that produced for the National Association of City Transportation Officials (NACTO) for urban areas are potential avenues for future consideration.

Figure 4: Safe Street Design Resources



Municipal engineers are also referencing professional resources like National Association of City Transportation Officials (NACTO) and Institute of Transportation Engineers (ITE) design guides, though it is unclear from the survey responses how often tools within these guides are implemented. Within the interviews, some municipal staff acknowledged that they were aware of these guides but were not actively using them for planning or design purposes in their community or were not sure how they would apply within their community. Based on interview feedback, communities in DuPage may be slower to implement emerging safety countermeasures due to hesitations with being the "first-mover." Municipalities are interested in tools like leading pedestrian intervals (LPIs), for example, but are concerned with coordinating across corridors and jurisdictional boundaries or only applying them in limited locations.

The county and municipalities have expressed a need for clearer guidance on how to handle conflicting policies or compliance with updated state and federal requirements and guidelines that impact traffic safety. Lack of clarity about how to mitigate perceived legal liability or adjust longstanding operational practices has sometimes caused municipalities to forgo safety upgrades. For example, some have chosen to abandon lighting improvements due to concerns about conflicts with voluntary requirements like Dark Sky compliance. Others have avoided replacing markings and signage in line with minimum retroreflectivity standards published in 2022 due to uncertainty about how they would impact winter maintenance practices.

Identified Gaps, Barriers, and Opportunities

The project team identified gaps and barriers in current policies and processes, and opportunities through the interviews conducted with County staff and through the SAP municipal survey. Gaps include a lack of policies, guidance, standards, ordinances or other laws; vague or incomplete policies; or a lack of defined responsibilities that hinder the ability of implementers to make decisions. Barriers include explicit written policies, authorities, or political arrangements that expressly inhibit the ability of safety professionals to implement the projects and programs they believe are best practice. Opportunities are other areas that implementers have identified that have opening for improvement. Responses are summarized in Table 4.

Table 4: Policy and Process Gaps, Barriers, and Opportunities

Gaps	• Multiple DuPage County municipalities have not adopted Complete Streets policies. • Absence of interpretation of how to accommodate updated standards or conflicting policies can lead to inaction out of fear of noncompliance, compounded by additional costs. • Municipalities are aware of the tools available for traffic calming but do not see how the tools can be used on local roadways without unduly impacting emergency responders. • HSIP-L program funds are limited to locally-owned intersections and roadways. • Local infrastructure budgets and funding options are limited, placing high importance on state and federal programs. • Past and current policies and practices have led to sidewalk gaps where County/municipal ROW meets state ROW, resulting in incomplete networks at high-risk locations and/or locations where connectivity needs are high. • Lack of clear IDOT guidance or specific recommendations regarding pedestrian technology.

Barriers	• Automated speed enforcement is not authorized outside of municipalities with a population of 1,000,000 or more (i.e., the City of Chicago) by state law, except in work zones. • Crash narratives and diagrams are difficult to access. • Vertical traffic calming interventions face operational and weather-related challenges. • Project delivery using state and federal funds requires substantial staff resources. • Many municipalities feel limited in the action they can take on safety because larger County and State-owned roadways are perceived as the higher priority for safety improvements but outside of municipal control. • "First-mover" concerns exist around new safety countermeasures and design interventions. • Local agencies face challenges identifying sufficient funding to meet intersection lighting requirements for extended approaches and transitions. • Communities have different starting places in terms of roadway networks, land uses, and resources, resulting in varied experiences with and expectations of safety infrastructure.
Opportunities	• Encouraging the adoption of Complete Streets policies in additional municipalities. • Improving the effectiveness of existing municipal and county Complete Streets policies with the creation of a project checklist. • Creating traffic calming and / or speed management policy and toolbox county-wide to illustrate the applicability within municipalities and across roadway types. • Compiling a resource describing how to place vertical traffic calming tools and mitigate impacts on operations. • Convening a county-wide workshop for elected officials to learn about the available traffic calming tools. • Developing typical designs for trail crossing locations. • Recently adopted legislation offers counties and municipalities the opportunity to have conversations with IDOT regarding sidewalk gaps. • Adopting new local guidance for setting posted speed limits and collaborating with IDOT to align practices across the state per the 11th Edition of the MUTCD and latest best practices from FHWA. • Fatality, road safety, and walk audits to educate staff and stakeholders and develop projects. • Signage and retroreflectivity audits and replacement schedules on the high injury network (HIN) and at complex intersections/interchange through shared services. • Updates to DMMC Surface Transportation Program (STP) and STP-Shared Fund project scoring to incorporate the SAP and crashes resulting in deaths/serious injuries. • Guidance for incorporating signalization countermeasures like leading pedestrian intervals at the corridor or network level.

Severe Crash Analysis

The Safe System Approach adopted by this action plan focuses on severe crashes – those resulting in death or serious injury, also known as KSI (killed or seriously injured) or KA (fatal and incapacitating injury) – rather than taking a broad view of all crashes, including those that result only in minor injuries or property damage only. While all types of crashes may have profound effects, especially for those experiencing economic, social, or health-related insecurity, serious injuries and deaths represent outsized harms that reverberate through families and communities. The Safe System Approach also accepts that some mistakes happen because humans are not perfect actors while recognizing that tools are available to potentially lower and even prevent the risk of mistakes leading to the most serious outcomes. Therefore, the analyses in this section and throughout the ESC distinguish and emphasize those crashes that result in death or incapacitating injury separate from less severe crash outcomes, as defined by the SR 1050 crash report form KABCO scale below.

- **K, Fatality**: A fatal injury is any injury that results in death within 30 days after the motor vehicle crash in which the injury occurred. If the person did not die at the scene but died within 30 days of the motor vehicle crash in which the injury occurred, the injury classification should be changed from the attribute previously assigned the attribute "Fatal Injury."
- **A, Suspected Serious Injury:** A suspected serious injury is any injury other than fatal which results in one or more of the following:
    - Severe laceration resulting in exposure of underlying tissues/muscle/organs or resulting in significant loss of blood
    - Broken or distorted extremity (arm or leg)
    - Crush injuries
    - Suspected skull, chest or abdominal injury other than bruises or minor lacerations
    - Significant burns (second and third degree burns over 10% or more of the body)
    - Unconsciousness when taken from the crash scene
    - Paralysis
- **B, Suspected Minor Injury:** A minor injury is any injury that is evident at the scene of the crash, other than fatal or serious injuries. Examples include lump on the head, abrasions, minor lacerations (cuts on the skin surface with minimal bleeding and no exposure of deeper tissue/muscle),
- **C, Possible Injury**: A possible injury is any injury reported or claimed which is not a fatal, suspected serious, or suspected minor injury. Examples include momentary loss of consciousness, claim of injury, limping, or complaint of pain or nausea. Possible injuries are

those that are reported by the person or are indicated by his/her behavior, but no wounds or injuries are readily evident.

- **0, No Apparent Injury/Property Damage Only (PDO):** No apparent injury is a situation where there is no reason to believe that the person received any bodily harm from the motor vehicle crash. There is no physical evidence of injury and the person does not report any change in normal function.

The analysis presented in this section is based on the DuPage County IDOT crash extract prepared by CMAP for the years 2018-2022 and includes all reported crashes within DuPage County's borders including those that occurred on interstates. This differs slightly from approaches taken in other sections. By using the county boundary, IDOT data can be more readily compared with data from other sources, resulting in a more comparable analysis.

Long Range Severe Crash Trends – 2008 to 2022

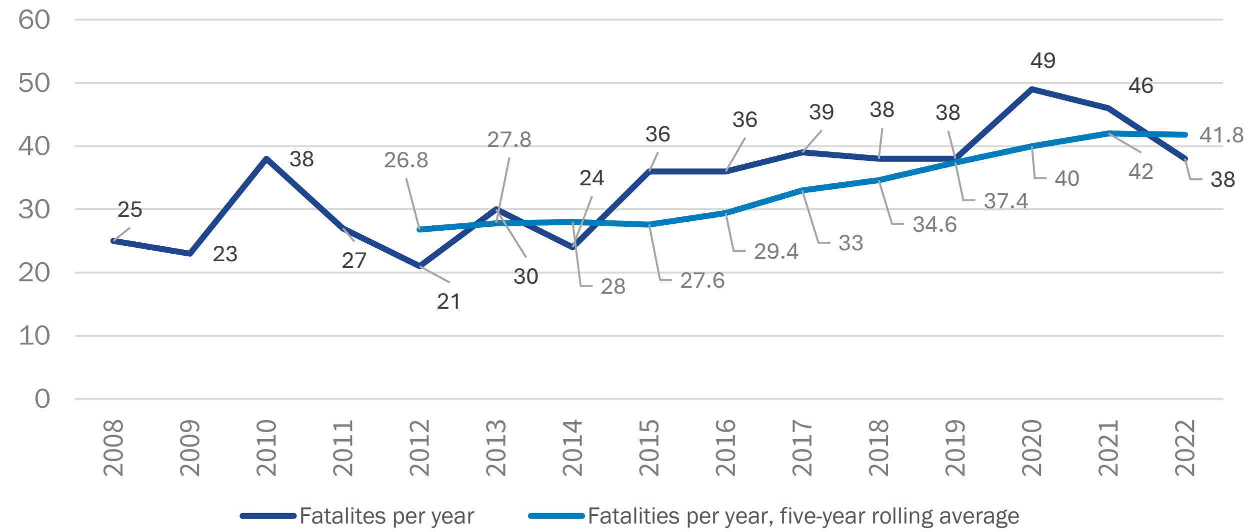
Fatalities

The National Highway Traffic Safety Administration (NHTSA) Fatality Analysis and Reporting System (FARS) is the nation's authoritative resource for fatal crash statistics. The FARS Fatality and Injury Reporting System Tool (FIRST) provides fatality data back to 2008, marking the longest time horizon for readily available fatality data comparable across county, state, and national geographies. this does not extend to serious injury data, which are not available from FARS. Analysis inclusive of crashes resulting in deaths and serious injuries is presented in the following sections for the most recent period available from IDOT at the time of writing.

All Users

In the 15 years from 2008 to 2022, 508 people died in crashes in DuPage County. As shown in Figure 5, the annual number of fatalities increased over this period, from 25 in 2008 to 38 in 2022. When transformed to a 5-year rolling average to account for year-to-year variation, the 5-year annual average increased 56% from 26.8 fatalities/year between 2008 and 2012 to 41.8 between 2018 and 2022. Large increases in total fatalities occurred between 2014 and 2015, and again between 2019 and 2020. In the most recent years, fatalities have begun to come down from the 2020 high of 49 people killed in traffic crashes in DuPage County.

Figure 5: DuPage County Fatalities, 2008-2022



Source: NHTSA, FIRST

The change in the five-year rolling fatality average from the period 2018-2022 is driven primarily by the increase in fatalities on non-interstate roadways. Over the 15-year period from 2008 to 2022, of the 508 fatalities, 99 occurred on interstates (19%), 408 occurred on non-interstates (80%), and one was marked as unknown (< 1%). Over this period, fatalities on interstates increased from 4.6 per year on average between 2008 and 2012 to 9.2 per year between 2018 and 2022, representing a 100% increase. Fatalities on non-interstates rose from 22 between 2008 and 2012 to 32.6 between 2018 and 2022, representing a 48% increase. While the increase on interstates was relatively higher, the small number of interstate fatalities is subject to greater variability. The bulk of the increase between the two periods resides primarily within non-interstate fatalities (10.6 per year on average increase).

The magnitude of the change in the five-year rolling average at the beginning and end of the period of analysis may be influenced by the historic fatality lows seen nationally and in Illinois following the Great Recession of 2008 and the surge in traffic fatalities following the onset of the Covid-19 pandemic in 2020. The increase in DuPage County's five-year rolling fatality average considerably outpaced the Illinois state average and the national average over the 15-year period, as shown in Table 5. Since the number of fatalities in DuPage County is comparatively low to the state and national averages, the size of the change is more sensitive to random variation or crashes resulting in multiple fatalities. The use of a five-year rolling average reduces this sensitivity.

Table 5: Change in 5-year Rolling Fatality Averages, DuPage, Illinois, and US

	5-Year Rolling Fatality Average, 2008-2012	5-Year Rolling Fatality Average 2013-2017	5-Year Rolling Fatality Average, 2018-2022	% Change, 2008-2012 vs. 2018-2022
DuPage County	26.8	33.0	41.8	56%
Illinois	951.0	1,016.2	1,167.8	23%
United States	34,113.2	35,280.0	39,588.2	16%

Source: NHTSA, FIRST

When adjusted per capita, the change in annual fatalities in DuPage County between 2010 and 2020 was 27% as shown in Table 6. DuPage County is growing slowly. Between the 2010 and 2020 decennial Censuses, the county grew by 16,000 residents. Table 6Notably this change is on par with that of Illinois (differences between this finding and that in the table above are due not to changes in population, but variation due to annual averages). In both 2010 and 2020, per capita fatalities were well below Illinois and the US as a whole.

Table 6: Change in Fatality Rate Per Capita, DuPage, Illinois, and US

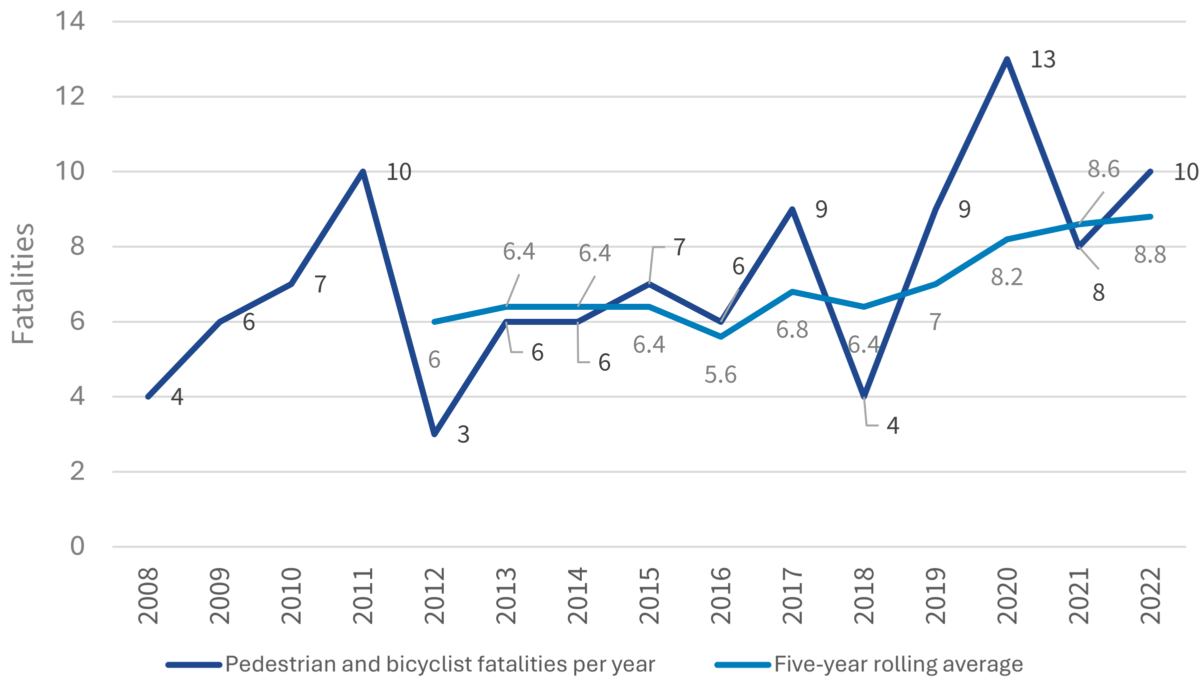
	Fatalities per 100,000 Residents, 2010	Fatalities per 100,000 Residents, 2020	% Change
DuPage County	4.14	5.25	27%
Illinois	7.22	9.31	29%
United States	10.69	11.79	10%

Source: NHTSA, FIRST; US Census Bureau

People Walking and Biking

Between 2008 and 2022, 108 people died while walking and biking in DuPage County, or 21.3% of total fatalities over the 15-year period. The annual trend and 5-year rolling average for pedestrian and bicyclist fatalities is shown in Figure 6. The 5-year rolling average from 2008-2012 to 2018-2022 increased from an average of 6 people killed while walking, rolling, or biking to 8.8, an increase of 22%. This increasing trend mirrors that in Illinois and the nation over the same period.

Figure 6: DuPage County Pedestrian and Bicyclist Fatalities, 2008-2022



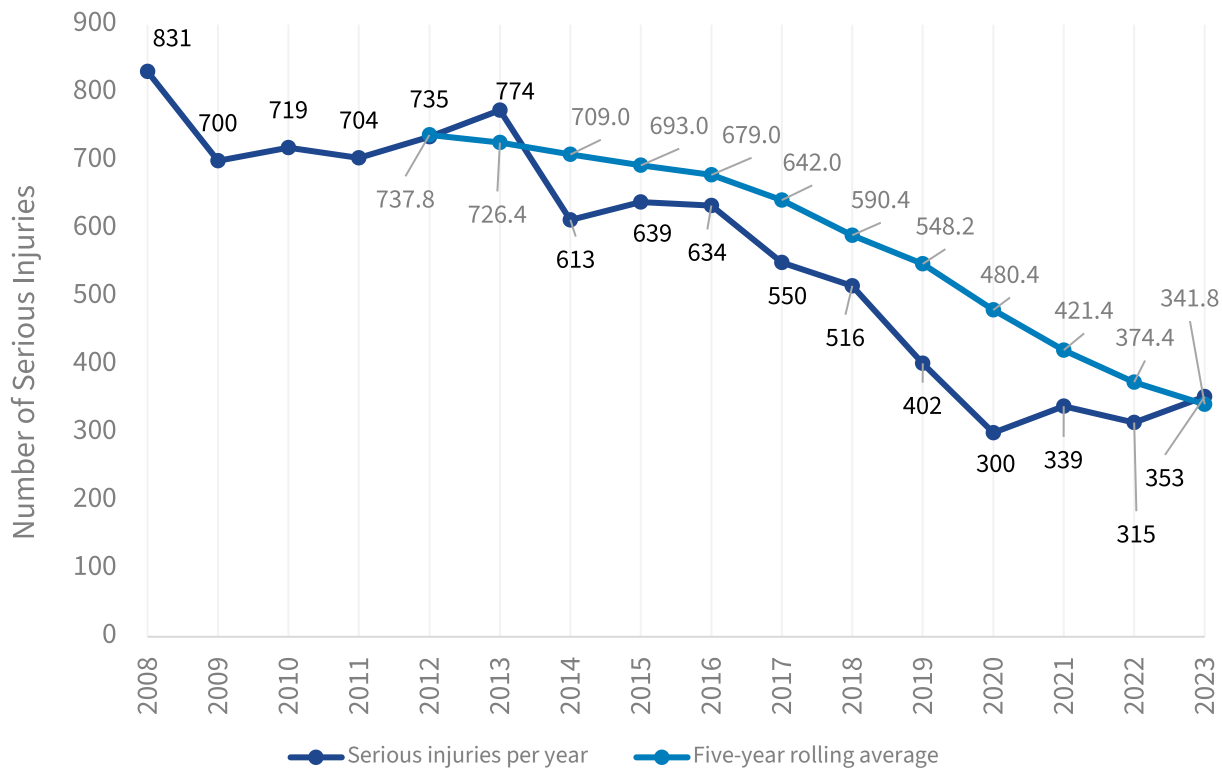
Source: NHTSA FIRST

Like the trends for all users, pedestrian and bike fatalities spiked between 2019 and 2020 with bicyclist fatalities jumping from 0 to 4 and pedestrian fatalities from 8 to 13, although both crash types have since fallen back down closer to pre-pandemic levels.

Fatalities and Serious Injuries

Late in the development of the DuPage Safety Action Plan, 15-year range of crash data spanning 2008 to 2022 became available from IDOT, enabling investigation of longer-term serious injury crash trends. The long-term trend in serious injury crashes indicates a substantial and sustained reduction, as illustrated in Figure 7.

Figure 7: DuPage County Serious Injuries, 2008-2022



Source: IDOT Crash/Occupant data set

Between 2008 and 2023, the number of serious injuries on all roadways in DuPage County fell from 831 to 353, a 58% decrease. While the trend has stalled and reversed since 2020, the long-term picture is highly encouraging. On average, there have been 32 fewer serious injuries in DuPage County, year-over-year. This downward trend significantly exceeds any increase in vehicle miles traveled, illustrating a robust improvement in safety performance.

Severe Crash Trends – 2018 to 2022

According to IDOT's historical crash database, from 2018 to 2022, there were 83,316 reported crashes across all public roadways – including interstates – in DuPage County. This includes 193 crashes resulting in at least one fatality, representing 0.2% of the total crashes, and 1,576 crashes resulting in serious injuries, accounting for 1.9% of all crashes in the county. Overall, the data indicates there were 25,999 (KABC) injuries caused by 19,185 crashes over the five-year span. The remaining 87.3% of people involved in crashes (179,259), were categorized as uninjured (0 injury), with the crash resulting in property damage only (PDO).

Table 7 summarizes the crashes by severity as well as the number of injuries sustained by people involved in those crashes; the percentage columns are rounded to the nearest tenth and may not add to exactly 100% due to rounding multiple numbers.

Table 7: DuPage County Crashes and Injuries by Severity, 2018-2022

Severity	Crashes		Injuries	
	Count	%	Count	%
K	193	0.2%	209	0.1%
A	1,576	1.9%	1,859	0.9%
B	8,317	10.0%	10,908	5.3%
C	9,099	10.9%	13,023	6.3%
0/PDO	64,131	77.0%	179,259	87.3%
KABC Subtotal	19,185	23.0%	25,999	12.7%
TOTAL	83,316	100.0%	205,258	100.0%

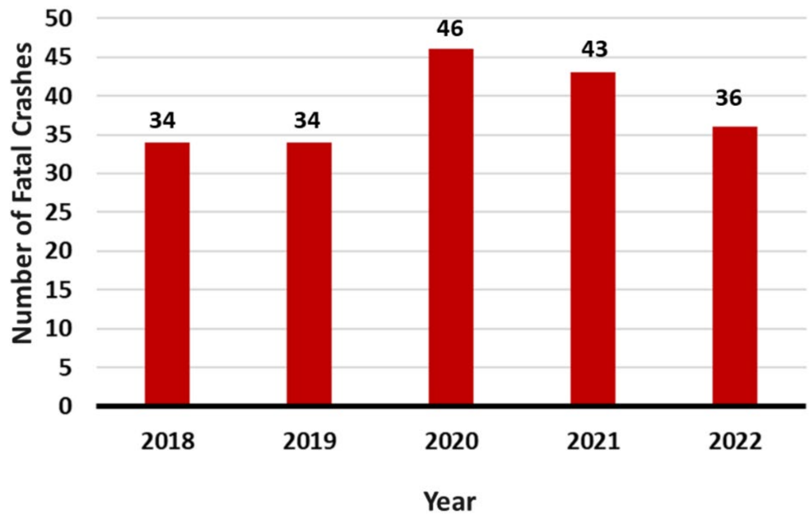
Note: crash severity is determined by the most severe outcome that occurs in a given crash

Figure 8(a) shows the number of fatal crashes in DuPage County per year from 2018 through 2022. From 2018 to 2019 the number of fatal crashes remained constant at 34 for both years. In 2020, there was an increase in fatal crashes, going from 34 in 2019 to 46 in 2020. The number of fatal crashes then decreased to 43 in 2021 and further declined to 36 in 2022.

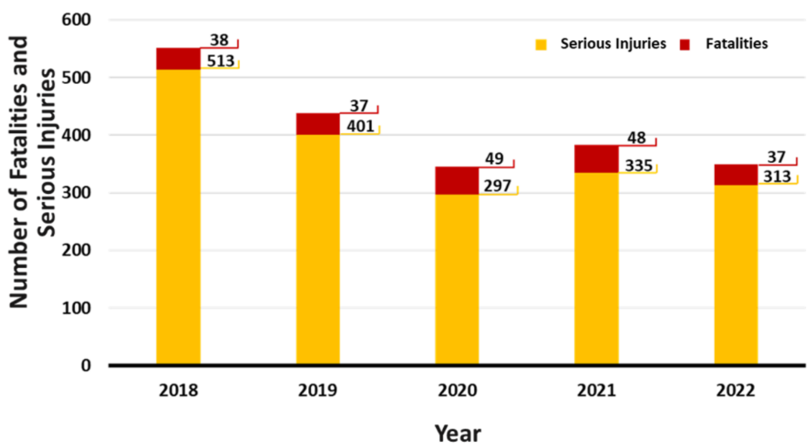
Figure 8 (b) provides a more detailed breakdown of the fatalities and serious injuries that occurred in DuPage County during the same period. Note that Figure 8(b) highlights the fatalities and serious injuries and non-fatal crashes or serious injury crashes. The yellow bars represent the number of serious injuries, while the stacked red bars indicate the number of fatalities. In 2020, while the number of fatal crashes increased, the number of fatalities also increased, but the number of serious injuries declined by roughly 25% compared to the previous year.

This divergence in 2020 suggests that although there were fewer serious injury-causing crashes, the severe crashes that occurred resulted in fatalities more often, possibly due to changes in behavior and travel patterns associated with the Covid-19 pandemic. Consequently, 2020 was an anomaly in the roadway safety trend in DuPage County, with the fewest serious injuries but the most fatalities in the five-year span.

Figure 8: DuPage County Fatal Crash, Fatality, and Serious Injury Trends, 2018-2022



(a) Total Fatal Crashes: 193



(b) Total Fatalities and Serious Injuries: 2068

The number of people killed and seriously injured in crashes in DuPage County between 2018 and 2022 differed markedly across age groups on a per-capita basis. Fatalities, serious injuries, and per capita rates by age group are presented in Table 8. Over the five-year period, the average annual fatality rate across all age groups was 4.6 per 100,000 people.[1] The average annual per capita fatality and serious injury rate was 45.0 per 100,000 people.

[1] Note that this number differs from NHTSA figures due to the difference in Census data used and time frame of analysis, due to data availability.

Table 8: DuPage County Fatalities and Serious Injuries by Age Group, 2018-2022

Age Group	Persons	Fatalities	Annual Average Fatalities/ 100,000 Persons	Serious Injuries	Fatalities and Serious Injuries	Annual Average Fatalities and Serious Injuries per 100,000 Persons
0-4	50,036	1	0.4	9	10	4.0
5-9	52,163	1	0.4	14	15	5.8
10-14	56,788	0	0.0	30	30	10.6
15-17	35,686	12	6.7	57	69	38.7
18-20	38,268	12	6.3	121	133	69.5
21-24	47,281	26	11.0	167	193	81.6
25-34	107,040	53	9.9	378	431	80.5
35-44	119,812	23	3.8	261	284	47.4
45-54	116,963	21	3.6	293	314	53.7
55-64	124,474	23	3.7	277	300	48.2
65-74	101,368	19	3.7	146	165	32.6
75-84	50,781	14	5.5	68	82	32.3
85+	18,972	5	5.3	37	42	44.3
TOTAL	**919,632**	**210**	**4.6**	**1,858**	**2,068**	**45.0**

Source: Impact DuPage, 2024

Of the 209 fatalities over the five-year period,[2] 21–24-year-olds had the highest fatality rate, at 11.0, over twice as high as the countywide baseline. Younger and older people were above average, with very young people and middle-aged adults below 4.6 per 100,000 persons. When compared, people in their teens through early thirties experienced higher fatality rates per capita than seniors.

The most-affected age groups change when serious injuries are introduced, with older and teen drivers less affected and middle-aged adults disproportionately impacted, per capita. This difference is likely shaped by the higher number of motor vehicle trips working-aged adults take. People aged 21-24, however, remain the most affected age group at 81.6 average annual fatalities and serious injuries per 100,000 people.

[2] The IDOT CRASH and PERSON data provided by CMAP differ slightly in the number of fatalities (209/210) and serious injuries (1,859/1,858), but the total number is the same across both data sets.

Crash records from FARS shed light on the disparate impact of traffic fatalities on different populations. While FARS does not include comprehensive data covering all areas of focus, race and ethnicity are recorded.

As demonstrated in Table 9, Black and Hispanic/Latino people were overrepresented in overall traffic fatalities in DuPage County and were impacted by traffic fatalities at higher rates per 100,000 residents than their peers between 2017 and 2021 (data for 2022 were not yet available at time of analysis). The fatality rate for Black residents was nearly three times as high as that of white residents (189% higher) while that of Hispanic/Latino residents was almost twice as high as that of white residents (79% higher). These disparities in traffic crash fatalities by race and ethnicity are more pronounced than that of the nation as a whole from 2015-2019, as reported by the Governors Highway Safety Association.

Table 9: DuPage County Fatalities by Race and Ethnicity, 2017-2021

	White Alone, Non-Hispanic or Latino	Black Alone	Asian Alone	Hispanic or Latino	Other Race	Unknown	Total
Fatalities 2017	20	2	3	14	0	0	39
Fatalities 2018	22	4	1	11	0	0	38
Fatalities 2019	22	3	6	7	0	0	38
Fatalities 2020	25	7	3	12	0	2	49
Fatalities 2021	23	12	1	4	1	5	46
Total Fatalities	112	28	14	48	1	7	210
Share of Fatalities	53%	13%	7%	23%	0%	3%	100%
Population	598,907	51,308	126,871	142,730	13,060	NA	932,877
Share Population	64%	6%	14%	15%	1%	NA	100%
Annual Fatalities per 100k Residents	**3.74**	**10.91**	**2.21**	**6.73**	**1.53**	NA	**4.50**

Source: NHTSA FARS, Census 2020

Severe Crash Rates

Calculating crash rates provides a high-level metric allowing one roadway network to be compared to a similar roadway network. However, comparing a largely rural county's crash rate to a largely urban county's crash rate would not necessarily result in a legitimate 'apples to apples' comparison. Annual crash rates for the entirety of DuPage County's roadway network were calculated using the segment collision rate equation provided by FHWA - this equation is provided below.[xiii] The resulting crash rate is measured per hundred million vehicle miles traveled (HMVMT), shown in Table 10.

$$KA\ Crash\ Rate, per\ HMVMT = \frac{Number\ of\ KA\ Crashes\ along\ All\ Segments * 100{,}000{,}000}{Number\ of\ Crash\ Years * County\ Segment\ Length * Segment\ AADT * 365}$$

Table 10: DuPage County Crash Rates by Year, 2018-2022

Year	Annual VMT*	KA Crashes	KA Crash Rate (HMVMT)	KABCO Crashes	KABCO Crash Rate (HMVMT)
2018	8,641,461,881	461	5.33	20,638	238.83
2019	8,525,783,822	380	4.46	18,859	221.20
2020	6,899,051,103	296	4.29	12,173	176.44
2021	7,417,134,898	324	4.37	15,177	204.62
2022	7,951,158,394	308	3.87	16,469	207.13
'18-'22	39,434,590,098	1,769	4.49	83,316	211.28

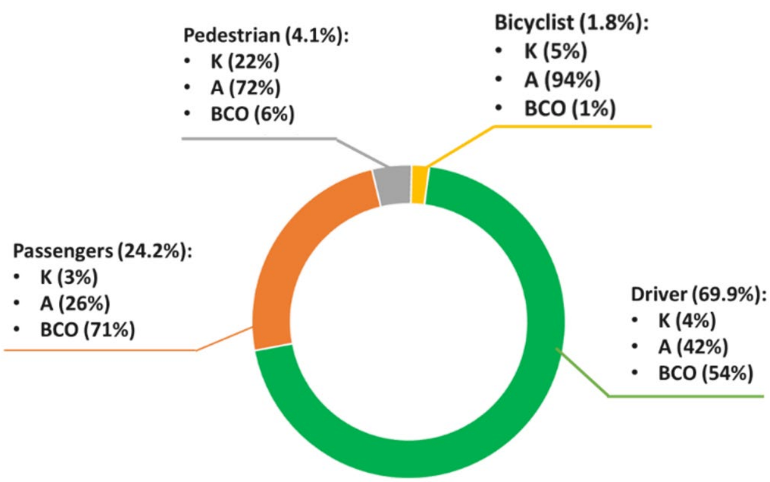
Source: 2022 Illinois Travel Statistics

Over the five-year period, the KA crash rate dropped by nearly one crash per hundred million vehicle miles traveled. This decline is largely driven by the drop in serious injury crashes over the same period.

Crash Severity by User

Figure 9 depicts the proportion of different road user types involved in crashes resulting in KA injuries, even if they did not suffer a KA injury. The pie chart shows that among all of these individuals (4,654) involved in the 1,769 KA crashes, drivers and passengers accounted for the vast majority at 94.1%, while pedestrians and bicyclists made up a combined 5.9% of those involved.

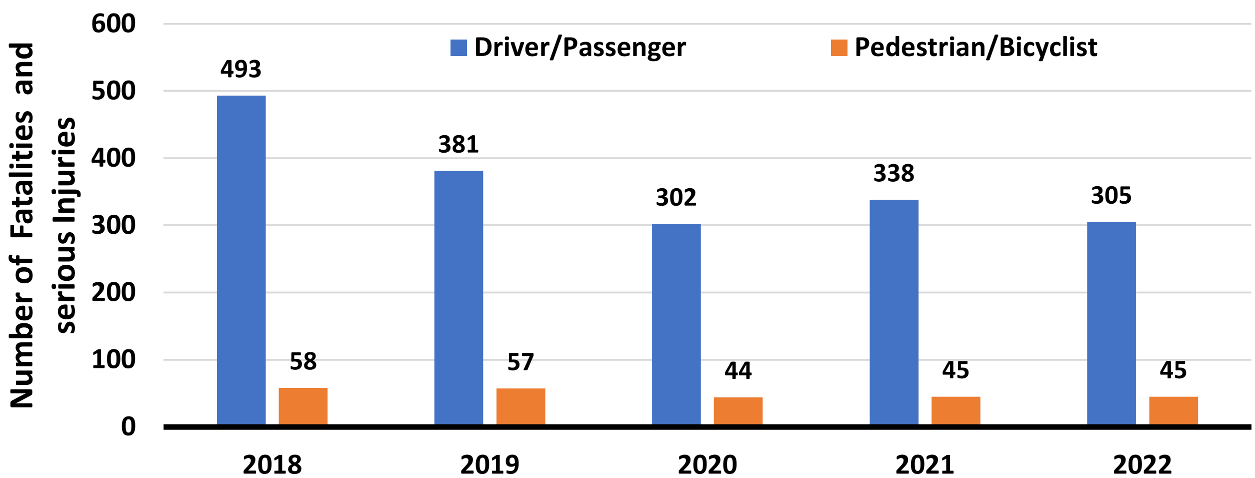
Figure 9: Crash Severity by User Type, 2018-2022



However, when examining the distribution of injuries for each of the users involved in a KA injury crash, pedestrians and bicyclists faced an extremely high risk. Almost all, 94%. of pedestrians involved in a crash sustained a KA injury. For bicyclists, 99% of crashes led to a KA injury. This highlights the disproportionate vulnerability of pedestrians and bicyclists compared to vehicle occupants when a crash occurs.

As shown in Figure 10, the number of fatalities and serious injuries for both drivers/passengers and pedestrians/bicyclists (Vulnerable Road Users, or VRU) exhibited an overall declining trend between 2018 and 2022. However, the reduction was more pronounced for drivers/passengers, with the number decreasing from 493 in 2018 to 305 in 2022, a 38% reduction In contrast, the number of VRU fatalities and serious injuries decreased from 58 in 2018 to 45 in 2022, showing a smaller percentage decline of 22%.

Figure 10: Fatalities and Serious Injuries by User Type, 2018-2022



High Crash Locations

Understanding where severe crashes occur most frequently can indicate future paths for analysis and opportunities for collaboration, assessment, and investment. Figure 11 shows the density of KA crashes throughout DuPage County. Red and orange areas of the map have a higher density of KA crashes, while the green and non-colored areas have few to no KA crashes. This map is purely a representation of severe crash density and is not normalized by population, traffic exposure, or any other metric. Figure 12 provides greater detail on KA crash locations across the county, while Figure 13 indicates the average number of KA crashes per square mile for each municipality in DuPage County. Between 2018 and 2022, Bensenville, Elmhurst, Lombard, Oakbrook Terrace, Downers Grove, Lisle, and Willowbrook had the highest average KA crashes per square mile of all DuPage municipalities.

Figure 11: KA Crash Heatmap, 2018-2022

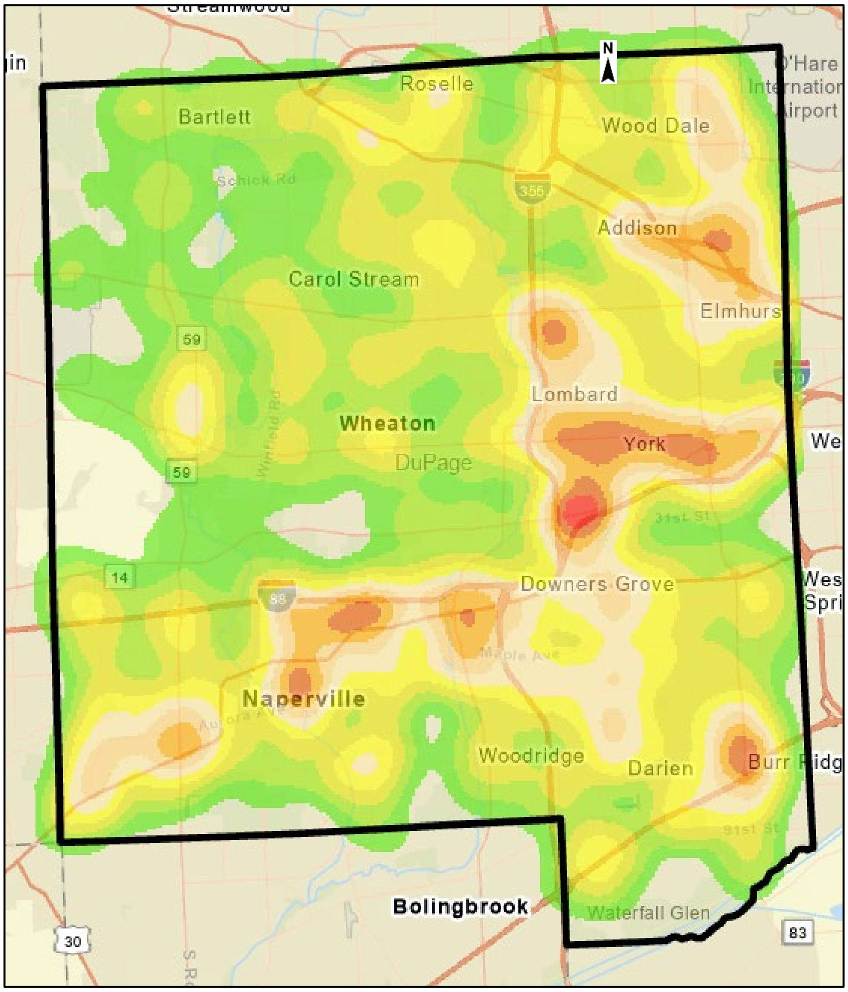


Figure 12: KA Crashes Locations, 2018-2022

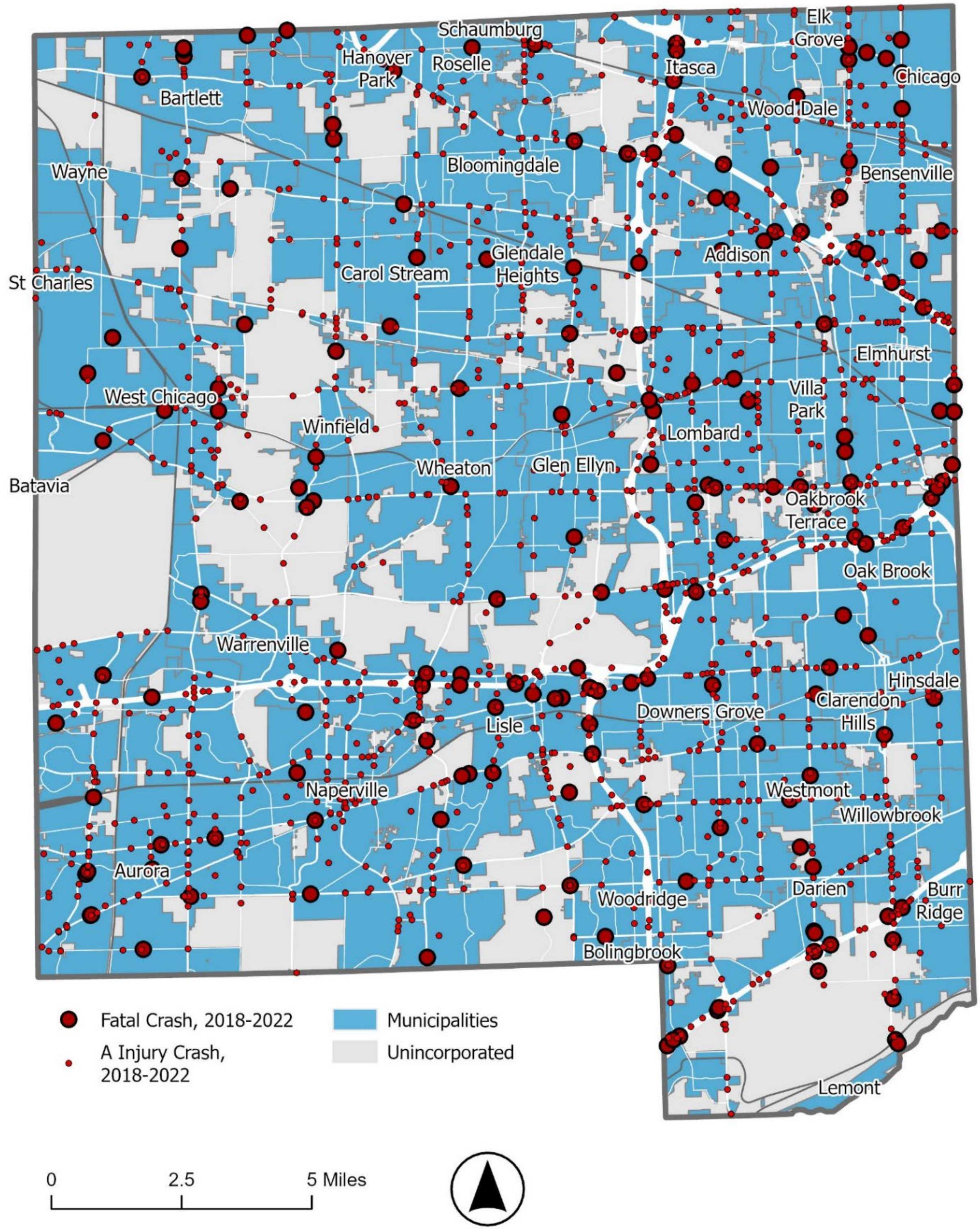


Figure 13: KA Crashes by Square Mile, DuPage Municipalities, 2018-2022

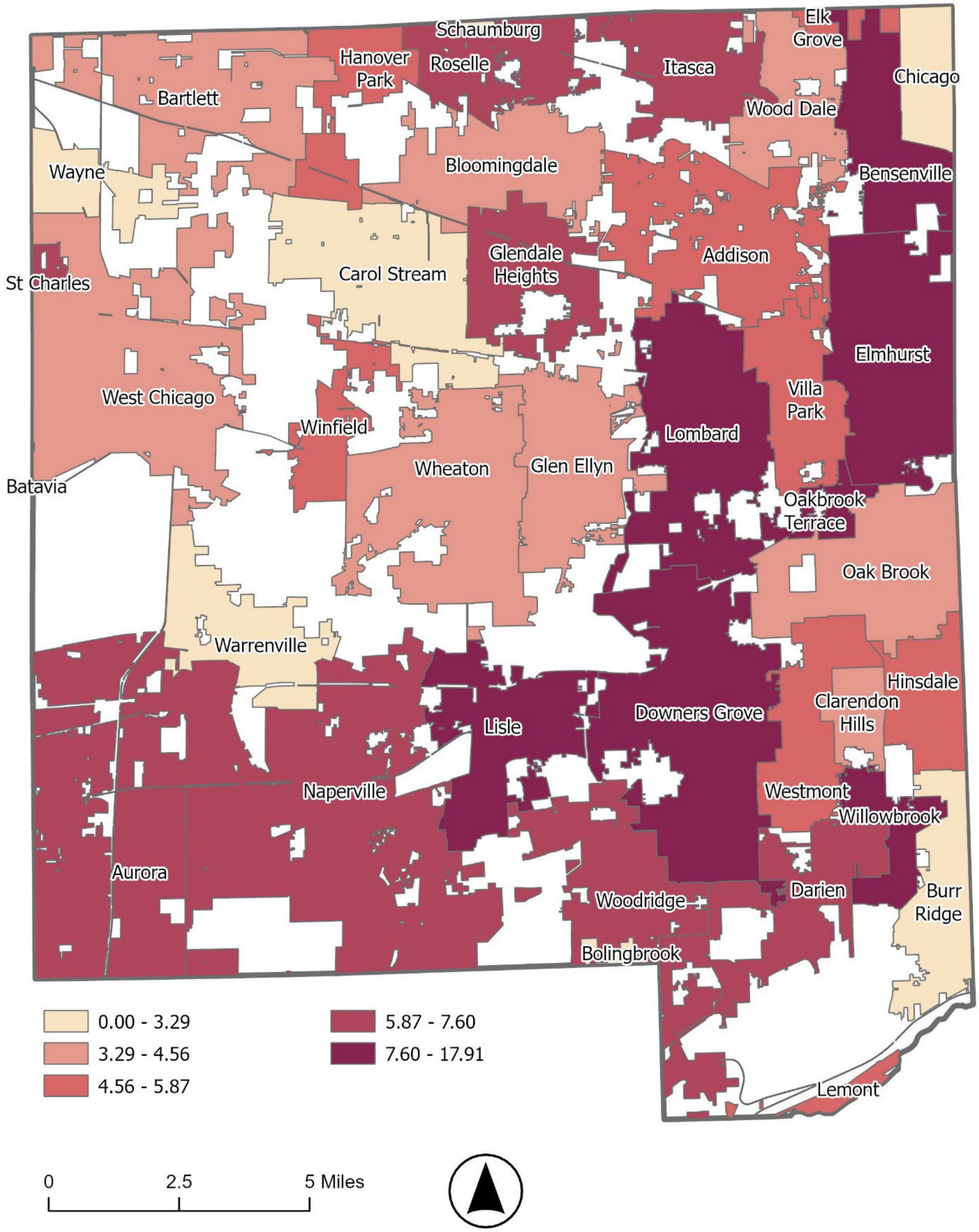


Table 11 ranks the municipalities in DuPage County by KA crashes per 100,000 people for the five-year study period.[3] Oakbrook Terrace had the highest number of KA crashes per capita at 841.6 per 100,000 people. The most KA crashes overall occurred in unincorporated areas. The municipality with the highest count of KA crashes was Naperville, 50 KA crashes higher than the next highest municipality, Downers Grove.

To normalize the findings and identify disparities, a per capita KA crash ratio was developed for each municipality. On a per capita basis, the municipalities with the highest KA crashes per 100,000 people were Oakbrook Terrace (841.6), St Charles (504.2), Wayne (400) Bensenville (329.6), and Oakbrook (294.0). These municipalities are especially overrepresented when compared to the countywide KA crashes per capita, 189.6.

Some municipalities, like Schaumburg, span multiple counties. Even though the majority of Schaumburg is in Cook County, when crashes occurred in the DuPage portion of Schaumburg, they were assigned to DuPage County. Several of these municipalities have very high KA crashes per 100,000 people, but this is due to the small area/population within DuPage.

Table 11: DuPage Municipalities by KA Crashes per 100,000 Residents, 2018-2022

KA Rank	Municipality Name	KA Total	KA %	KABCO Total	KABCO %	Population	KA Crashes per 100,000 Residents
1	Oakbrook Terrace	23	1%	915	1%	2,733	841.6
2	St Charles*	3	0%	96	0%	595	504.2
3	Wayne*	6	0%	141	0%	1,500	400.0
4	Bensenville	62	4%	2,284	3%	18,813	329.6
5	Oak Brook	24	1%	2,221	3%	8,163	294.0
6	Willowbrook	27	2%	1,421	2%	9,250	291.9
7	Lombard	130	7%	4,099	5%	44,562	291.7
8	Downers Grove	138	8%	4,772	6%	50,233	274.7
9	Itasca	26	1%	804	1%	9,543	272.5
10	West Chicago	68	4%	2,369	3%	25,614	265.5
11	Unincorporated	241	14%	13,769	17%	96,733	249.1
12	Lisle	56	3%	1,877	2%	23,767	235.6

[3] Per-capita calculations are a second-best method for normalizing crash rates with total trips being the first-best option. Many non-residents travel in or through any given place. However, these data were not available to the project team, necessitating the per-capita approach.

KA Rank	Municipality Name	KA Total	KA %	KABCO Total	KABCO %	Population	KA Crashes per 100,000 Residents
13	Winfield	21	1%	649	1%	9,788	214.5
14	Aurora*	104	6%	5,034	6%	51,588	201.6
15	Elmhurst	91	5%	3,970	5%	45,778	198.8
16	Roselle	37	2%	1,185	1%	18,953	195.2
17	Naperville*	188	11%	8,751	11%	98,016	191.8
18	Burr Ridge*	13	1%	559	1%	6,826	190.4
19	Darien	41	2%	1,844	2%	21,965	186.7
20	Bartlett*	42	2%	1,353	2%	23,797	176.5
21	Addison	55	3%	2,702	3%	35,579	154.6
22	Bloomingdale	33	2%	2,192	3%	22,382	147.4
23	Woodridge	48	3%	2,341	3%	34,137	140.6
24	Wood Dale	19	1%	886	1%	13,846	137.2
25	Hinsdale*	19	1%	1,457	2%	15,023	126.5
26	Warrenville	17	1%	1,054	1%	13,553	125.4
27	Villa Park	27	2%	1,925	2%	22,272	121.2
28	Hanover Park*	21	1%	1,123	1%	17,383	120.8
29	Glendale Heights	38	2%	2,452	3%	33,171	114.6
30	Westmont	28	2%	1,366	2%	24,446	114.5
31	Glen Ellyn	29	2%	2,225	3%	28,905	100.3
32	Wheaton	51	3%	2,840	3%	53,970	94.5
33	Carol Stream	33	2%	1,952	2%	39,817	82.9
34	Clarendon Hills	5	0%	395	0%	8,702	57.5
35	Bolingbrook*	0	0%	16	0%	1,468	0.0
36	Lemont*	2	0%	46	0%	6	0.0
37	Elk Grove Village	3	0%	220	0%	0	0.0
	Batavia*	0	0%	2	0%	0	0.0
	North Lake*	0	0%	1	0%	0	0.0
	Schaumburg*	0	0%	8	0%	0	0.0
	Grand Total	1,769	100.0%	83,316	100.0%	932,877	189.6

*Community split by county boundary, population represents the total within DuPage County will not equal full community population where a municipality spans multiple counties; unincorporated communities includes all census blocks whose centroids lie outside of official municipal boundaries

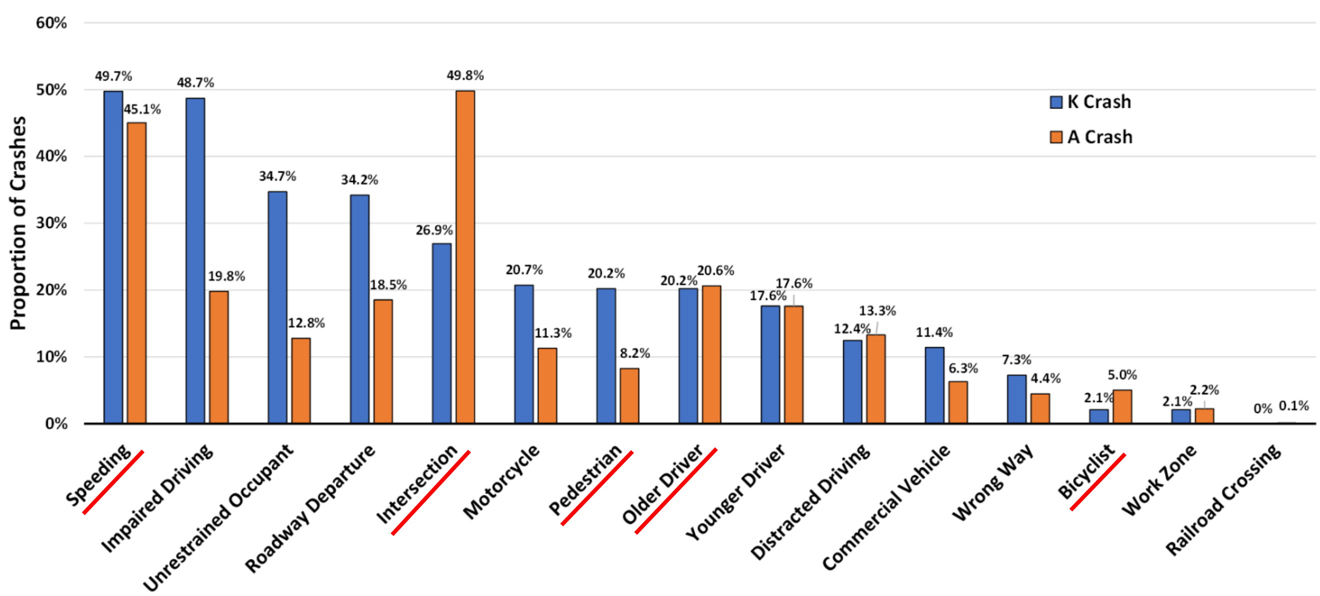
Source: Census 2020 block-level population

Priority Emphasis Areas

The project team identified county-specific priority emphasis areas to focus the direction of the Safety Action Plan. Emphasis areas are defined categories of crashes or roadway user behaviors that represent a unique area of concern. They are typically selected based on patterns in crash data, local policies, and community need, and are intended to guide and unify strategic planners and stakeholders toward the goal of reducing fatal and injury crashes and improving traffic safety for all road users. Recommendations in the following sections of the plan are structured around the priority emphasis areas, the smaller group of emphasis areas determined to most align with the safety needs and broader priorities of DuPage County.

The 15 emphasis areas defined in the Illinois Strategic Highway Safety Plan (SHSP) formed the basis of the analysis. Figure 14 presents the share of KA crashes in DuPage County from 2018 to 2022 by SHSP emphasis area. Emphasis areas underlined in red correspond to those prioritized by DuPage County and stakeholders in the *DuPage County LRSP*.

Figure 14: Share of KA Crashes by Emphasis Area, 2018-2022



Emphasis areas that represent at least 20% of fatal or serious injury crashes during the period of analysis or are of particular interest to safety practitioners are briefly discussed below.

- **Speeding:** 49.2% of fatal crashes and 46.3% of serious injury crashes were speed-related (as defined by IDOT's emphasis area definition and reported by law enforcement). With an increase in driving speed, kinetic energy increases, leading to an increased risk that a crash is more likely to result in a serious injury or fatality.[xiv] This risk is especially elevated for people outside of a vehicle since they have no occupant protection.

- **Intersections:** 50.5% of serious injury crashes and 26.9% of fatal crashes in DuPage County are intersection-related (as defined by IDOT). At intersections, there are multiple conflicting movements which create the potential for collisions – such as left-turning traffic conflicting with through traffic or right-turning traffic conflicting with a pedestrian crossing. The safety performance of these intersections can often be improved by either reducing the number of conflict points present using innovative intersection designs or signal timing strategies, or by reducing the probability or severity of crashes which may occur at existing conflict points using other safety treatments. Though intersections are commonly designed to maximize operational performance – e.g., traffic throughput – they may not yet be optimized for safety performance and may exhibit opportunities for further targeted safety improvements.
- **Pedestrian and Bicyclists:** When combined, pedestrian and bicyclist crashes account for 22.3% of fatal crashes and 13.6% of serious injury crashes in DuPage County. With fatalities of vulnerable road users on the rise across the United States, many agencies are exploring opportunities to be more pedestrian- and bike-friendly through infrastructure that better accommodates their needs and vulnerabilities, increased connectivity, and the elevation of active transportation as an essential form of travel. Identifying and addressing high-risk locations can help create a more walkable and bikeable network, protect vulnerable users, and support a reliable, sustainable, and safe culture of active and multi-modal transportation within the county.
- **Younger Drivers:** Fatal crashes and serious injury crashes included a younger driver (those between 16 and 20 years old) approximately 17% of the time in DuPage County of the five-year period. Research shows that experience leads to safer driving; as new drivers start with little real-world driving experience, they are at risk of experiencing crashes at higher frequencies than other drivers, with this likelihood decreasing over the first decade of driving.[xv] Aggressive and risky driving behaviors are also more prominent among younger drivers, endangering them as well as fellow road users.
- **Older Driver:** Older drivers are involved in 20.2% and 20.6% of all fatal crashes and serious injury crashes in DuPage County, respectively. Age-related physical and cognitive changes can present challenges. Decreased visual acuity, slower reaction times, and reduced flexibility can impact their ability to navigate complex driving situations safely. Despite this, older drivers often self-regulate their driving habits to accommodate their limitations. To support the safety of older drivers, it is essential to provide resources, educational programs, and assistive technologies that help them adapt to age-related changes. By addressing their specific needs,

we can foster a comprehensive approach to traffic safety that recognizes the value of experience while accommodating the unique challenges of aging.

- **Roadway Departure:** Crashes involving vehicles leaving their designated travel lanes account for a large portion of traffic fatalities and serious injuries: 34.2% of all fatal crashes in DuPage County were roadway departures. These roadway departure crashes occur due to factors such as driver distraction, fatigue, operating too fast for conditions, or adverse weather conditions. When a vehicle unintentionally leaves the roadway, the chances of striking fixed objects, or rolling over increase dramatically, leading to severe outcomes. Proactively addressing roadway departure risks and educating drivers can reduce the occurrence and severity of these crashes.
- **Unrestrained Occupants:** 34.7% of fatal crashes in DuPage County involved unrestrained occupants. The use of seat belts and proper restraints is demonstrated to be one of the most effective ways to reduce fatalities and serious injuries in motor vehicle crashes. Unrestrained occupants are at a significantly higher risk of being ejected from the vehicle or sustaining severe injuries in the event of a crash than those using proper restraints. Encouraging consistent seat belt use through public education campaigns, high-visibility enforcement, and the promotion of technological solutions such as seat belt reminders can help increase restraint use rates and mitigate the consequences of crashes involving unrestrained occupants.
- **Impaired Driving:** Driving under the influence of alcohol, drugs, or other substances continues to be a major contributing factor to traffic crashes, fatalities, and serious injuries: 48.2% of fatal crashes and 20.9% of serious injury crashes in DuPage County involved an impaired user. These impaired drivers exhibit diminished judgment, reduced reaction times, and weakened motor skills, putting themselves and others at risk.
- **Motorcycles:** 20.7% of fatal crashes in DuPage County involved a person riding a motorcycle. Motorcycle riders are particularly vulnerable road users due to their lack of structural protection, speeds, and reduced visibility to other motorists. Crashes involving motorcycles often result in severe injuries or fatalities. Motorcycle safety efforts focus on promoting rider education and training, increasing motorist awareness of motorcycles, and encouraging the use of proper protective gear, such as helmets and reflective clothing. Implementing motorcycle-friendly infrastructure, such as improved road surfaces, can also help reduce the risk of crashes.

Many of these emphasis areas are associated with one another. Increased rates of speed, for instance, can lead to roadway departure crashes, more severe outcomes for motorcyclists and people outside of vehicles, and lead to deaths and serious injuries of unrestrained occupants. Younger drivers may be more likely to get into severe crashes at intersections where there are more potential conflicts and risk-taking behaviors have more consequences. These associations are important to keep in mind when prioritizing emphasis areas.

Maps that illustrate the locations of the severe crashes coinciding with the emphasis areas prioritized in the DuPage LRSP illustrate that the selected emphasis areas cut across the county. Crashes may fall into multiple emphasis areas, therefore the points represented on each map are not mutually exclusive (e.g., a speed-related crash that occurred at an intersection may appear on the speeding emphasis area map and the intersection-related map), Figure 15 indicates that there is no area of the county that is not touched by severe crashes that resulted in a death or serious injury between 2018 and 2022, including more urbanized and more rural areas of the county. This pattern is borne out in Figure 16 (intersections) and Figure 18 (older drivers). Pedestrian and bicyclist crashes occurred throughout DuPage County but appear to be concentrated in the more urbanized municipalities and areas east of I-355 or south of I-88, as depicted in Figure 17.

Figure 15: KA Crashes, Speeding Emphasis Area, 2018-2022

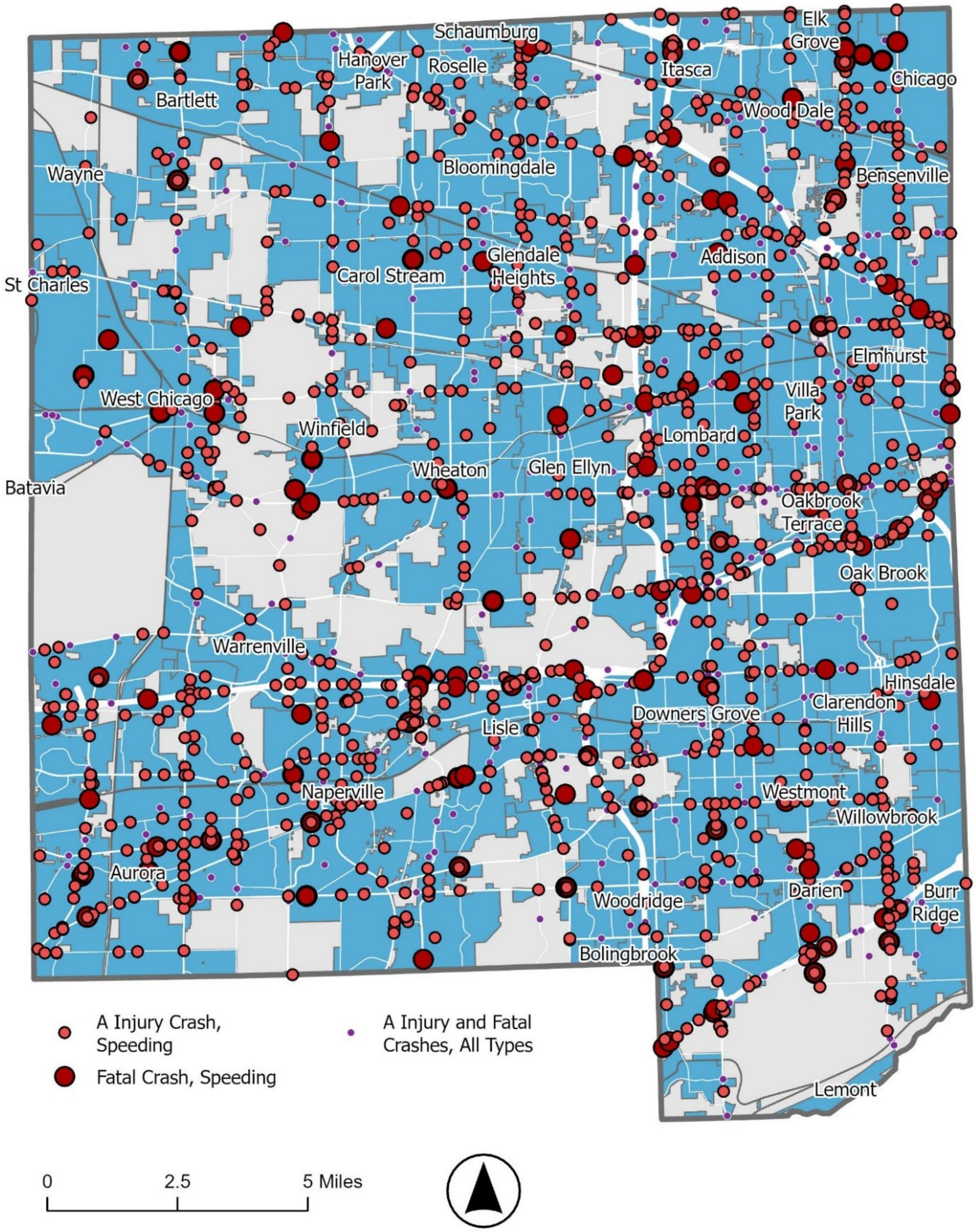


Figure 16: KA Crashes, Intersection Emphasis Area, 2018-2022

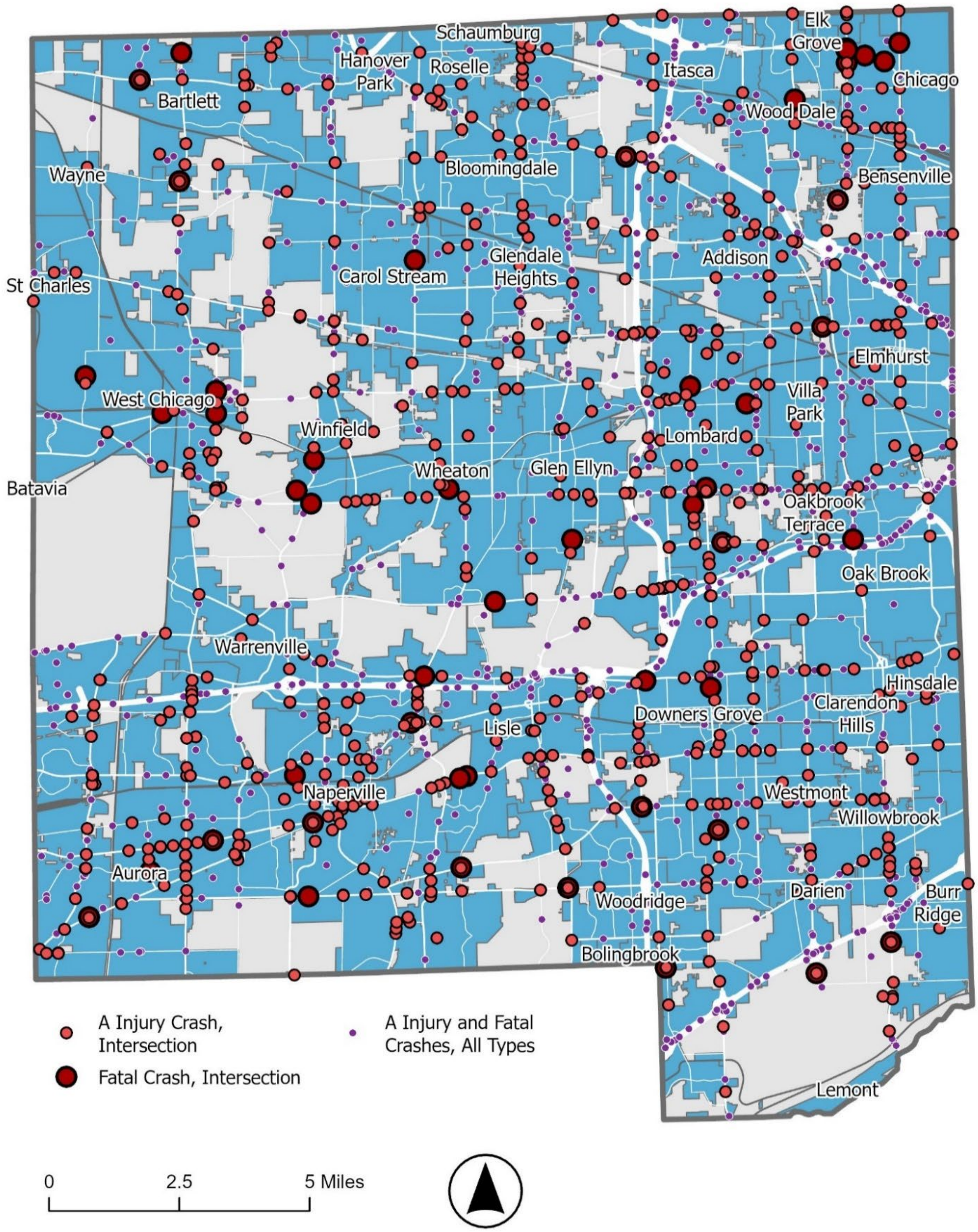


Figure 17: KA Crashes, Bicycle and Pedestrian Emphasis Area, 2018-2022

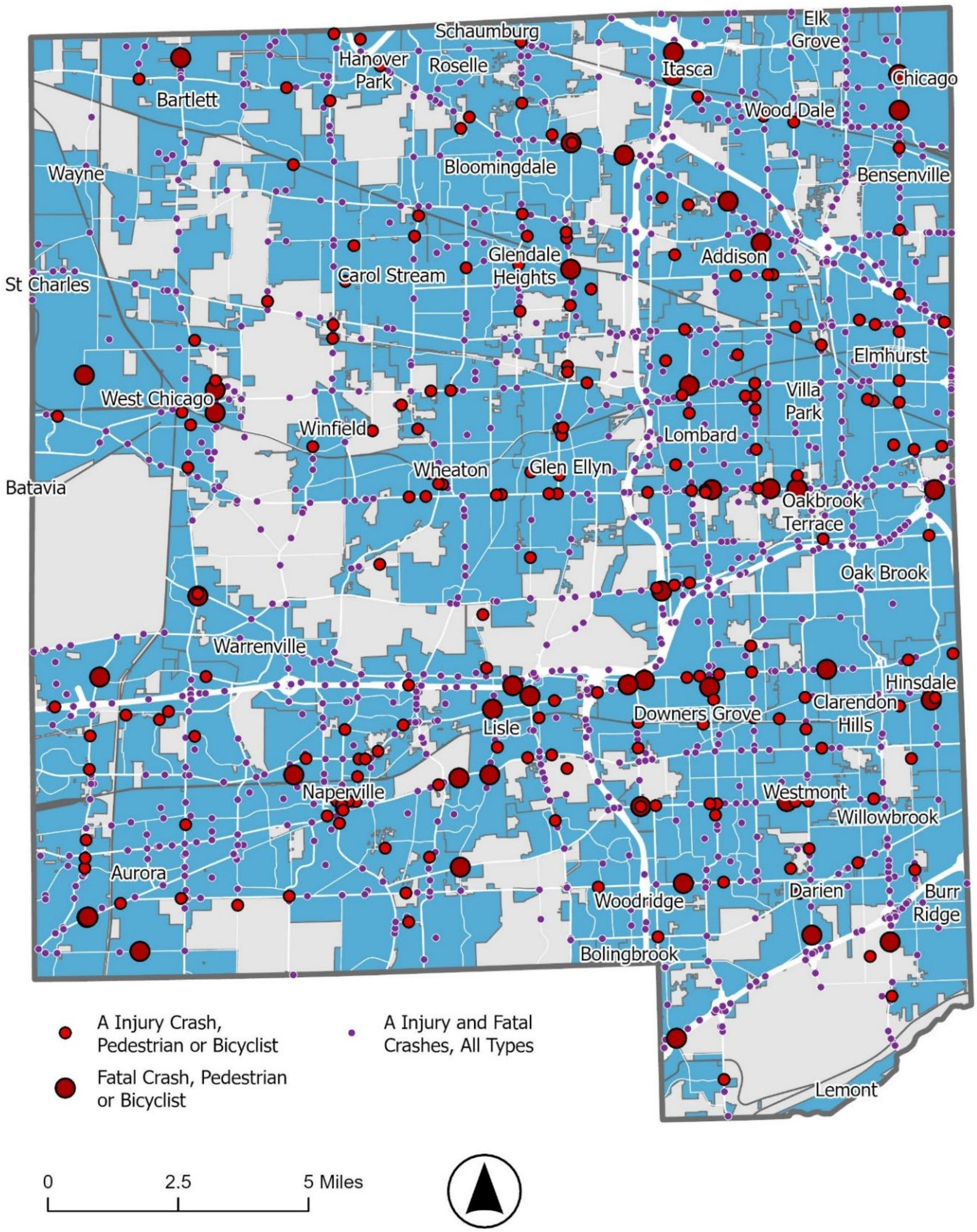
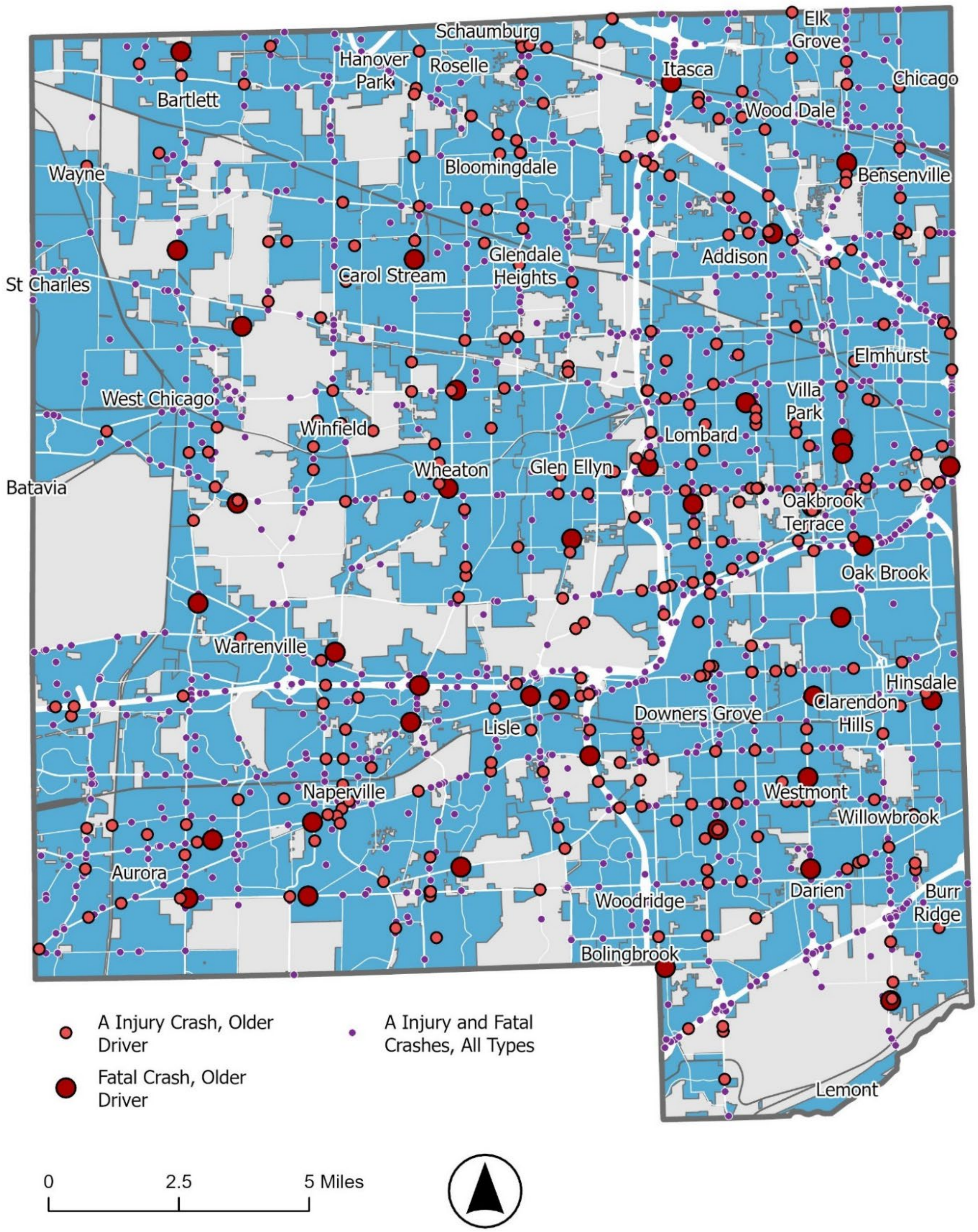


Figure 18: KA Crashes, Older Drivers Emphasis Area, 2018-2022



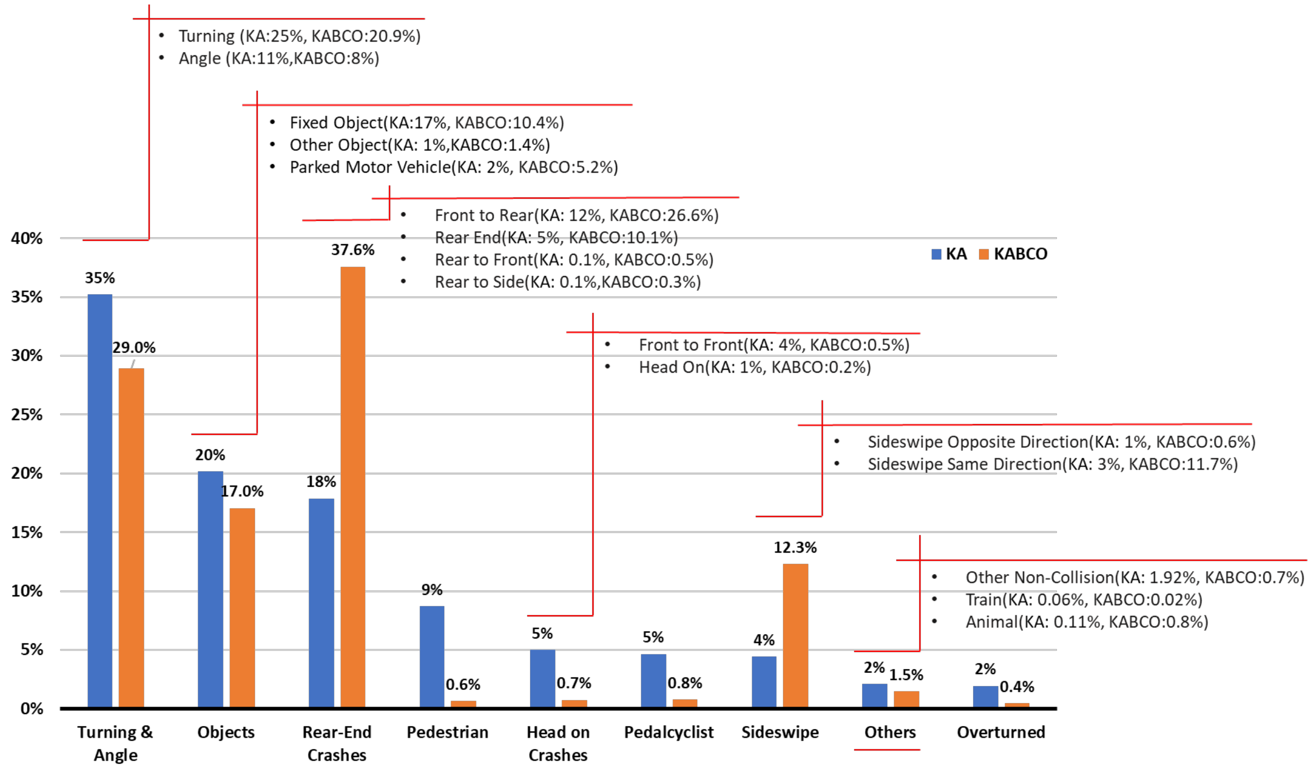
Severe Crash Types

Crash type can yield additional information about the behaviors and maneuvers that preceded crashes resulting in serious injury or fatality and the manner of collision.

The bar chart in Figure 19 illustrates the proportions of different crash types in DuPage County from 2018 to 2022 for both KA and KABCO crashes. The KA bar represents the percentage of all crashes resulting in a death or serious injury for each crash type, while the KACBO bar represents the share of all crashes represented by the stated crash type, For some sections of the chart, the percentages are broken down further to indicate additional details about the crash. The analysis reveals the following:

- **Turning & angle crashes**, which mainly occur at intersections, represent the second largest percentage of crash types based on KABCO crashes (29%) and highest percentage KA crashes (35%), highlighting a critical area for safety improvements.
- **Pedestrian crashes** constitute approximately 9% of KA crashes and 0.6% of KABCO crashes, indicating that when they occur, crashes involving people walking or rolling have a disproportionately high risk of resulting in death or serious injury.
- **Bicycle crashes** account for ~5% of KA crashes and 0.8% of KABCO crashes, underlining the vulnerability of these road users.
- **Object collisions** (20% for KA and 17.0% for KABCO) constitute a major share of KA collisions.
- **Rear end crashes** make up 18% of KA collisions and 38% of all crashes in DuPage County. They are much less likely to result in a severe outcome than most other crash types.
- **Sideswipe collisions** (both opposite and same direction) represent 4% of KA crashes and 12.3% of KABCO crashes. Overall, they are much less likely to result in a severe outcome than most other crash types. Sideswipe opposite direction crashes are comparatively more severe than sideswipe same direction crashes, with 2% of opposite direction crashes resulting in a death or serious injury, compared to less than 1% of same direction crashes.
- **Head-on crashes** represent 5% of KA crashes and 0.7% of KABCO crashes.
- **Other** types, including other non-collision, animal, and train collisions, account for 2% of KA crashes and 1.5% of KABCO crashes.

Figure 19: Share of KA Crashes, by Crash Type, 2018-2022

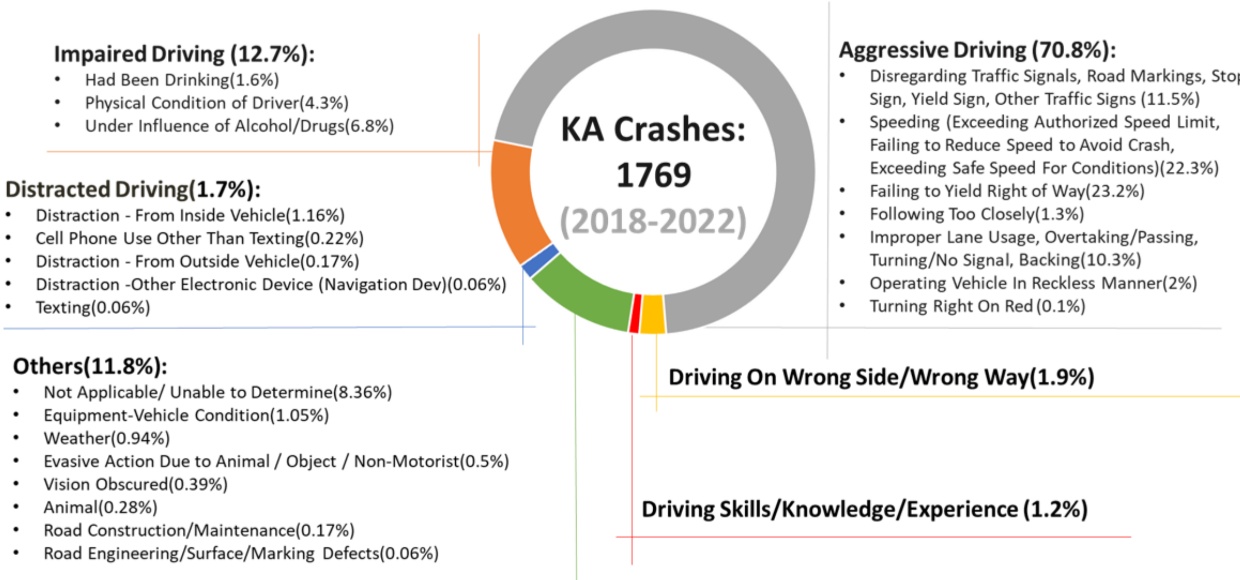


Action plans must balance being comprehensive with prioritizing a select group of crashes and behaviors for targeted and collective action. Turning and angle crashes, as the most substantial percentage for KA (35.2%), highlight an area where targeted resources and specific interventions could yield significant safety improvements. Severe crashes involving objects, pedestrians, pedalcyclists, and head-ons are all overrepresented and also command specific attention.

Leading Crash Cause

Figure 20 summarizes the leading contributing factors to KA crashes in DuPage County, as identified in the crash report by the responding officer. This analysis is similar to, but not synonymous with, emphasis area analysis. The leading crash cause only allows the officer to select a primary contributory crash cause. Emphasis area analysis, on the other hand, is not mutually exclusive, meaning one crash can satisfy multiple different emphasis areas criteria.

Figure 20: Share of KA Crashes by Leading Cause of Crash, 2018-2022



The analysis above categorizes the leading contributing causes into several key groups, many of which are made up of multiple contributory causes as defined by IDOT.

- **Aggressive Driving (70.8%)**: This is by far the largest contributing factor, with aggressive driving behaviors such as speeding (22.3%) and failing to yield (23.2%) leading the list.
- **Impaired Driving (12.7%)**: A considerable portion of the KA crashes were due to impaired driving, which includes being under the influence of alcohol or drugs (6.8%), had been drinking (1.6%) and Physical condition of drivers (4.3%).
- **Others (11.8%)**: A notable number of KA crashes are categorized under 'Others', which could encompass a range of less common causes. This ambiguity highlights a gap in data specificity that hinders targeted intervention, specifically crashes where the responding officer rules the primary contributory cause "not applicable" or "unable to determine."
- **Distracted Driving (1.7%)**: The strikingly low percentage of reported KA distracted driving crashes in the data suggests a potential under-reporting issue. Many drivers involved in crashes caused by distracted driving are reluctant to admit fault, as doing so could result in citations, penalties, or other legal consequences. This 'unwillingness to self-report' can lead to distracted driving being underrepresented in official statistics and datasets, obscuring the true extent and impact of the problem. Addressing this reporting gap is crucial for developing effective strategies to combat distracted driving and improve road safety.
- **Wrong-Way Driving and Driving Skills (3.1%):** Wrong-way driving makes up a small share of primary contributory causes at 1.9%. Knowledge, experience, and skills are an even emaller

subset of primary causes at 1.2%, well below the number of young drivers involved in KA crashes during the period of analysis. In many young driver crashes, the responding officer presumably concluded that other factors, like speeding, were more important in leading to the crash.

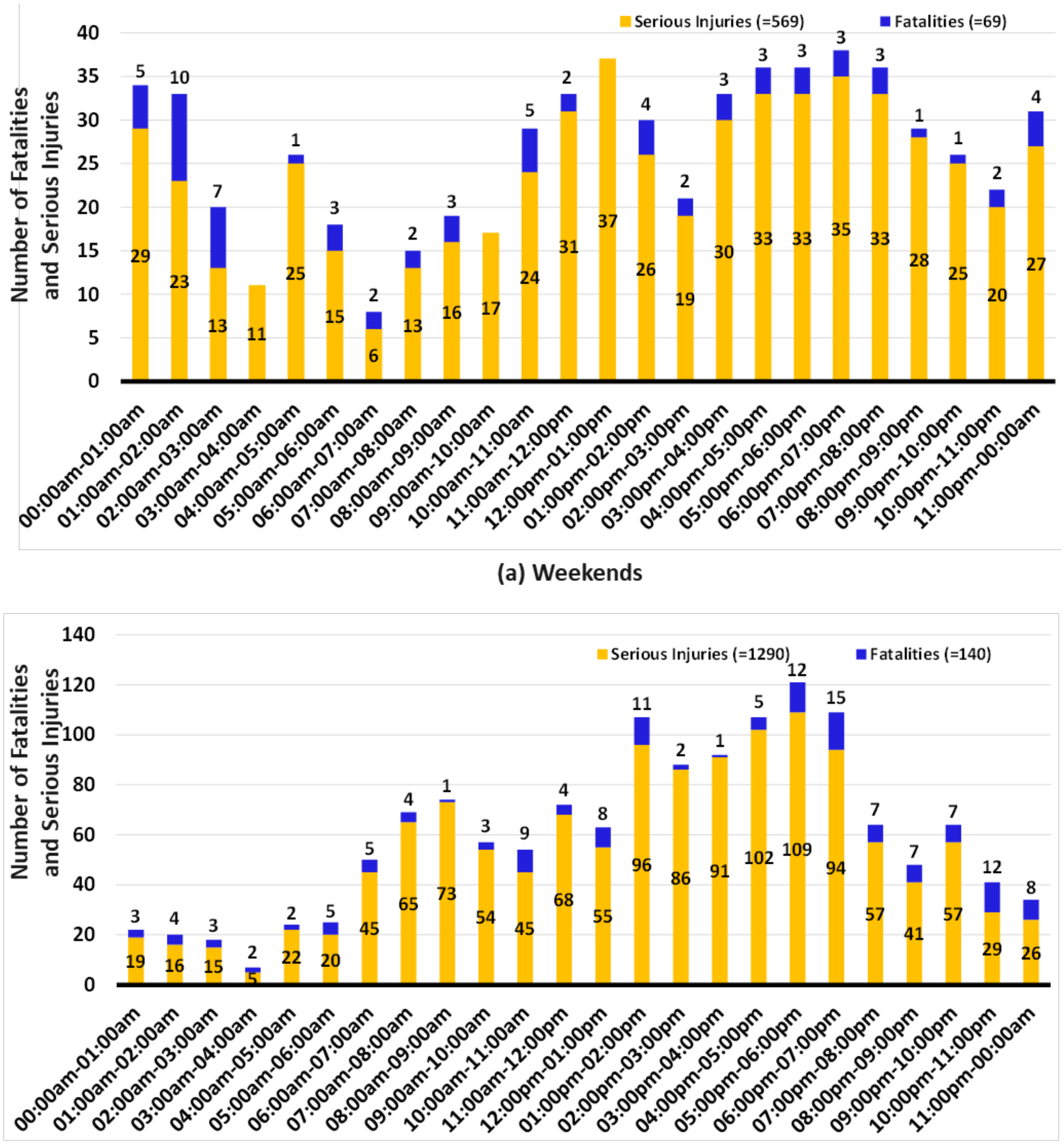
Time and Day of Week

The distribution of crashes by time of day and assessment of typical patterns and abnormalities provides insights into the severe crash causes or potential options for crash mitigation. Figure 21 summarizes the frequency of KA injuries and KA crashes during weekends and weekdays in DuPage County from 2018-2022.

A distinct pattern of severe crashes during late night hours is apparent on weekends. In particular, the hours between 11 PM and 2 AM exhibit a high number of serious injuries and fatalities (98 total), with fatalities peaking between 1 AM and 2 AM. Of these 98 serious injuries and fatalities, 29, or 29.6%, occurred in crashes where the primary contributory cause was reported as “under the influence of alcohol/drugs” or “had been drinking” – higher than the baseline across all days and times. As the day progresses, the number of serious injuries and fatalities on weekends gradually lowers from 4 AM to 10 AM, ticking back up in the late afternoon and early evening hours.

By contrast, serious injuries and fatalities occurring on weekdays are more concentrated in the afternoon hours, with a less pronounced overnight pattern. The evening rush hour between 5 PM and 6 PM has the highest single-hour frequency of serious injuries, with the highest number of fatalities occurring between 6 PM and 7 PM.

Figure 21: Fatalities and Serious Injuries by Hour, 2018-2022

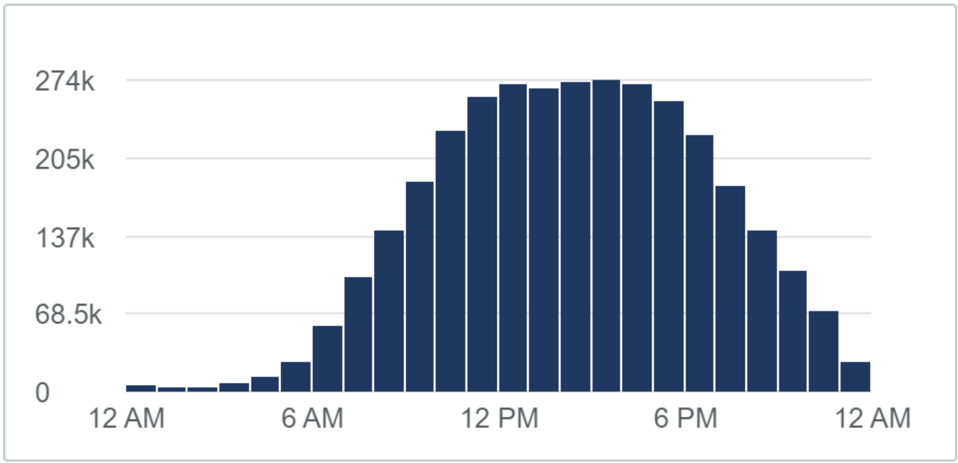


(a) Weekends

(b) Weekdays

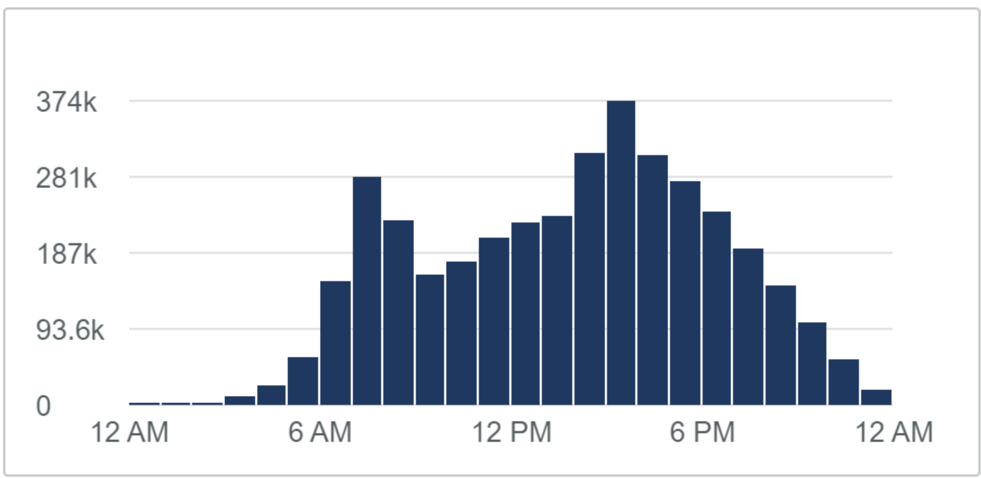
These disparities and trends are confirmed when looking at travel trends shown in Figure 22 and Figure 23, which show trip starts with origins in DuPage County in the Fall of 2022 based on simulated travel demand model data created by Replica based on cellphone data.

Figure 22: Weekend DuPage County Trip Origin Starts by Hour, Fall 2022



Source: Replica, Great Lakes, Fall 2022, Sat

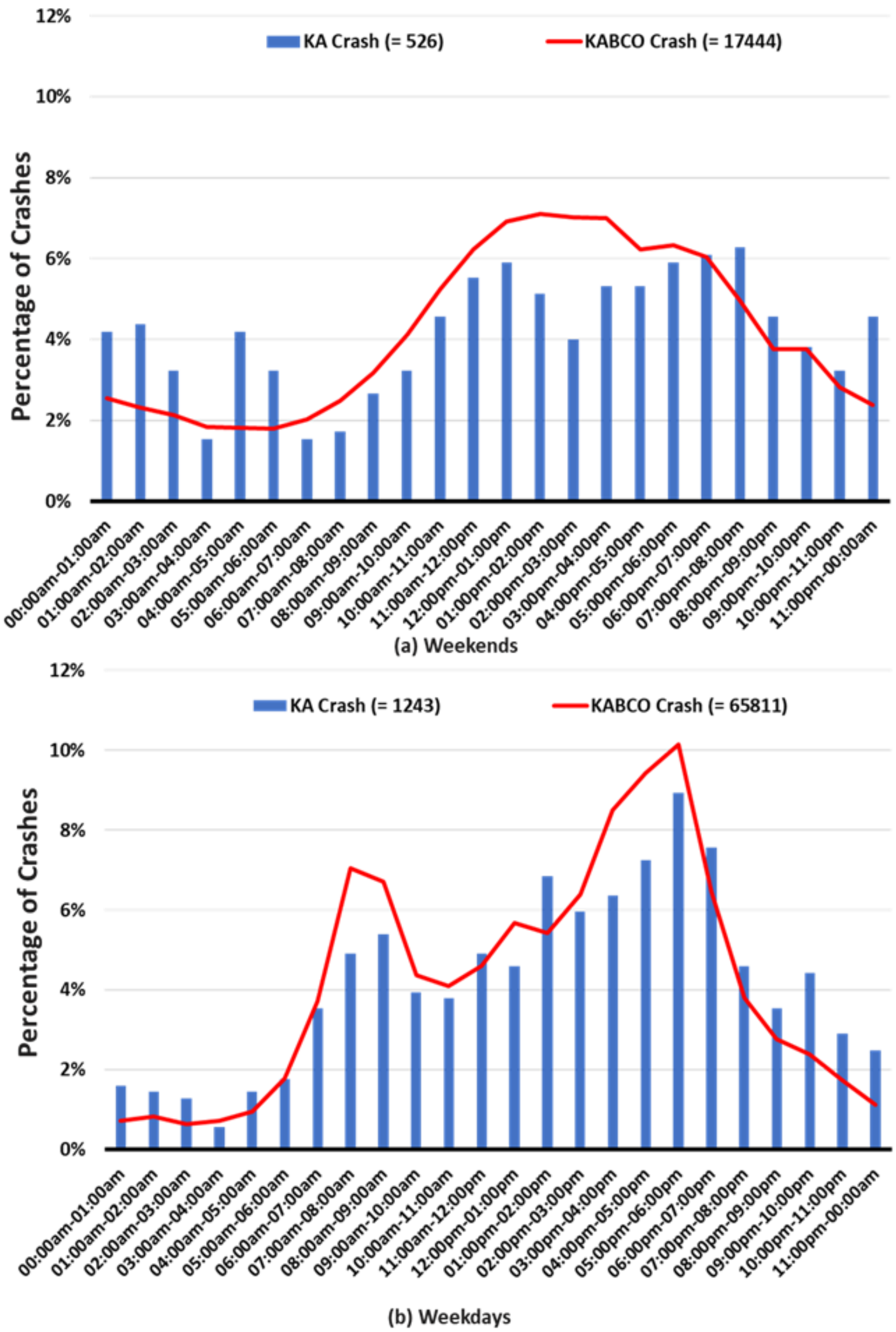
Figure 23: Weekday DuPage County Trip Origin Starts by Hour, Fall 2022



Source: Replica, Great Lakes, Fall 2022, Thurs

Figure 24 compares the KA crashes only against all KABCO crashes for both weekdays and weekends. On weekends, a distinct pattern emerges between 11 PM to 5 AM. During these hours, the proportion of KA crashes exceeds KABCO crashes. While fewer crashes generally occur during these hours, there is a higher likelihood of fatalities and serious injuries.

Figure 24: Share of KA Crashes Compared to All Crashes by Hour, 2018-2022



On weekdays, KA and KABCO crashes exhibit bimodal peaks coinciding with the AM and PM rush hours. There is less variation on weekdays between KA and KABCO crashes, although crashes are more severe overnight.

Weather and Roadway Conditions

Figure 25 illustrates the distribution of fatal and serious injury crashes in relation to prevailing weather conditions over the years 2018 to 2022. Overall, the results indicate that KA predominantly occur during clear weather, with rainy and cloudy/overcast conditions constituting only a small percentage of fatal and serious injury crashes. Cloudy conditions are prevalent in northeastern Illinois, leading to the conclusion that the breakdown between cloudy/overcast and clear assessments may be unreliable.

Figure 25: Share of KA Crashes by Weather Condition, 2018-2022

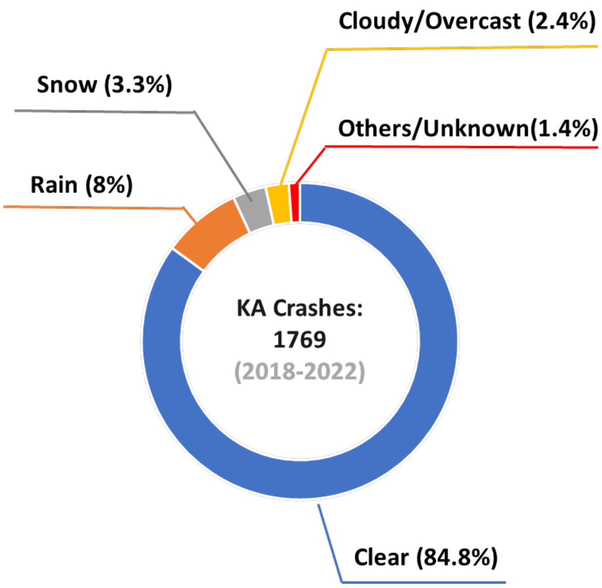


Table 12 presents the share of KA and KABCO crashes by roadway surface conditions at the time of the crash. The majority, 80.7%, of KA crashes happened on dry surfaces, a higher share than KABCO crashes as a whole. Wet surfaces were associated with 15.4% of KA crashes while ice/snow/slushy surface conditions were only 3.5% of KA crashes. Overall, the results illustrate that less severe crashes are more likely to be weather-driven than crashes resulting in serious injuries and fatalities.

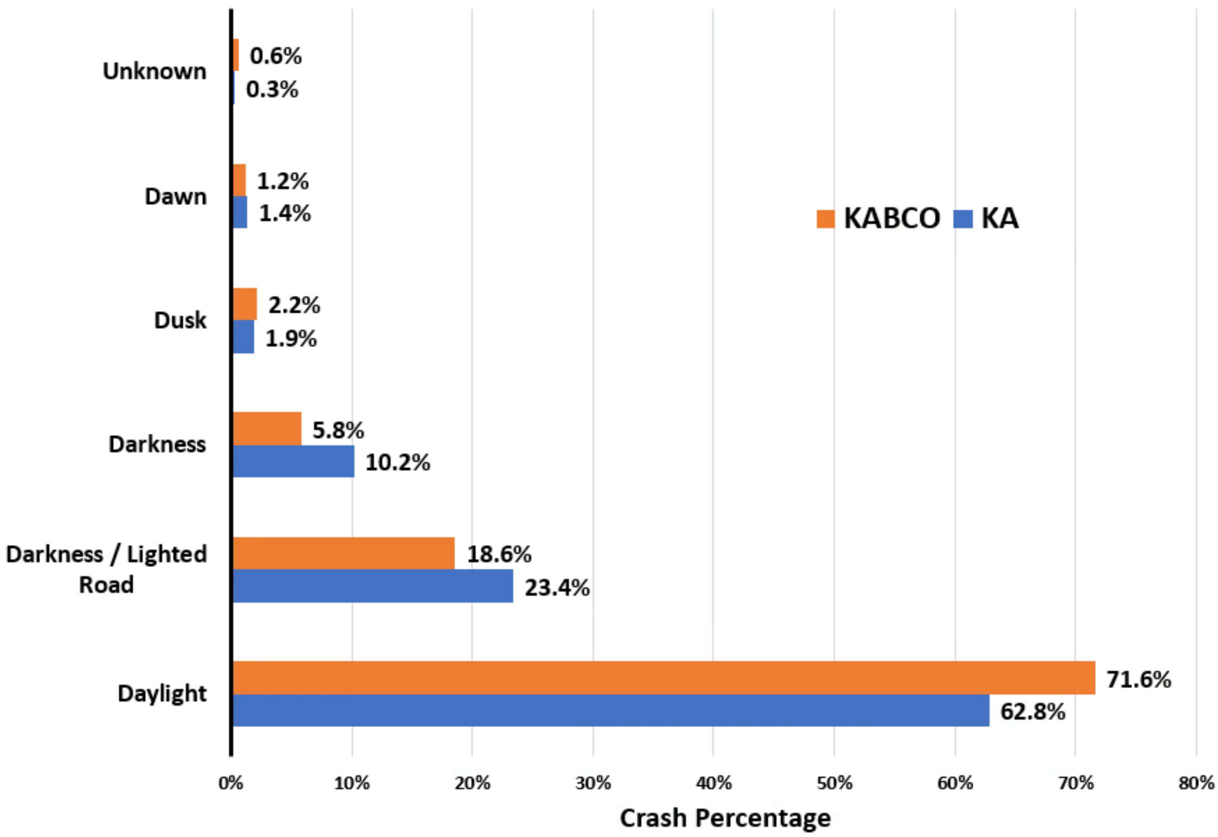
Table 12: KA and KABCO Crashes by Surface Condition, 2018-2022

Surface Condition	Percentage of KA Crashes	Percentage of KABCO Crashes
Dry	80.7%	74.7%
Wet	15.4%	16.6%
Ice/Snow/Slush	3.5%	7.6%
Other/Unknown	0.5%	1.1%

Lighting Conditions

Figure 26 shows the distribution of KA and KABCO crashes in relation to light conditions. As expected, daylight conditions account for the highest percentage of both KA (62.8%) and KABCO (71.6%) crashes. However, the proportion of KA crashes is lower in daylight compared to KABCO crashes, suggesting that daylight crashes are less likely to result in severe injuries or fatalities.

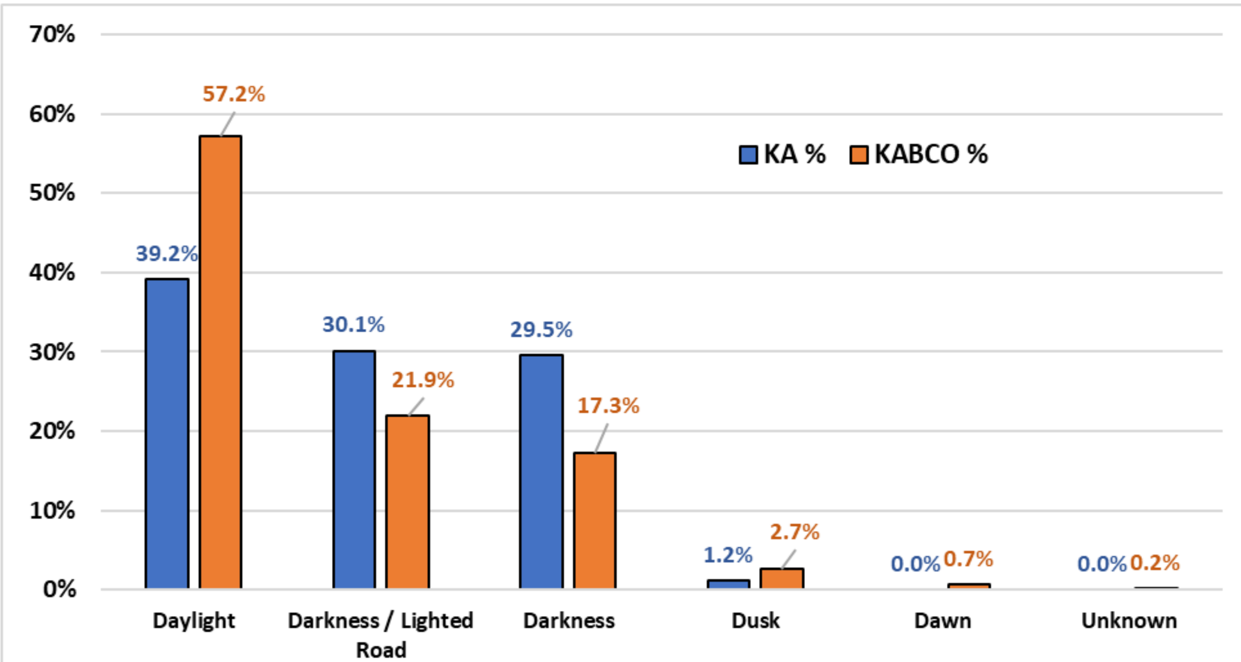
Figure 26: Share of KA and KABCO Crashes by Lighting Condition, 2018-2022



Crashes in darkness account for a higher percentage of KA crashes compared to KABCO crashes, emphasizing the critical role of visibility in crash severity during dark conditions. Specifically, crashes in darkness on lighted roads make up 23.4% of KA crashes and 18.6% of KABCO crashes, while crashes in darkness on unlighted roads account for 10.2% of KA crashes and 5.8% of KABCO crashes. While the distinction between darkness and darkness/lighted road is based on officer judgment, the results are consistent: the higher proportions of KA crashes in both dark conditions highlight the increased risk of severe injuries or fatalities when visibility is compromised.

Figure 27 shows the lighting condition at the time of pedestrian crashes. For all pedestrian crashes, daylight is about 2.5 times more likely to be the lighting condition at the time of a pedestrian crash when compared to the next highest percentage, Darkness on a Lighted Road, coming in at 21.9%. This is likely due to more pedestrian activity during daylight hours. When isolated to crashes with severe outcomes alone, the share of daylight pedestrian crashes drops sharply. Darkness/Lighted Road and Darkness account for 59.6% of all pedestrian KA crashes. This stands in contrast to KA crashes inclusive of all users, where Darkness/Lighted Road and Darkness represent 33.6% of the total.

Figure 27: Lighting Condition at Time of Pedestrian Crash, 2018-2022



Intersection and Mid-Block Crashes

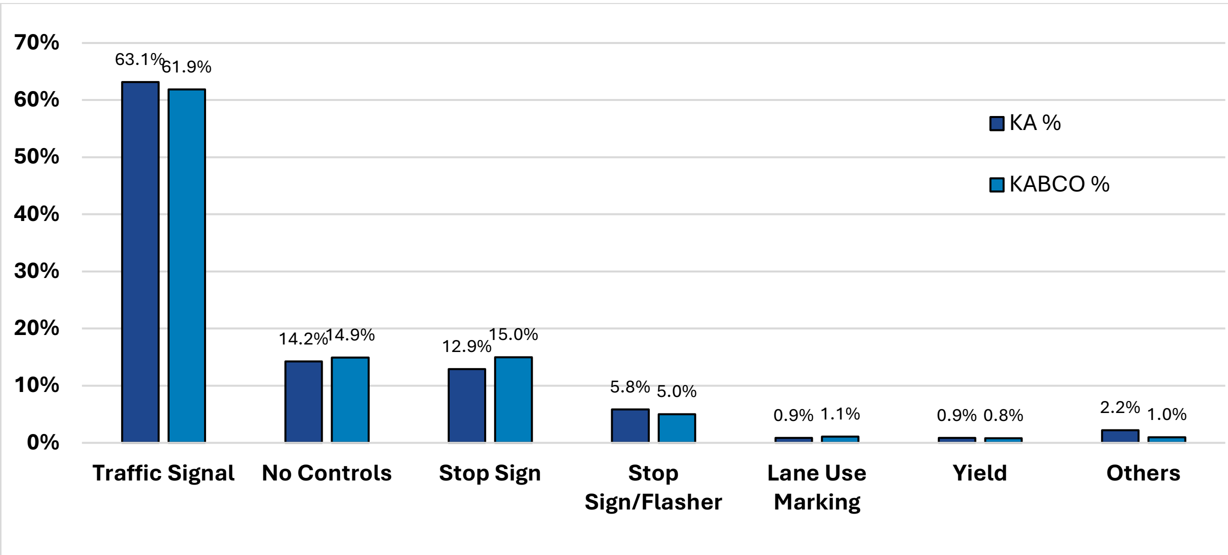
Per CMAP's intersection assignment procedure, crashes were assigned as intersection-related if the crash occurred within 200 feet of a signalized intersection's centerpoint, within 100 feet of an all-way stop-controlled intersection centerpoint, or within 50 feet of an intersection where the control type is coded as unknown (based on a comparison of several locations, this is typically an intersection where one or more legs is uncontrolled). If a crash occurred within two of these buffer areas, the crash was assigned to the nearest intersection. Crashes that did not meet any of these three parameters were considered segment related.

When viewed at the county level, the distribution of intersection to segment crashes indicates that more fatal and serious injury crashes occurred outside of intersections than at intersections. Based on

IDOT crash data, 54% (947) of fatal and serious injury (KA) crashes from 2018 to 2022 occurred at mid-block locations and 46% (822) occurred at intersections.[4]

Figure 28 reveals that 63% of intersection-related KA crashes occurred at signalized intersections, based on reporting by the responding officer. Notably, 14% of intersection-related KA crashes happened at locations with no reported traffic controls, while nearly 19% occur at intersections with stop signs or stop signs with flashing beacons.

Figure 28: Share of Intersection-related KA Crashes by Traffic Control Device, 2018-2022



Functional Classification

Figure 29 compares the percentage of KA crashes and overall crashes across different road functional classifications present in DuPage County. Other principal arterials and minor arterials, which characterize the County and State arterial systems, are the most critical, accounting for the highest percentages of both KA crashes (31% and 27%, respectively) and total crashes (29% and 22%, respectively).

Local roads and interstates have similar percentages of overall crashes (15%), but local roads have a higher percentage of KA crashes (13%) compared to interstates (11%). Collectors contribute to about 10% of KA crashes and 9% of total crashes, while unknown road classifications have the lowest

[4] Note that this result is based on the buffer distances specified by CMAP and may differ when using a larger or smaller or larger search distance.

percentages of both KA crashes (8%) and KABCO crashes (9%). These insights highlight the need for targeted interventions and safety improvements on other principal arterials and minor arterials, as they account for a disproportionately high share of severe and overall crashes.

Figure 29: Share of KA and KABCO Crashes by Functional Classification, 2018-2022

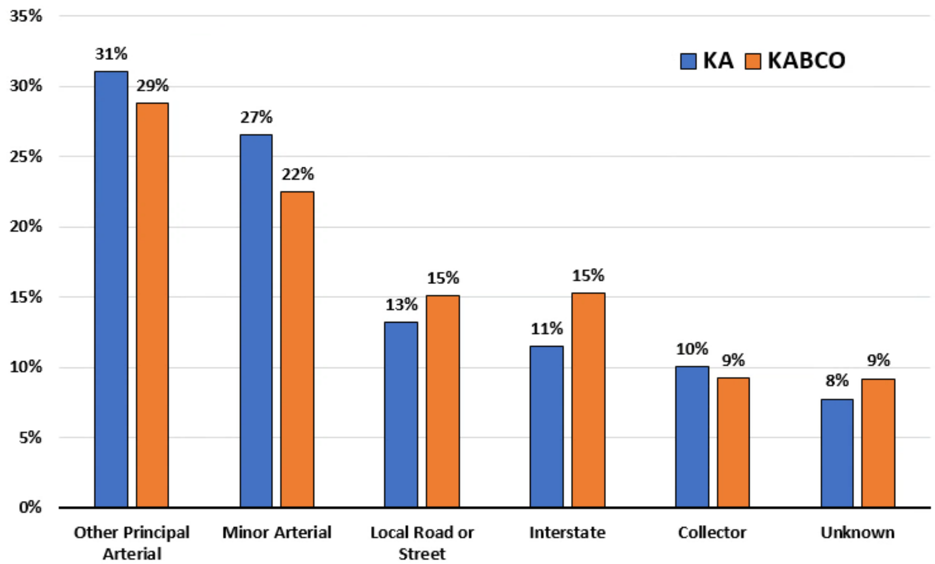


Table 13 presents the distribution of crashes and centerline mileage across different road functional classifications in DuPage County. This table allows comparison of the proportion of crashes that occur on a given road functional classification to the proportion of centerline miles in the county.

Table 13: KA Crashes by Functional Classification Mileage and AVMT, 2018-2022

Functional Classification	KA Crashes	Centerline Miles**	KA/Centerline Mile**	KA Crashes per 100M AVMT**
Unknown	136	n/a	n/a	n/a
Interstate, Freeway/Expressway	204	56.97	3.58	7.46
Other Principal Arterial	549	195.14	2.81	26.73
Minor Arterial	469	253.3	1.85	35.07
Collector	35	n/a	n/a	n/a
Major Collector	118	272.33	0.56	27.65
Minor Collector	25	110.86	0.23	30.51
Local Road or Street	233	2,738.26	0.09	20.74
Total	**1,769**	**3,626.86**	**0.49**	**22.44**

*Recent changes in the latest version of the IRIS dataset exclude "Collector" as a functional class." Collector" crashes are combined with Major collectors in KA/Mile and KA Crashes per 100M AVMT.

**Source: IDOT 2023 Illinois Travel Statistics

Despite having the highest centerline mileage, local roads did not experience the highest percentage of crashes. Other Principal Arterials show the highest proportion of KA as well as KABCO crashes and account for a much smaller share of centerline miles of unrestricted roadways. Minor Arterials have a higher proportion of crashes, considerably higher compared to their centerline mileage. Even when adjusted for average vehicle miles traveled (AVMT), high-volume arterials still exhibit above-average KA crash rates with minor arterials exhibiting the highest crash rate over the five-year period at 35.07, over 50% greater than the countywide average. Arterials account for a disproportionate number of KA crashes in both percentage and rate while being a relatively small share of overall centerline miles, making them a high priority for safety improvements.

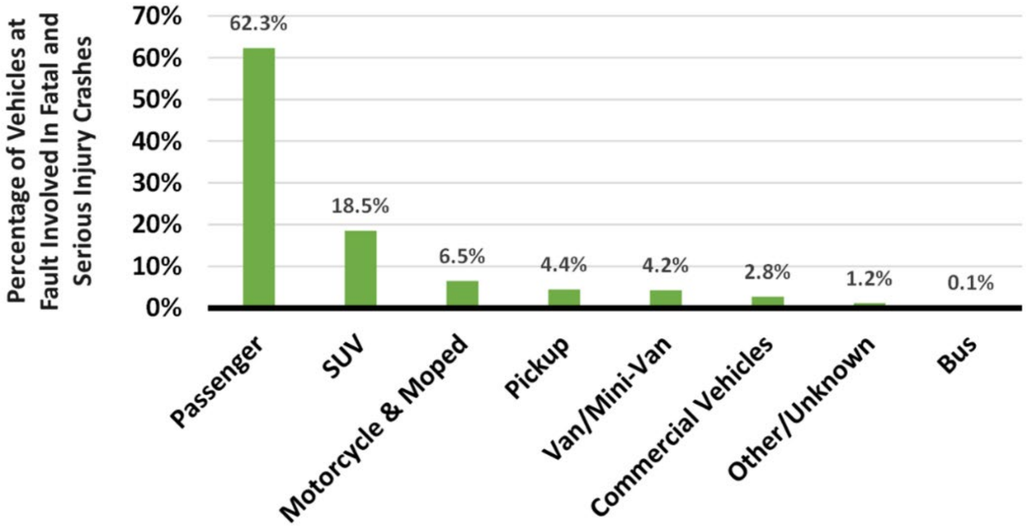
A small percentage of crashes (2.7%) are attributed to an unknown functional classification, indicating the need for improved data collection and reporting.

Overall, the table highlights the importance of considering both crash data, centerline mileage, and volumes when analyzing safety performance and prioritizing interventions across different functional classifications of roads. It suggests that targeted safety improvements may be warranted for specific road types, such as Minor Arterials, Major Collectors, and Interstates, to address their disproportionate share of crashes relative to their mileage. Further discussion on roadway risk factors can be found in Section 4: Systemic Safety Conditions.

Vehicles Involved

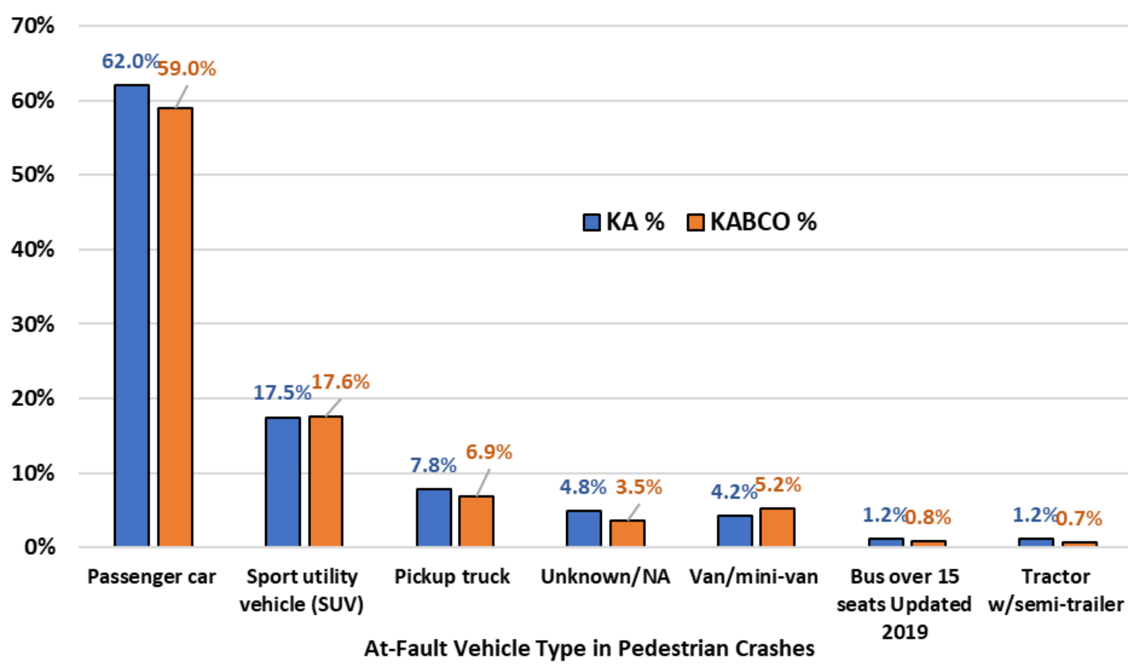
As shown in Figure 30, passenger cars were the primary at-fault vehicle type, accounting for 62.3% of fatal and serious injury crashes. Sport utility vehicles (SUVs) were the second most prevalent at-fault vehicle type, responsible for 18.5% of fatal and serious injury crashes. Due to their larger size and weight, SUVs can contribute to increased crash severity whether they are at fault or not, potentially causing more fatalities and serious injuries. Similar to SUVs, pickup trucks are generally larger than passenger vehicles and drivers of these vehicles were at fault in 4.4% of fatal and serious injury crashes. Despite their substantial size, blind spots, and increased stopping time, commercial vehicles and buses collectively accounted for 2.9% of at-fault fatal and serious injury crashes. Motorcycles and mopeds, often viewed as high-risk regardless of who is at fault, were at fault in 6.5% of fatal and serious injury crashes.

Figure 30: Distribution of Vehicles at Fault for KA Crashes by Type, 2018-2022



Regardless of the size of the vehicle, crashes between a vehicle and pedestrian are often very unforgiving to the pedestrian. Figure 31 shows the vehicle type of the at-fault party in a crash where a pedestrian is involved. Any vehicle type that accounted for at least 1% of KA or KABCO is shown in Figure 31 while all others are excluded. When compared to all KA crashes, SUVs represented a slightly reduced share of pedestrian-involved KA crashes, while pickup trucks were at-fault at an elevated rate.

Figure 31: Vehicle Type of At-Fault Party in Pedestrian Crashes, 2018-2022



3 High Injury Network

The High Injury Network (HIN) is a tool for identifying the roadways and intersections with the highest number of crash fatalities and serious injuries in DuPage County. HINs, composed of a limited set of corridors and/or intersections within a given geography, are frequently used to identify safety study locations and potential safety projects, to prioritize investments, and to direct campaigns and engagement. The HIN enables focused action to address the most potentially significant safety concerns and demonstrate progress towards a goal to eliminate all deaths and serious injuries.

The HIN section is broken into four sections: **data preparation and interpretation**, **high injury network segments**, **high injury network intersections**, and **validation with community feedback**.

The HIN section meets the SS4A Safety Analysis requirement "geospatial identification of higher risk locations."

Data Preparation and Interpretation

Analysis Area and Network

Unlike the severe crash analysis in an earlier section, at the direction of CMAP and the *Regional Framework* (June 3, 2023 version), the development of the HIN is not based only on the boundaries of DuPage County. As discussed earlier in the ESC, many municipalities along DuPage County's borders cross over into another adjacent county (e.g., Burr Ridge is split between DuPage and Cook Counties). To correct for this and to provide HIN segments applicable to complete municipalities, CMAP assigned municipalities to DuPage County that roughly, but do not exactly, conform to its borders and total population. Similarly, segments and intersections in some municipalities (e.g., Aurora) are included in the HINs of other counties. The municipalities that make up the DuPage Safety Action Plan HIN analysis area, in addition to all of unincorporated DuPage, are listed in Table 14. No unincorporated portions of other counties are included.

Table 14: HIN Analysis Area Municipalities

Municipalities Fully within DuPage	Border Municipalities Assigned to DuPage	Border Municipalities Assigned to Other Counties
Addison	Bartlett	Aurora
Bloomingdale	Bensenville	Bolingbrook
Carol Stream	Burr Ridge	Chicago (O'Hare)
Clarendon Hills	Elmhurst	Elk Grove
Darien	Hanover Park	St Charles
Downers Grove	Hinsdale	
Glen Ellyn	Itasca	
Glendale Heights	Naperville	
Lisle	Oak Brook	
Lombard	Roselle	
Oakbrook Terrace	Wayne	
Villa Park	West Chicago	
Warrenville	Wood Dale	
Westmont	Woodridge	
Wheaton		
Willowbrook		
Winfield		

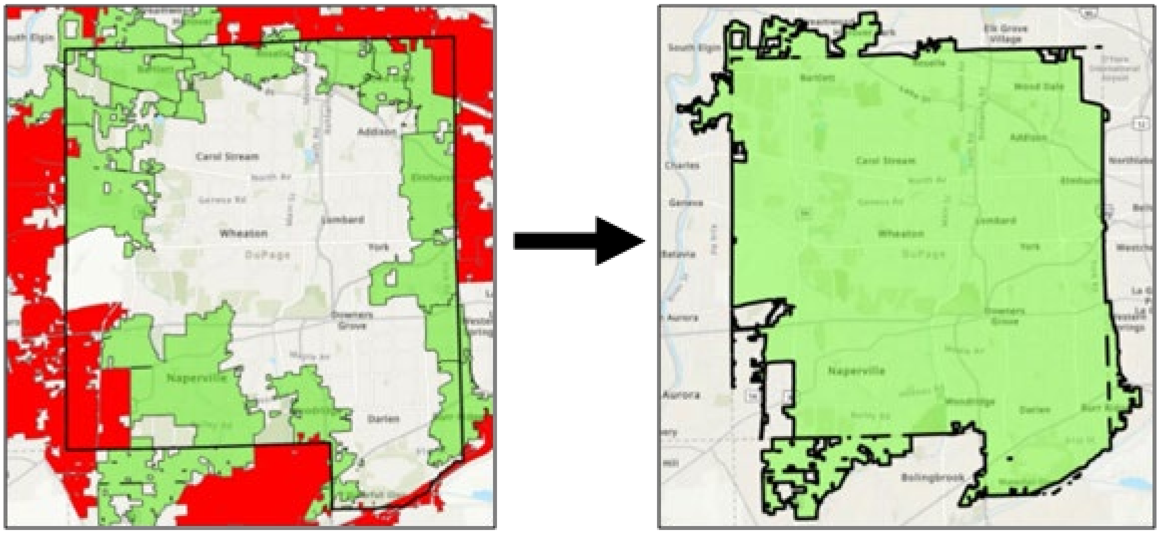
Source: CMAP

Figure 32 illustrates the analysis area used for all HIN analyses, with the official border of DuPage County on the left shown side-by-side with the final analysis area, illustrated in green on the right. Municipalities shown in red were not assigned to DuPage County, therefore the portions that fall within the county boundary are excluded. Through the remainder of the ESC, this area will be referred to as the "DuPage SAP analysis area."

CMAP took a similar approach to assigning streets on County and municipal borders so that no streets were accidentally omitted from the analysis. These assignments are also carried through the HIN analyses.

The HIN is based on five years of IDOT fatal and serious injury crash data, 2018-2022, consistent with IDOT data analyzed in the severe crash analysis earlier in the ESC. Unlike those earlier analyses, crash data for the HIN are analyzed using the DuPage SAP analysis area – they therefore include some crashes outside the DuPage County boundary and exclude others in municipalities assigned to other counties (e.g., Aurora).

Figure 32: Development of the DuPage SAP Analysis Area



The number of crashes in the HIN analysis area is summarized in Table 15. Between 2018 and 2022 there were 1,829 severe crashes resulting in 2,153 deaths and serious injuries, or 1.17 deaths and serious injuries per severe crash. This compares to the 1,769 severe crashes resulting in 2,068 deaths and serious injuries within the DuPage boundary over the same period, with the same ratio of crashes to deaths and serious injuries.

Table 15: HIN Analysis Area Crash Data Summary, 2018-2022

Basis	Metric	Segment-related Count	Intersection-related Count	Total Count
Crashes	Fatal Crashes	123	83	206
	Serious Injury Crashes	559	1,064	1,623
	Subtotal – KA Crashes	**682**	**1,147**	**1,829**
Injuries	Fatalities	133	90	223
	Serious Injuries	677	1,253	1,930
	Subtotal – KA Injuries	**810**	**1,343**	**2,153**

Segment HIN Assignment and Calculation

Segment crashes, those that CMAP did not assign to an intersection using the methodology described in the *Regional Framework,* are assigned to a simplified network of candidate street centerline segments (inclusive of all functional classifications) supplied by CMAP within the analysis area. To create the candidate segments, the project team dissolved and then split street segments at signalized and four-way stop intersections to create longer segments for analysis and to better align with potential logical termini for future project development. Therefore, each candidate segment includes smaller segments to, from, and between minor intersections (the typically uncontrolled intersection of a local functional classification street and a collector or arterial) located between major intersections. Crashes were then assigned to the nearest street segment, with limited exceptions for crashes found to be within private parking lots or crashes incorrectly located far away from street centerlines, which were screened out of the data set.

Based on the instruction in the *Regional Framework*, the project team calculated the number of deaths and serious injuries (person-level, not crash-level) involving all users for each candidate segment based on the assigned crashes. The project team then calculated the number of KA injuries per segment centerline mile to normalize each candidate for segment length. No weighting is applied to deaths or serious injuries (both are counted equivalently) and no distinction is made between users (e.g., pedestrian fatalities were not broken out or given additional weight).

Following assignment and calculation, the project team reviewed the data and developed a limited number of screening criteria in consultation with the criteria in the *Regional Framework*. To control for excessively high KA injuries per centerline mile, the project team removed all segments with lengths less than 0.1 miles (based on project team assessment, setting a threshold of 0.25 miles would remove many downtown segments in downtown/village center contexts). To ensure that the HIN was indicative of locations where more than one KA injury occurred in the last five years, all segments with one KA injury were dropped from consideration. To back up this determination, the project team posits that a segment with one KA injury reflects a tragic collision but does not reflect a pattern and thus is not eligible for inclusion.

Intersection HIN Assignment and Calculation

CMAP assigned intersection crashes to the center point (centroid) of intersecting roadway centerlines across the region prior to receipt of the data. No additional assignment was undertaken by the project team. Crashes were joined to intersection centroids that fell within the HIN analysis area. Like segments, the project teams calculated the number of deaths and serious injuries involving all users for each intersection. Like the segment analysis, no weights were applied.

Certain complex intersections may be represented by multiple intersection points. Offset intersections, for example, may function as one intersection but could be represented in a GIS shapefile as two intersection points. Complex intersections may have multiple points where the centerlines of constituent segments overlap. The project team did not assess these situations or make changes to the CMAP-supplied intersection file due to the high number of potential intersections in the study area.

Interpretation

Per the CMAP regional framework, the project team created two versions of the HIN: the comprehensive HIN and the contextual HIN. The comprehensive HIN includes all functional classes, including interstates, for the purposes of fulfilling USDOT guidelines for the preparation of safety analyses. Interstates are not included in the contextual HIN. The only significant difference between the comprehensive and contextual HINs are at the segment level. Since there are no true intersections on the interstate system (entrance and exit ramps are merges), all intersections belong to both contextual and comprehensive HINs.

Across both comprehensive and contextual HINs, KA injuries per mile are used to compare the relative severity of each included segment. The project team assessed the data and methodology at multiple steps in the HIN development process to check the utility of the outputs. Due to the large extent of the HIN analysis, all segments could not be checked for appropriate termini, whether changes in land use or roadway features occurred along the segment, or whether adjacent segments should be extended, combined, or shortened. Therefore, while KA injuries/mile are useful for comparison purposes, it is not a precise tool. Segments that are artificially short due to how the DuPage SAP analysis area boundary was constructed, for example, may be over-represented. Intersections cannot be normalized by length and are thus represented as a raw frequency.

The methodology used to create the HIN segments and intersections is based purely on historical IDOT crash data for all users and excludes crashes that did not result in a death or serious injury. Systemic and predictive factors are not factored in the development of the HIN, based on instruction in CMAP's *Regional Framework*. Future users of the HIN may seek to apply their own weighting factors and overlay other characteristics to produce more context-sensitive analyses or to create project prioritization indices.

A step-by-step methodology used to prepare the HIN can be found in the Appendix: HIN Development for Segments and Intersections Technical Memorandum.

High Injury Network Segments

HIN segments indicate corridors of potential concern and priority for safety assessment and intervention. The selected segments must therefore constitute a high concentration or density of fatalities or serious injuries, represent a relatively small fraction of the overall network, and indicate a pattern of severe crashes.

CMAP's *Regional Framework* suggests thresholds for HIN network lengths (5% minimum, 40% maximum) and fatalities or serious injuries (60% study area minimum). Most crashes that resulted in deaths and serious injuries in DuPage County and in the DuPage SAP analysis area between 2018 and 2022 occurred at intersections, limiting the pool of KA injuries for assessment. After screening out segments that did not meet the criteria laid out in the previous section, the project team determined that all eligible segments with two or more fatalities or serious injuries were needed to achieve CMAP's recommended threshold for the comprehensive HIN. Based on the diffuse pattern of KA injuries in the study area for the contextual HIN, achieving this threshold would require selecting many candidates with only one KA injury over the study period. As a result, the ability of the HIN to illuminate patterns of severe crashes would be diminished. In this case, the HIN segments would simply map where KA crashes have occurred.

The DuPage analysis area segments included in the comprehensive and contextual HINs are described in Table 16. The comprehensive HIN segments represent 60.9% of segment KA injuries between 2018 and 2022 but only 3.4% of the overall network. The contextual HIN segments, those that exclude interstate segments, represent 35.0% of KA injuries (50.1% of all KA injuries when interstates are excluded) and are only 2.0% of the total network in the analysis area by length.

Table 16: DuPage Analysis Area Segment HIN Summary

Segment Type		Count	Length (mi)	Percent Total Length	Segment KA Injuries	Percent Total KA Injuries
All Segments		16,383	3,954.3	100%	810	100%
Comprehensive	Candidate Segments	16,383	3,954.3	100%	781*	96.4%
	HIN Segments	135	133.3	3.4%	494	60.9%
Contextual	Candidate Segments	16,340	3,892.7	98.4%	567	70.0%
	HIN Segments	99	79.3	2.0%	284	35.0%

Source: CMAP

*29 crashes with KA injuries were removed from consideration as they were assessed to be located on private property (principally located in parking lots)

On a KA injuries per mile basis, the comprehensive HIN experienced 3.71 KA injuries per centerline mile while the contextual HIN experienced 3.58 KA injuries per centerline mile between 2018 and 2022, illustrating rough comparability.

Comprehensive and contextual HIN segments in the DuPage SAP analysis area are shown in Figure 33. In addition to the interstates, significant portions of IL-83, IL-56 (Butterfield Road) and IL-38 (Roosevelt Road) on the eastern side of DuPage County are identified in both the comprehensive and contextual HINs.

The top ten segments by KA injuries per centerline mile in the comprehensive and contextual HIN are listed in Table 17. While the comprehensive HIN includes interstates, none had sufficient KA injuries per mile to make the top ten list, so the comprehensive and contextual top ten segment lists are mutually inclusive. A complete table of candidate and scored segments can be found in the Appendix.

Figure 33: Comprehensive and Contextual HIN Segments

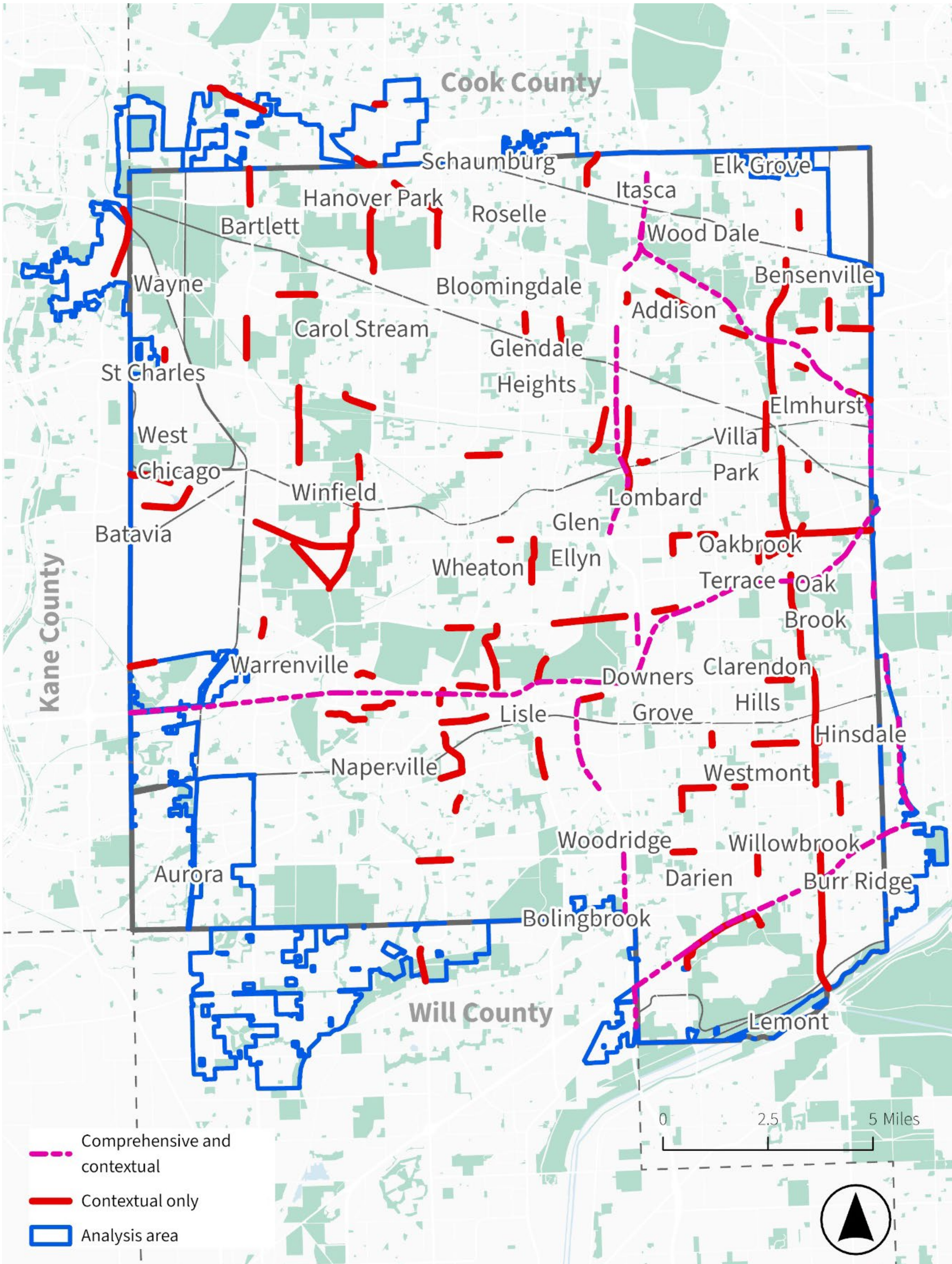


Table 17: Top 10 Comprehensive and Contextual HIN Segments by KA Injuries per Mile

Corridor	From	To	Municipality	Jurisdiction	KA Injuries 2018-2022	Length (mi)	KA Injuries /mi
Lake Street (US-20)	Horizon Drive	IL-59	Bartlett	IDOT	7	0.44	16.0
Naperville Rd	Diehl Road	Tollway Sign Shop/Central Park Signal	Naperville/ Lisle	DuPage County	5	0.34	14.9
Lake Street (US-20)	N Church Road	N Walnut Street	Elmhurst	IDOT	3	0.22	13.8
Lincoln Ave (IL-53)	Main Street	Maple Avenue	Lisle	IDOT	3	0.24	12.9
S Spring Road	Prairie Path Lane	W Vallette Street	Elmhurst	Municipal	2	0.16	12.2
Dunham Road	Canadian National Railway	Union Pacific Railroad	Wayne	Kane County	5	0.41	12.1
W St Charles Road	Crescent Boulevard	S Elizabeth Street	Lombard	Municipal	2	0.18	10.9
Lake Street (US-20)	I-355 SB Off Ramp	I-355 NB On Ramp	Hanover Park	IDOT	3	0.28	10.8
Washington Street	S Washington St	Royce Rd	Naperville	Municipal	3	0.28	10.8
Lake Street (US-20)	Greenbrook Blvd	Bartels Rd	Hanover Park	IDOT	4	0.37	10.7

The DuPage SAP analysis area includes assigned municipalities and unincorporated DuPage County (no unincorporated areas of Will County, Kane County, or Cook County are included). A breakdown of HIN segments by municipality is presented in Table 18. The project team assigned segments that pass through multiple municipalities to the municipality that represented the highest percentage of the segment length. Interstate segments are broken out as they pass through multiple municipalities and represent the exclusive set of non-contextual HIN segments. The municipalities with the highest mileage of HIN segments are West Chicago, Westmont, and Naperville. Hanover Park, Bartlett, and Naperville had the highest number of KA injuries on HIN segments. When adjusted for KA injuries per mile, Elmhurst (7.3), Bartlett (6.6), and Lisle (6.0) led peers with over a mile of contextual HIN segments within their borders (inclusive of all jurisdictions).

Table 18: Comprehensive and Contextual HIN Segments by Municipality

Municipality	Total HIN Segment Miles	KA Injuries	KA Injuries/mi
Interstate	53.97	210	3.9
West Chicago	7.6	16	2.1
Westmont	5.4	10	1.9
Naperville	4.9	18	3.6
Hanover Park	4.3	20	4.6
Oakbrook Terrace	4.0	15	3.8
Winfield	4.0	9	2.3
Downers Grove	3.6	14	3.9
Darien	3.5	7	2.0
Lombard	3.5	15	4.3
Wheaton	3.3	9	2.7
Burr Ridge	3.1	14	4.6
Bartlett	3.0	20	6.6
Unincorporated DuPage	3.0	10	3.3
Lisle	2.9	17	5.8
Elmhurst/Addison	2.9	7	2.5
Addison	2.8	8	2.9
Bensenville	2.6	15	5.8
Villa Park	2.1	5	2.3
Glen Ellyn	2.1	4	1.9
Elmhurst	1.6	12	7.3
Wayne	1.6	9	5.6
Clarendon Hills	1.6	4	2.5
Oak Brook	1.5	4	2.7
Glendale Heights	1.0	5	5.0
Willowbrook	1.0	4	4.2
Roselle/Itasca	0.8	2	2.5
Aurora	0.6	3	5.1
Bolingbrook	0.5	3	6.0
Total	**133.3**	**494**	**3.7**

A summary of comprehensive HIN segments by jurisdiction is included in Table 19 and a summary of comprehensive segments is presented in Table 20. Roadways under the jurisdiction of IDOT constitute the largest portion of both the comprehensive and contextual HINs by length and number of KA injuries on the HIN. When interstates are removed (and thus Illinois Tollway-owned facilities), the second highest share of length and KA injuries shifts from Tollway jurisdiction to County. Despite owning the most roadway on a per-centerline-mile basis, municipalities own just 9% of the comprehensive HIN and 15% of the contextual HIN.

Table 19: Comprehensive HIN Segments by Jurisdiction

Jurisdiction	HIN Length (mi)		KA Injuries	
	Count	%	Count	%
County	19.9	15%	78	16%
IDOT	61.6	46%	237	48%
Municipality	12.1	9%	42	9%
Tollway	36.1	27%	129	26%
Township or Road District	3.5	3%	8	2%
Total	**133.3**	100%	**494**	100%

Table 20: Contextual HIN Segments by Jurisdiction

Jurisdiction	HIN Length (mi)		KA Injuries	
	Count	%	Count	%
County	19.9	25%	78	27%
IDOT	43.8	55%	156	55%
Municipality	12.1	15%	42	15%
Township or Road District	3.5	4%	8	3%
Total	**79.3**	100%	**284**	100%

High Injury Network Intersections

High Injury Network intersections illustrate the intersections where the highest frequency of KA injuries occurred in the DuPage SAP analysis area between 2018 and 2022. The HIN intersections are the same across the comprehensive and contextual HINs as there are no true intersections on interstates and none are apparent on review of CMAP's intersection file.

The project team established a minimum threshold of three KA injuries per intersection over the five years between 2018 and 2022 based on an assessment of the variation in KA injuries across intersections eligible for analysis. As illustrated in Table 21, this threshold results in 117 intersections encompassing 473, or 35.0%, of KA injury crashes at intersections. Lowering the threshold to two KA injuries more than doubles the number of potential HIN intersections to 293 and significantly increases the coverage of KA injuries to 829 (61.3% of all intersection KA injuries). However, using this lower threshold tilts the HIN intersection list towards locations with single KA crashes resulting in multiple serious injuries. For this reason, the project team recommends using the smaller sample for greater precision and prioritization.

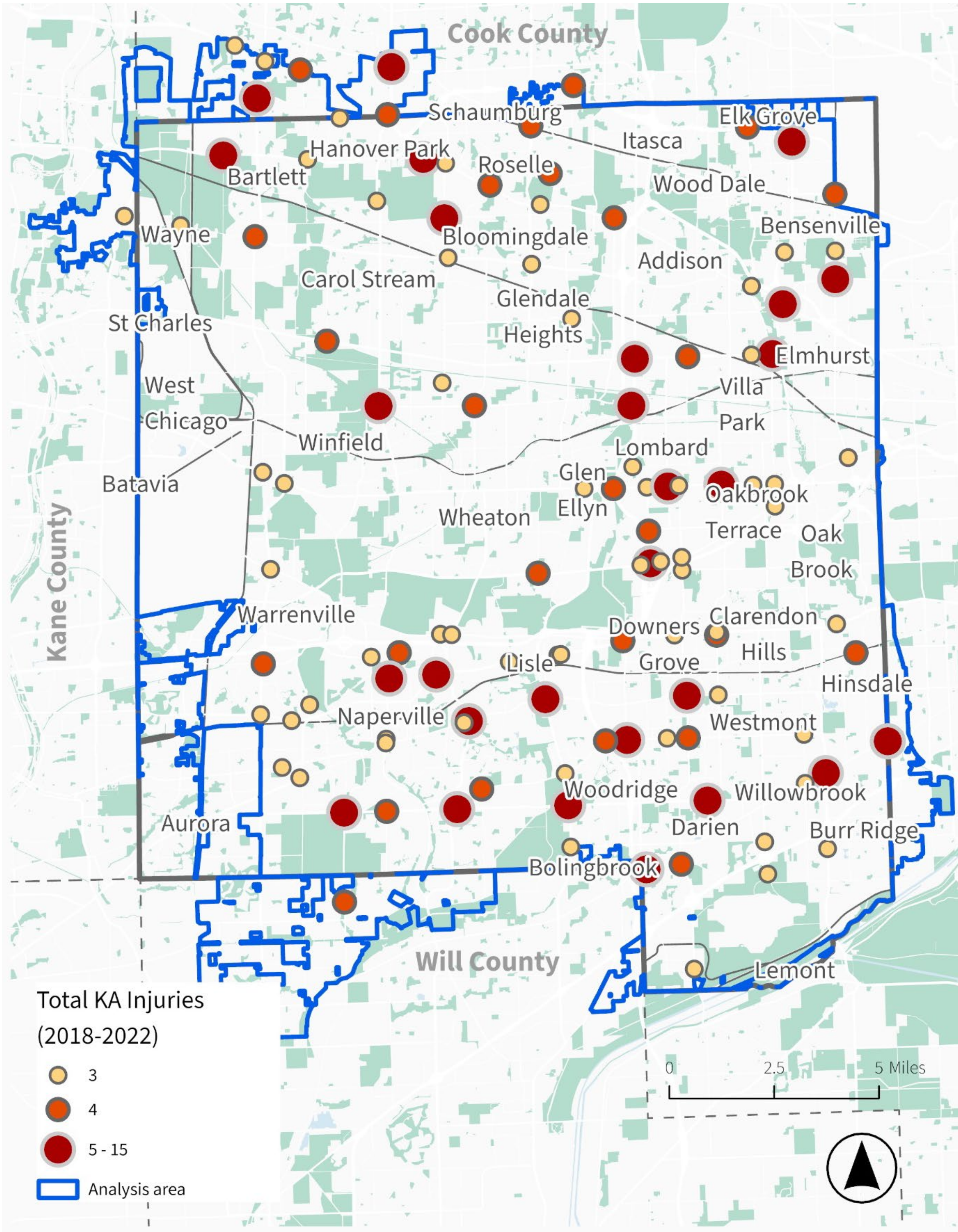
Table 21: DuPage Analysis Area HIN Intersection Summary

Intersection Type	Count	Percent of Intersections	Intersection KA Injuries	Percent Total KA Injuries
All Intersections	21,444	100%	1,352	100%
HIN Intersections	117	0.6%	473	35.0%

The distribution of the 117 HIN intersections across the DuPage SAP analysis area and the variation in KA injuries by intersection are shown in Figure 34. HIN intersections are located across the DuPage SAP analysis area but are more sparsely distributed on the western side of it. There are multiple adjacent HIN intersections along US-20 (Lake Street), IL-64 (North Avenue), IL-38 (Roosevelt Road), IL-56 (Butterfield Road), US-34 (Ogden Avenue), 63rd Street, and 75th Street. Of the 117 intersections on the intersection HIN, 59 (50%) are state jurisdiction (complete information on jurisdiction was not included in the CMAP intersection file so only state-owned intersections can be broken out).

The top twenty intersections by KA injuries are listed in Table 22. At 15 KA injuries between 2018 and 2022, the intersection of IL-64 and IL-53 has almost double the number of KA injuries as the next highest ranked intersections. Multiple intersections along 75th Street, IL-64 (North Avenue), and IL-53 appear in the top twenty. Seven of the twenty intersections are included in crash analyses created by the DuPage Division of Transportation using the three most recent years of crash data based on an injury severity-weighted formula (this differs from that recommended by CMAP due to its inclusion of PDO and minor injury crashes). Multiple intersections have been improved since 2019. A full list of HIN intersections is provided in the Appendix.

Figure 34: HIN Intersections by KA Injuries



HIN intersections are predominantly signalized. One hundred out of 117 are signalized, two are all-way stops, and the remaining 15 are at intersections with one or more uncontrolled approaches. All HIN intersections either have three legs or four; none are located at complex, multi-legged intersections based on the information provided in CMAP's intersection file. Most HIN intersections have high combined average annual daily traffic (AADT); 74 of 117 had over 30,000 vehicles per day on average, inclusive of major and minor leg volumes. Twenty-two had combined AADTs greater than or equal to 50,000.

Table 22: Top 20 HIN Intersections by KA Injuries

Major Road Name	Minor Road Name	State Juris.	KA Injuries	Rank	Municipality	Recently Completed Project
IL-64 (North Ave)	IL-53 (Columbine Ave)	Yes	15	1	Lombard	
IL-59 (Sutton Rd)	West Bartlett Rd	Yes	8	2	Bartlett	Yes
IL-38 (Roosevelt Rd)	Westmore-Meyers Road	Yes	8	2	Lombard	
Naper Blvd	75th St		8	2	Naperville	Yes
IL-53	75th St	Yes	8	2	Woodridge	
Grand Ave	York Rd		8	2	Bensenville	Yes
75th St	Fairmount Ave		7	7	Darien	Yes
Stearns Rd	Munger Rd		7	7	Bartlett	Yes
Barrington Rd	Irving Park Rd	Yes	6	9	Hanover Park	Yes
Plainfield Rd	County Line Rd		6	9	Burr Ridge	
County Farm Rd	Geneva Rd		6	9	Winfield	
IL-56 (Butterfield Rd)	Finley Rd	Yes	6	9	Downers Grove	
Gary Ave	Schick Rd		6	9	Bloomingdale	
Main St	55th St		6	9	Downers Grove	Yes
63rd St	Belmont Rd		6	9	Downers Grove	
IL-83 (Busse Rd)	Bryn Mawr Ave	Yes	6	9	Bensenville	
US-34 (Ogden Ave)	Iroquois Ave	Yes	6	9	Naperville	
Catalina Dr	Arlington Dr E.		5	18	Hanover Park	
IL-64 (North Ave)	Villa Ave	Yes	5	18	Villa Park	
Kingery Hwy (IL-83)	Plainfield Rd	Yes	5	18	Willowbrook	Yes

HIN intersections are in 27 municipalities and unincorporated DuPage County. Naperville has the highest number of HIN intersections at 20, followed by Downers Grove with 15 (in both municipalities, less than a third of HIN intersections are under IDOT jurisdiction). A full count of HIN intersections by municipality is listed in Table 23.

Table 23: HIN Intersections by Municipality

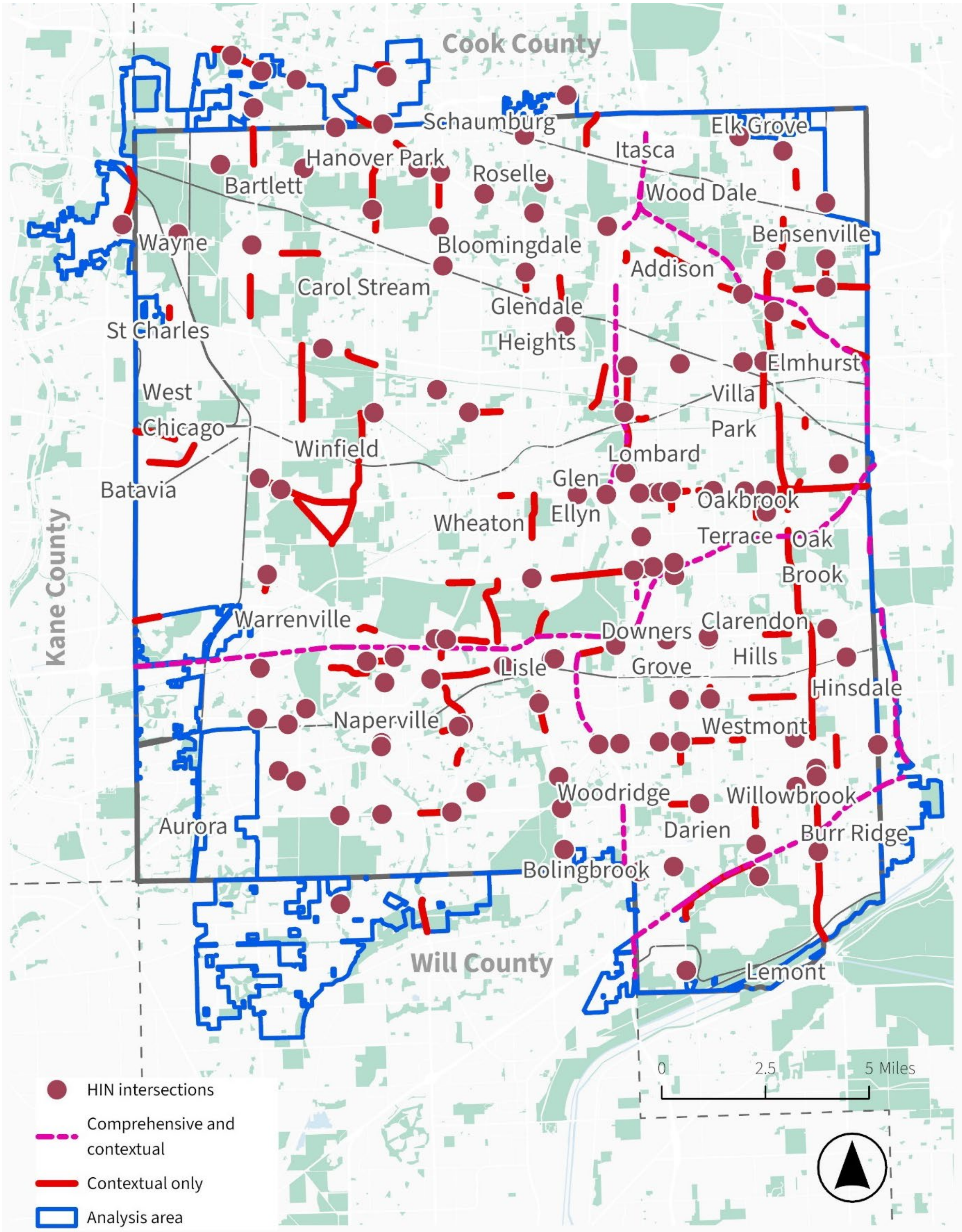
Municipality	HIN Intersection	KA Injuries
Naperville	20	77
Downers Grove	15	61
Lombard	11	58
Bartlett	8	35
Woodridge	6	26
Bensenville	4	21
Roselle	5	19
Hanover Park	4	18
Unincorporated	4	15
Lisle	4	14
Darien	4	13
Bloomingdale	3	12
Elmhurst	3	11
Villa Park	3	11
Willowbrook	3	11
Wheaton	2	8
Addison	2	7
Hinsdale	2	7
Burr Ridge	1	6
Glendale Heights	2	6
Oakbrook Terrace	2	6
Wayne	2	6
West Chicago	2	6
Winfield	1	6
Wood Dale	1	4
Carol Stream	1	3
Glen Ellyn	1	3
Warrenville	1	3
Grand Total	**117**	**473**

When segments and intersections are combined into one network, the comprehensive HIN represents 44.9% of all KA injuries in the DuPage SAP analysis area while the contextual HIN represents 35.4% of all KA injuries (39.1% when interstates are dropped). A complete summary is provided in Table 24. This network represents a small number of total intersections and segment miles, enabling planners and engineers to focus on limited portions of the network to break a complex, seemingly impossible task down into smaller and more manageable tasks to address. The complete HIN is also shown in Figure 35.

Table 24: Complete HIN Summary

HIN Component	Count	Percent Total	KA Injuries	Percent Total KA Injuries	Percent KA Injuries, Excluding Interstates
Comprehensive Segments	133.3 miles	3.4%	494	22.9%	n/a
Contextual Segments	79.3 miles	2.0%	284	13.3%	14.7%
Intersections	117 intersections	0.6%	473	22.0%	24.4%
Comprehensive Total			**967**	44.9%	n/a
Contextual Total			**757**	35.2%	39.1%

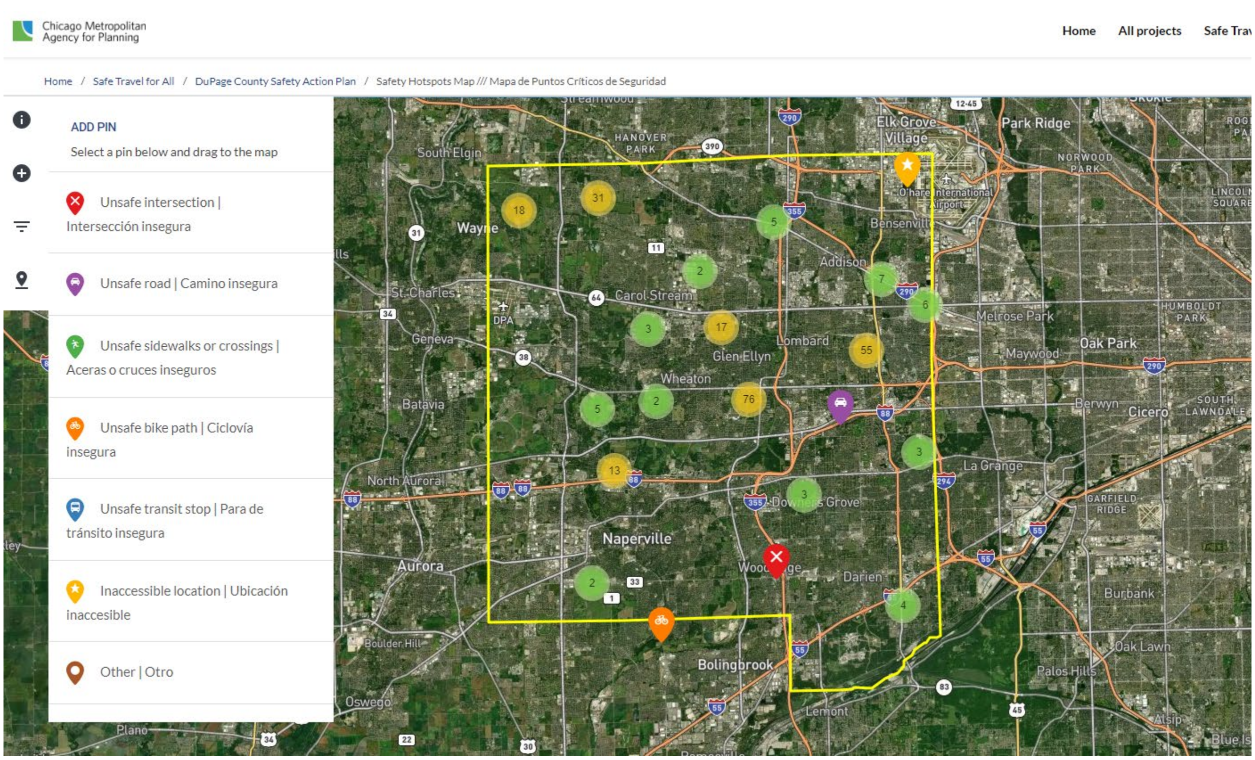
Figure 35: Complete HIN, DuPage Analysis Area



Validation with Community Feedback

The DuPage SAP utilized in-person and virtual engagement tactics to identify perceived safety hotspots across the county. The project engagement website, based on the EngagementHQ platform, included a Safety Hotspots Map interactive widget. The interactive map prompted visitors to add pins to flag locations they felt were either unsafe intersections, unsafe roads, unsafe sidewalks or crossings, unsafe bike paths, unsafe transit stops, inaccessible locations, or had other safety concerns. Visitors could enter as many comments as they liked and also provide an image. A screen capture of the web map is provided in Figure 36. A companion physical mapping activity was conducted as part of the DuPage SAP Open House in Elmhurst on September 12, 2024 and the DuPage SAP Open House in Bensenville on November 14, 2024. As of the end of the consultation on January 31, 2025, participants had contributed 626 concerns in-person or via the web map. No HIN materials had been posted prior to soliciting comments on location-based safety concerns.

Figure 36: DuPage SAP Safety Hotspots Map



Many participant-submitted comments point to identified HIN segments and intersections, but most tend to identify safety concerns along other corridors and intersections. Locations of comments received are shown in Figure 37. Prominent clusters of comments were received in the center of the county in Villa Park, Lombard, Glen Ellyn, Wheaton, and Winfield, with smaller clusters of comments in other areas.

Areas flagged in respondent comments that overlapped the HIN included:

- Purnell/Winfield/IL-38/Roosevelt Rd triangle in Winfield near Cantigny Park and Blackwell Forest Preserve, inclusive of the West Branch DuPage River Trail crossing at IL-38/Roosevelt Rd & Garys Mill Rd
- Il-56/Butterfield Rd between Naperville Rd and Highland Ave

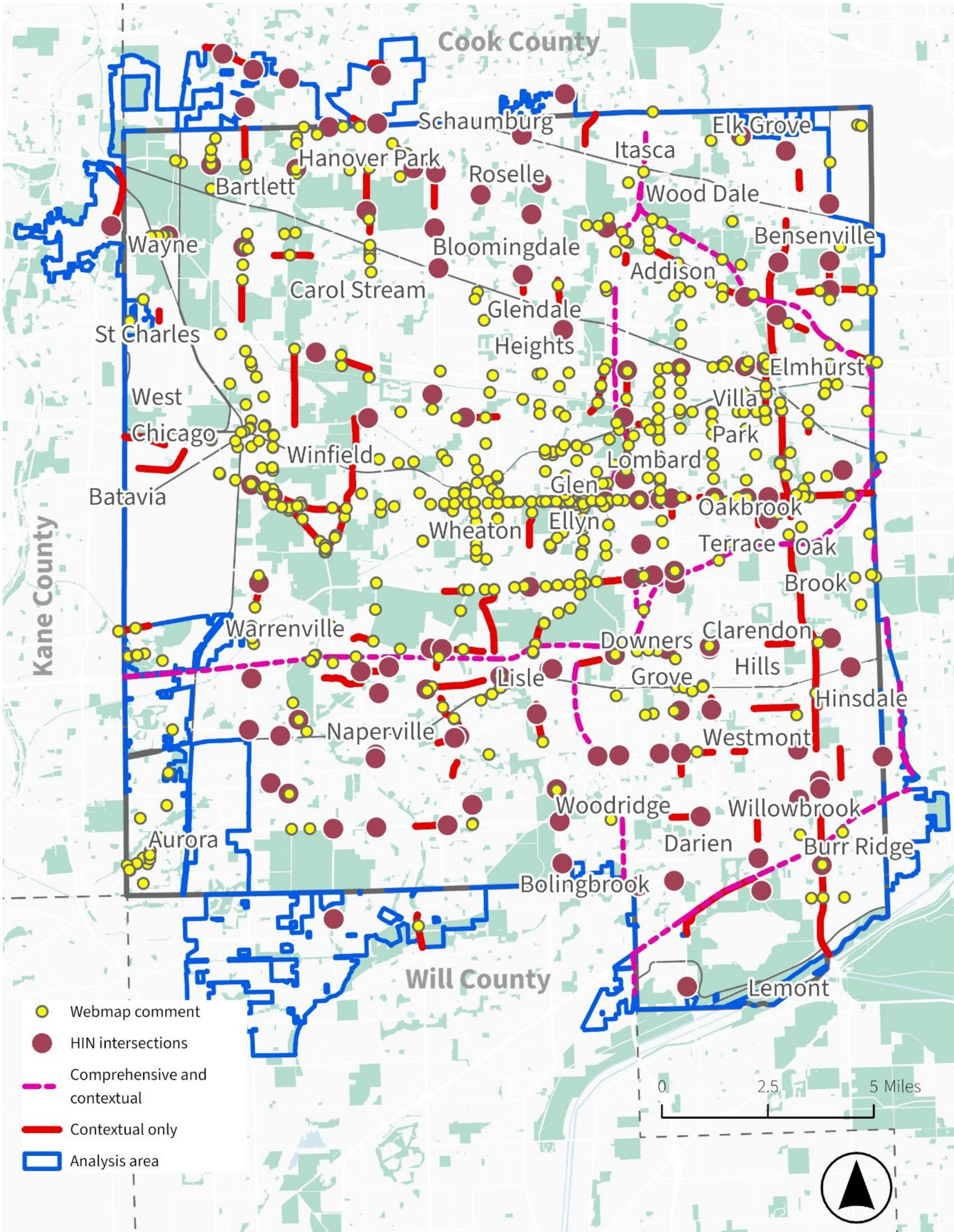
Areas that respondents flagged but that did not coincide with the HIN included:

- Il-38/Roosevelt Rd through Wheaton and Glen Ellyn
- IL-53 from Roosevelt Rd to Warrensville Rd, passing the Morton Arboretum and into Lisle
- Il-59/Neltnor Blvd in West Chicago (also identified through a separate VRU analysis by DuPage County)
- Naperville Road through Wheaton
- St Charles Road through Villa Park
- Main Street through Lombard
- Grace Street through Lombard
- Crossings along the Illinois Prairie Path

Few comments were received in southern DuPage County including Naperville. This is more likely a reflection of a need for additional outreach and engagement through future roadway safety engagement efforts than an absence of safety concerns.

Investigation into the responses illustrates that just like any methodology, the HIN methodology has limitations. It cannot capture all areas where improvement is desired or would be beneficial or all aspects of safety. These results indicate that perceptions of locations with safety concerns (at least the perceptions of those who participated in the survey) may differ from the locations where severe crashes occur most frequently. Many of the responses and locations are associated with barriers to walking and biking. This reflects the need to consider how high-speed roadways, disconnected networks, and other roadway engineering and behavioral conditions create perceived barriers that might not be borne out in crash data but are meaningful in the lives or DuPage County residents and visitors.

Figure 37: Complete HIN and Web Map Comments



Recent Investments

Roadway agencies in DuPage County are actively utilizing crash analysis to identify and prioritize locations for safety improvements. IDOT, the DuPage County Division of Transportation (DuDOT), and multiple municipalities perform crash analysis and coordinate with law enforcement agencies to identify crash hot spots and locations where there is a history of behavioral concerns.

DuDOT regularly creates and disseminates segment- and intersection-level crash severity rates for arterial and collector roadways. These rates are based on the most recent three years of IDOT crash data, average daily traffic (ADT), fatal crashes, injury crashes, and property damage only crashes. Intersections are broken out by type of control and ADT. DuDOT integrates crash performance into its signals database, enabling engineers to identify opportunities for upgrades to meet safety needs.

Multiple intersections and segments identified through the HIN analysis have received safety improvement during the 2018-2022 analysis period and in the years since or are slated for improvements. These locations are summarized in Table 25. This table, however, does not include all locations where municipalities have made or are planning safety investments.

Table 25: Recent HIN Location Infrastructure Investments

HIN Location	Jurisdiction	Improved by	Municipality	Description
75th Street at Plainfield-Naperville Road	DuDOT	County	Naperville	Improved in 2017-18, the project added dual left turn (LT) on 75th and right turn (RT) lanes. Improvement restricts LT to protected only to reduce angle and turn crashes.
75th Street at Modaff Road	DuDOT	County	Naperville	Recently completed addition of RT lanes on 75th Street and extension of LT storage on 75th Street legs to reduce rear end crashes.
75th Street at Naper Boulevard	DuDOT	County	Naperville	Added dual LT on 75th Street in 2020, prohibiting unprotected left turns to reduce or eliminate turn and angle crashes.
IL 53 at 75th Street	IDOT	IDOT	Woodridge	IDOT improvement pending, addition of dual left and right turns to reduce turn and angle crashes.
87th Street at Woodward Avenue	DuDOT	County	Woodridge	Completed in 2024, the project added dual LT on all but the north leg to reduce turn and angle crashes.
IL 83 at Plainfield Road	IDOT	Permit/ IDOT	Willowbrook	Completed in 2020-21, the project added dual LT on Plainfield Road. to reduce or eliminate turn and angle crashes.
US 34 at Finley-Belmont Road	IDOT	County/ IDOT	Downers Grove	The project is currently in Phase I engineering to widen intersection and include dual LT on all legs and restrict unprotected left turns. Construction is expected in 2028-29.
55th Street at Fairview Avenue	DuDOT	County	Downers Grove	The project, completed in 2020-2021, added left lanes on N, E and W legs and upgraded signals and pedestrian accommodations for a potential reduction of rear end, night-time, pedestrian, and sideswipe same direction crashes.

HIN Location	Jurisdiction	Improved by	Municipality	Description
63rd Street at Main Street, Downers Grove	DuDOT	County	Downers Grove	In 2023, DuDOT completed installation of protected left turn phasing to reduce turning and angle crashes and installed new signal mast arms and signal heads with reflective back plates to increase nighttime visibility and reduce crashes.
63rd Street - Williams to Americana	DuDOT	County	Westmont, Willowbrook	DuDOT is proposing to install Flashing Yellow Arrow protocol in the corridor to reduce turn and angle crashes at Cass Avenue and Clarendon Hills Road
County Farm Road at Geneva Road	DuDOT	County	Winfield	County has initiated Phase I engineering to study geometric options to reduce turn and angle as well as pedestrian-vehicle conflicts.
Fabyan Parkway - IL 38 to Technology Blvd	DuDOT	County	West Chicago	DuDOT expects to widen Fabyan Parkway in 2026-27. Design includes raised medians, striping, lighting and retroreflective markings to reduce head on and sideswipe crashes.
Grand Avenue at York Road	DuDOT	County	Elmhurst/ Bensenville	DuDOT improved the geometrics, lighted street signs and new signals with reflective backplates at the intersection to provide better pedestrian accommodations, better overall visibility and improved delineations to reduce pedestrianand nighttime crashes.
County Farm Road - Schick Road to Stearns Road	DuDOT	County	Hanover Park	DuDOT improved County Farm and Schick Road in 2017-18 to include new signals, signal heads with reflective backplates, and new lighting to reduce night time crashes and peak hour rear end crashes.
Gary Avenue at US 20/Lake Street	IDOT	IDOT	Hanover Park/ Roselle	Intersection improvement in 2023/24 including new signals and new pedestrian accommodations.
IL 19 /Irving Park Road at York Road	IDOT	IDOT	Bensenville/ Chicago	Major geometric improvement at intersection tied to O'Hare Modernization Program and Western Access. Completed in 2019, the project added dual left turn lanes NB and SB and improved signalization for visibility and to reduce turn and angle crashes.

HIN Location	Jurisdiction	Improved by	Municipality	Description
Army Trail Road at Munger Road	DuDOT/Muni	County	Wayne/Bartlett	DuDOT installed all-way stop control in 2023 and Forest Preserve added high-visibility trail crossing. Feasibility/Phase I study underway to evaluate further improvements.

4 Systemic Safety Conditions

Systemic safety analysis seeks to understand where crashes that result in deaths and serious injuries are more likely to occur, identifying the collection of characteristics that are associated with higher rates of these crashes. Using these collections of features, safety analysts can then screen entire networks to identify segments and intersections that are associated with higher severe crash risk, even if deaths and serious injuries have not yet occurred. Systemic safety tools can then be matched to crash and the segment and intersection types to develop project lists. Used in this way, systemic safety analysis can form the basis of a proactive approach.

As demonstrated in the HIN analysis, the number of deaths and serious injuries, particularly on segments, are relatively low and may not constitute defined patterns. Systemic analysis is therefore an especially important tool where anticipating, rather than responding to, severe crashes may be more effective to eliminate deaths and serious injuries.

This section is broken into several parts, each of which build on one another. **High risk crash types** identify the types of severe crashes that are of particular concern in DuPage County. The **roadway features systemic risk factor analysis** then quantifies the relative risk for the high-risk crash types based on segment and intersection characteristics.

Like the HIN analysis, the systemic analysis is based on crashes, segments, and intersections for municipalities assigned to DuPage County by CMAP and thus all analysis is for the DuPage SAP analysis area.

The systemic safety conditions section meets the SS4A Safety Analysis requirement “Analysis or systemic and specific safety needs.”

High Risk Crash Types

Traffic crashes represent a major concern no matter where or how they occur across the transportation network. However, research indicates that not all types of crashes pose the same levels of risk. Additionally, some severe crash types may be more or less likely to occur based on the presence (or absence) of certain roadway features and nearby land use development patterns. A central goal of this countywide safety action plan is to eliminate the most dangerous types of crashes affecting DuPage County: those resulting in serious injuries or fatalities. To that end, this literature review examines crash types that are most likely to impact DuPage County’s Priority Emphasis Areas and the associated street features or land uses that elevate or mitigate the most severe crash outcomes. The County's Priority Emphasis Areas include bicycles and pedestrians, intersections, older drivers, and speed-related crashes.

Bicycle and Pedestrian Crashes

Crash types that most severely impact bicycles and pedestrians include crashes at intersections, crashes involving turning vehicles, midblock, on road crashes with vehicles going straight, and crashes that take place after dark. For pedestrians, crashes at signalized intersections were found by a 2022 FHWA study to be positively related with both increasing pedestrian and vehicle volumes (i.e., more pedestrian- and vehicle-heavy intersections tend to experience more crashes) – while this positive association is not surprising, pedestrian crash risk at these intersections is further compounded by increasing corner radii and shoulder widths. Additionally, the number of pedestrian crashes was higher when both intersection legs were one-way streets with traffic moving away, or when there was a mix of two-way and one-way operations at the intersection. When on-street parking existed on the approach leg of a signalized intersection, however, fewer pedestrian crashes occurred.[xvi]

For both bicyclists and pedestrians, vehicle turning movements play a major role in determining crash risk and severity. In Illinois, for example, bicyclists tend to be at greater risk from right-turning vehicles, with 17.9% of all bicycle crashes in the collar counties involving a driver making this maneuver. According to the IDOT *Vulnerable Road User (VRU) Assessment*, these crashes also tend to be associated with roadway and land use characteristics such as four-lane corridors, arterial streets, streets with between 15,000 and 30,000 AADT, 30 to 35 MPH speed limits, and commercial land uses.[xvii] Conversely, pedestrians face greater crash risks at intersections from left-turning vehicles. Key variables associated with left-turning pedestrian crashes include increasing motor vehicle volumes, the number of intersection legs, and the number of lanes at intersections.[xviii] In other words, pedestrian crash risk from permissive left-turning vehicles increases with greater intersection complexity and vehicle throughput, even where pedestrian crossing signals are present.

Unsurprisingly from the descriptive crash analysis, bicyclists and pedestrians both face elevated risk of severe crash outcomes for crashes occurring after dark. Darkness and lack of visibility associated with nighttime conditions was the single highest contributing factor to VRU crashes in Illinois, with 28% of these crashes occurring at night.[xix] For pedestrians, after dark crash risk increases significantly when motor vehicle volumes increase from low (0-5,000 AADT) to medium (5,000-10,000 AADT); beyond this, increasing crash risk is only marginal. Another crash type adversely impacting pedestrians are crashes on segments with vehicles going straight, otherwise known as mid-block crashes. These crashes are more likely to occur when blocks are longer and pedestrians have fewer convenient options to cross at a designated intersection, making them more prone to attempt a crossing mid-block. These types of crashes are also more likely to fall along state roads and arterials as opposed to local streets.[xx]

Intersection Crashes

Intersections are more prone to traffic crashes due to the complex and conflicting movements of vehicles, bicyclists and pedestrians converging from different directions. Many of the crash types across other DuPage County Emphasis Areas occur at intersections, which further compound other forms of risk. Of particular concern are angle crashes at intersections, or crashes in which two vehicles traveling in different directions collide at an angle where drivers or passengers are most vulnerable (also known as T-Bone crashes). High-speed roadways with wide medians and/or side-street, stop-controlled intersections may present greater risk of severe angle crashes.[xxi]

According to Montgomery County, Maryland's *Predictive Safety Analysis*, angle crashes at intersections in Montgomery County were more likely to occur on state roads, where crash risk is 225% higher relative to county roads. Such a discrepancy in crash risk across jurisdictions is likely attributable to the types of traffic that state roads tend to carry and the land uses they travel through. Nationally, many state roads experience greater throughput and higher speeds on average than roads under county or local control, putting them at greater risk. In addition to design and physical factors, policy also plays a significant role. According to the *Predictive Safety Analysis*, higher posted speed limits increase the likelihood of severe crash types such as angle crashes – increasing the speed limit by 5 MPH increases crash risk by 15%, while increasing it by 10 MPH increases risk by 32%.[xxii]

To prevent angle crashes at intersections, agencies such as FHWA and California Department of Transportation (Caltrans) recommend that signalized intersections should be designed as close to 90 degrees as possible, and should not be designed to less than 75 degrees.[xxiii] In situations where perpendicular intersections or interchange ramps are infeasible, such as through high-angle channelized right turns, for example, pedestrian refuge islands can be an effective countermeasure.[xxiv]

Another design feature that can mitigate angle crashes at intersections are reduced conflict intersections (RCIs), which have been shown to reduce severe crashes of this type by 70%.[xxv] RCI is a general term used to describe several types of design strategies to improve safety and traffic flow by reducing the number of potential conflict points. The most common type of RCI design involves the elimination of left turns from side streets onto busier main roads; these intersection designs simplify decision-making for drivers by allowing them to focus on one direction of traffic at a time rather than look for a gap in high-volume, bidirectional traffic. For example, a restricted crossing U-turn (RCUT) is a type of RCI that requires minor road traffic to make a right turn followed by a U-turn at a nearby designated location to continue in the desired direction. According to FHWA, conversion of an unsignalized intersection to an unsignalized RCUT can reduce fatal and serious injury crashes by 63%.[xxvi] RCIs offer a lower-cost alternative to grade separation infrastructure and may be more effective at reducing severe angle crashes than signalization strategies.

Other alternative intersection designs, such as roundabouts, have been found by FHWA to be broadly effective at reducing fatal and serious injury crashes for all road users when compared to traditional signalized intersections. Planning and design of these facilities are critical in achieving safer outcomes, and FHWA provides detailed design guidance for implementing projects that effectively center vulnerable road users like pedestrians and bicyclists in a variety of configuration types.[xxvii] While roundabouts may sometimes lead to short-term increases in minor crash types such as side-swipes or rear ends, more severe crash types such as angle crashes are often virtually eliminated due to all vehicles being brought into the same direction at a lower speed.[xxviii]

Older Driver Crashes

Crashes among older drivers (65 years and over) are of significant concern in DuPage County, especially as this segment of the population continues to grow at a faster rate than other age demographic groups. While the effects of aging on people as drivers, pedestrians, or bicyclists are highly individual, common challenges that may impact people as they age include declining vision, decreased flexibility and psychomotor performance, and changes in perceptive and cognitive ability.[xxix] Older drivers, then, may be particularly susceptible to crashes at points where the transportation network becomes most complicated, such as intersections (both signalized and unsignalized), interchanges, networks that do not conform to a predictable pattern such as a grid, and in instances where visibility becomes especially challenging, such as when driving after dark and/or in adverse weather.

According to a Florida State University study on aging road users and intersection safety, estimates of a perception reaction time to yellow signals, often assumed as one second, were found to be inadequate in accounting for age-related changes; the study ultimately recommends that this standard should be increased.[xxx] Additionally, left-turn lanes at suburban unsignalized intersections can be challenging roadway features to navigate effectively. According to the FHWA, crashes and undesirable driving behaviors among older drivers tend to increase as the corresponding median width increases.[xxxi] As people age and may begin to drive less frequently, older adults may also be more vulnerable than the average population as pedestrians. Countermeasures such as pedestrian countdown signals, refuge islands, high-visibility crosswalks, and longer walk times become especially warranted when emphasizing reducing crashes among older users of the transportation network.[xxxii]

Speed-Related Crashes

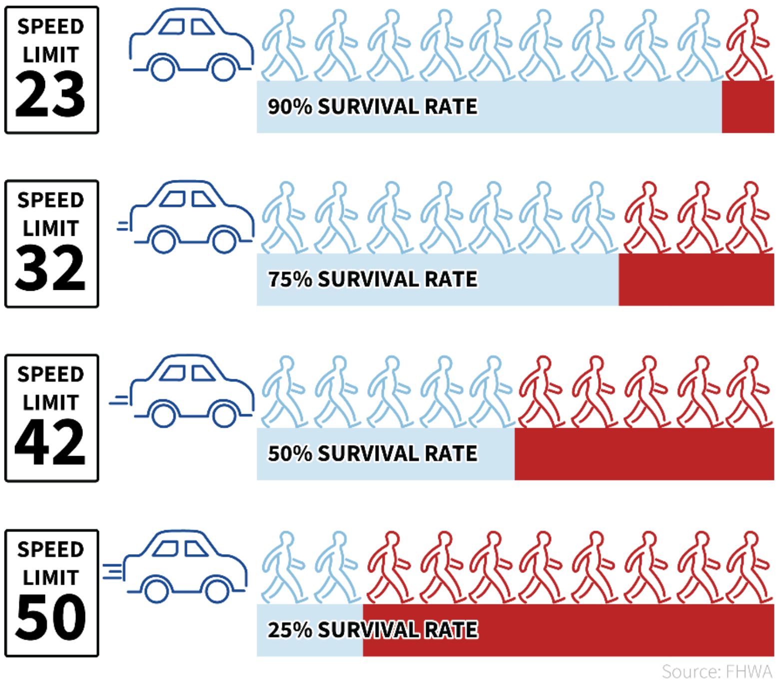
Crashes involving speeding are crucial targets for reducing the number of fatal and serious injury crashes in DuPage County. Speeding results in greater potential of losing control of a vehicle, less time for driver perception responses to avoid crashes, the need for increased stopping distances, and increased crash severity (especially for people outside of a vehicle). As a result, speed-related crash types of particular concern involve single vehicle crashes to fixed objects along roadway segments and speed-related crashes involving pedestrians or bicyclists.

Key variables associated with speed-related single vehicle crashes along roadway segments include increasing motor vehicle traffic and the presence of a traffic signal at adjacent intersections. This indicates that single vehicle crashes may be more likely when there is a concentration of other vehicles on the road and drivers feel the need to perform complicated maneuvers to maintain high speeds at pace with other traffic. The presence of traffic signals, meanwhile, provides drivers with the expectation that it is safe to continue through an intersection while maintaining their speed, potentially diminishing their ability to react appropriately when encountering unexpected changes in roadway conditions. This can prove especially risky when roadway features on new segments change even slightly, giving speeding drivers even less time to react and adjust.

Interestingly, pedestrian traffic is inversely related to speed-related crashes involving single vehicles with fixed objects – increasing daily pedestrian traffic from 10 to 100 and from 100 to 1,000 pedestrians decreases predicted crashes by 21%.[xxxiii] This indicates that sidewalks and the presence of other road users may be discouraging factors when it comes to speeding, increasing attention to both their environment and driving behavior. These factors provide insight into the types of street features that can form the basis of a proactive county approach to reducing and eliminating speed-related crashes.

High-speed crashes are extremely dangerous for pedestrians and bicyclists, who are unprotected by a vehicle shell. As illustrated in Figure 38, as vehicle speeds rise, pedestrian survivability decreases significantly. While pedestrians hit by a vehicle traveling 20 MPH face a 5% likelihood of a fatal crash outcome, this risk jumps to 85% for a vehicle traveling at 40 MPH.

Figure 38: Vehicle Speed and Pedestrian Survival Rate



While interstates typically have the highest speeds anywhere across the transportation network, speeding-related fatalities in northeastern Illinois occur more frequently on non-interstate roads. These roads are more likely to serve multiple modes of travel, connecting to neighborhoods, business districts, and other settings where there are likely to be a variety of road users. Indeed, the highest rate of speed-related fatalities and serious injuries (fatal or serious injury crashes per 100 million miles of vehicle miles traveled) in the CMAP region for both drivers as well as bicyclists and pedestrians occur on streets with a posted speed limit of 30 MPH.[xxxiv] Countermeasures to curtail speed-related crashes on these sorts of urban and suburban streets include lower speed limits as part of street redesign projects, installation of traffic calming infrastructure such as speed tables and raised intersections, and implementation of targeted enforcement measures, including automated speed cameras where allowed by statue.

A summary of high-risk crash types identified in the literature by DuPage County Priority Emphasis Area, along with associated street features and potential countermeasures, is presented in Table 26.

Table 26: Summary of Systemic Crash Types from the Literature Review, by Emphasis Area

DuPage County Emphasis Area	Crash Type	Associated Street Features or Land Uses	Potential Countermeasures
Bicycle and Pedestrian Crashes	Crashes at Signalized Intersections	• Increasing curb radii (+) • Increasing shoulder widths (+) • One-way streets (+) • Mix of two-way and one-way operations (+) • Presence of on-street parking (-)	• Smaller curb radii or truck aprons • Narrower shoulder widths • Corner islands
	Pedestrian Crashes Involving Left-Turning Vehicles	• Suburban and Town Center area types (+) • Motor vehicle volumes (+) • Number of intersection legs (+) • Number of intersection lanes (+)	• Protected/permissive and/or flashing yellow arrow left turn signals • Protected-only left turn signals • Leading pedestrian intervals
	Bicycle Crashes Involving Right-Turning Vehicles	• Four-lane corridors (+) • Arterial streets (+) • 15,000 – 30,000 AADT (+) • 30 – 35 MPH speed limits (+) • Commercial land (+)	• Protected bike lanes or shared use paths • Protected intersection designs • Signal phasing and timing strategies (e.g., leading bicycle intervals)
	Crashes After Dark at Intersections	• Pedestrian traffic (+) • Motor vehicle traffic (+) • Maximum number of through lanes (+) • Presence of a traffic signal (+)	• Improved street lighting • High-visibility crosswalks and bike lanes
	Pedestrian Crashes with Vehicles Going Straight	• Motor vehicle traffic (+) • Block length (+) • State road jurisdiction/arterial classification (+)	• Mid-block crossings • Pedestrian refuge islands • Rectangular Rapid Flash Beacons (RRFBs) • Pedestrian Hybrid Beacons • Road diets
Intersection Crashes	Angle Crashes at Signalized Intersections	• State road jurisdiction (+) • High speeds/posted speed limits (+) • Non-perpendicular intersections (+)	• Reduced conflict intersections • Roundabouts • Lower speed limits • Protected-only left turn signals • Positive offset or zero offset left turn lanes • Red light cameras • All-red clearance intervals • Grade separation

DuPage County Emphasis Area	Crash Type	Associated Street Features or Land Uses	Potential Countermeasures
Older Drivers	Crashes at Signalized Intersections	• Longer yellow signal timing (-) • High speeds/posted speed limits (+)	• Pedestrian countdown signals • Enhanced intersection lighting • Daylighting • High-visibility crosswalks • Increased vehicle clearance or change intervals
	Crashes at Unsignalized Intersections	• Left turn lane median width (+)	• Reduced left-turn conflict intersections • Roundabouts
	Crashes After Dark	• Rainy weather (+) • Dark roadways (+)	• Improved roadway and/or intersection lighting • On-demand public transportation
Speed-Related Crashes	Single Vehicle Crashes (Fixed Objects) Along Segments	• Motor vehicle traffic (+) • Presence of a traffic signal at adjacent intersections (+) • Pedestrian traffic (-)	• Narrower travel lanes • Speed enforcement, including automated enforcement (speed cameras) • Dynamic speed feedback signs • Clear zones • Safety Edge • Rumble strips • Guardrail • Lighting
	Speed-Related Pedestrian or Bicyclist Crashes	• Non-interstate roads (+) • Streets with 30 MPH posted speed limits (+)	• Narrower travel lanes • Wider sidewalks • Speed enforcement, including automated enforcement (speed cameras) • Protected bicycle lanes • Reduced speed limits

Note: (+) indicates a positive relationship with the specified crash type and associated street feature or land use; (-) indicates a negative relationship with the specified crash type and associated street feature or land use

Roadway Features Systemic Risk Factor Analysis

The roadway features systemic risk factor analysis summarizes the relative likelihood of serious injuries and fatalities occurring at or on various intersection and roadway segment types in DuPage County by subtypes or groupings of different intersection and segment features consistent with the summary of the research in the preceding section. This section includes a description of data preparation followed by high-level findings at the intersection and segment level. Complete analysis tables are provided in the Systemic Risk Factor Analysis Appendix.

Subtypes and Data Preparation

The project team assigned crashes from 2018 to 2022 to segments and intersections with the DuPage SAP analysis area using the same methodology and data sets described in the earlier HIN section. Crashes that occurred at intersections, as defined by the buffer distances set in the CMAP framework, are analyzed together; while all other crashes, those determined to be midblock, are analyzed at the segment level.

The project team reviewed intersections and segment data for the analysis area provided in the CMAP-provided database “CMAP_SS4A_final.gdb.” The team assessed the consistency of data included in key fields that aligned with features in typical systemic analysis and the high-risk crash types research. Available features selected for use in the systemic analysis are summarized in Table 27. Each of the values for each feature then became a variable for future cross tabulations.

Table 27: Systemic Feature Fields

Type	Data Source	Consistently Available Features
Intersection	CMAP_Intersections	• Control Type (Uncontrolled/Unknown,[5] All-way sop, Signal) • AADT_Major (range) • AADT_Minor (range)
Segment	CMAP_Segments (IDOT IRIS)	• AADT (range, n/a assumed to be no observation) • FUNC_CLASS (1-7) • JUR_TYPE (1-9) • LNS (1-12) • SP_LIM (0-70)

[5] In CMAP’s data set, the associated variable is “Unknown.” Project team spot reviews using Google Streetview concluded that intersections with “Unknown” controls were predominantly 2-way stop location where at least one leg was uncontrolled but infrequently include intersections with no controls present (like a slip ramp) or other forms of control.

The project team determined that a useful intersection systemic analysis could not be created with the CMAP_Intersections file without breaking down intersections by the types of functional classifications that intersect at those locations. Functional classifications were assigned to CMAP intersections based on the Illinois Roadway Information System (IRIS) functional classification of intersecting roadways in the CMAP_Segments file (based on field FUNC_CLASS). The project team created the following three intersection functional classifications to simplify the analysis to meaningful levels:

- Arterials/Collectors Only - all intersecting roadways are listed as functional classifications 3, 4, 5, or 6.
- Arterials/Collectors & Local - at least one intersecting roadway is listed as functional classifications 3, 4, 5, or 6 and at least one intersecting roadway is listed as functional classification 7.
- Local Only - all intersecting roadways are listed as functional classification 7.

Besides classifying intersections by functional classification, the project team made no further changes to the CMAP_Intersections file and was unable to validate the accuracy of provided data. Since the analysis is at the county-level, the effect of errors may be washed out due to the large number of intersections and segments.

Notably, the systemic analysis is limited by the lack of some fields or inconsistently available fields in both data sets. Presence of a median and lane width, for instance, are not consistently available. While some of these data are available at a regional level, like presence of a sidewalk or bikeways, accurately incorporating these disparate data sets would be a significant effort outside the scope of this project. While the available data sets include information on vehicle volumes, they lack information on exposure of people walking, rolling, and biking. Data sets like Replica that leverage big data from cellphones and employ sophisticated simulation may provide estimates that suffice for high-level differentiation but were similarly not within project scope.

DuPage County Division of Transportation maintains more detailed intersection and segment data for major intersections and segments in the county. This data set contains many of the desired missing features, land uses, and proximity to points of interest and is consistently quality controlled by staff. Data do not extend outside of county boundaries, however. Based on the instruction of CMAP, the project team used the more limited CMAP-supplied database as it covers segments and intersections in parts of assigned municipalities that lie outside of DuPage County. County data may be leveraged for deeper dives into areas of particular interest in later project phases.

Interpretation

The risk factor analysis is based on a modified matrix approach adapted for available intersection and segment data based on person-level injury data (e.g., number of fatalities, number of serious injuries). Similar to crash trees, intersections and segments are broken down into types (e.g., arterial) and then further broken down into subtypes, also referred to as typologies (e.g., four-lane arterial with a posted speed limit of 30 MPH). The frequency of fatalities and serious injuries for each severe crash emphasis area were then calculated based on crashes assigned to intersections or segments within each subtype. The variation in observed frequencies across subtypes forms the basis of findings.

Unlike the typical matrix or crash tree approach, however, serious injury and fatality frequencies were normalized by the number of intersections within each subtype or the mileage of segments within each subtype, depending on the unit of analysis. Without performing this adjustment, the most common subtypes (primarily local residential streets and intersections) would be overrepresented in the analysis. In typical crash tree approaches, for instance, this usually results in the local system being overrepresented.

The systemic risk factor analysis goes one step further, calculating a baseline number of deaths and serious injuries per intersection or segment subtype and developing a relative risk score. A relative risk score of 1.0 indicates that the subtype is at the baseline, or mean, number of deaths and serious injuries per intersection or per mile across the whole system. A score under 1.0 indicates that there is a below average level of death/serious injury risk for that subtype, and a score above 1.0 that the level of risk for that subtype is above average.

Relative risk is calculated for all crash emphasis areas and crash types listed in Table 26 for intersections as well as segments (the intersection-related emphasis area is assumed to be covered by the intersection systemic risk factor analysis). However, as crash emphasis areas and network characteristics are broken down more finely, observed deaths and serious injuries become less frequent, even at the county scale of the analysis. Where the number of deaths and serious injuries or total intersections or mileage fall below a critical threshold, findings have been omitted. These thresholds are discussed in more detail below.

Intersection Systemic Risk Factor Analysis

This section presents an overview of severe crash risk across intersections. For the analysis, intersections were defined as any location where IRIS roadway segments met, including both controlled and uncontrolled intersections within municipalities and on border streets assigned to DuPage County by CMAP.

The analysis breaks out intersections by general functional classification (as described above), control type, and net AADT.[6] To prevent excessively small numbers from overbiasing the findings, the project team established several thresholds: all intersection subtypes/typologies with fewer than ten intersections or fewer than three KA injuries (similar to the HIN methodology) were excluded from the analysis. These subtypes are present but grayed-out in the tables included in the following sections and in the Appendix. Intersections with an unknown AADT (shown as N/A in tables below) were also grayed out. Based on spot checks, the analysis team found errors in coding intersection control type and/or functional classification but did not systemically quality control or edit provided data. Errors were assumed to be random and that their impact would not impact the generalizability of the findings.

All Crashes

The systemic risk factor analysis for all intersection crashes in the analysis area between 2018 and 2022 is shown in Table 28. Relative risk for each subtype is found in the far-right column.

When compared to other types of intersections, the intersections of two major streets, either an arterial and another arterial, an arterial and a collector, or a collector and another collector, are substantially overrepresented in the relative risk of death and serious injury. Signalized intersections have the highest risk, with risk rising as traffic volumes increase. The 56 signalized intersections with over 50,000 AADT have over 37.3 times the number of deaths and serious injuries per intersection (2.34) than the baseline (0.06) and over three times that of all other major intersections (0.74). Nearly across the board, as volumes rise, risk rises, with the most significant jumps from lower volumes (<25,000 AADT) to higher volumes (25,000 – 50,000 AADT).[7]

Whether looking at all crashes or at specific emphasis areas, the relative risk factors of certain subtypes are so high because the relative risk of the predominant intersection type in the DuPage analysis area – local-local with at least one uncontrolled leg and less than 25,000 AADT is so low (0.2 KA injuries per intersection). Since all relative risk ratios, however, are calculated from a common baseline, they can all be compared to one another to illustrate which subtypes are highest risk, either

[6] Net AADT captures the summed AADT of minor and major legs of each intersection (AADT_Major + AADT_Minor). To simplify analysis, net AADT was broken down into three categories: <25K, 25K-50K, >50K mirroring typical DuPage County Division of Transportation practices.

[7] This may also be affected by posted speed/design speeds, which tend to be higher at busier intersections. These attributes, unfortunately, are not available at the intersection level and thus were not included in the analysis.

across the whole network or within each functional classification type. Risk for each subtype is provided to facilitate these comparisons.

Table 28: Intersection Systemic Risk Factors, All Intersection Crashes, 2018-2022

Functional Class Type	Control Type	AADT	Int Count	Injury Count			Injuries, per-Int.			Relative Risk		
				A	K	KA Total	A	K	KA Total	A	K	KA Total
Arterial-Arterial, Arterial-Collector, or Collector - Collector	All Stop	<25K	37	4	0	4	0.11	0	0.11	1.9	0.0	1.8
		25K-50K	1	0	0	0	0	0	0	0.0	0.0	0.0
	Signal	<25K	128	54	2	56	0.42	0.02	0.44	7.2	4.7	7.0
		25K-50K	200	261	15	276	1.3	0.08	1.38	22.2	18.8	22.0
		>50K	56	126	5	131	2.25	0.09	2.34	38.5	21.2	37.2
		N/A	103	60	4	64	0.58	0.04	0.62	9.9	9.4	9.9
	Uncontrolled/ Unknown	<25K	127	18	0	18	0.14	0	0.14	2.4	0.0	2.2
		25K-50K	25	4	0	4	0.16	0	0.16	2.7	0.0	2.5
		>50K	3	1	0	1	0.33	0	0.33	5.6	0.0	5.3
		N/A	75	4	0	4	0.05	0	0.05	0.9	0.0	0.8
		Subtotal	**755**	**532**	**26**	**558**	**0.70**	**0.03**	**0.74**	**12.0**	**8.1**	**11.8**
Arterial - Local or Collector - Local	All Stop	<25K	232	27	0	27	0.12	0	0.12	2.1	0.0	1.9
		N/A	4	0	0	0	0	0	0	0.0	0.0	0.0
	Signal	<25K	282	91	13	104	0.32	0.05	0.37	5.5	11.8	5.9
		25K-50K	164	131	16	147	0.8	0.1	0.9	13.7	23.5	14.3
		>50K	19	19	0	19	1	0	1	17.1	0.0	15.9
		N/A	5	2	0	2	0.4	0	0.4	6.8	0.0	6.4
	Uncontrolled/ Unknown	<25K	4,032	243	18	261	0.06	0	0.06	1.0	0.0	1.0
		25K-50K	479	88	14	102	0.18	0.03	0.21	3.1	7.1	3.3
		>50K	22	4	1	5	0.18	0.05	0.23	3.1	11.8	3.7
		N/A	80	2	0	2	0.02	0	0.02	0.3	0.0	0.3
		Subtotal	**5,319**	**607**	**62**	**669**	**0.11**	**0.01**	**0.13**	**2.0**	**2.7**	**2.0**
Local - Local	All Stop	<25K	15	4	0	4	0.27	0	0.27	4.6	0.0	4.3
		N/A	2	0	0	0	0	0	0	0.0	0.0	0.0
	Signal	<25K	17	1	0	1	0.06	0	0.06	1.0	0.0	1.0
		N/A	12	7	0	7	0.58	0	0.58	9.9	0.0	9.2
	Uncontrolled/ Unknown	<25K	13,040	96	2	98	0.01	0	0.01	0.2	0.0	0.2
		N/A	2,259	1	0	1	0	0	0	0.0	0.0	0.0
		Subtotal	**15,345**	**109**	**2**	**111**	**0.01**	**0.00**	**0.01**	**0.1**	**0.0**	**0.1**
Unknown	Signal	N/A	18	8	1	9	0.44	0.06	0.5	7.5	14.1	8.0
Total/Baseline			21,427	1,256	91	1,347	0.06	0.00	0.06	1.0	1.0	1.0

Summaries by Priority Emphasis Areas

High-level summaries for each priority emphasis area follow to illustrate the similarities and differences among the top high-risk intersection features. Detailed systemic analysis tables for each emphasis area and specific crash types within those priority emphasis areas are provided in the Appendix for purposes of space and brevity.

All Crashes

The top five intersection subtypes, by relative risk of death and serious injury, for all crashes are summarized in Table 29, with high-level discussion in the bullets below:

- All subtypes within the top five were signalized intersections.
- For all KA injuries across all crashes in the study period, signalized arterial/collector intersections with >50,000 net AADT had the highest relative risk, at over 37 times the countywide baseline KA injuries per-intersection. Signalized arterial/collector intersections with lower net AADT 25K-50K have the second highest relative risk at 22 times the baseline for all crashes.
- Risk was also elevated at high-volume (>25,000 net AADT), signalized intersections where an arterial/collector met local streets.

Table 29: Top Five Intersection Subtypes, All Crashes

Rank	Functional Class	Control Type	Net AADT	Relative Risk
1	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	>50K	37.2
2	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	25K-50K	22.0
3	Arterial – Local or Collector - Local	Signal	>50K	15.9
4	Arterial – Local or Collector - Local	Signal	25K-50K	14.3
5	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	<25k	7.0

Many intersections of concern to safety professionals and members of the public are uncontrolled. While these intersection subtypes have a lower relative risk when compared to major signalized intersections, it is instructive to understand which stand out the most. The results in Table 30 assume that all intersections marked “unknown” in CMAP’s intersection data set are uncontrolled on at least one leg – that is, not controlled by a signal or all-way stop. Uncontrolled intersections of minor, local streets and high-volume major streets (arterials and collectors with an AADT above 25,000) outstrip other intersection subtypes with relative risk scores of 3.7 and 3.3. Relative risk drops notably at similar locations on lower volume major streets with AADTs <25,000. This may in part reflect other related characteristics that are not coded to the intersection level like posted limits, number of lanes, and widths.

Table 30: Top Five Unsignalized Intersection Subtypes, All Crashes

Rank	Functional Class	Control Type	Net AADT	Relative Risk
1	Arterial- Local or Collector - Local	Uncontrolled/ Unknown	>50K	3.7
2	Arterial- Local or Collector - Local	Uncontrolled/ Unknown	25K-50K	3.3
3	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Uncontrolled/ Unknown	25K-50K	2.5
4	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Uncontrolled/ Unknown	<25K	2.2
5	Arterial- Local or Collector - Local	Uncontrolled/ Unknown	<25K	1.0

Uncontrolled intersections between major streets are a mix of contexts, which could be broken out in future analyses. These include some unsignalized intersections of collectors with arterials in commercial and industrial areas as well as slip lanes and ramps between arterials without signalization. Of these, almost half of these locations (47%) are collector-collector, 33% are arterial-collector, and 20% are arterial-arterial.

Pedestrian Crashes

The top five intersection subtypes, by relative risk of death and serious injury, for pedestrians[8] are summarized in Table 31, with high-level discussion in the bullets below:

- Signalized intersections constitute four of the five highest relative risk ratings for pedestrian crashes.

[8] Pedestrian injuries are assumed to be all injuries in crashes marked as FirstCrashType == Pedestrian

- Relative risk for KA pedestrian injuries per intersection was highest (0.11 or 22 times the baseline of <0.01) at mid-AADT (25,000 – 50,000) signalized intersections where arterials or collectors met local streets. The relative risk for this subtype was even more pronounced looking at KA pedestrian injuries per intersection with dark lighting conditions (0.09 or 29 times the baseline of <0.01). This subtype also had the highest risk of left-turn crashes resulting in a pedestrian death or serious injury (0.02 or 18.7 times the baseline of <0.01).
- At signalized intersections between only arterials and collectors, pedestrian KA injury risk was also higher at locations with lower volumes (<50,000 net AADT).

Table 31: Top Five Intersection Subtypes, Pedestrian Crashes

Rank	Functional Class	Control Type	Net AADT	Relative Risk
1	Arterial – Local or Collector - Local	Signal	25K-50K	22.0
2	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	25K-50K	13.0
3	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	<25K	12.5
4	Arterial – Local or Collector - Local	Signal	<25K	7.1
5	Arterial – Local or Collector - Local	Uncontrolled/ Unknown	<25K	5.4

Bicycle Crashes

The top five intersection subtypes, by relative risk of death and serious injury, for bicyclists[9] are summarized in Table 32, with high-level discussion in the bullets below:

- While most of the intersections subtypes within the top five were signals, one unsignalized subtype, all-way stops at intersections between major streets and smaller local streets, made the top five.
- Relative risk for KA bicycle injuries was highest at higher volume (>25K net AADT), signalized intersections featuring only arterials and collectors (major-major intersections).

[9] Bicycle injuries are assumed to be all injuries in crashes marked as FirstCrashType == Pedalcyclist

Table 32: Top Five Intersection Subtypes, Bicyclist Crashes

Rank	Functional Class	Control Type	Net AADT	Relative Risk
1	Arterial – Local or Collector - Local	Signal	25K-50K	18.4
2	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	>50K	16.2
3	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	25K-50K	15.1
4	Arterial – Local or Collector - Local	All-way Stop	<25K	5.2
5	Arterial – Local or Collector - Local	Signal	<25K	3.2

Other Emphasis Areas and Crash Types

The systemic analysis also includes analysis of older-driver crashes as well as detailed subtypes within pedestrian and bicycle crashes. These analyses are more limited since the pool of crashes tends to be smaller. High-level findings of leading intersection subtypes for these crash types that meet the threshold criteria are as follows:

- Relative risk for KA injuries resulting from angle crashes was highest at signalized intersections with only arterial or collector legs and >25,000 net AADT, at over 31 times the countywide baseline KA angle crash injuries per-intersection. There is a major jump in relative risk from lower volumes (5.3 at <25,0000 ADT to 32.6 between 25,000 and 50,000).
- For KA crash injuries sustained by older drivers (people 65+), signalized arterial/collector only intersections with >25,000 net AADT had the highest relative risk, at over 22 times the county-wide baseline.
- Speed-related crashes resulting in bicyclist or pedestrian deaths or serious injuries were most likely to occur at signalized intersections of collectors or arterials with local streets with 25,000 to 50,000 net AADT, similar to all pedestrian and bicyclist crashes. Other subtypes were not analyzed due to low numbers of KA injuries.

Segment Systemic Risk Factor Analysis

This section presents an overview of severe crash risk across roadway segments. For the analysis, all IRIS roadway segments were included.

The analysis breaks up roadway segments into jurisdiction types (local, county/township, IDOT/state, Tollway, and other) and then into subtypes by functional classification, total number of through lanes (broken down into two categories, less than or equal to two or greater than or equal to three),[10] posted speed limit (broken down into less than or equal to 25 MPH, 30 to 35 MPH, and greater than or equal to 40 MPH), and AADT (less than 10,000, 10,000 to 20,000, and 20,000 or greater; segments without an observed AADT are identified as “n/a”). Injuries and fatalities are tabulated for each roadway segment subtype and used to calculate a relative risk score, indicating subtypes/typologies with above or below average injuries and fatalities per-mile.

All segment subtypes with fewer than three total miles or fewer than three KA injuries were excluded from the analysis, alongside any segments where AADTs were unknown. These subtypes are present but grayed-out in the tables below and those included in the Appendix.

All Crashes

The systemic risk factor analysis for all midblock crashes in the analysis area between 2018 and 2022 is shown in Table 33. Relative risk for each subtype is found in the far-right column. At the summary-level, roadway segment jurisdiction is dropped for comparability to the intersection information and to cut down on the high number of subtypes that were screened out based on the criteria above.

Like intersections, high risk ratios are the result of a low baseline attributable to the low number of fatalities and serious injuries on low-volume local network segments. For instance, local functional classification segments account for nearly three-quarters of total centerline mileage and had a risk ratio of 0.21. As with the intersection systemic analysis, the baseline ensures comparability among all segment subtypes.

Expressway segments with three or more through lanes, speed limits over 40 MPH, and AADTs over 20,000 have the highest relative risk of deaths and serious injuries per mile among all types of qualifying segment subtypes, at nearly 15 times (2.85 KA per mile) the baseline (0.2). In general, state-

[10] Number of lanes indicates the prevailing number of through-traffic lanes covering both directions during peak hour operation, per the IDOT IRIS manual.

and Tollway-owned roadway segments, with a relative risk of 2.25 and 2.42, respectively, have the highest relative risk per any jurisdiction type for all KA injuries.

Among qualifying non-expressway segment subtypes, arterial segments with three or more total through lanes, speed limits over 40 MPH and AADTs over 20,000 have the highest relative risk of deaths and serious injuries across all crashes in the study period, at roughly six and a quarter times the baseline.

Table 33: Segment Systemic Risk Factors, All Midblock Crashes, 2018-2022

Functional Classification	Number of Lanes	Posted Speed Limit	AADT	Length (mi)	Count			Per Mile			Relative Risk
					A	K	KA Total	A	K	KA Total	
Local	<=2	<=25	<10K	280.4	6	2	8	0.02	0.01	0.03	0.15
		30-35	<10K	57.0	10	1	11	0.18	0.02	0.19	0.99
		N/A	<10K	2561.2	93	7	100	0.04	0.00	0.04	0.20
	Subtotal			**2,921.56**	**111**	**10**	**121**	**0.04**	**0.00**	**0.04**	**0.21**
Collector	<=2	<=25	<10K	95.2	8	3	11	0.08	0.03	0.12	0.59
		30-35	<10K	128.7	24	4	28	0.19	0.03	0.22	1.12
		40+	<10K	45.3	13	4	17	0.29	0.09	0.38	1.93
		N/A	<10K	72.4	11	0	11	0.15	0.00	0.15	0.78
	Subtotal			**393.23**	**64**	**11**	**75**	**0.16**	**0.03**	**0.19**	**0.98**
Arterial	<=2	30-35	<10K	26.7	10	3	13	0.37	0.11	0.49	2.51
		40+	<10K	18.6	5	3	8	0.27	0.16	0.43	2.21
			10K-20K	19.8	10	0	10	0.51	0.00	0.51	2.61
	3+	30-35	<10K	17.6	4	0	4	0.23	0.00	0.23	1.17
			10K-20K	58.5	30	5	35	0.51	0.09	0.60	3.08
			>20K	31.4	29	5	34	0.92	0.16	1.08	5.57
		40+	<10K	28.9	8	3	11	0.28	0.10	0.38	1.96
			10K-20K	119.1	65	14	79	0.55	0.12	0.66	3.41
			>20K	127.5	129	26	155	1.01	0.20	1.22	6.25
	Subtotal			**467.70**	**297**	**59**	**356**	**0.64**	**0.13**	**0.76**	**3.92**
Interstate	3+	40+	>20K	65.4	152	34	186	2.33	0.52	2.85	14.65
	Subtotal			**72.20**	**158**	**39**	**197**	**2.19**	**0.54**	**2.73**	**14.04**
Total				**3,854.7**	**630**	**119**	**749**	**0.16**	**0.03**	**0.19**	**1.00**

Note: sums will not total to 100% as rows that do not meet the criteria are not included in this table, but are reflected in subtotals and total

When like-for-like arterial segments are compared, differences emerge. For instance, when controlling for AADT, arterials with higher numbers of through lanes and higher posted speeds have higher risk ratios that streets with fewer through lanes and lower posted speeds. Arterials posted with speed limits of 40 MPH or greater with two or fewer through lanes in the 10K-20K AADT range, for instance, have a relative risk of 2.61 as compared to the same segments with three or more lanes, which come in at 3.41, all else being equal.

These differences become more pronounced when roadway ownership is added in. IDOT-owned segments are significantly over-represented in risk, as summarized in Table 34. While arterial roads with two through lanes have a lower relative risk across the board, the trend is consistent with arterials with three or more through lanes across jurisdiction. Eligible state-owned, two-lane arterial segments have a higher relative risk than county/township- or municipally owned facilities with the same characteristics.

Table 34: Multi-lane Arterial Segment Relative Risk, All Crashes, 40+ MPH

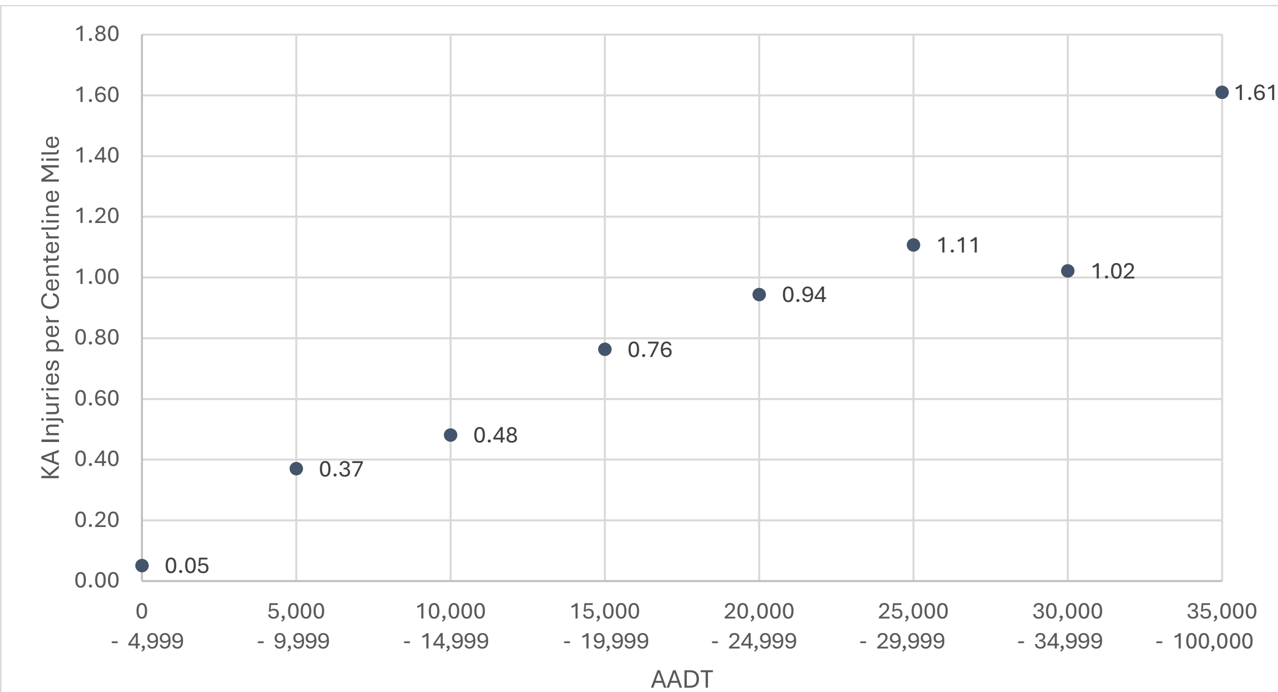
Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
State	Arterial	>= 3	40+	10K-20K	5.8
County or Township	Arterial	>= 3	40+	10K-20K	3.2
Municipal	Arterial	>= 3	40+	10K-20K	0.9

Differences in relative risk at the segment level cannot be chalked up to AADT alone. Table 35 and Figure 39 illustrate that at AADTs below 30,000, KA crashes per centerline mile rise relatively linearly with AADT for non-expressway segments. Above 35,000 AADT, however, KA crashes per mile spike, nearly doubling in certain 5,000 AADT bands (although these individual bands might be biased by small-numbers and are thus not presented below). This observation may help to explain why arterials tend to have higher severe crash rates when adjusted for volume, as previously found in Table 13.

Table 35: Segment KA Crashes by AADT, Non-Expressway Segments

AADT Range	Length (mi)	Count			Per Mile
		A	K	KA Total	KA
0-4,999	3,224.1	150	17	167	0.05
5,000-9,999	170.0	49	14	63	0.37
10,000-14,999	145.3	62	8	70	0.48
15,000-19,999	81.1	52	10	62	0.76
20,000-24,999	42.4	32	8	40	0.94
25,000-29,999	37.9	36	6	42	1.11
30,000-34,999	40.1	34	7	41	1.02
35,000+	41.6	57	10	67	1.61

Figure 39: Segment KA Crashes per Centerline Mile and AADT, Non-Expressway Segments



Summaries by Emphasis Area

High-level summaries for each emphasis area follow to illustrate the similarities and differences among the top high-risk segment features. Detailed systemic analysis tables for each emphasis area and specific crash types within those emphasis areas are provided in the Appendix for purposes of space and brevity.

All Crashes

The top five segment subtypes, by relative risk of death and serious injury, for all crashes are summarized in Table 36, with high-level discussion in the bullets below:

- Four of the five subtypes are expressway segments with moderate or high posted speed limits, the remaining subtype is arterial.
- Four of the five subtypes are state-jurisdiction, one is Tollway.

Table 36: Top Five Segment Subtypes, All Crashes

Rank	Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
1	State	Expressway	>= 3	>=40	>20K	17.1
2	Tollway	Expressway	>= 3	>=40	>20K	12.3
3	State	Expressway Ramps	<= 2	30-35	<10K	6.5
4	State	Arterial	>= 3	>=40	>20K	6.4
5	State	Expressway Ramps	<= 2	<=25	<10K	6.1

All Crashes – Non-Expressway Segment Subtypes

The top five non-expressway segment subtypes, by relative risk of death and serious injury, for all crashes are summarized in Table 37, with high-level discussion in the bullets below:

- Four of the five subtypes are arterial segments with moderate or high posted speed limits, the remaining is a lower-speed arterial.
- Four of five subtypes are state-jurisdiction, the remaining subtype is county or township.

Table 37: Top Five Non-Expressway Segment Subtypes, All Crashes

Rank	Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
1	State	Arterial	>=3	>=40	>20K	6.4
2	State	Arterial	>= 3	>=40	10K-20K	5.8
3	State	Arterial	>= 3	30-35	10K-20K	5.2
4	State	Arterial	>= 3	30-35	>20K	5.2
5	County or Township	Arterial	>= 3	>=40	>20K	3.3

Pedestrian Crashes

The top five segment subtypes, by relative risk of death and serious injury, for pedestrians[11] are summarized in Table 38, with high-level discussion in the bullets below:

- All five subtypes are segments with moderate or high posted speed limits.
- Ownership varies between state (top two slots), Tollway, and county or township
- State-owned arterials with three or more through lanes, a posted speed limit between 30 and 35 MPH, and AADT greater than 20,000, has the highest relative risk at 9.5 times higher than the baseline. These same segments have more than 17 times the baseline for KA pedestrian injuries in dark lighting conditions.
- While expressways account for two of the five subtypes, it is likely that these crashes represent persons outside of their vehicle on the expressway shoulder (possibly changing a tire) and point to a different type of safety risk than non-expressway segments.

[11] Pedestrian injuries are assumed to be all injuries in crashes marked as FirstCrashType == Pedestrian

Table 38: Top Five Segment Subtypes, Pedestrian Crashes

Rank	Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
1	State	Arterial	>= 3	30-35	>20K	9.5
2	State	Expressway	>= 3	>=40	>20K	7.6
3	Tollway	Expressway	>= 3	>=40	>20K	6.4
4	County or Township	Collector	<=2	>=40	<10K	5.8
5	State	Arterial	>= 3	>=40	>20K	3.8

There was insufficient data to compare pedestrian crashes across comparable subtypes by jurisdiction.

Bicycle Crashes

There were too few data points within subtypes to meet the criteria set by the project team and thus no reportable results.

Speed-related Crashes

The top five segment subtypes, by relative risk of death and serious injury, for crashes categorized as speed-related through the emphasis area fields in the CMAP-provided crash data, are summarized in Table 39, with high-level discussion in the bullets below:

- The highest risk ratio is on high-speed and high-volume state-owned expressways, at 18.7 times the baseline. Tollway segments are also in the top five, at 17.5 times the baseline.
- High-volume state-owned arterials with three or more through lanes and speed limits above 40 MPH are the only non-expressway in the top five, at 6.0 times the baseline.

Table 39: Top Five Segment Subtypes, Speed-related Crashes

Rank	Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
1	State	Expressway	>=3	>=40	>20K	18.7
2	Tollway	Expressway	>=3	>=40	>20K	17.5
3	State	Expressway Ramps	<=2	30-35	<10K	11.6
4	Tollway	Expressway	<=2	>=40	10K-20K	8.6
5	State	Arterial	>=3	>=40	>20K	6.0

The top five non-expressway segment subtypes, by relative risk of death and serious injury, for crashes categorized as speed-related through the emphasis area fields in the CMAP crash data, are summarized in Table 40, with high-level discussion in the bullets below:

- Four of the five subtypes are state-owned arterial segments with three or more lanes and moderate or high posted speed limits.
- Low volume municipally owned arterials are the outliers on the list, with nearly as many speed-related KA crashes per mile as high-volume state arterials, at 4.5 times the baseline.

Table 40: Top Five Segment Subtypes, Speed-related Crashes

Rank	Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
1	State	Arterial	>=3	>=40	>20K	6.0
2	State	Arterial	>=3	30-35	10K-20K	4.7
3	Municipal	Arterial	<=2	>=40	<10K	4.5
4	State	Arterial	>=3	>=40	10K-20K	3.5
5	State	Arterial	>=3	30-35	>20K	3.3

When comparing multi-lane arterials like-for-like across ownership/jurisdiction, variation persists, as shown in Table 41.

Table 41: Multi-lane Arterial Segment Relative Risk, Speed-related, >=40 MPH, 10K-20K AADT

Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
State	Arterial	>= 3	>=40	10K-20K	3.5
County or Township	Arterial	>= 3	>=40	10K-20K	3.1
Municipal	Arterial	>= 3	>=40	10K-20K	1.7

Other Emphasis Areas and Crash Types

The systemic analysis also includes an analysis of specific emphasis area crashes, including older-drivers, angle crashes, and roadway departure crashes. These analyses are more limited since the pool of crashes tends to be smaller. High-level findings of leading segment subtypes for these crash types that meet the threshold criteria are as follows:

- KA angle crash injuries have high relative risk on multiple types of expressway and arterial roadways;[12] however, the highest relative risk is found on state expressways with three or more lanes, at least 40 MPH speed limits, and greater than 20,000 AADT.
- KA roadway departure crash injuries are at highest risk on state expressways with three or more lanes, at least 40 MPH speed limits, and greater than 20,000 AADT. This crash type also has an elevated risk on state-owned arterial roadways and Tollway-owned expressways.
- KA crash injuries involving older drivers in dark conditions are at highest risk on Tollway-owned expressways with three or more lanes, at least 40 MPH speed limits, and greater than 20,000 AADT. This crash type also has an elevated risk on state-owned arterial roadways with three or more lanes, at least 40 MPH speed limits, and greater than 20,000 AADT.

[12] Since these crashes do not, by definition, occur at intersections, they may be related to driveways.

5 Railroad-related and Grade Crossing Incident Safety Analysis

Multiple passenger and freight railroads run across DuPage County. The Illinois Commerce Commission (ICC), roadway owners, and railroads have a long history of collaboration around safety, particularly around grade crossings where railroad lines intersect with other transportation networks. Metra owns and operates four rail lines (Rock Island, Metra Electric, Milwaukee District North and Milwaukee District West). Three Metra lines are operated by Metra employees over tracks owned by freight railroads through trackage rights or lease agreements (Heritage Corridor, North Central Service and SouthWest Service). Four additional Metra lines are operated directly by freight railroads through purchase-of-service agreements (BNSF, Union Pacific North, Union Pacific Northwest and Union Pacific West). Along the lines that are owned by other railroads, Metra works cooperatively to implement proposed safety improvement projects.

Data Preparation and Interpretation

Like the HIN and Systemic analyses, the railroad-related and grade crossing incident safety analysis pertains to the DuPage SAP analysis area consistent with the municipalities and unincorporated DuPage County areas assigned by CMAP and listed in the first two columns of Table 14.

Unlike other analyses in the ESC, the railroad safety analysis is based on the northeastern Illinois regional rail incident data set created and provided by CMAP in cooperation with the Illinois Commerce Commission (ICC).[13] The data set, spanning 2012 to 2021, includes crashes involving trains and vehicles but also collisions where motor vehicles are not involved, such as trains striking people walking, rolling, or biking. Therefore, the number of incidents may not exactly align with train-related crashes in the IDOT data set.

A subset of rail incidents within the analysis area were created for the following analysis. The data is broken out by reported incidents as well as deaths and injuries. Injury severity was not included in the CMAP/ICC data set and thus may not be comparable to IDOT crash injury severities.

[13] https://cmapgis.maps.arcgis.com/home/item.html?id=9e3ad7852549472aa4877fa2f411170d

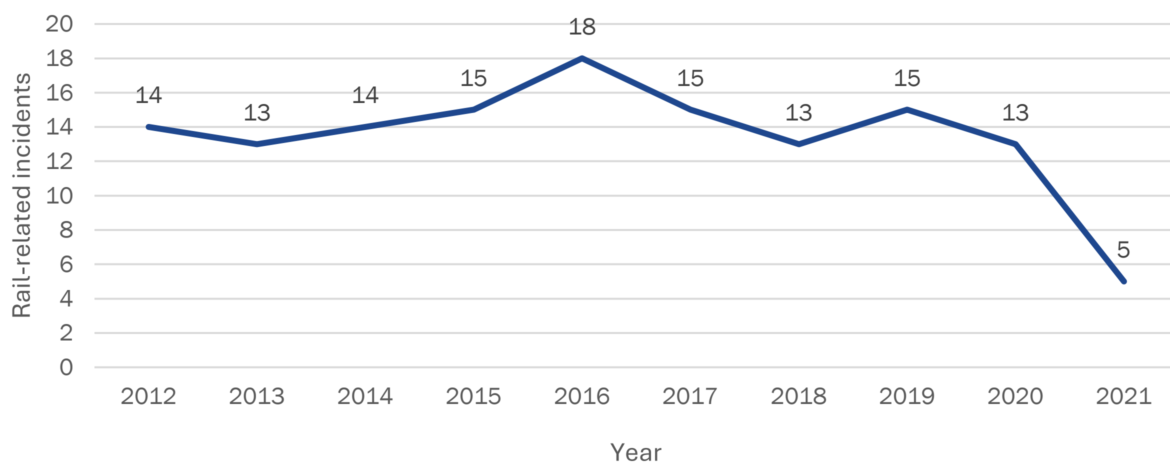
Railroad Safety Trends

Annual Trends

Over the ten-year period between 2012 and 2021 there were 135 reported rail-related incidents in the DuPage analysis area, an average of 13.5 per year. As shown in

Figure 40, the trend has been decreasing in the last five years, with a peak of 18 incidents in 2016 and a low of 5 incidents in 2021, the most recent year in the CMAP data set. When 2021 and 2016 are removed from the analysis, however, the trend is mainly flat, accounting for minor variation year to year.

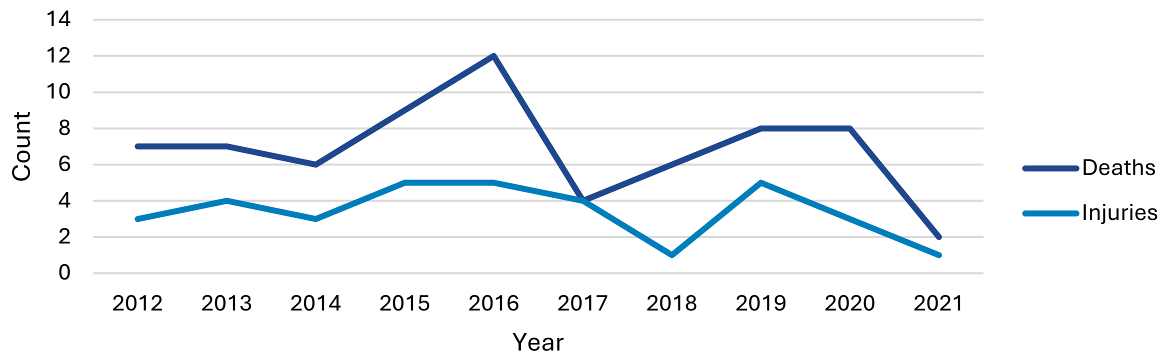
Figure 40: Rail-related Incidents per year, 2012-2021



Source: CMAP, ICC

As a result of those 135 incidents, 69 people were killed and 34 others injured, 10.3 in total on an average year. Figure 41 illustrates the annual trend for fatalities and injuries, which, like incidents, has peak in 2016 and a sharp decline in 2021. In every year beside 2017, more people were killed than injured in rail-related incidents.

Figure 41: Rail-related Fatalities and Injuries, 2012-2021



Source: CMAP, ICC

More recent data within the official borders of DuPage County shared by ICC with the project team illustrate that 2021 may have been an outlier, with total incidents rising to 15 in 2022 and 10 in 2023. This appears to be borne out with the 2022 and 2023 ICC data, suggesting that this low number may not be an artifact of the data set and surveillance protocols but a potential low observation. While 2021 was in the midst of the Covid-19 pandemic, it is unlikely that the pandemic was the only factor contributing to the record low in 2021, considering that there were more than twice as many events in 2020 than in 2021, and travel was significantly reduced in 2020 during the pandemic's onset.

Incidents, deaths, and injuries are detailed by year in Table 42.

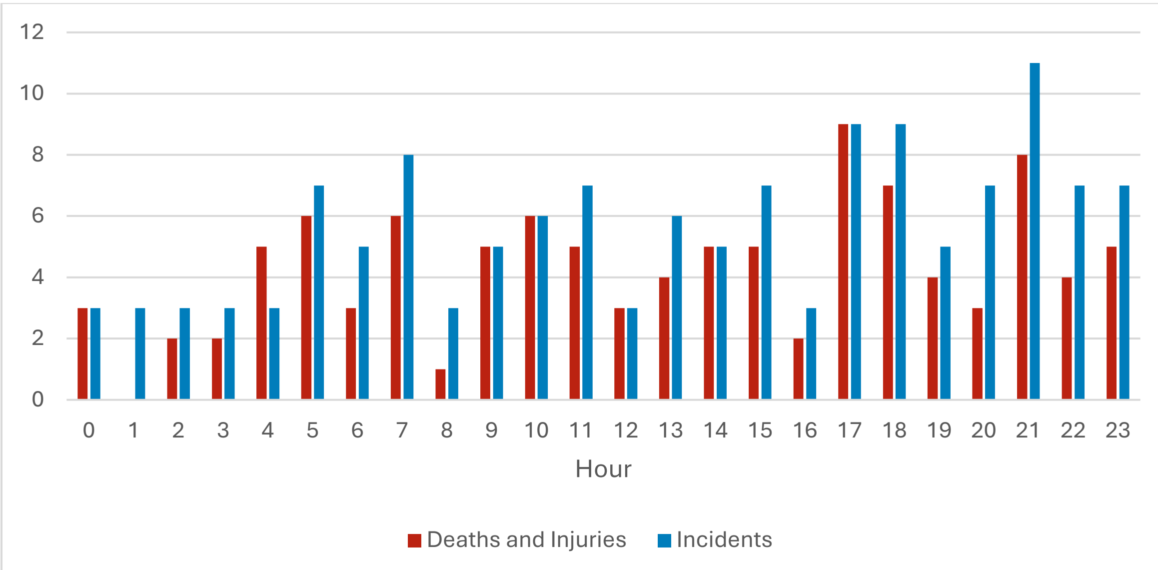
Table 42: DuPage County Railroad Incidents, 2012-2021

Year	Trespass			Non Trespass			Total		
	Incidents	Injuries	Deaths	Incidents	Injuries	Deaths	Incidents	Injuries	Deaths
2012	7	2	5	7	1	2	14	3	7
2013	3	0	3	10	4	4	13	4	7
2014	6	0	6	8	3	0	14	3	6
2015	8	1	7	7	4	2	15	5	9
2016	7	2	5	11	3	7	18	5	12
2017	4	2	2	11	2	2	15	4	4
2018	6	1	5	7	0	1	13	1	6
2019	11	4	7	4	1	1	15	5	8
2020	7	1	6	6	2	2	13	3	8
2021	3	1	1	2	0	1	5	1	2
Total	**62**	**14**	**47**	**73**	**20**	**22**	**135**	**34**	**69**

Source: CMAP, ICC

Between 2012 and 2021, incidents, deaths, and injuries varied across the day, as illustrated in Figure 42. Peaks appear in the AM and PM commute periods, dropping slightly during the daytime but remain high through the evening hours: incidents hit their maximums overnight between 9:00-10:00 PM. The most deaths and injuries occurred at rush periods, between 5:00 PM and 6:00 PM.

Figure 42: Rail-related Incidents, Deaths/Injuries by Hour of Day, 2012-2021



Source: CMAP, ICC

Between 2012 and 2021 the highest number of incidents were trespasser-involved, followed by passenger vehicle (car, pick-up truck, and van) and pedestrian and bicyclists.[14] Table 43 provides annual detail. Auto-related incidents remained relatively constant across the period with a peak in 2014 at 8. Pedestrian and bicyclist incidents were relatively rare but exhibited two spikes, the first in 2013 and the second in 2016. Trespasser incidents exhibit more variability year-over-year, with a high of 11 in 2019.

[14] Incidents reviewed in CMAP data did not enable breakouts into pedestrians and bicyclists. One record, a motorized bicycle, was included in the pedestrian and cyclist statistics.

Table 43: Annual Rail-related Incidents by Mode, 2012-2021

Year	Auto	Pedestrian or Bicyclist	Truck-Trailer	Employee	Trespasser	Total
2012	5	2	0	0	7	14
2013	3	6	0	0	3	12
2014	8	0	0	0	6	15
2015	4	2	1	0	8	15
2016	4	7	0	0	7	18
2017	5	4	2	1	3	15
2018	6	1	0	0	6	13
2019	3	1	0	0	11	15
2020	3	2	1	0	7	13
2021	1	1	0	0	3	5
Total	**42**	**26**	**5**	**1**	**61**	**135**

Source: CMAP, ICC

When broken down into deaths and serious injuries as in Table 44, rail-related incidents in the study area most affected trespassers and people walking and biking across the ten years in the period of analysis. Forty-seven people were killed in trespass-related incidents and 13 more injured. Twenty-two people were killed while walking, biking, or rolling and four more were injured in the same timeframe. People in passenger vehicles and trucks were less likely to be killed or injured. Between 2012 and 2021, no drivers or passengers died in the 42 rail-related incidents in the data set.

Table 44: Annual Rail-related Deaths and Injuries by Mode, 2012-2021

Mode	Deaths	Injuries	Total
Auto	0	10	10
Pedestrian or Bicyclist	22	4	26
Truck-Trailer	0	6	6
Employee	0	1	1
Trespasser	47	13	60
Total	**69**	**34**	**103**

Source: CMAP, ICC

Railroad incidents, deaths, and fatalities occurred on tracks owned by eleven railroads in the study area between 2012 and 2021. As demonstrated in Table 45 , the highest number of incidents of all kinds, 53, occurred on property associated with the Union Pacific West (UP-W) Metra line: 53. Incidents on public crossings most frequently occurred on UP-W (21), and Milwaukee District West (MD-W) Metra line (10). Over the same period, the railroads with the highest frequencies of trespassing incidents were the UP-W (29) and Burlington Northern Santa Fe (24) or BNSF Railway (BNSF) Metra line

Table 45: Rail-related Incidents by Railroad Owner and Type, 2012-2021

Railroad Owner	Trespassing	Ped Crossing	Private Crossing	Public Crossing	Total
Amtrak	2	0	0	1	3
Burlington Northern Santa Fe	24	1	0	15	40
Canadian National – Chicago Central and Pacific	1	0	0	6	7
Canadian National – Elgin, Joliet, and Eastern	2	0	0	1	3
Canadian National – Wisconsin Central	0	1	0	3	4
Canadian Pacific Kansas City	0	0	0	2	2
Progressive Railroad	0	0	0	4	4
Milwaukee District West	4	5	0	10	19
Union Pacific West	29	2	1	21	53
Total	**62**	**9**	**1**	**63**	**135**

Source: CMAP, ICC

As shown in Table 46, the highest number of total deaths and injuries occurred on the UP-W and BNSF lines. Thirty deaths, the highest for any railroad owner in the period of analysis, occurred on UP-W property, the majority of which were trespass-related.

Table 46: Rail-related Deaths and Injuries by Railroad Owner, 2012-2021

Railroad Owner	Deaths	Injuries	Total
Amtrak	1	2	3
Burlington Northern Santa Fe	24	9	32
Canadian National – Chicago Central and Pacific	2	4	6
Canadian National – Elgin, Joliet, and Eastern	1	1	2
Canadian National – Wisconsin Central	0	2	2
Canadian Pacific Kansas	0	1	1
Progressive Railroad	0	0	0
Milwaukee District West	11	2	13
Union Pacific West	30	14	44
Total	**69**	**34**	**103**

Source: CMAP, ICC

Table 47 breaks down incidents by railroad operator. Of the 135 incidents reported between 2012 and 2021, 63 involved freight trains, 71 involved passenger trains, and 1 involved maintenance of way equipment. Of the 63 freight incidents, 26 were trespass-related and 33 occurred at public crossings.

Table 47: Rail-related Incidents by Railroad Operator and Type, 2012-2021

Operator	Trespasser	Ped Crossing	Private Crossing	Public Crossing	Total
Amtrak-BNSF	3	0	0	1	4
Freight	26	3	1	33	63
Metra-BNSF	11	0	0	9	20
Metra-MILW-West	4	5	0	10	19
Metra-UP-West	18	1	0	9	28
Maintenance of Way Equipment	0	0	0	1	1
Total	**62**	**9**	**1**	**63**	**135**

Source: CMAP, ICC

Of the 103 deaths and injuries in the analysis period, 41 involved freight operators, 61 involved passenger operators, and one involved maintenance of way equipment, as shown in Table 48.

Table 48: Rail-related Deaths and Injuries by Operator, 2012-2021

Operator	Deaths	Injuries	Total
Amtrak-BNSF	2	2	4
Freight	22	19	41
Metra-BNSF	13	5	18
Metra-MILW-West	11	2	13
Metra-UP-West	21	5	26
Maintenance of Way Equipment	0	1	1
Total	**69**	**34**	**103**

Source: CMAP, ICC

Railroad Incident Clusters

The project team identified clusters in the DuPage analysis area based on locations with multiple reported incidents as well as sections of railroad with multiple adjacent incidents.

Individual Location Clusters

Incidents occurred at 123 different locations in the DuPage SAP analysis area between 2012 and 2021, inclusive of grade crossings and different locations on railroad property, and deaths and injuries occurred at 95 unique locations. The 11 locations with multiple incidents or deaths and injuries are listed in Table 49.

Table 49: Locations with Multiple Rail-related Incidents or Deaths and Injuries, 2012-2021

Location	Incidents		Location	Deaths and Injuries
Main Street, Downers Grove	6		Main Street, Downers Grove	5
Grace Street, Lombard	4		Grace Street, Addison	3
Finley Road, Lombard	3		Grace Street, Lombard	3
Garfield Avenue, Hinsdale	3		Prospect Avenue, Roselle	2
Prospect Avenue, Roselle	3		Stough Street, Hinsdale	2
Sunset Avenue, Winfield	3		Villa Park Depot, Villa Park	2
Villa Park Depot, Villa Park	2		Washington Street, Wheaton	2
Washington Street, Wheaton	2		West Avenue, Elmhurst	2

The characteristics of locations with either multiple reported incidents or multiple deaths and injuries in the DuPage analysis area are summarized in Table 50. The project team determined location characteristics based on the most recent available Google Streetview and aerial imagery.

Locations with multiple incidents vary in terms of location type, land use context, and activity levels. There are several potential patterns. Four of the eleven are adjacent to Metra stations (Main Street, Downers Grove; Garfield Avenue, Hinsdale; Villa Park Depot, Villa Park; Stough Street, Hinsdale) and are associated with both grade-crossings and pedestrian crossings internal to the station. Three are in mixed-use downtown areas (Main Street, Downers Grove; Garfield Avenue, Hinsdale; Prospect Avenue, Roselle). The location with the highest number of incidents, Main Street, Downers Grove, has three crossings within the functional area of the station Most, but not all, are located on streets with low- or moderate vehicle volumes, with multiple AADTs in the hundreds and all AADTs save one (Grace Street, Lombard) under 10,000.

Multiple-incident clusters tend to have similar roadway configurations – one through lane in each direction. Only one location (Grace Street, Addison) had multiple through lanes. Safety equipment was also consistent across locations. All crossings with multiple incidents, injuries, or deaths had active warning devices including beacons and gate arms. Two locations (Main Street, Downers Grove and Grace Street, Lombard) have strategically located concrete medians to deter attempts to drive around closed gates. No locations have gate arms that provide full roadway closures in both directions. Finally, all locations had open track access – lacking high fencing suitable for preventing trespass.

Table 50: Cluster Characteristics, 2012-2021

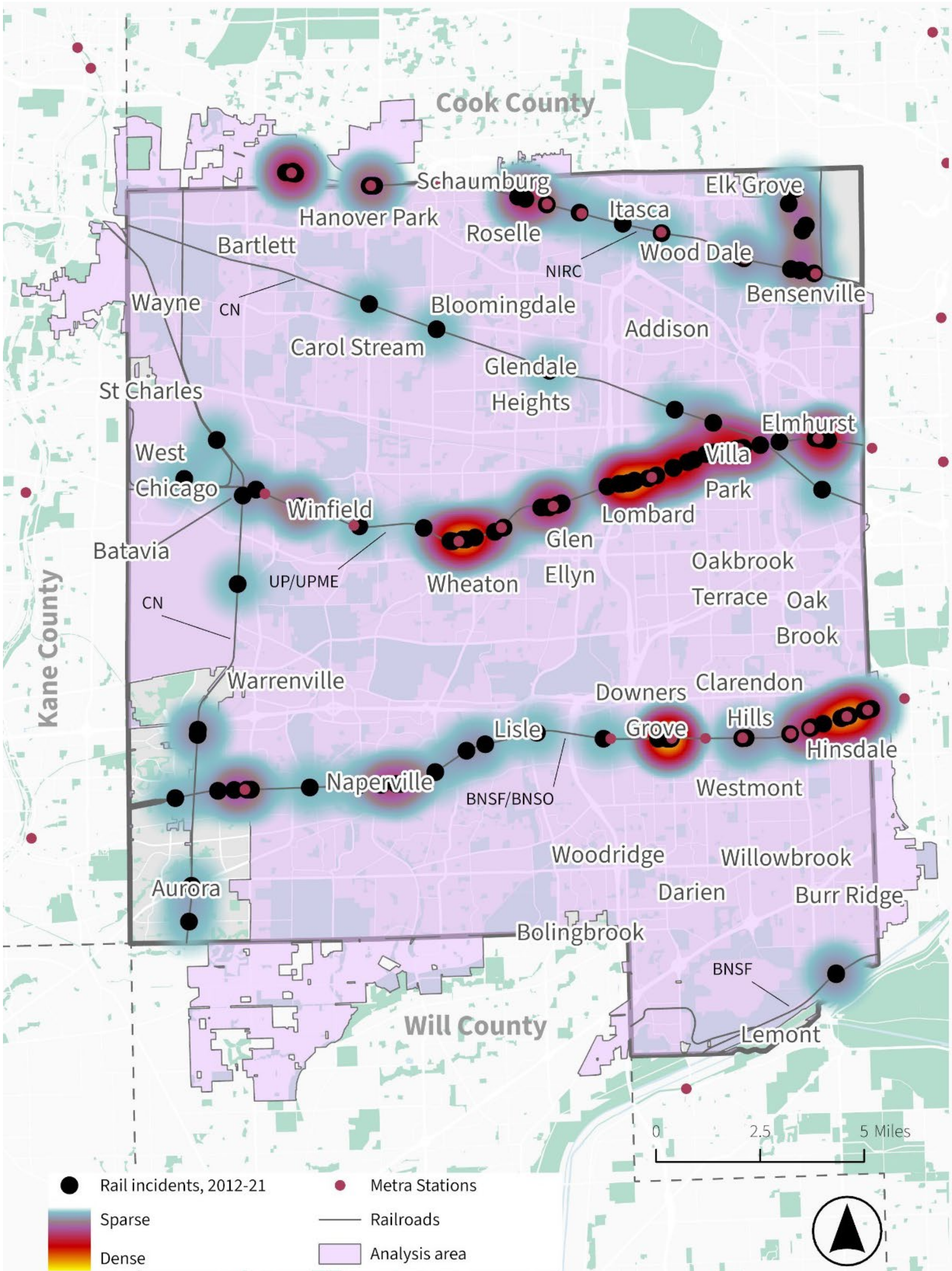
Location	RR	Location Type	Land Use	Roadway Configuration	Safety Equipment
Main Street, Downers Grove	BNSF	At-grade triple-track crossing adjacent to Metra station	Downtown mixed use	One thru lane and dedicated right turn lane in each direction; concrete median; sidewalks on both sides; 6,800 AADT (IDOT 2020)	Active warning devices incl. beacons and partial coverage gate arms with concrete median; sidewalk gate arms
Finley Road, Lombard	UP-W	At-grade triple-track crossing	Low-density residential	One thru lane in each direction; sidewalk on east side only; 6,800 AADT (IDOT 2020)	Active warning devices incl. beacons and partial-coverage gate arms; sidewalk gate arms
Garfield Avenue, Hinsdale	BNSF	At-grade triple-track crossing adjacent to Metra station	Downtown mixed use	One thru lane and dedicated left turn lane in each direction; sidewalks on both sides; 7,100 AADT (IDOT 2020)	Active warning devices incl. beacons and partial-coverage gate arms; sidewalk gate arms
Grace Street, Lombard	UP-W	At-grade triple-track crossing	Low-density residential; commercial; park	One thru lane in each direction; concrete median; sidewalk on both sides; 14,500 AADT (IDOT 2020)	Active warning devices incl. beacons and partial coverage gate arms with concrete median; sidewalk gate arms
Grace Street, Addison	CN	At-grade single track crossing	Industrial; open space	Two thru lanes in each direction; no sidewalks; 5,300 AADT (IDOT 2020)	Active warning devices incl. beacons and partial gate-arms
Prospect Avenue, Roselle	MD-W	At-grade double track crossing	Downtown mixed use	One thru lane in each direction; sidewalks on both sides; 325 AADT (IDOT 2020)	Active warning devices incl. beacons and partial gate-arms; sidewalk gate arms

Location	RR	Location Type	Land Use	Roadway Configuration	Safety Equipment
Sunset Avenue, Winfield	UP-W	At-grade triple-track crossing	Low-density residential	One thru lane in each direction; 700 AADT (IDOT 2020)	Active warning devices incl. beacons and partial gate-arms
Villa Park Depot, Villa Park	UP-W	Triple-track ped crossing at Metra station	Medium-density residential	Ped crossing	Active warning devices incl. beacons and gate-arms
Washington Street, Wheaton	UP-W	At-grade triple-track crossing	Medium-density residential; educational institution; adjacent to Illinois Prairie Path	One thru lane in each direction; sidewalks on both sides; 2,500 AADT (IDOT 2020); Pace service	Active warning devices incl. beacons and partial-coverage gate arms; sidewalk gate arms
Stough Street, Hinsdale	BNSF	At-grade triple-track crossing adjacent to Metra station	Low-density residential; park	One thru lane in each direction; sidewalks on both sides; 850 AADT (IDOT 2020)	Active warning devices incl. beacons and partial-coverage gate arms; sidewalk gate arms
West Avenue, Elmhurst	UP-W	At-grade triple-track crossing	Industrial low-density residential; educational institution	One thru lane in each direction; sidewalk on east side only; 5,300 AADT (IDOT 2020)	Active warning devices incl. beacons and partial-coverage gate arms; sidewalk gate arms

Railroad Segment Clusters

The project team assessed rail segments with multiple incidents between 2012 to 2021 in the DuPage SAP analysis area to determine potentially related clusters of crashes. The 135 incidents are mapped inFigure 43. A kernel density or heat map, illustrating the relative density of incidents, is displayed. The project team referred to this kernel density map to identify the most densely clustered incidents for deeper investigation along three lines: Milwaukee District West, Union Pacific West (, and BNSF Railway. Significant segment-level clusters were not present on other lines in the analysis area such as Canadian National freight rail corridors. Several of the areas that appear as “dense” in the heat map are in the location cluster list identified above.

Figure 43: Rail-related Incidents, DuPage SAP Analysis Area, 2012-2021



Milwaukee District West Segments

Beyond location clusters, there was one notable segment-level cluster on the Milwaukee District West line around Bartlett Metra station, as summarized in Table 51.

Table 51: Milwaukee West District Segment Clusters, 2012-2021

Location	Limits	Total Incidents	Total Deaths	Total Injuries	Trespass Incidents
Bartlett Metra Station	Western Ave to Main Street (Bartlett)	5	1	1	0

There were five incidents along the Bartlett Metra Station segment, resulting in one death and one injury. The incidents occurred between Western Avenue on the western end of the segment and the Bartlett Depot east of S Oak Avenue on the eastern end, as shown in Figure 44. Of the five incidents along the segment, four involved vehicles (four personal vehicles and one truck and trailer) and one involved a pedestrian. While two of the incidents were marked as occurring at the Bartlett Depot pedestrian crossing, one involved no pedestrians but instead a vehicle. Incidents occurred at various hours throughout the day with no discernable trend. The Bartlett Depot area is similar to other downtown Metra stations in the DuPage SAP analysis area: parking and access is provided along frontage roads along either side of the rail line with limited designated pedestrian crossings. The platform itself is on a small embankment.

Figure 44: Bartlett Metra Station Cluster

Union Pacific West Segments

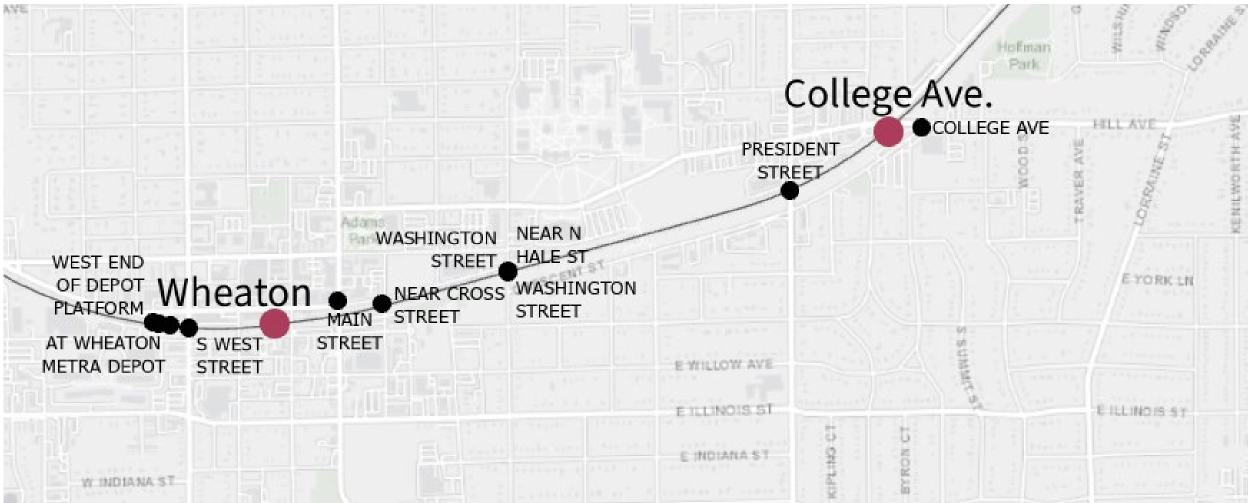
The project team identified four segment-level clusters on the Union Pacific West Line as summarized in Table 52. Three, Wheaton, Glen Ellyn, and Elmhurst, were located in suburban downtown environments. Finley Road, located half a mile to the west of the Lombard Metra station, was the outlier.

Table 52: Union Pacific West Segment Clusters, 2012-2021

Location	Limits	Total Incidents	Total Deaths	Total Injuries	Trespass Incidents
Wheaton	Ellis Avenue to Hill/College Avenue (Wheaton)	11	6	4	5
Glen Ellyn	Prospect Avenue to N Montclair Avenue (Glen Ellyn)	5	4	0	3
Finley Road	I-355 to St Charles Rd (Glen Ellyn/Lombard)	8	4	1	4
Elmhurst	Cottage Hill Avenue to Haven Avenue (Elmhurst)	6	3	2	3

Eleven incidents occurred in Wheaton during the study period in the segment between the Wheaton and College Avenue stations, resulting in six deaths, marking it as the cluster with the most incidents on the Union Pacific West line. The cluster, shown in Figure 45, includes the Washington Street location described above. Five incidents along the segment were trespassing-related, with three trespassing incidents at the Wheaton Metra station. Three additional incidents involved people walking and biking. The cluster runs parallel to the Illinois Prairie Path and serves Wheaton College. Like many downtown Metra stations, network connectivity is higher around the station than upstream or downstream of the station. Incidents, including trespassing, occurred throughout the day.

Figure 45: Wheaton Cluster

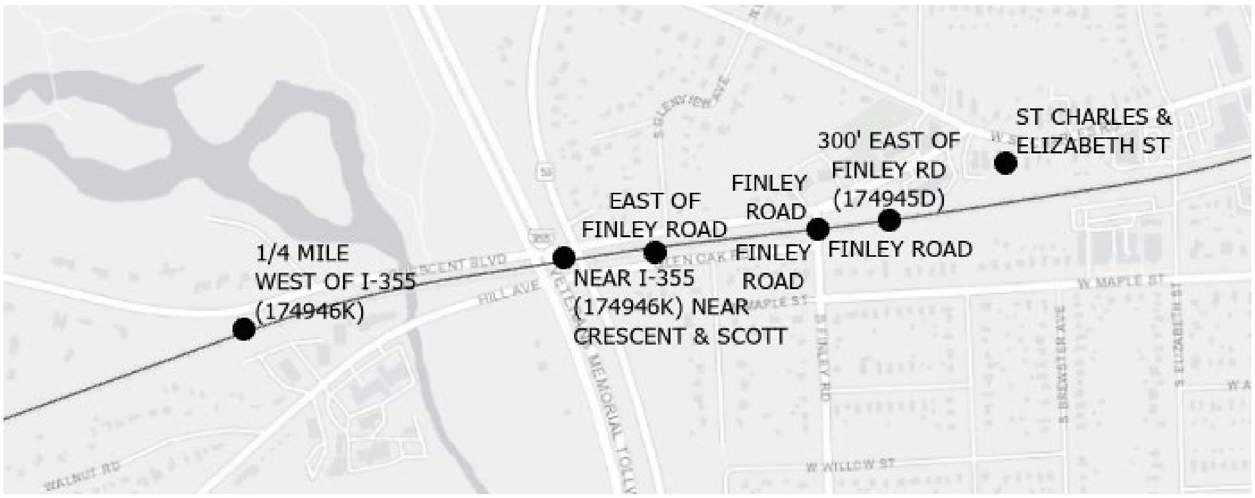


Five incidents occurred in the area around the Glen Ellyn Metra station between Prospect Avenue and approximately N Montclair Avenue, as shown in Figure 46. Four incidents, three of which were trespass-related, resulted in deaths, all involving people outside of vehicles. Like the Wheaton and Bartlett segments, this pattern roughly matches the limits of downtown Glen Ellyn and like Wheaton and is located along the Illinois Prairie Path. Two of the three trespasser incidents occurred east of the Metra platform in the area of the Montclair Parking Lot, which is fenced to the north but open on the southern side.

Figure 46: Glen Ellyn Cluster

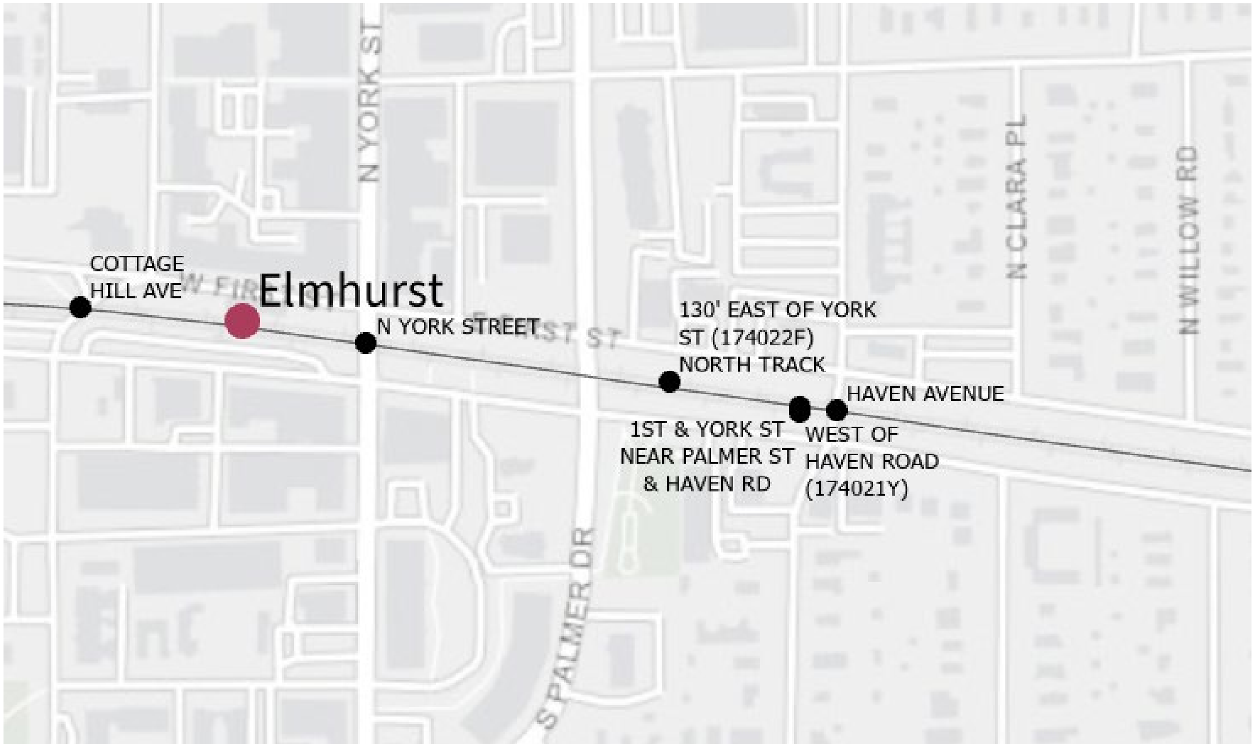
Between 2012 and 2021 there were eight rail-related incidents in the area around Finley Road on the eastern border of Glen Ellyn and the western border of Lombard seen in Figure 47. The types of incidents and modes involved are very different than those in the downtown environments. Four incidents were trespassing-related and the remaining four involved motor vehicles. Vehicle-related incidents were a minority in the downtown clusters. Several natural and manmade barriers, the East Branch of the DuPage River and I-355, limit connectivity in the area. The nearest north-south crossing to the west of Finley Road is at Taylor Avenue, 1.4 miles to the West. This connection is constricted and impracticable for most drivers, making the nearest feasible at-grade crossing west of Finley Road at Park Avenue in downtown Glen Ellyn, 1.8 miles away. All but one incident on this segment occurred during darkness.

Figure 47: Finley Road Cluster



The easternmost cluster along the Union Pacific West was in the area around Elmhurst Metra station in downtown Elmhurst. Figure 48 shows the six incidents between Cottage Hill Avenue and Haven Avenue between 2012 and 2021. Four of six incidents were trespasser-related or involved a pedestrian; all four of which occurred between S Palmer Drive and Arlington Avenue/Haven Road. Railroad right-of-way in this area is open and unfenced. Incidents along this segment predominantly occurred during the daytime.

Figure 48: Elmhurst Station Cluster



BNSF Railway Segments

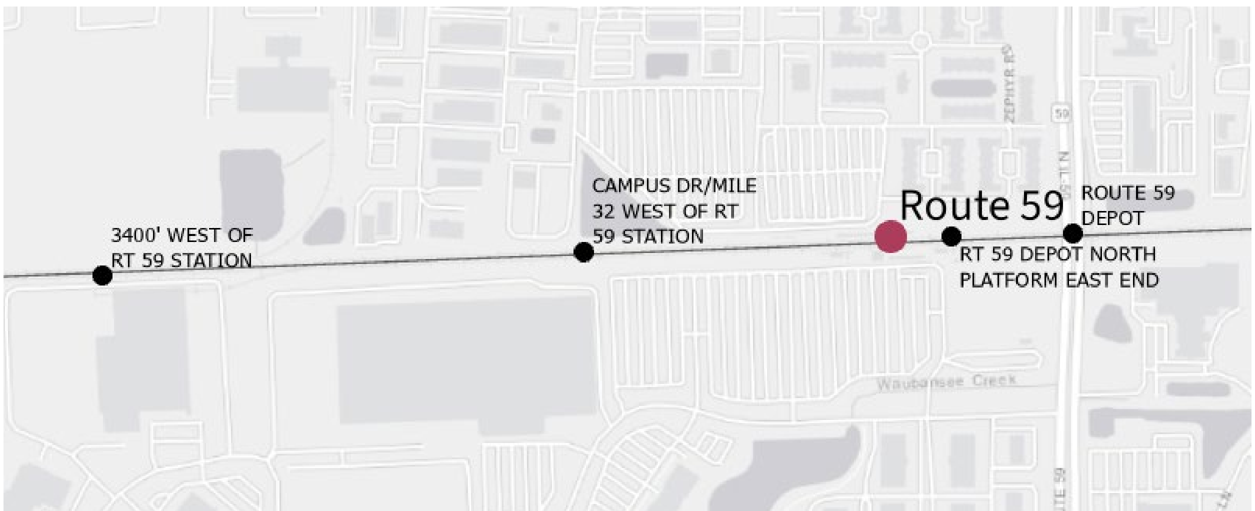
Over the analysis period three segment-level clusters appeared, all in the vicinity of Metra stations along the BNSF line. Main Street and Hinsdale are coincident with location-specific clusters identified in the previous section.

Table 53: BNSF Railway Segment Clusters, 2012-2021

Location	Limits	Total Incidents	Total Deaths	Total Injuries	Trespass Incidents
Route 59	3,400’ West of Route 59 to Route 59 Depot (Naperville)	4	1	3	4
Main Street	1,000’ West of Forest Avenue to Main Street (Downers Grove)	9	6	2	4
Hinsdale	Lincoln Street to Garfield Avenue (Hinsdale)	6	1	0	1

Four incidents occurred in the area around the Route 59 Metra station between 2012 and 2021, as shown in Figure 49 all of which were trespass-related and occurred between early morning and early afternoon. Unlike other clusters along the BNSF, Route 59 is not located in a traditional commuter-suburb downtown – it is instead on the exurban edge between Naperville and Aurora. Major parking lots abut the station on both sides of the tracks with multifamily housing to the northwest and major job centers all around. Besides the pedestrian crossing at the station there are no easily accessible crossings connecting the land uses on either side of the tracks. Tracks in the station area are open and unfenced. A single below-grade access point at the east end of the parking lots that serve the station connects the northern and southern Metra platforms.

Figure 49: Route 59 Station Cluster



The segment with the highest number of incidents on the BNSF between 2012 and 2021 was around Main Street Metra station in Downers Grove. Nine incidents occurred in the area indicated in Figure 50, including the Main Street at-grade crossing previously identified. Like other downtown segments, most of the incidents involved people outside of vehicles – only one involved a personal vehicle at the Main Street crossing. The area around the station is walkable with destinations on both sides of the tracks, which are open and unfenced. Almost half of the incidents, four of nine, occurred overnight.

Figure 50: Main Street Station Cluster

The third and final segment on the BNSF is Hinsdale Metra station between Lincoln Street and Garfield Avenue, as shown in Figure 51. The six incidents between 2012 and 2021 occurred in the area around downtown Hinsdale and include the at-grade crossing at Garfield Avenue identified earlier. All incidents occurred either early in the morning or overnight. Unlike other downtown areas, almost all of the incidents involved motorists at the Washington, Garfield, and Lincoln at-grade crossings.

Figure 51: Hinsdale Station Cluster

Shared Cluster Characteristics

Across location and segment-based clusters several patterns emerge:

- Incidents involving people trespassing, walking, and biking account for nearly all deaths.
- Most clusters are at or near downtown/village center Metra stations with destinations along both sides of the rail line. The majority of incidents at these locations involve people outside of vehicles and include at-grade crossings as well as crossings through depot areas and near parking lots.
- Stations where clusters occur are predominantly open.
- Incidents at clusters typically occur across the day with no dominant patterns.
- Adjacent network connectivity is a potentially important factor in trespassing and may also contribute to higher rates of gate violations where partial gates are in place.

The above findings indicate that at a systemic-level, station-area planning is necessary to determine where and how to install context-appropriate solutions to educate or prevent people outside of vehicles from going around lowered gates or entering restricted areas. Further analysis into whether these incidents were intentional or unintentional is also needed to shed light on potential countermeasures. The clusters in this list could constitute a starting point to develop a station-area planning list.

6 Data Recommendations

While developing the ESC, the project team uncovered areas where enhanced or improved data would open opportunities to be more data-driven, accurate, or proactive in identifying and addressing severe crashes in DuPage County and throughout the region. Most recommendations are likely beneficial to other agencies and communities in northeastern Illinois.

Crash Data

Complete, accurate, detailed, and timely crash data are a prerequisite to effective safety analysis and response. Beyond legal system and insurance reporting needs, crash data may be analyzed at the network level to identify trends and priorities, as the ESC illustrates, at the project-level, and at the individual crash level.

SR1050 Reports and IDOT Crash Data

Incomplete SR1050 crash reports reduce the level of certainty with which analysts can report findings at a high level and may obscure crash details at a project level. In IDOT crash data reviewed for the ESC, it appears that responding officers filled out crash data fields like Primary and Secondary Contributory Cause as “other” or “unknown.” If the officer did not input any data into the crash report, the post-processing efforts may have yielded an empty cell, ‘null’, or ‘<blank>’. These types of inputs do not provide sufficient context or value to data analysts, resulting in potential holes or missed opportunities for identifying improvements. When a crash results in a fatality or an A-injury, the responding officers should thoroughly and accurately fill out the crash form to help provide data analysts with a complete view of what occurred at the scene of the crash and identify next steps for mitigations.

Feedback from respondents to the DuPage SAP policy survey note the importance of the SR1050 crash narrative and diagram in identifying potential safety issues and mitigations. Narratives and diagrams provide a more granular level of detail illustrating exactly where crashes occurred, the sequence of events, and much more. Facilitating access to these aspects of the crash report, particularly in bulk, is a priority for roadway safety professionals in DuPage County.

E-mobility devices like e-bikes and scooters have proliferated in Illinois and across the country. These devices cannot be explicitly identified using the most current SR1050 form and are not mentioned, leading to potential for misclassification. E-mobility devices and their classifications/motor sizes may be mentioned in the narrative, which is currently unavailable in the IDOT crash data set, but not in a way that can be readily picked up in network-level analyses. Upcoming updates to the SR1050 should provide clear direction and explicit field(s) to identify whether the crash involved an e-mobility device and its type. The NTSB has identified that the lack of e-scooter and e-bike codes in crash report forms nationwide inhibits assessing the risk and prevalence of e-mobility crashes.[xxxv] Similar changes made to incorporate dooring crashes have been instrumental in creating safer streets in northeastern Illinois.

Alternative Crash Data Sources

The ANSI standard for crashes limits the definition of crashes to collisions involving motor vehicles. Reports and data on crashes involving non-motorized users, like bicyclists, are highly desired by safety analysts, planners, and engineers. DuPage County is home to multiple off-street trail systems but does not have comprehensive information on severe crashes, limiting ability to understand potential safety issues.

As cited earlier in the ESC, research has shown that crashes involving people walking and biking are significantly underreported, even those that lead a person to seek medical attention following the event. Emergency room data, collected at scale, could be evaluated to determine the level of additional need. Collaboration between health system and transportation professionals to utilize this information and spatially locate the underreported crashes would be beneficial for identifying high injury locations for people walking and biking.

Systemic Data

The regional segment and intersection data sets, based on IDOT's Highway shapefile, are a good starting point for systemic analysis, but are limited. Certain parts of the region do not meet existing reporting standards, leading to reduced ability to identify safety needs and opportunities in certain communities or in certain portions of communities. To meet the desired elements mentioned in the research conducted in the systemic analysis section, roadway and intersection data should exceed the Model Inventory Roadway Elements (MIRE) 2.1 standard.[xxxvi] DuPage County Division of Transportation has produced an excellent example that includes additional roadway features as well as adjacent land use information. CMAP also produces a sidewalk inventory and regional bicycle information system (BIS) that could supplement existing roadway information.

Improving roadway features and adjacent land-use data should be coordinated and regional in scale. Even county-level data is potentially insufficient for yielding reportable systemic results, especially for more uncommon crash types or detailed roadway feature subtypes. As demonstrated earlier in the ESC, there were insufficient data points to arrive at conclusive findings for pedalcyclist crashes in the DuPage SAP analysis area. Robust findings would likely require analysis at the scale of multiple or all collar counties.

Rail Incident Data

Northeastern Illinois is privileged to have a comprehensive rail incident data set that includes crashes with vehicles and collisions with people outside of vehicles on public and railroad rights-of-way. Fields available in the data set limit understanding of the circumstances and details of individual incidents. For instance, there were no data points in the provided data set to indicate whether a trespassing-related incident was intentional or unintentional or information about the people involved (e.g., age, gender). Privacy concerns may limit the availability of these data. Additional information is needed to provide informed recommendations on safety treatments either at specific locations or systemically. As with the crash data, narratives and diagrams are of high value.

Demographic Data

IDOT crash data and NHTSA's FARS provide limited data on the people affected by and at-fault in crashes resulting in deaths or serious injuries. Information on age, sex, and race/ethnicity (in the case of NHTSA FARS) are critical but insufficient to pinpoint who is most affected. As assumptions are unhelpful and counterproductive, analysts must go without these data points. As the ESC demonstrates, crash data provide significant value in understanding crash types and locations, but little information on the people involved. This creates implications for crafting messaging, developing communications and targeted behavior change campaigns, and understanding the demographic impacts of severe traffic crashes. More information is needed regarding where people involved in severe crashes live (at least at the census tract level), their socioeconomic background (e.g., income, educational attainment), and their disability status, at minimum. To protect personally identifiable information, care must be taken in providing this data at the appropriate level, balancing privacy with potential use cases.

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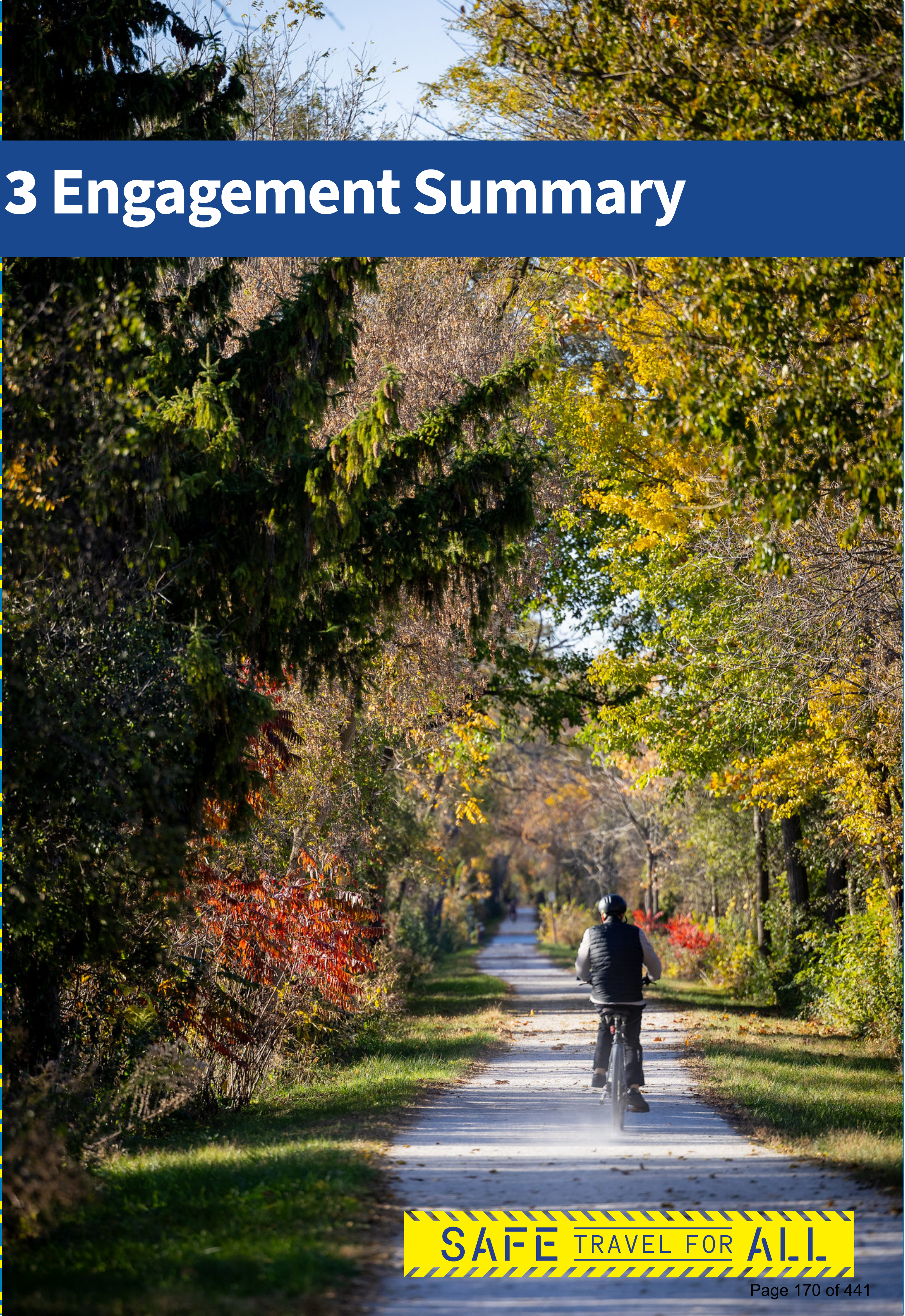
3 Engagement Summary



SAFE TRAVEL FOR ALL

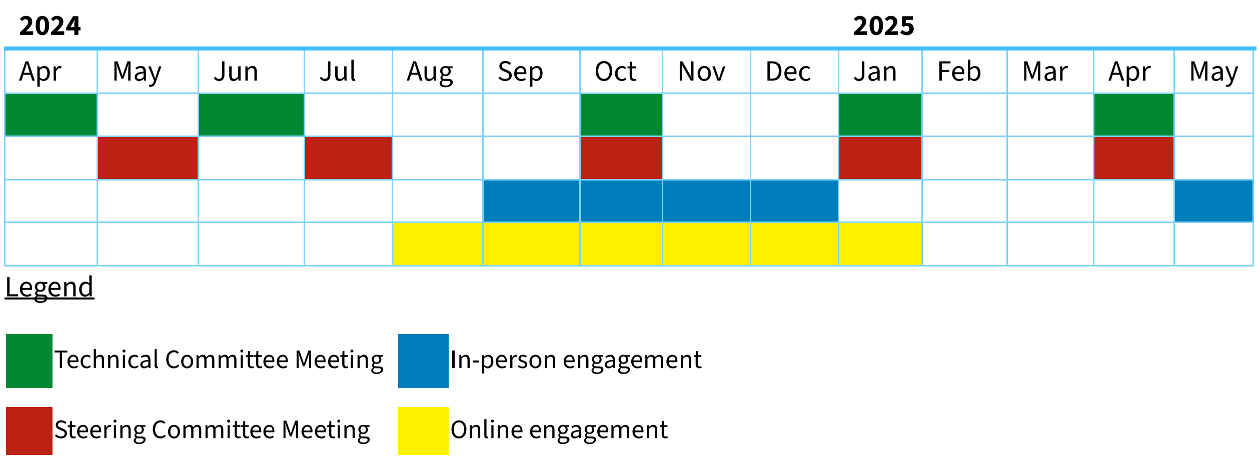
Engagement Summary Contents

1 Introduction

Community input was essential in guiding and informing the DuPage County Safety Action Plan (SAP). Over the course of the planning process, the project team held engagement activities designed to be community driven, particularly as recommendations were being developed. In addition to stakeholder committees, online activities, and in-person events, the project team intended to partner with local community organizations, attend community events, and hold focus groups. However, in January 2025, work on the SAP was temporarily suspended by the Chicago Metropolitan Agency for Planning (CMAP) due to uncertainty regarding language in the Unleashing American Energy Executive Order. When the planning process was resumed in March 2025, the remaining engagement scope was reduced to facilitate meeting CMAP's contractual schedule deadlines with FHWA.

The Engagement Summary (ES) provides an overview of the community and stakeholder engagement activities that took place between April 2024 and May 2025, documenting engagement activities, highlighting community insights, and capturing their key takeaways. Completed engagement activities included two stakeholder committees (Technical Committee and Steering Committee), four pop-up events, a virtual open house, two in-person open houses, an online survey, and webmapping activities.

Table 1: Engagement Overview Schedule



The ES incorporates requirements of the United States Department of Transportation (USDOT) Safe Streets and Roads for All (SS4A) action plans, CMAP's regional safety action plan framework, and the input and direction of CMAP and DuPage County staff. The ES fulfills USDOT's SS4A Self-Certification Eligibility Worksheet requirements #2: Planning Structure and #4: Engagement and Collaboration.

The ES is divided into four sections: **stakeholder engagement**, **in-person engagement**, **online engagement**, and **lessons learned**.

Engagement Overview

Steering and Technical Committees

The SAP encompasses responsive, creative, and impactful strategies and projects that provide a well-defined and sustainable path to implementation. Getting to this outcome benefited from the guidance and active participation of the County, municipalities, and stakeholders representing the diverse people and communities of DuPage County, particularly those most impacted by severe traffic crashes and currently underserved by the roadway and multimodal transportation systems. To position DuPage County for success in developing an impactful plan, two committees – a County Technical Committee and a Safety Action Plan Steering Committee – were created. Jointly, these multi-disciplinary committees shaped the plan development. These committees simultaneously worked to inform strategies, policies, and actions.

Key Activities

- Support communications to raise awareness and encourage engagement in the public discussion on the Safe Travel for All initiative.
- Contribute expertise in roadway safety in DuPage County and feedback about community needs, roadway safety issues, and crash hotspots.
- Inform safety solutions and policy recommendations.

In-person Engagement

DuPage County hosted four pop-up events, one virtual open house, and two in-person open houses to facilitate public feedback, engaging approximately 575 community members (not accounting for web map and survey engagement). In-person events facilitated community feedback through interactive activities and discussions, gathering valuable input from the public on traffic safety concerns, ideas, locations, and priorities for the safety action plan.

Key Themes

- Participants encouraged roadway and off-street trail infrastructure that would improve traffic safety such as better lighting, more sidewalks, and safer crosswalks.
- Participants explained the need for Complete Streets and more physical separation between pedestrians, cyclists, and drivers to prevent severe crashes and increase perceptions of safety.
- Participants stated the need to educate the public about traffic safety laws validated by their lived experiences with speeding and distracted driving throughout DuPage County.

Safety Action Plan Use of Input

- Participants' input supported the focus on traffic calming strategies to encourage safer speeds, confirming the themes and informing the selection of Systemic Safety Countermeasures, as well as a need for improved roadway designs for all modes of transportation to increase safety, with an emphasis of the safety of people outside of vehicles.
- DuPage County recognizes the need for reducing and eliminating serious injuries and deaths; the public's feedback affirmed this and helped emphasize key locations of concern that shaped hotspots and street typologies in the SAP.

Online Engagement

Through the project engagement website, DuPage County provided information about the SAP and virtual opportunities to inform the plan.

In parallel with the initial phase of public engagement, the project team shared a survey about how to improve traffic safety . The survey included 19 questions to capture public feedback, ideas, beliefs, and understanding of traffic safety needs in DuPage County and northeastern Illinois more broadly. There were 237 responses.

In addition to the survey, DuPage County hosted an interactive web map where respondents were invited to identify locations where they perceive safety concerns and barriers, contributing a total of 628 map pins (inclusive of and in-person mapping activities).

Responses contributed significant qualitative input into the traffic safety concerns and priorities in DuPage County from the perspective of residents and the general public.

Key Themes

- The majority of survey respondents do not feel safe traveling on a bike or scooter.
- Survey respondents support improving traffic safety in DuPage County by changing roadway configurations that slow down drivers to reduce serious and fatal crashes.
- Respondents noted speed or aggressive driving, distracted or impaired driving, and drivers not obeying traffic signals as their top behavioral concerns.

Safety Action Plan Use of Input:

- The survey feedback received affirmed the SAP's priority emphasis areas and themes and served to refine systemic safety countermeasures and strategies.
- Locations of concern revealed areas of the high injury network (HIN) of most concern to system users as well as locations without a history of severe crashes for additional assessment.

2 Stakeholder Committees

To structure and guide the planning process, DuPage County convened two stakeholder groups, the **Steering Committee** and the **Technical Committee**. The Steering Committee was made up of representatives from community non-profit organizations, municipalities, and state agencies with expert perspectives on local, statewide, and national safety issues. The Technical Committee was comprised of public servants from county and state board agencies and divisions. To reach a broader range of stakeholders, the project team also presented or met with several other groups of leaders representing public agencies as well as community organizations.

Stakeholder Committee Members

Steering Committee

- Access DuPage // Joel Jara
- Autonomy Work // Karrie Pece
- City of Elmhurst // Anthony Cuzzone
- City of Naperville // Jennifer Louden
- City of Wheaton // John Tebrugge
- DuPage Senior Citizens Council // Marylin Krolak
- DuPage Mayors and Managers Conference // Matthew Pasquini
- Elmhurst Bicycle Club // Armaline Mirretti, Kimberly Messina
- Illinois Commerce Commission // Steve Laffey
- Illinois Department of Transportation // Johnathan Lloyd, Phillip Domines
- National Safety Council // Sergey Sinelnikov
- Village of Addison // Chris Weinbrenner
- Village of Bensenville // Kurtis Pozsgay
- Village of Glen Ellyn // Rich Daubert

Technical Committee

- DuPage County Health Department // Adam Forker
- State's Attorney' Office for DuPage County // Barbara Reynolds
- Clerk of the Circuit Court // Candice Adams
- DuPage County Office of Homeland Security and Emergency Management // Craig Dieckman
- DuPage County Board // Mary Ozog, Jason Blumenthal
- DuPage County Division of Transportation // William Eidson, John Loper, Steven Zulkowski
- Emergency Telephone Service Board // Linda Zerwin

Steering Committee Meetings

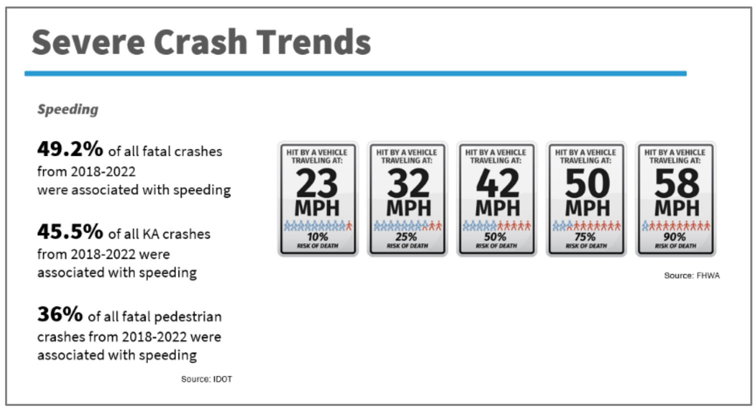
Over the course of the project, the project team held three Steering Committee meetings, one joint Steering Committee and Technical Committee meeting, and a countywide leadership meeting. All meetings took place virtually.

- Steering Committee Meeting #1 // May 22, 2024
- Steering Committee Meeting #2 // July 25, 2024
- Steering Committee Meeting #3 // October 30, 2024
- Joint Steering Committee & Technical Committee Meeting // January 22, 2025
- Leadership Meeting // April 9, 2025

At the first Steering Committee, the project team and Committee members reviewed the Committee charter, expectations, and Vision Zero and Safe System Approach. Additionally, the Steering Committee reviewed potential engagement partnerships and ideas.

At the second Steering Committee, the project team reviewed the Safe Streets and Roads for All program, DuPage County severe crash trends, and upcoming engagement.

Figure 1: Steering Committee #2 Slide



The third Steering Committee was focused on the plan structure. The project team shared draft themes, or goals, in which the Steering Committee voted how the drafted themes met the needs of traffic safety in DuPage County. The Steering Committee shared measures they have utilized or observed to mitigate speeding, what key areas would benefit from partnership and collaboration, and what technical assistance or resources would benefit traffic safety-oriented programs.

Key Takeaways

- Steering Committee members shared concerns about speeding and supported the use of building partnerships to collaborate on local traffic safety-oriented initiatives
- Steering Committee members shared anecdotal input to highlight the need to set up goals for traffic safety improvement in DuPage County

The following figures share results from the Steering Committee polling questions:

Figure 2: Steering Committee #3 Mentimeter Poll // Themes

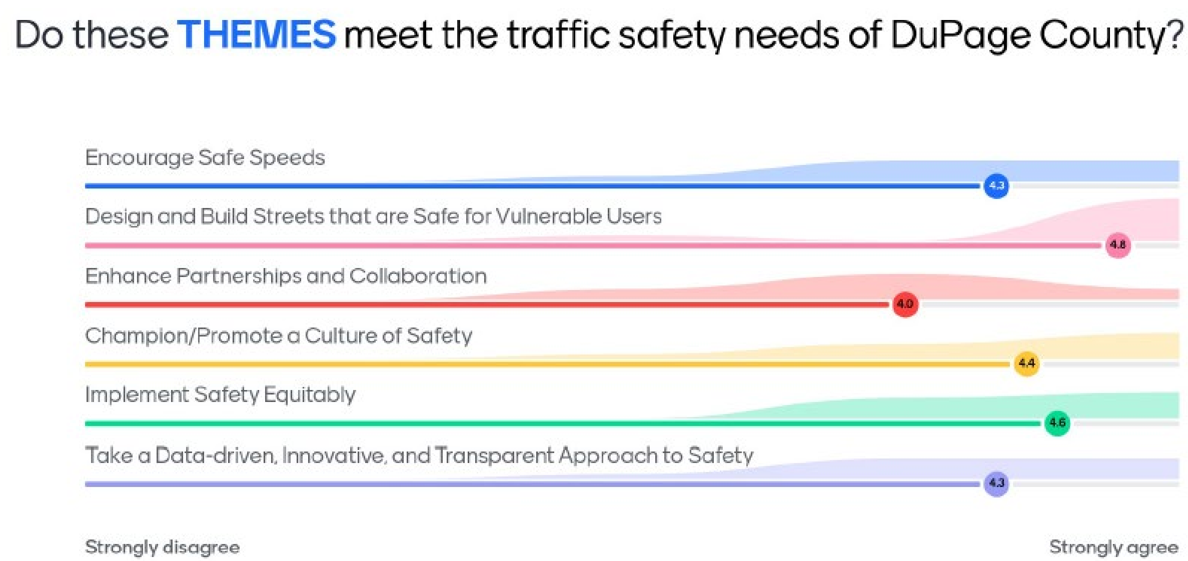


Figure 3: Steering Committee #3 Mentimeter Poll // Enforcement Initiatives

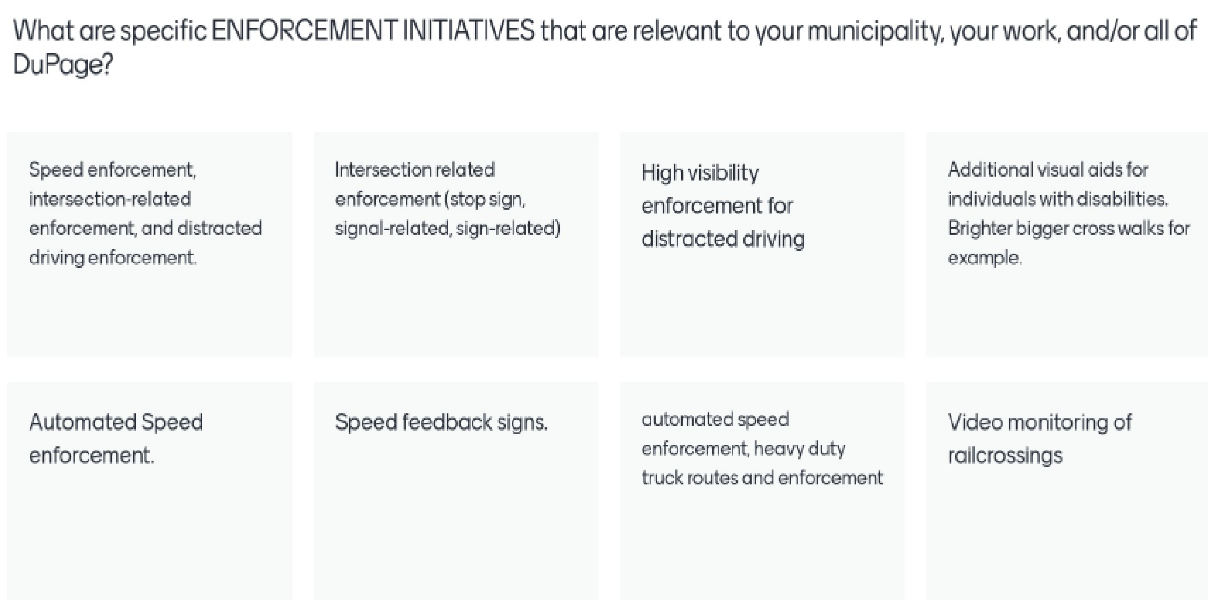


Figure 4: Steering Committee #3 Mentimeter Poll // Speeding Reduction

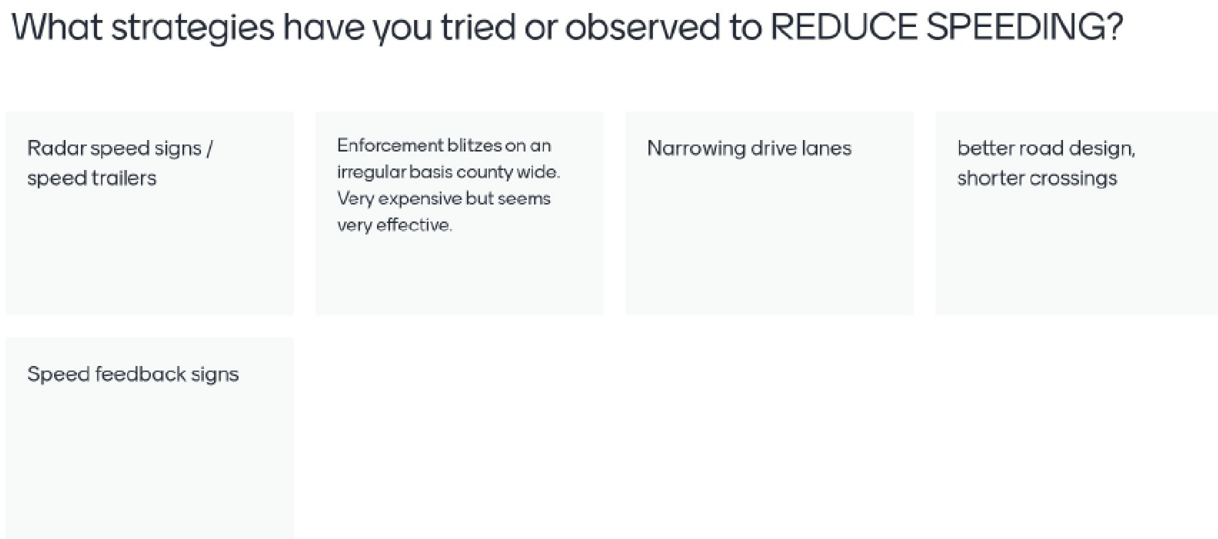


Figure 5: Steering Committee #3 Mentimeter Poll // Partnership and Collaboration

Figure 6: Steering Committee #3 Mentimeter Poll // Technical Assistance

At the joint Steering and Technical Committee meetings, the project team reviewed the draft strategies for each theme. In an interactive poll, the members ranked the strategies they believed to be most important in reaching the theme/goals along with the level of impact and feasibility (as shown in Figures 7 – 11). The responses helped the project team refine the strategies and actions.

Figure 7: Joint Committee Meeting Mentimeter Poll // Theme

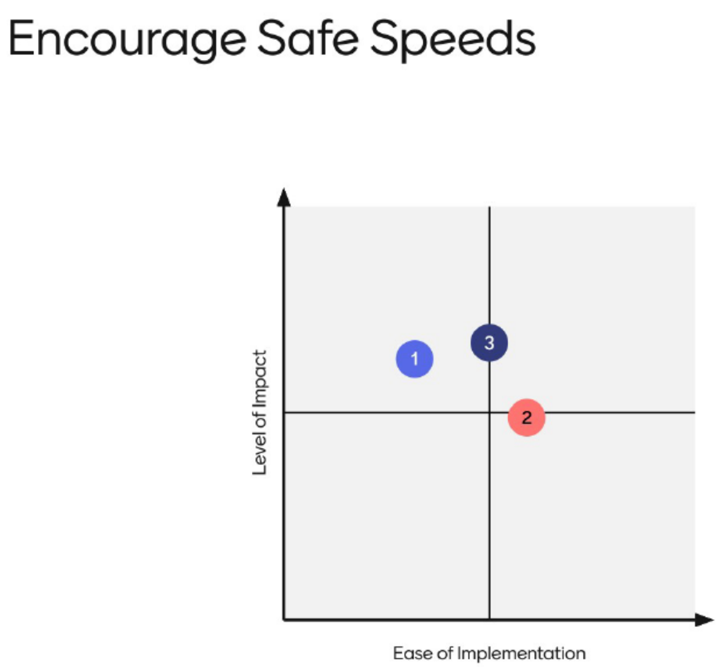


Figure 8: Joint Committee Meeting Mentimeter Poll // Theme 2

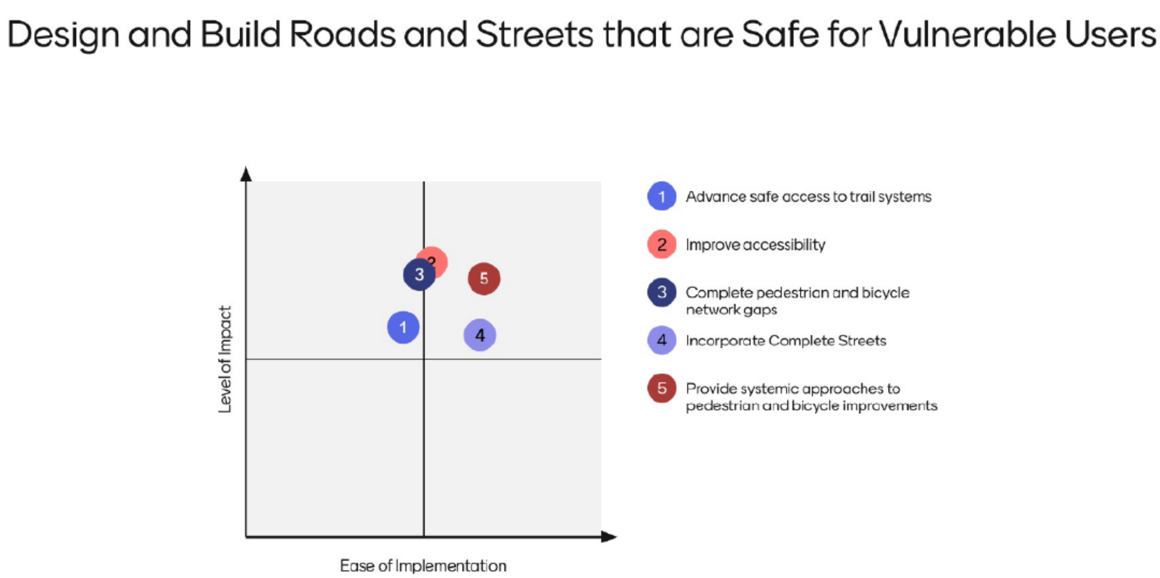


Figure 9: Joint Committee Meeting Mentimeter Poll // Theme 3

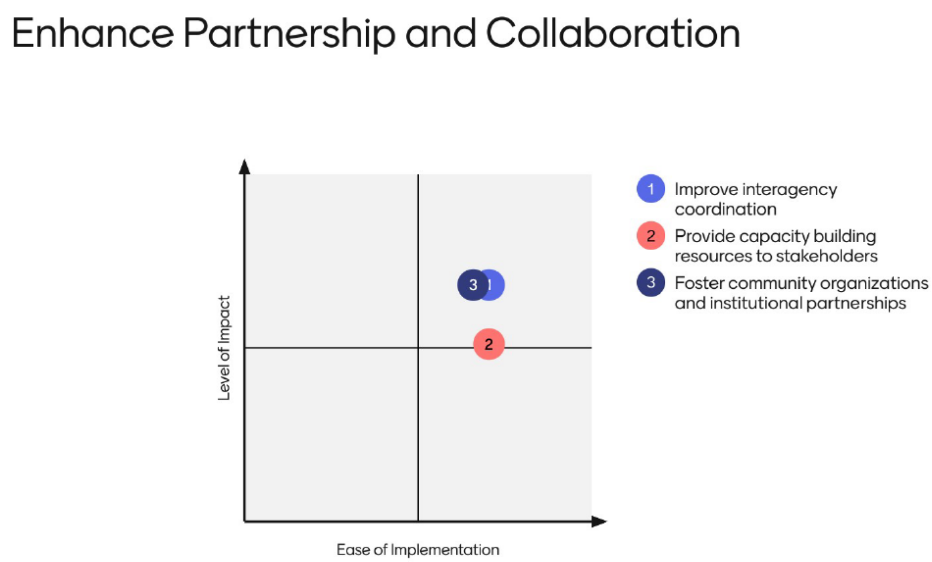


Figure 10: Joint Committee Meeting Mentimeter Poll // Theme 4

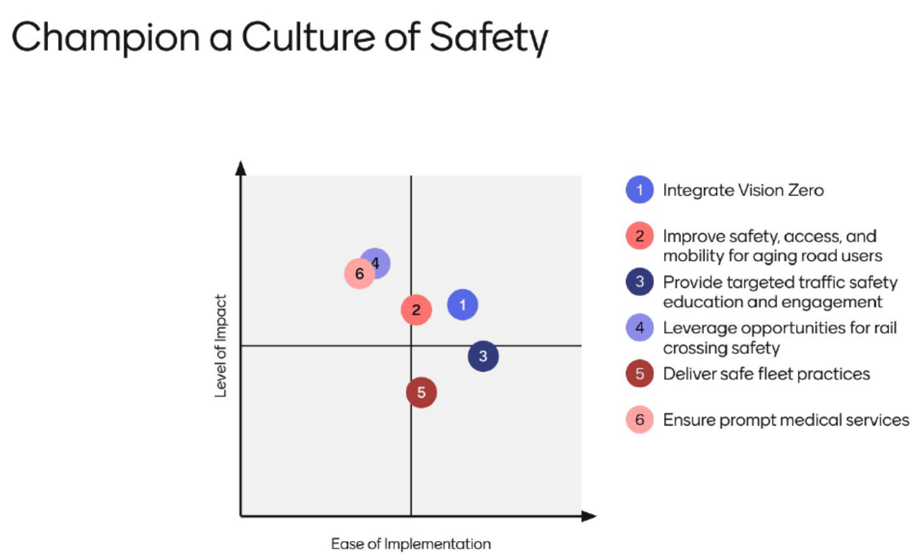
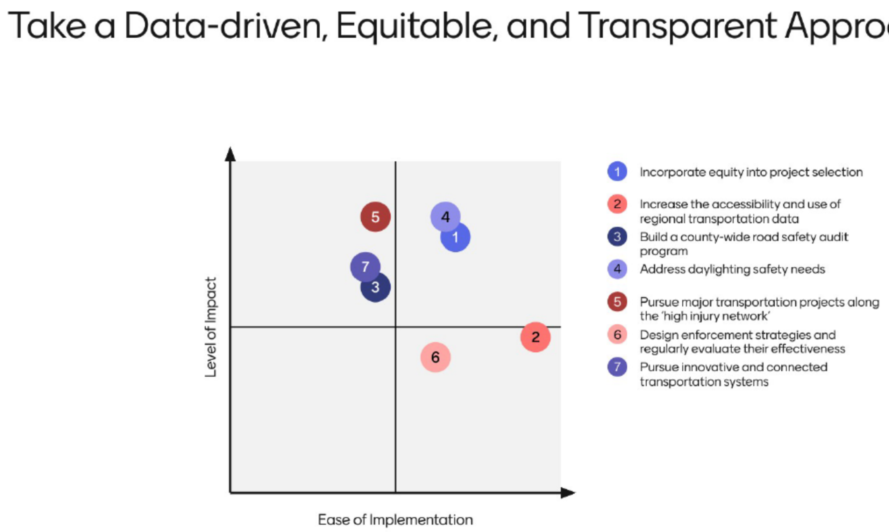


Figure 11: Joint Committee Meeting Mentimeter Poll // Theme 5



Technical Committee Meetings

Over the course of the project, the project team held three Technical Committee meetings, one joint Steering Committee and Technical Committee meeting, and a countywide Leadership Meeting. All meetings took place virtually.

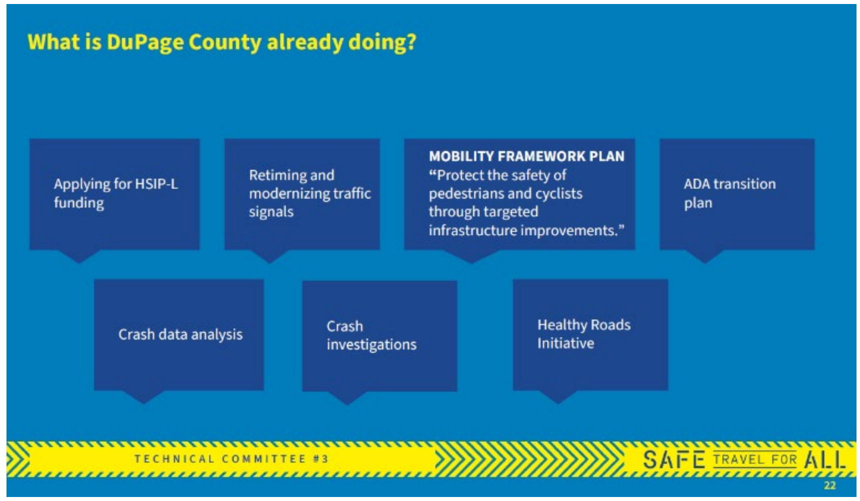
- Technical Committee Meeting #1 // April 17, 2024
- Technical Committee Meeting #2 // June 26, 2024
- Technical Committee Meeting #3 // October 3, 2024
- Joint Steering Committee & Technical Committee Meeting // January 22, 2025
- Leadership Meeting // April 9, 2025

At the first Technical Committee meeting, the project team and Committee members reviewed the Committee charter, expectations, and Vision Zero and Safe System Approach. The project team asked Committee members about the state of transportation safety in DuPage County today and what are the most pressing transportation safety needs. Given the Committee members' varied expertise, the project team discussed how their expertise fits within the planning process and the larger Safe System Approach.

The second Technical Committee meeting focused on the Safe Streets and Roads for All program and DuPage County severe crash trends. The project team and Committee members discussed which severe crash types might be mitigated through engineering and which will need to be addressed through behavioral interventions like education or enforcement. Additionally, the project team introduced the safety policy and process assessment scan, asking the Technical Committee which policies or processes should be updated or developed.

At the third Technical Committee meeting, the project team shared descriptive and systemic analysis findings along with a draft High Injury Network. The project team then reviewed the implementation plan structure including systemic countermeasures and themes, strategies, and actions. The Technical Committee shared what DuPage County is already doing in terms of transportation safety and what additional initiatives County government has recently considered.

Figure 12: Technical Committee #3 Slide



Key Takeaways

- Technical Committee members shared effective and current initiatives that will help to improve transportation safety for people in DuPage County

Technical Committee members confirmed the need for behavioral interventions which included more educational programs and enforcement DuPage Mayors & Managers Conference Meeting

Leadership Meeting

On April 9, 2025, the project team met with Steering Committee and Technical Committee members as well as additional leaders from DuPage County municipalities to gather input Safety Action Plan themes and strategies. The project team gave updates on the plan's current timeline, recent additions, and key findings from the existing safety conditions and conducted an interactive poll asking questions about the drafted themes and strategies and interim target setting dates for traffic safety.

There were 28 attendees representing a range of perspectives—from law enforcement to various village policy directors. The session provided an opportunity to prioritize traffic safety strategies as the plan moved towards its final stages.

The following figures represent polling results from the Leadership meeting:

Figure 13: Leadership Meeting Mentimeter Poll // Theme 1

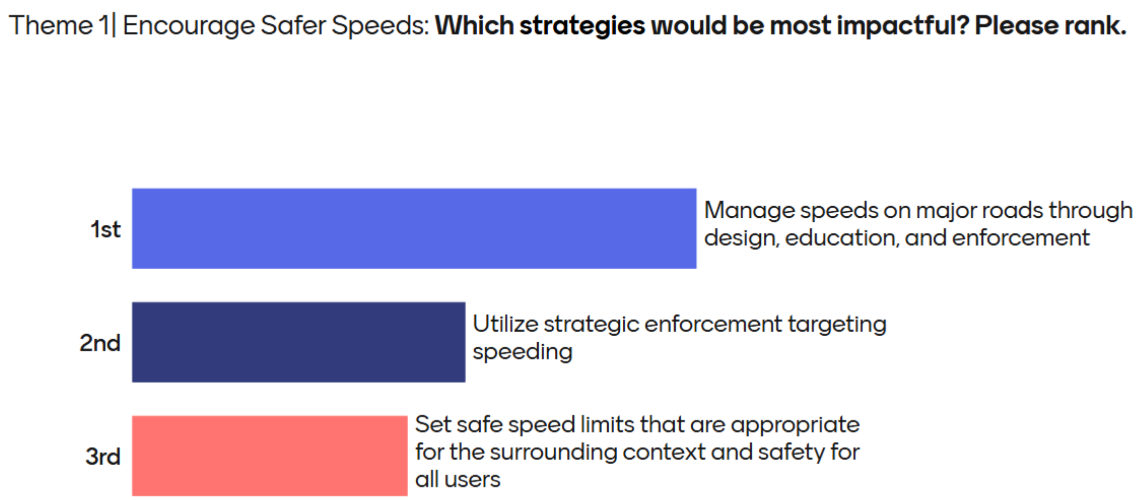


Figure 14: Leadership Meeting Mentimeter Poll // Theme 2

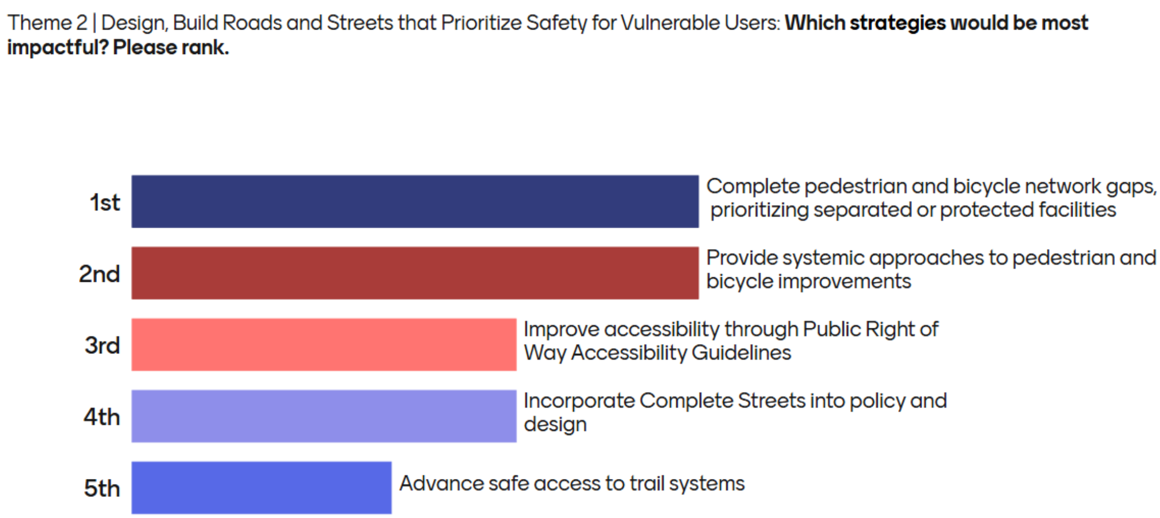


Figure 15: Leadership Meeting Mentimeter Poll // Theme 3

Figure 16: Leadership Meeting Mentimeter Poll // Theme 4

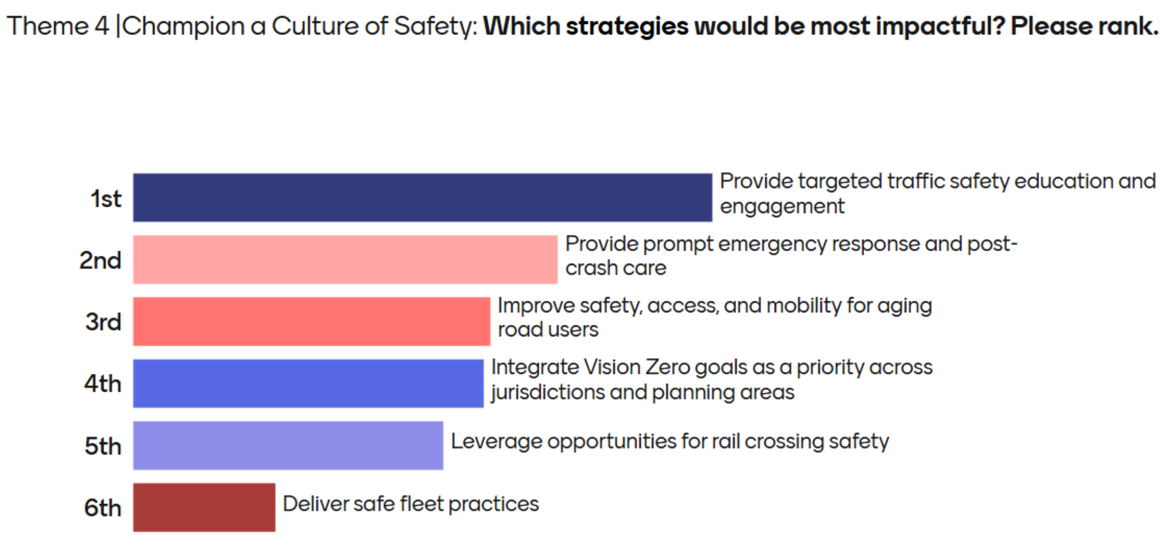


Figure 17: Leadership Meeting Mentimeter Poll // Theme 5

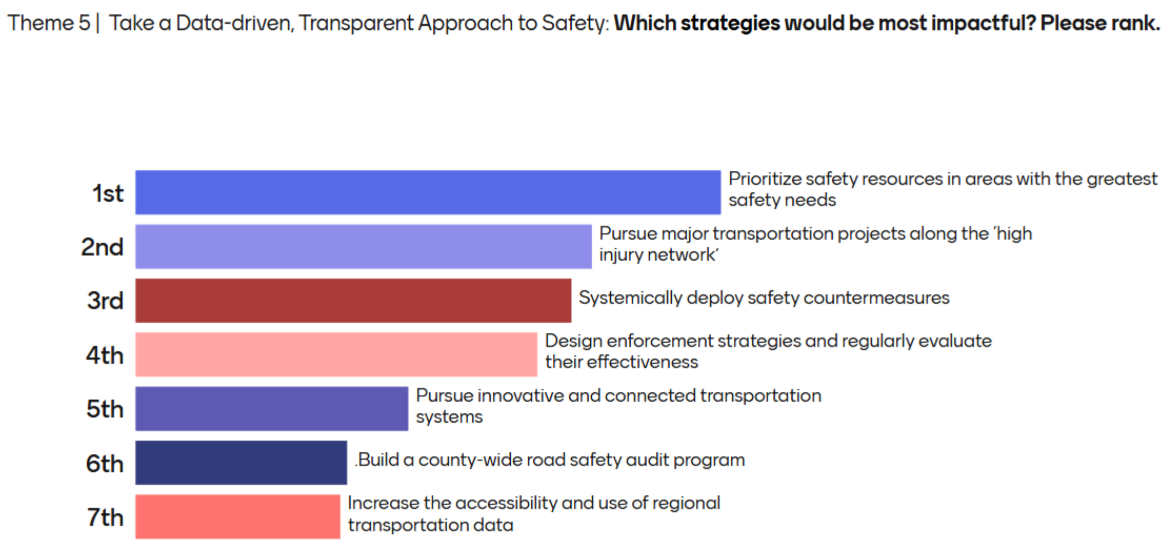
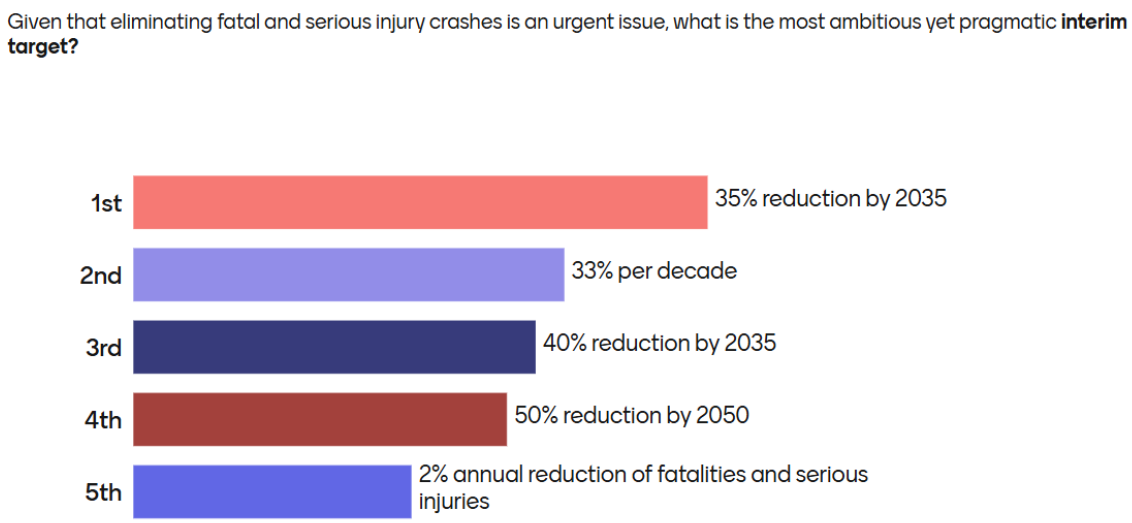


Figure 18: Leadership Meeting Mentimeter Poll // Target Setting



Other Stakeholder Engagement

To leverage the expertise and perspective of subject matter experts on roadway safety and multidisciplinary directions to promote a culture of safety in DuPage County, the project team also met with several additional stakeholder groups over the course of creating the SAP.

DuPage Mayors and Managers Conference TransTech Meeting – June 20, 2024

The project team joined the DuPage Mayors and Managers Conference (DMMC) TransTech meeting, which includes attendees representing the County and municipalities. The project team shared a brief project overview to keep local agencies informed of the SAP objectives and opportunities to shape the plan. In addition, the project team solicited volunteers to host local engagement events and participate in a policy and process workshop.

DuPage Mayors and Managers Conference Municipal Policy Workshop – October 24, 2024

The project team joined DMMC for a hybrid Municipal Policy Workshop. There were 18 attendees representing the County and municipalities. The project team shared project updates, presented draft themes, and gathered ideas for future strategies.

There was strong interest in having a theme, or goal, about data-driven decision making. Most strategy ideas generally related to speed reduction, engineering solutions, and enforcement. Strategy ideas for partnerships and collaboration included traffic calming education, agency coordination, and building public support and engagement. The attendees had strong interest in technical assistance and resources such as grant writing, model ordinances, and data collection.

DuPage County Health Department HEART Meeting – January 10, 2025

The project team joined DuPage County Health Department's January HEART meeting, a forum for public health professionals, community organizations, and service providers across DuPage County to collaborate around addressing disparities in health outcomes. The project team provided an overview of the SAP including existing safety conditions preliminary findings and the planned community engagement strategy.

The project team led a discussion about how DuPage County could partner with organizations embedded in their respective communities to better reach underrepresented people. The project team solicited the participation of HEART members in hosting in-person and virtual engagements like meetings and focus groups. Due to later changes in project scope, these events were ultimately not held.

3 In-person Engagement

The goal of in-person engagement was to learn about DuPage County community members' attitudes, knowledge, and desires related to safer mobility and improving transportation infrastructure.

Approach

The project team designed a community outreach strategy based on participatory, accessible, and welcoming in-person engagement. The project team collaborated with diverse community stakeholders and organizations and communicated with and listened to hundreds of community members. The lived experiences of DuPage community members informed the SAP's existing safety conditions assessment as well as systemic countermeasures and policy recommendations.

SAP in-person engagement consisted of four pop-up and three open house events. While the open houses were intended for a regional reach, the pop-up events were more localized. This layered approach allowed the project team to learn about local and countywide traffic safety concerns and reach a wide array of DuPage County residents.

The pop-up events and open houses were based on two principal activities to shape the DuPage County SAP, a sticker activity and a sticky note activity. Additional interactive activities were facilitated during the open houses, where the project team could spend more time with individual community members.

Sticker Activity Example "How Safe Do You Feel"

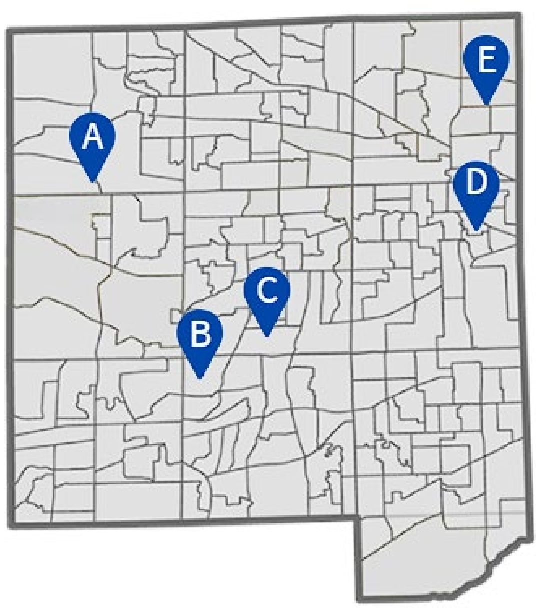
	Very Unsafe	Unsafe	Safe	Very Safe
Walking or using a mobility device				
Biking/scootering				
Driving				
Riding a motorcycle				
Using public transit (e.g., bus or train)				
Using rideshares (e.g., Uber, Lyft, taxi, etc.)				

Pop-up Events

The project team held four pop-up events to facilitate public feedback. For three of the four pop-ups, the project team joined existing community events to meet the community where they are. For the fourth, the project team worked closely with the local municipality to design an inviting and engaging stand-alone event. Through the pop-ups, the project team engaged over 400 community members. All pop-ups included interactive activity boards and group discussions, gathering valuable input on traffic safety concerns, ideas, and locations for the safety action plan.

- Pop-Up #1 // September 7, 2024
- Pop-Up #2 // September 19, 2024
- Pop-Up #3 // September 21, 2024
- Pop-Up #4 // May 22, 2025

Figure 19: Map of Pop-Up Events



Pop Up Event and Open House Locations

A	Arc Center 10th Anniversary Celebration
B	DuPage Senior Citizens Council Dance Party
C	Lisle French Market
D	Elmhurst Open House & Pop Up Event at York Street and Illinois Prairie Path
E	Bensenville Open House

Pop-Up #1 // ARC Center 10th Anniversary Celebration

September 7, 2024

The first pop-up event took place at the ARC Center in West Chicago. The project team distributed information about the project, shared preliminary severe crash analysis findings, and learned from community members. Attendees were welcomed to provide safety concerns and ideas in two different activities.

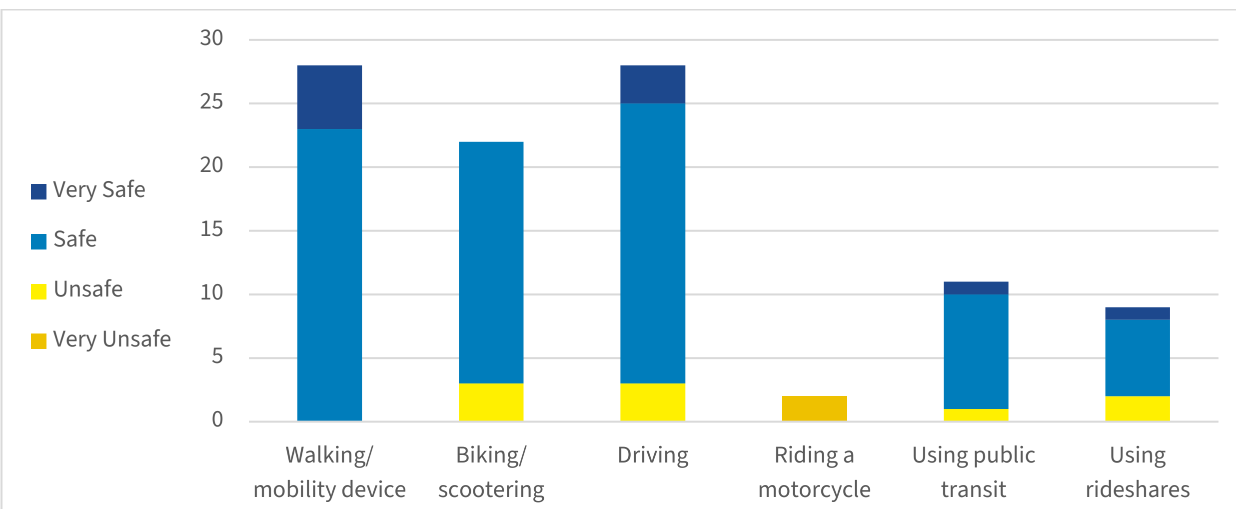
Figure 20: Pop-Up #1

Engagement Activities

Sticker Activity // "How Safe Do You Feel" Results

Approximately 100 community members placed 103 stickers responding to their perceived level of safety by mode of transportation. Generally, respondents shared that they feel safe traveling around and through DuPage County.

Figure 21: Pop-Up #1 // How Safe Do You Feel?



The following prompts provided context-sensitive feedback that helped inform plan recommendations. Respondents shared comments on sticky notes, as reflected below.

Sticky Note Activity // "When I walk/drive/bike in DuPage County, I have seen" Responses

- "People taking a rideshare."
- "Improve younger driver education since most of the time they are distracted."
- "I would not feel safe as a new driver due to the amount of speeding."
- "Bad drivers who do not respect the rules of the road."
- "A lot of people who are distracted on their phones."
- "Cars that turn [on] red when there are pedestrians still crossing the street."
- "Lots of cars that drive past red lights."
- "Motorized scooters with kids and adults not following any rules."
- "Should build more Pace bus stops."
- "That we need to add more bikes lanes."
- "A need to repaint street lanes white and yellow."
- "There should be pedestrian gates on train tracks near Elgin Trail."
- "Intersection of North Oak Street and Pine Street needs a stop sign."

Sticky Note Activity // "If roads were slower, more walkable, and safer, I could" Response

- "I would feel safer biking and walking with my family in West Chicago."

Key Takeaway

- Generally, respondents shared concern about dangerous driving behaviors (speeding, distracted driving, failure to yield, disregarding signs/signals).

Pop-Up #2 // DuPage Senior Citizens Council Dance Party

September 19, 2024

Figure 22: Pop-Up #2

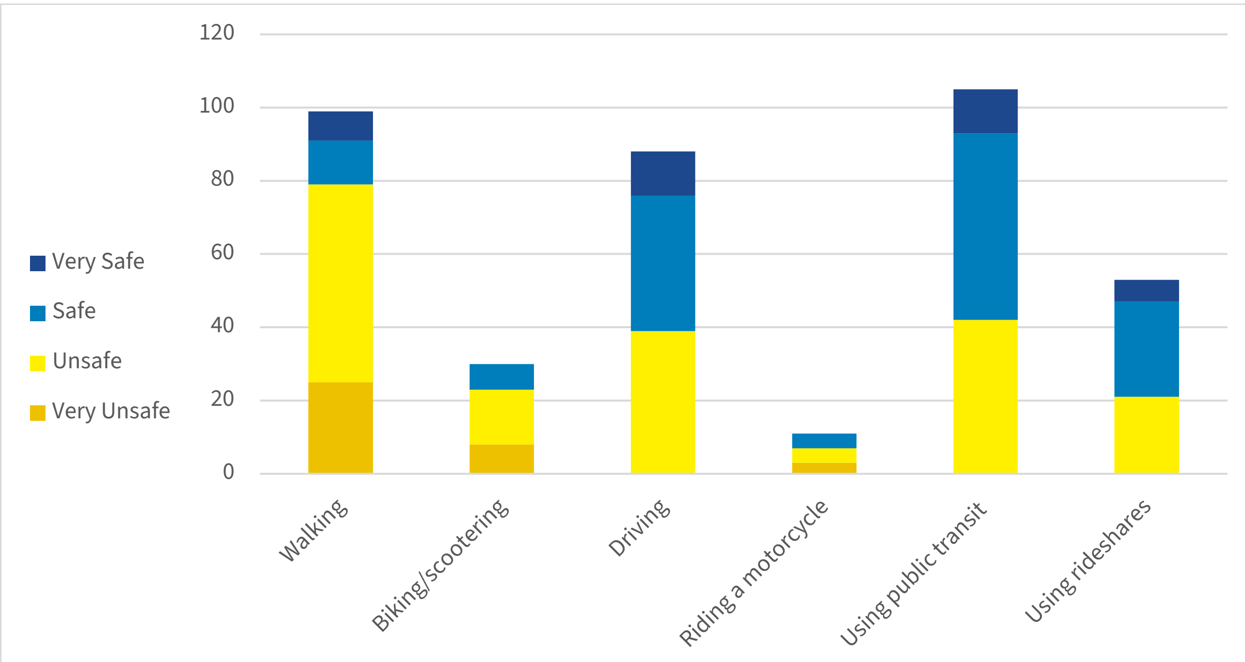
The second pop-up event was held at Abbington Distinctive Banquets in Glen Ellyn. The project team provided project information, explained the current landscape of traffic safety, and shared printed activity sheets to gather input. Afterwards, they received promotional outreach materials requesting their input on the virtual survey and interactive map. The feedback is summarized below.

Engagement Activities

Sticker Activity // "How Safe Do You Feel" Results

Approximately 300 community members placed 386 stickers. The majority of respondents (80%) feel unsafe or very unsafe walking or using a mobility device. Similarly, 77% of respondents feel unsafe or very unsafe biking or scootering. Respondents were more split regarding driving – about half (55%) of respondents felt safe or very safe driving.

Figure 23: Pop-Up #2 // How Safe Do You Feel?



For the following prompts, respondents provided context-sensitive feedback that helped inform plan recommendations. Respondents shared comments on sticky notes, as reflected below.

Sticky Note Activity // "When I walk/drive/bike in DuPage County, I have seen" Responses

- "Drivers going through red lights."
- "Lack of walking and biking."
- "Hard to cross intersections due to speeding."
- "Struggle to visit local stores via public transportation or walking."
- "Drivers are distracted all the time."
- "Lack of enforcement."
- "Lots of potholes that need to be prioritized in Glen Ellyn."
- "Issue of driving under the influence and drag racing."
- "Need for more signals for children, especially near schools."

- “Lack of crossings at busy intersections.”
- “People ignore stop signs.”
- “People do not use signal turns anymore.”
- “Heavy traffic causes people to not obey car laws.”

Sticky Note Activity // “If roads were slower, more walkable, and safer, I could” Responses

- “Go to my local grocery store more often.”
- “Participate in more DuPage Senior Citizens Council events.”
- “Walk near where I live.”

Key Takeaways

- Generally, respondents feel unsafe walking or biking in their communities.
- Many respondents shared observed dangerous driving behaviors such as speeding, disregarding signs and signals, and distracted driving.
- Respondents shared a need for traffic safety improvements near schools.
- Respondents reflected that if roads were slower, they would make more trips and walk more near their homes.
- Respondents would like the County and municipalities to continue to work closely with older adults to engage and provide a feedback loop on how they can be a part of the plan moving forward.

Pop-Up #3 // Lisle French Market

September 21, 2024

Figure 24: Pop-Up #3

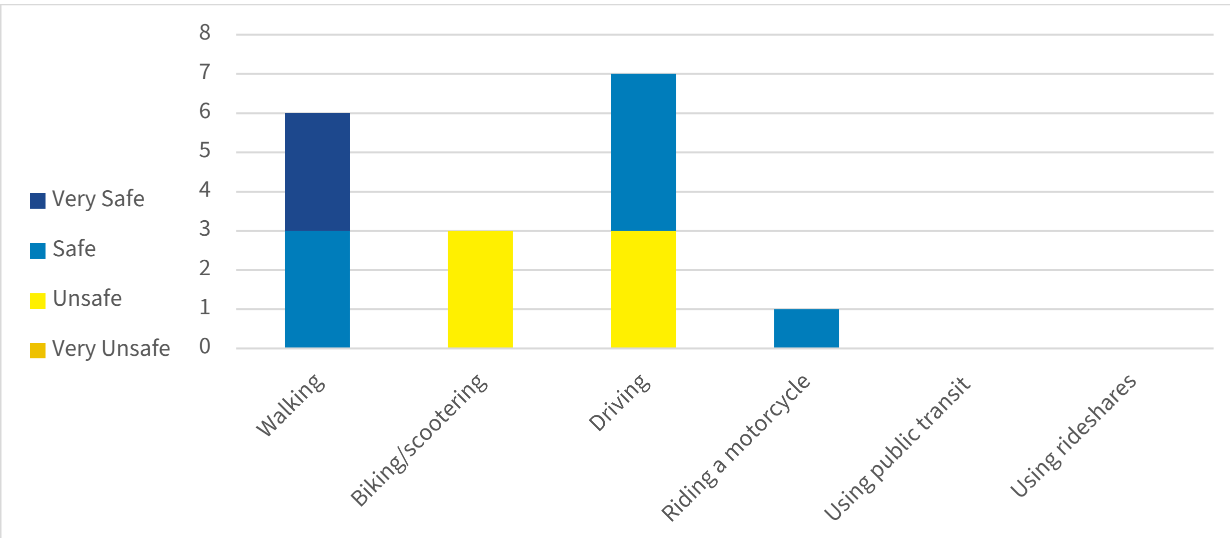
The third pop-up event was held at the Lisle French Market near Prairie Walk Pond in Lisle. The project team shared information about the DuPage County SAP, provided information on the existing traffic safety conditions in the county, and provided feedback opportunities Attendees were welcomed to provide their perceived safety concerns and ideas in two different interactive board activities. Afterwards, they received promotional outreach materials and giveaways requesting their input on the virtual survey and interactive map.

Engagement Activities

Sticker Activity // "How Safe Do You Feel" Results

Approximately 20 community members placed 17 stickers. Respondents noted they feel safe walking, but unsafe biking, scootering, or driving.

Figure 25: Pop-Up #3 // How Safe Do You Feel?



For the following prompts, respondents provided context-sensitive feedback that helped inform plan recommendations. Respondents shared comments on sticky notes, as reflected below.

Sticky Note Activity // "When I walk/drive/bike in DuPage County, I have seen" Responses

- "Lack of bike lanes."
- "Need to add a bike lane that goes from Lisle to the Morton Arboretum."
- "Lack of pedestrian crossing protection."
- "Sidewalks ending randomly."
- "Not enough crosswalks in Lombard, especially in the summit at Yorktown."
- "A need for more only turn on green lights signage and there should be an emphasis on protection at Maple and Burr Oak."
- "A lack of audible pedestrian systems."
- "Parking that narrows the street and makes drivers careless."
- "Restaurant drive-thru merging or blocking regular traffic."
- "Lack of stop signs and lighting for nighttime driving."
- "Safety concerns near railroad crossings and aggressive driving to pass train tracks."

- "Road construction not marked properly."
- "Concerns driving in Downtown Naperville due to construction."
- "Road rage and distracted driving."
- "Drivers running red lights and honking as soon as the light turns green."
- "Truck traffic in the wrong lanes."

Sticky Note Activity // "If roads were slower, more walkable, and safer, I could" Responses

- "Walk and bike more."
- "Visit Prairie Walk Pond often."
- "Buy a bike to ride around in Lisle."
- "See more bike lanes."
- "Have easier access and reliable bus service to Metra stations."

Key Takeaways

- Respondents shared the desire for more pedestrian and bicycle infrastructure.
- Respondents identified wayfinding issues when roads are under construction.

Pop-Up #4 // City of Elmhurst Pop-Up Event

May 25, 2025

The final pop-up event took place at York Street where it intersects the Illinois Prairie Path in the City of Elmhurst. The pop-up event celebrated the completion of the DuPage County SAP. At the event, the project team provided a tactical urbanism demonstration narrowing York Street using cones, applying temporary curb extensions south of the crosswalk with astroturf and planters, and demonstrating how to use the Rectangular Rapid Flashing Beacon placed at the crosswalk.

Figure 26: Pop-Up #4

Sticky Note Activity // "Close your eyes, it's the year 2035. It's been 10 years since the DuPage County Safety Action Plan launched. What changes have you noticed in traffic safety in your community? How has traffic safety in your community improved?" Responses

- "Bike Path is connected York Woods Trail to Elmhurst. Building an overpass over Roosevelt parallel to York."
- "In River Grove, IL, they put signs on every corner 'deaf child lives here' and it has helped vehicular traffic to slow down."
- "Reduced the speed limit to 20 mph on side streets (from 30 mph)"

Key Takeaways

- Vehicles – including oversized vehicles such as Pace buses and fire trucks – managed to navigate narrowed York Street without apparent issue.
- The extended curb space provided additional pedestrian space.
- Respondents shared interest in more bicycle and pedestrian amenities and traffic calming solutions.

Open Houses

DuPage County hosted two in-person open houses and one virtual open house, engaging over 70 attendees. The open houses provided information and progress on the SAP, and sought to learn from community members about their traffic safety challenges and locations of concern.

Across the three open house meetings, the project team focused on establishing relationships among community members, organizations, elected officials, agencies and stakeholders in DuPage County by inviting them to share their feedback. The project team utilized social media, newsletters, and local media to spread the word about the events and to promote understanding of traffic safety initiative.

- Open House #1 // September 12, 2024
- Open House #2 // November 14, 2024
- Open House #3 // December 5, 2024 (virtual)

Open House #1 // Elmhurst Open House

September 12, 2024

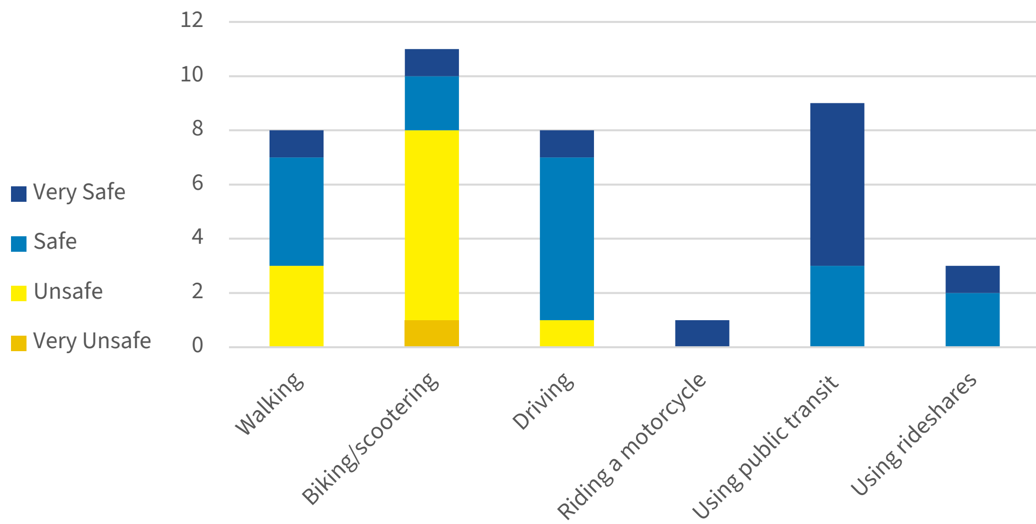
This open house was held in-person at Elmhurst City Hall in Elmhurst. The project team provided activity boards with background context of the Safe Travel for All initiative and a space for traffic safety concerns and ideas for transportation priorities. The project team provided a large map for attendees to locate specific traffic safety concerns. The map feedback informed the selection of projects and guided countermeasure and policy recommendations.

Figure 27: Open House #1

Engagement Activities

Sticker Activity // "How Safe Do You Feel" Results

Figure 28: Open House #1 // How Safe Do You Feel?

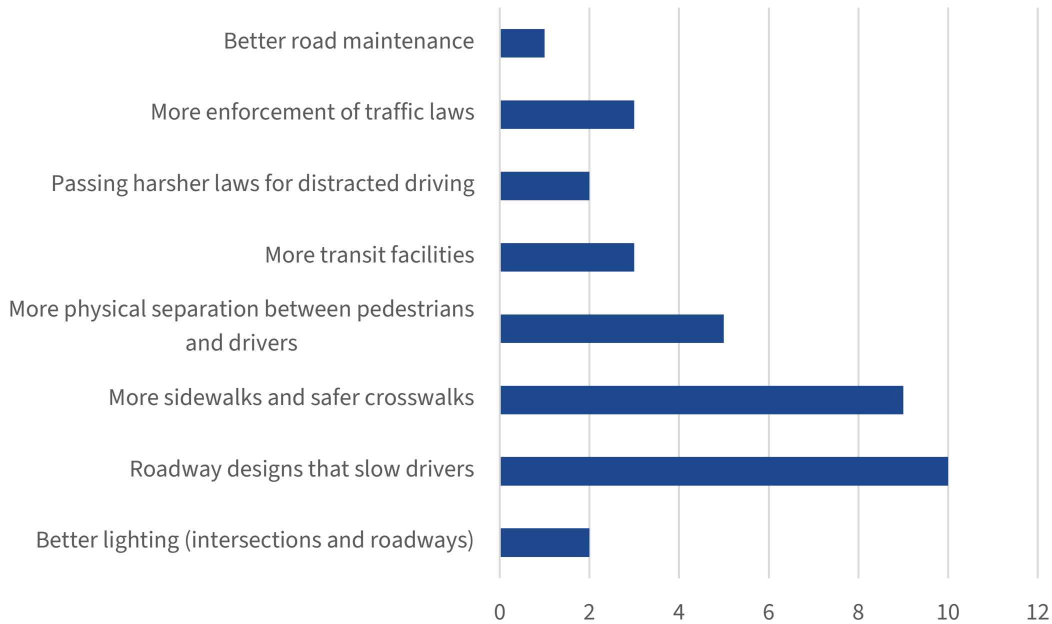


Approximately 20 community members placed 40 stickers to express their perceived level of safety for various modes. Generally, respondents feel more comfortable in vehicles – whether driving, riding a motorcycle, or using public transportation. Over half of respondents (64%) feel unsafe or very unsafe riding a bike or scootering. Meanwhile, 63% of respondents feel safe or very unsafe walking or using a mobility device.

Board Activity // Transportation Safety Priorities

Figure 29: Open House #1 // What do you think the DuPage County's highest transportation safety priorities should be?

Participants voted on the provided categories:



Sticky Note Activity // "When I walk/drive/bike in DuPage County, I have seen" Responses

- "Lack of safety for pedestrians and drivers."
- "Great Western Trail has had three people seriously injured."
- "Poor driving behavior."
- "Riding my bicycle safely on the road."
- "Lack of bike and pedestrian-focused infrastructure."
- "Other vehicles that drive recklessly and speed."
- "The roads are too wide and cause drivers to go too fast."
- "Pedestrian safety along Butterfield Road."
- "[No] Right turn on red is needed because people drive over crosswalks."
- "Speed enforcement is lacking."
- "Mile-long obstacles for pedestrians cause people to cross traffic mid-block."
- "IL-59 has speed limit of 45 mph which is too fast."

Sticky Note Activity // "If roads were slower, more walkable, and safer, I could" Responses

- "Run errands without a car."
- "I would walk farther and ride my bike more."
- "Feel safer and more connected with my community."
- "Take my grandchildren where I ride my bike. I am scared to take them with me."
- "Feel safer riding my bike anywhere."
- "Bike with my kids to get groceries."
- "Bike to destinations rather than driving."
- "More walking options make the environment safer and healthier

Key Takeaways

- Focus on right turns and crosswalk infrastructure.
- Prioritize safe travel for public transit users and cyclists as they face more barriers in getting to their destinations than drivers.
- Reimagine the layout of streets to enhance them with bike infrastructure and consider more pedestrian-friendly amenities.
- Establish improved amenities for pedestrians to have greater physical separation from cars.

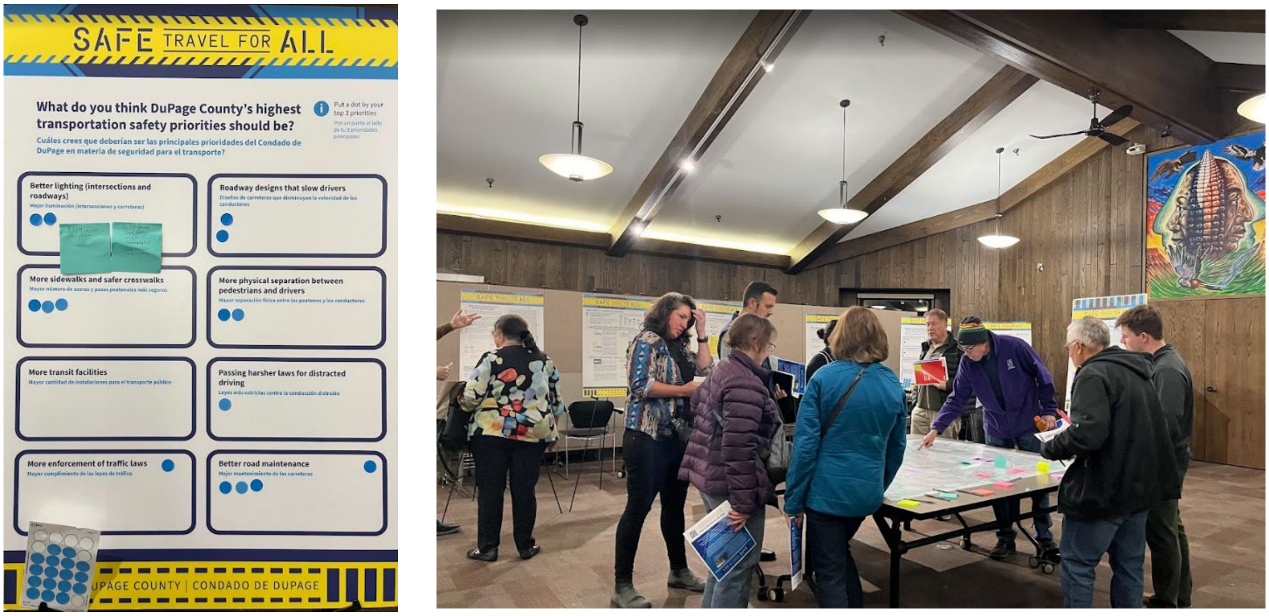
Open House #2 // Bensenville Open House

November 14, 2024

The second in-person open house was held at the Bensenville Community Public Library in Bensenville. The project team provided activity boards with background context and a space for traffic safety concerns and ideas for transportation priorities. The project team provided a large map for attendees to locate specific traffic safety concerns. The map feedback informed the selection of projects and guided countermeasure and policy recommendations. The input is summarized below.

Figure 30: Open House #2

Figure 31: Open House #2 Board and Attendees

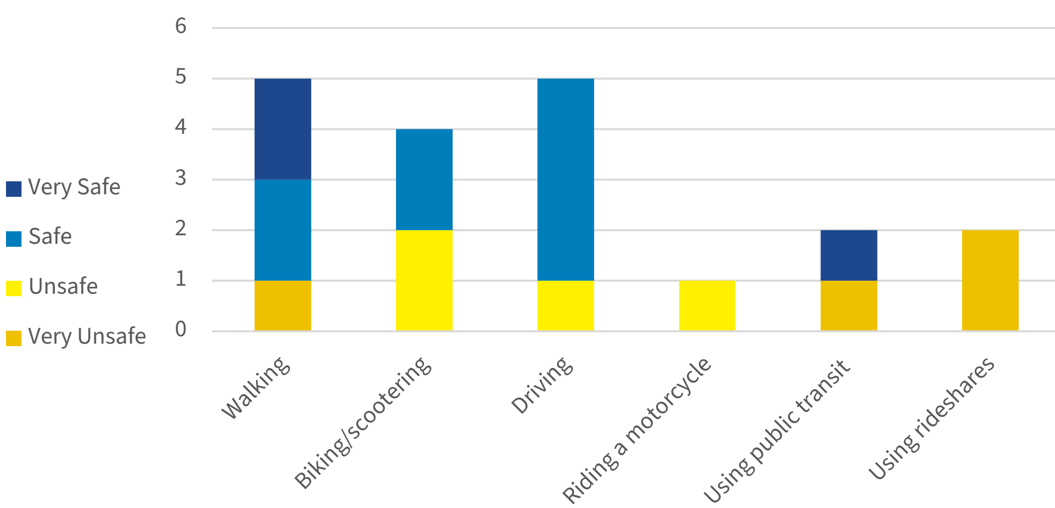


Engagement Activities

Board Activity // "How Safe Do You Feel" Interactive Activity Results

Approximately 15 community members placed 20 stickers.

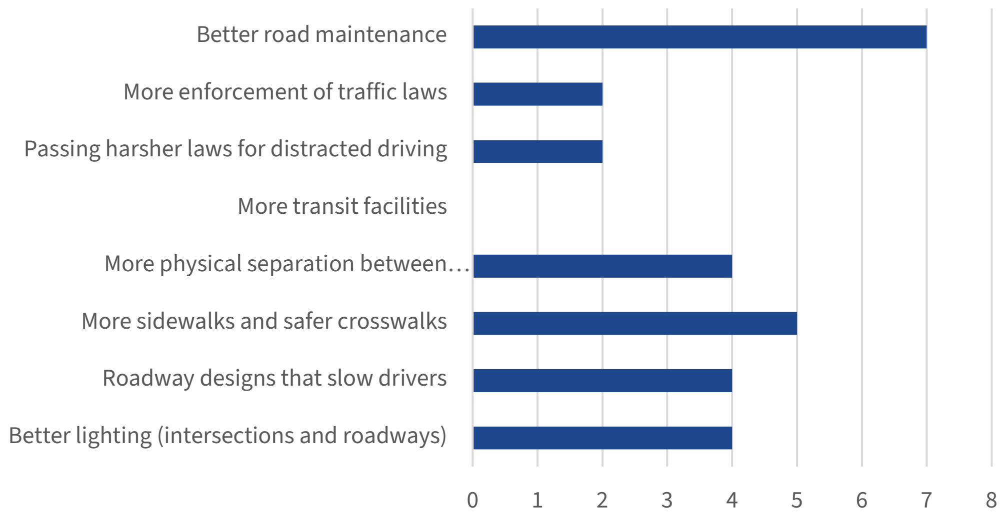
Figure 32: Open House #2 // How safe do you feel?



Board Activity // Transportation Safety Priorities

Approximately 15 community members placed 28 stickers.

Figure 33: Open House #2 // Transportation Safety Priorities



Sticky Note Activity // "When I walk/drive/bike in DuPage County, I have seen" Responses

This prompt provided context-sensitive feedback that helped to create the traffic safety strategies and actions. Respondents shared comments on sticky notes, as reflected below.

- "A lack of lighting in Lisle, especially on IL 59."
- "Additional crosswalks are needed on Illinois 53."
- "Plan to build new bike trails and bike lanes."
- "Need for more shared paths and complete streets in downtown Elmhurst."
- "Focus on more arrows and turn lights so drivers are more observant when they turn and considerate of pedestrians."

Sticky Note Activity // "If roads were slower, more walkable, and safer, I could" Responses

This prompt provided context-sensitive feedback that helped to create the traffic safety strategies and actions. Respondents shared comments on sticky notes, as reflected below.

- "Travel safely from my house by bicycle to downtown Elmhurst and north to the ice rink in Bensenville."
- "Bike more in a safer and slower traffic environment."

Key Takeaways

- Expand awareness of the Safe Travel for All initiative and inform more people on how they can support.
- Introduce new bike lanes and sidewalks to improve access to amenities and daily necessities.
- Focus on improving lighting to create a safer environment.

Open House #3 // Virtual

December 5, 2024

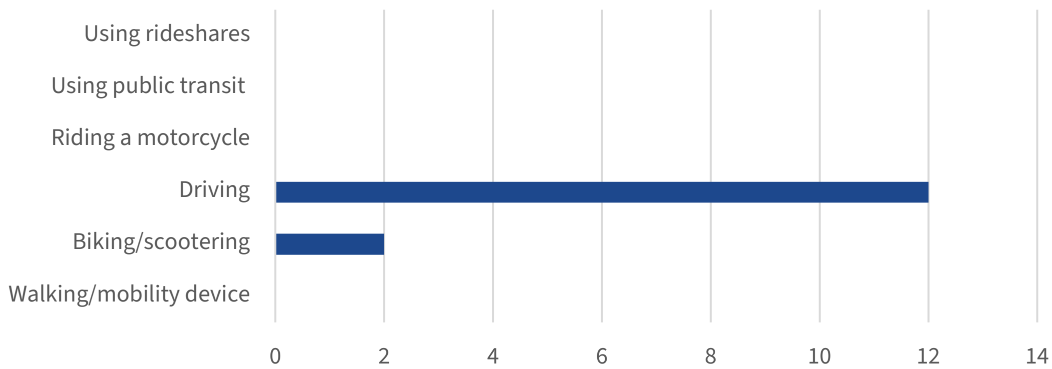
To provide a setting in which community members do not need to travel to participate, the project team held an evening Open House on Zoom. To facilitate accessibility for all participants, a Spanish translator and an American Sign Language translator were provided. DuDOT staff welcomed meeting attendees and provided information on the SAP process. The project team shared more information on the current traffic safety conditions in DuPage County and provided an interactive activity by using Mentimeter to get feedback on traffic safety concerns and ideas.

Figure 34: Virtual Open House

Poll // "How Do You Get Around?"

Forty-seven community members placed 14 votes on Mentimeter, as reflected below.

Figure 35: Open House #3 // How do you get around?



Poll // "What is Your Favorite Place in DuPage County?"

This prompt served as an ice breaker, asking community members about their favorite place in DuPage County. The forest preserves and other recreation spaces were a clear favorite.

Figure 36: Virtual Open House Mentimeter Word Cloud

The word size indicates the number of times it was shared.

Poll // "When you are walking, using a mobility assistance device, or biking, what intersection, road, or street does not make you feel safe"

This prompt provided context-sensitive locations to where traffic safety strategies and actions need to take place. Respondents shared comments on Mentimeter, as reflected below.

- **"**Columbine Avenue"
- "Biking Glen Ellyn Road to get to Great Western Trail"
- "Prairie Path crossings"
- "Crossing Ogden in Naperville, primarily between New York and Aurora"
- "Roosevelt and Main in Wheaton"
- "Irving Park and Maple in Roselle"
- "Swift by Great Western Trail"
- "Gary Avenue by the marsh area and Cosley Zoo"
- "Madison Street"
- "Crossing President on the Prairie Path in Wheaton"
- "Odgen in Downers Grove, no sidewalks in some sections"
- "North Avenue and Route 83"
- "Main Street in Lombard"
- "Woodward Avenue and Oxnard Drive, it needs a crosswalk"
- "Roosevelt Road and Geneva Road sidewalks aren't consistent"

Poll // "When you are driving, what intersection, road, or street does not make you feel safe"

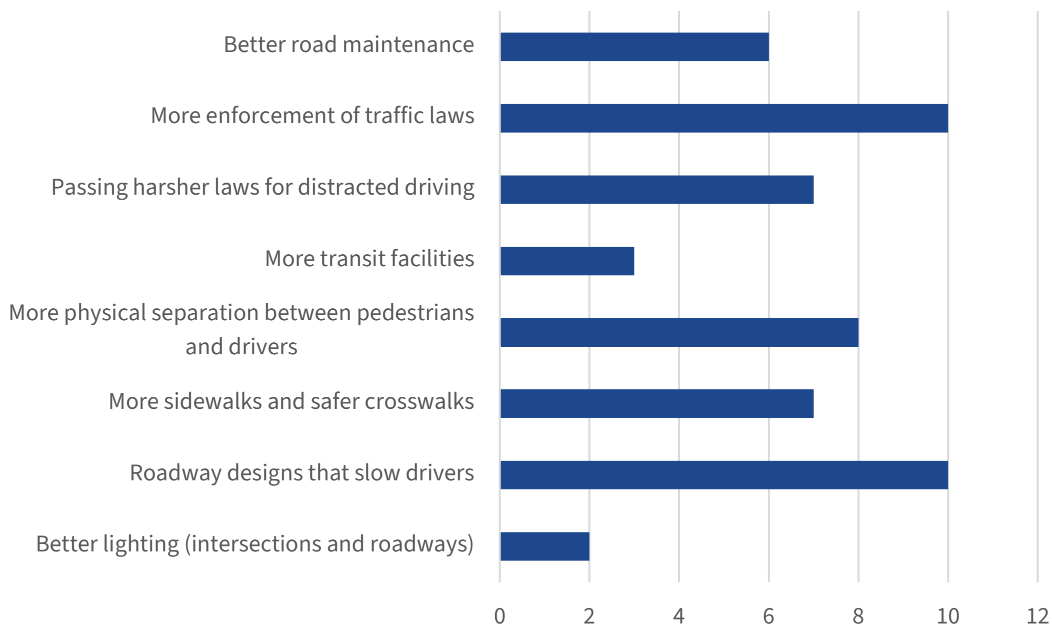
This prompt provided context-sensitive locations to where traffic safety strategies and actions need to take place. Respondents shared comments on Mentimeter, as reflected below.

- "North Avenue"
- "Naperville and Butterfield"
- "Belmont and Odgen in Downers Grove"
- "Butterfield and Finley"
- "Madison Street near 55th Hinsdale"
- "Highland and I-88 Bridge in Downers Grove and Lombard"
- "Odgen Avenue and Main Street in Downers Grove"
- "Swift and North Avenue"
- "Downtown Downers Grove going south on Main Street"
- "Washington and Hillside in Naperville"
- "IL-53"
- "Main Street in Lombard"
- "Columbine Avenue"

- “North Gary and North Avenue”
- “Roosevelt Road and South County Farm”
- “Great Western Trail and Swift Road”
- “Most crossings on the Prairie Path”
- “Woodward Avenue and Oxnard”

Poll // What are your highest transportation safety priorities?

Figure 37: Open House #3 // What are your highest transportation safety priorities?



Poll // Open Ended

- “We were informed that there were three serious injuries reported by IDOT at the Great Western Trail. Hope to get safer crossing and possibly flashing lights.”
- “Wondering how the project is considering IDOT regulations and DuPage County working effectively on implementation.”

Key Takeaways

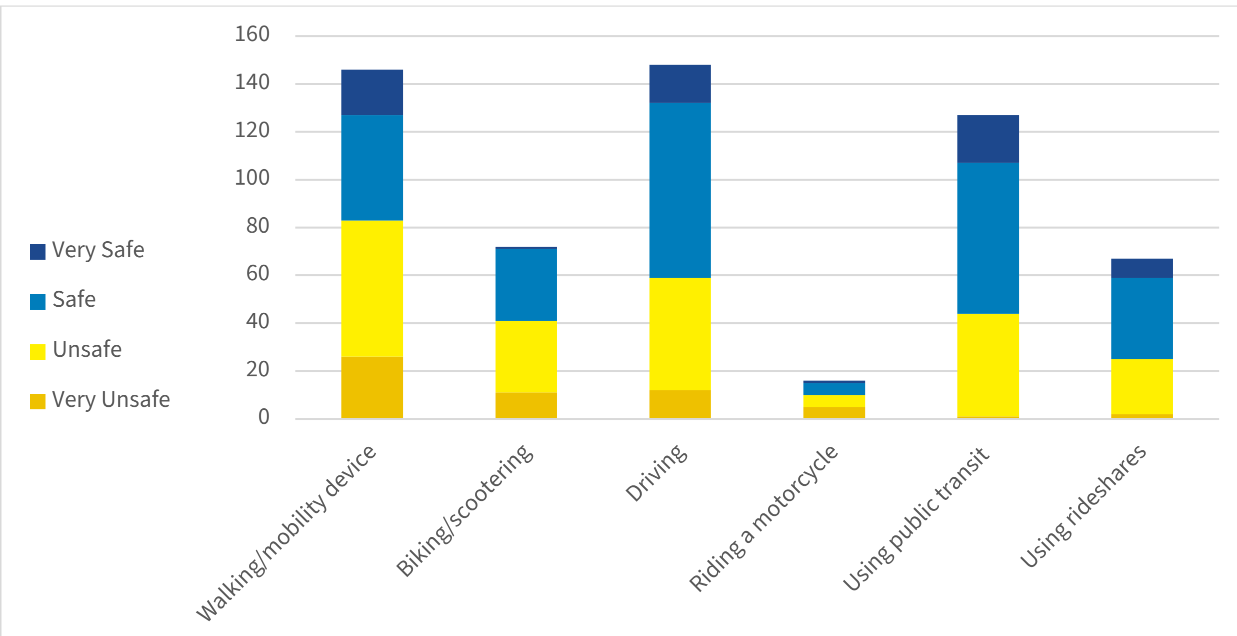
- Encourage better road maintenance, which was highlighted as an issue that is recurring in multiple municipalities in DuPage.
- Promote safe driving by working on road infrastructure, including more signage, lighting, stop signs, turn signals, and speed cameras.
- Address roadway designs as a way to provide more education, events, and activities that promote walking and biking facilities.

Aggregate Responses for In-person Engagement

When combined, the responses across all in-person engagement activities provide a snapshot of the perceptions of safety and transportation safety priorities of county residents. The project team endeavored to provide events that engaged the county's diverse communities. Almost a million people, however, reside in DuPage County. The results are likely not representative of the whole county and should be viewed as a foundation for future engagement as the SAP is implemented

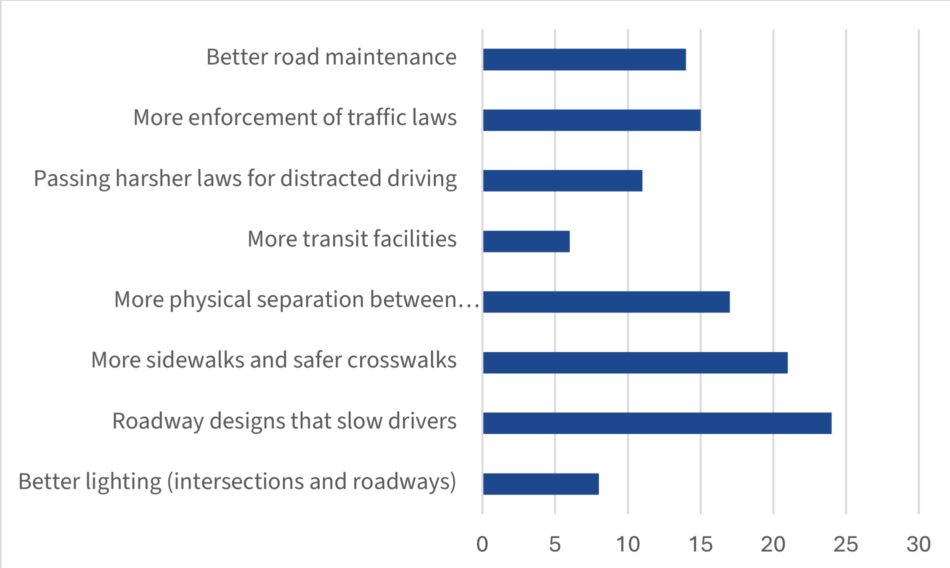
As shown in Figure 38, the majority of participants reported feeling unsafe while walking or using a mobility device or while biking or scootering. Most respondents, in contrast, reported feeling safe while driving, using public transit, and taking a rideshare. Overall, there were few responses related to riding a motorcycle from in-person engagement activities.

Figure 38: How Safe Do You Feel?



Participants' top safety priority across all in-person events were "roadway designs that slow drivers", as reflected in Figure 39. "More sidewalks and safer crosswalks" and "more physical separation between pedestrians and drivers" rounded out participants' three highest priorities. Enforcement practices and maintenance fell just outside the top three.

Figure 39: What are your highest transportation safety priorities?



Sticky Note Activity Aggregated Responses:

When I walk/drive/bike in DuPage County, I have seen:
Dangerous Driving Behaviors • "I would not feel safe as a new driver due to the amount of speeding." • "Bad drivers who do not respect the rules of the road." • "A lot of people who are distracted on their phones." • "Cars that turn [on] red when there are pedestrians still crossing the street." • "Lots of cars that drive past red lights." • "Motorized scooters with kids and adults not following any rules." • "Drivers going through red lights." • "Hard to cross intersections due to speeding." • "Drivers are distracted all the time." • "Issue of driving under the influence and drag racing." • "People ignore stop signs." • "People do not use signal turns anymore." • "Poor driving behavior." • "Other vehicles that drive recklessly and speed." • "The roads are too wide and cause drivers to go too fast." • "Safety concerns near railroad crossings and aggressive driving to pass train tracks." • "Road rage and distracted driving." • "Drivers running red lights and honking as soon as the light turns green." • "Truck traffic in the wrong lanes."

- “Heavy traffic causes people to not obey car laws.”
- “Parking that narrows the street and makes drivers careless.”
- “Restaurant drive-thru merging or blocking regular traffic.”
- “IL-59 has speed limit of 45 mph which is too fast.”
- “Improve younger driver education since most of the time they are distracted.”

Pedestrian

- “There should be pedestrian gates on train tracks near Elgin Trail.”
- “Lack of walking and biking.”
- “Lack of pedestrian crossing protection.”
- “Sidewalks ending randomly.”
- “Not enough crosswalks in Lombard, especially in the summit at Yorktown.”
- “A lack of audible pedestrian systems.”
- “Lack of crossings at busy intersections.”
- “Additional crosswalks are needed on Illinois 53.”
- “Lack of safety for pedestrians and drivers.”
- “Pedestrian safety along Butterfield Road.”
- “[No] Right turn on red is needed because people drive over crosswalks.”
- “Mile-long obstacles for pedestrians cause people to cross traffic mid-block.

Biking

- “That we need to add more bikes lanes.”
- “Lack of bike lanes.”
- “Need to add a bike lane that goes from Lisle to the Morton Arboretum.”
- “Plan to build new bike trails and bike lanes.”
- “Need for more shared paths and complete streets in downtown Elmhurst.”
- “Great Western Trail has had three people seriously injured.”
- “Riding my bicycle safely on the road.”
- “Lack of bike and pedestrian-focused infrastructure.”

Transit & Rideshare

- “Should build more Pace bus stops.”
- “Struggle to visit local stores via public transportation or walking.”
- “People taking a rideshare.”

Maintenance & Construction

- “A need to repaint street lanes white and yellow.”
- “Road construction not marked properly.”
- “Concerns driving in Downtown Naperville due to construction.”
- “Lots of potholes that need to be prioritized in Glen Ellyn.”

Enforcement

- “Lack of enforcement.”

- “Speed enforcement is lacking.”

Lighting

- “Lack of stop signs and lighting for nighttime driving.”
- “A lack of lighting in Lisle, especially on Illinois Route 59.”

Intersection Improvements

- “Intersection of North Oak Street and Pine Street needs a stop sign.”
- “Need for more signals for children, especially near schools.”
- “A need for more only turn on green lights signage and there should be an emphasis on protection at Maple and Burr Oak.”
- “Focus on more arrows and turn lights so drivers are more observant when they turn and considerate of pedestrians.”

If roads were slower, more walkable, and safer, I could:

- “I would feel safer biking and walking with my family in West Chicago.”
- “Go to my local grocery store more often.”
- “Participate in more DuPage Senior Citizens Council events.”
- “Walk near where I live.”
- “Walk and bike more.”
- “Visit Prairie Walk Pond often.”
- “Buy a bike to ride around in Lisle.”
- “See more bike lanes.”
- “Have easier access and reliable bus service to Metra stations.”
- “Run errands without a car.”
- “I would walk farther and ride my bike more.”
- “Feel safer and more connected with my community.”
- “Take my grandchildren where I ride my bike. I am scared to take them with me.”
- “Feel safer riding my bike anywhere.”
- “Bike with my kids to get groceries.”
- “Bike to destinations rather than driving.”
- “More walking options make the environment safer and healthier
- “Travel safely from my house by bicycle to downtown Elmhurst and north to the ice rink in Bensenville.”
- “Bike more in a safer and slower traffic environment.”

4 Online Engagement

Paired with in-person engagement and outreach, the project team provided a project website and online activities to engage a wide and diverse audience. The website aimed to reach a broader audience, including those that were not able to attend our in-person events, to gather a wide range of feedback and ideas for the plan. The project website included a project overview, project updates, in-person event information, project timeline, frequently asked questions and online activities (interactive map and survey). Web page visitors were able to sign up for email updates.

Figure 40: Project Website

Throughout the planning process, the project team encouraged community members to visit the project website to take part in the online activities and to stay informed about project developments.

Survey

The project team shared an online, 19-question travel survey. The survey provided an opportunity for the public to share direct input and help DuPage County better understand traffic safety priorities. The questions allowed DuPage County to capture ideas on traffic safety amenities, people's traffic safety concerns, and their perceived safety when they are walking, riding a bike, or driving. The survey garnered 237 responses with results offering insights into the traffic safety concerns and desired priorities in DuPage County among respondents.

Overall, the survey revealed that most respondents own or have access to a car. Even though most respondents felt safe while walking or using a mobility device, they did not feel safe while using a bike. Most respondents said they feel safe while driving but do not feel safe riding a motorcycle. In terms of public transit and using a rideshare service, most respondents felt safe.

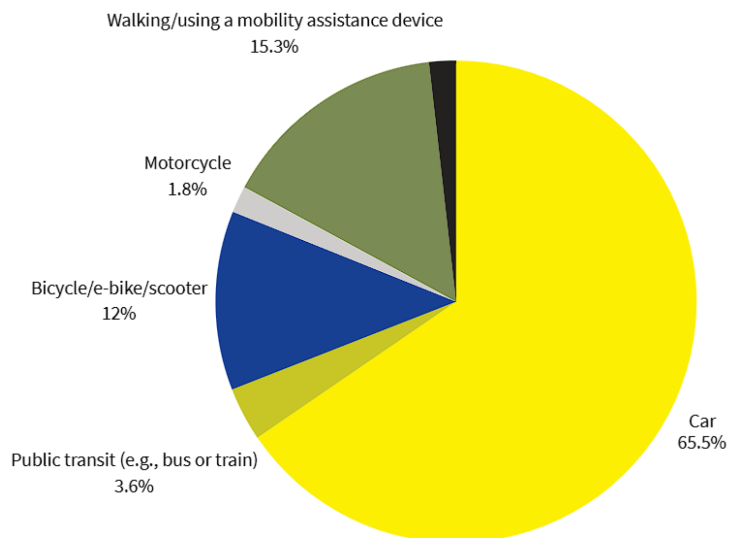
The three main behavioral concerns participants expressed were speeding or aggressive driving, distracted or impaired driving, and drivers disregarding traffic signals. The top barriers for people who bike or walk included lack of sidewalks, lack of safe road crossings, lack of bicycle facilities, traffic speed, and distracted driving. The top transportation safety priorities voiced by respondents were similar to those received through in-person engagement: roadway configurations that slow drivers and reduce serious and fatal crashes, more sidewalks, safer crosswalks, more physical separation between people walking and people driving, and more enforcement of traffic laws. Most people identified that they have seen no improvement in traffic safety in recent years.

Survey Responses

Most Used Method of Transportation

Over half of respondents (65.5%) typically use a car as their most used method of transportation (see Figure 41).

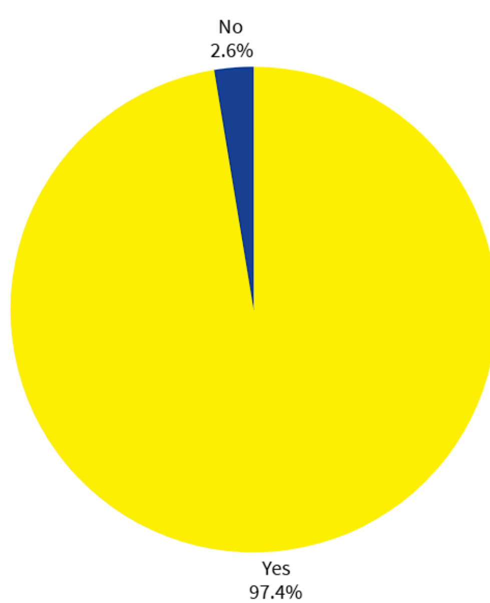
Figure 41: Most Common Mode of Transportation



Reliable Access to a Car

Nearly all of respondents (97.4%) have reliable access to a car (see Figure 42).

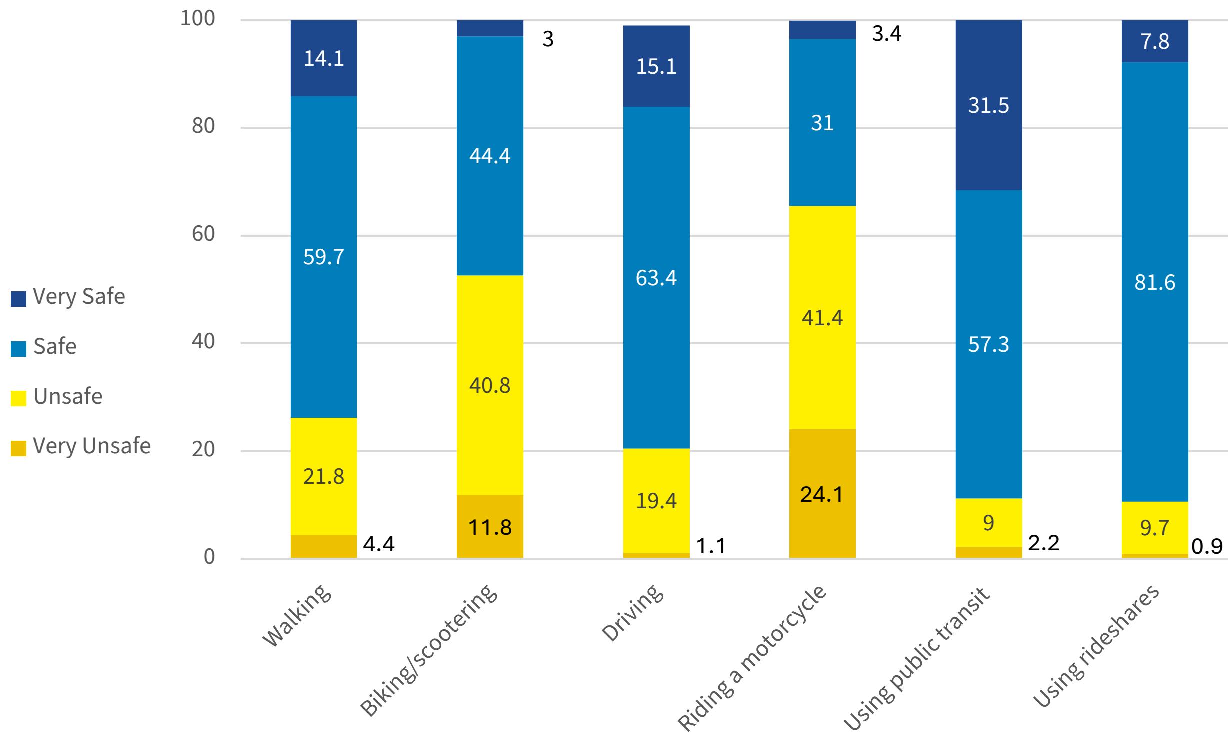
Figure 42: Reliable Access to Car



Safety Perception while Walking or Using a Mobility Assistance Device

The majority of survey respondents (73.8%) feel safe or very safe walking or using a mobility device. However, only 47.4% of respondents feel safe or very safe walking or scootering. 79.3% of respondents feel safe or very safe driving. Finally, most of the respondents (88.8%) feel safe or very safe using public transportation. Figure 43 provides additional details.

Figure 43: Safety Perception While Walking or Using a Mobility Device



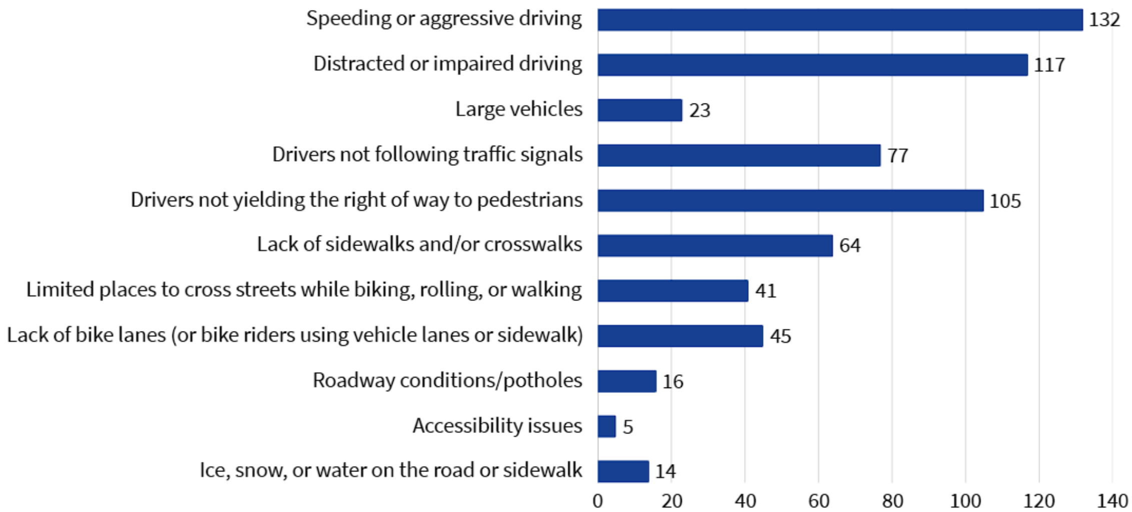
Top Traffic Safety Concerns when Walking, Using a Mobility Assistance Device, or Biking

The top concerns when walking, using a mobility assistance device, or biking were:

- Speeding or aggressive driving
- Distracted or impaired driving
- Drivers not yielding the right of way to pedestrians

See Figure 44 for additional details, note that respondents selected all concerns that applied.

Figure 44: Traffic Safety Concerns When Walking, Using a Mobility Device or Biking

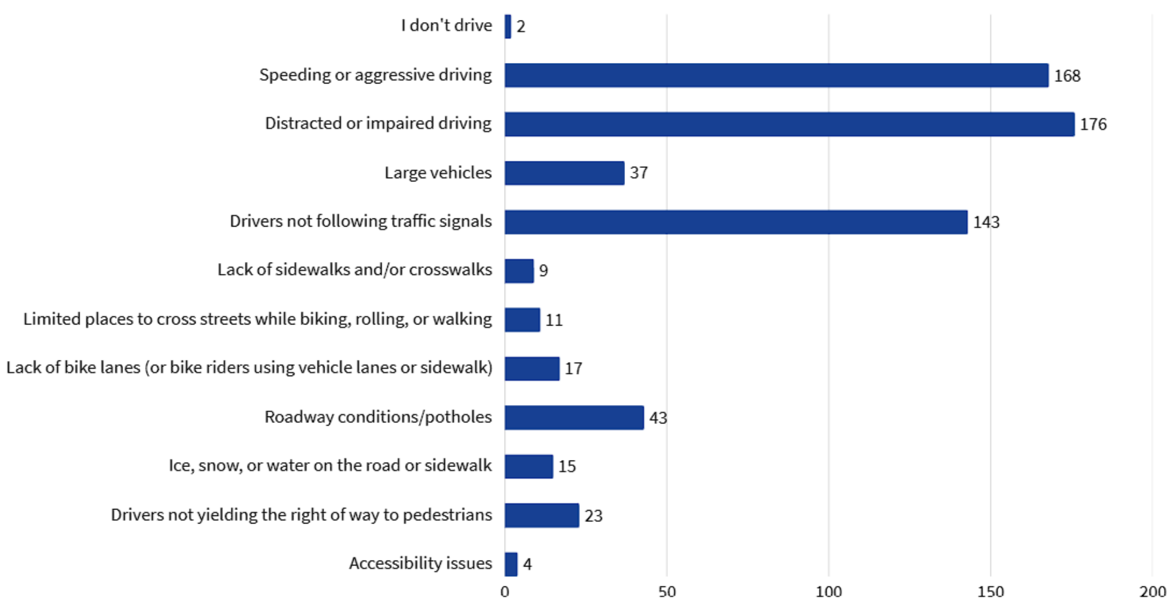


Top Traffic Safety Concerns when Driving

As detailed in Figure 45, the top concerns when driving were:

- Distracted or impaired driving
- Speeding or aggressive driving
- Drivers not following traffic signals

Figure 45: Traffic Safety Concerns When Driving

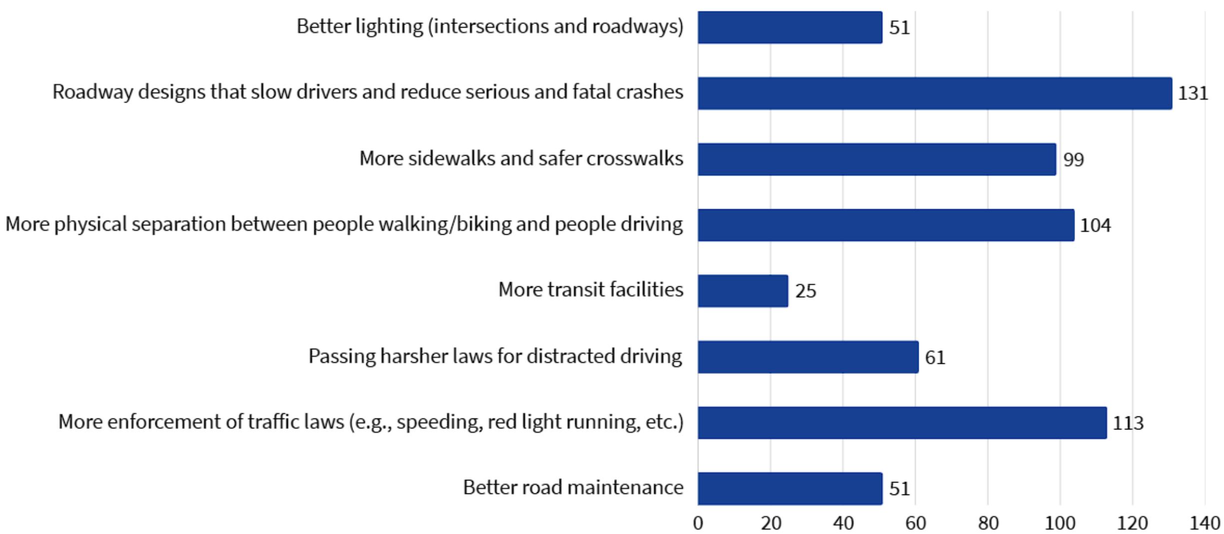


Respondents' Top Transportation Safety Priorities for DuPage County

The top transportation priorities for respondents, as shown in Figure 46, were:

- Roadways that slow drivers and reduce serious and fatal crashes
- More enforcement of traffic laws
- More physical separation between people walking/biking and driving

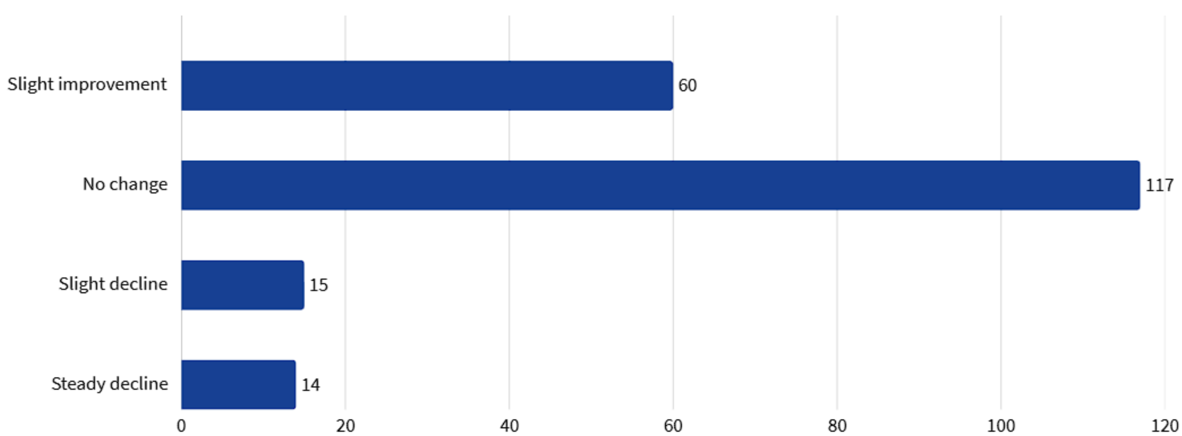
Figure 46: Transportation Safety Priorities for DuPage County



Progress towards Improving Traffic Safety in DuPage County

Respondents generally felt that there has been no change in traffic safety in DuPage County, with respondents noting a steady or slight improvement outpacing those who perceive a decline.

Figure 47: Recent Progress towards Improving Traffic Safety in DuPage County



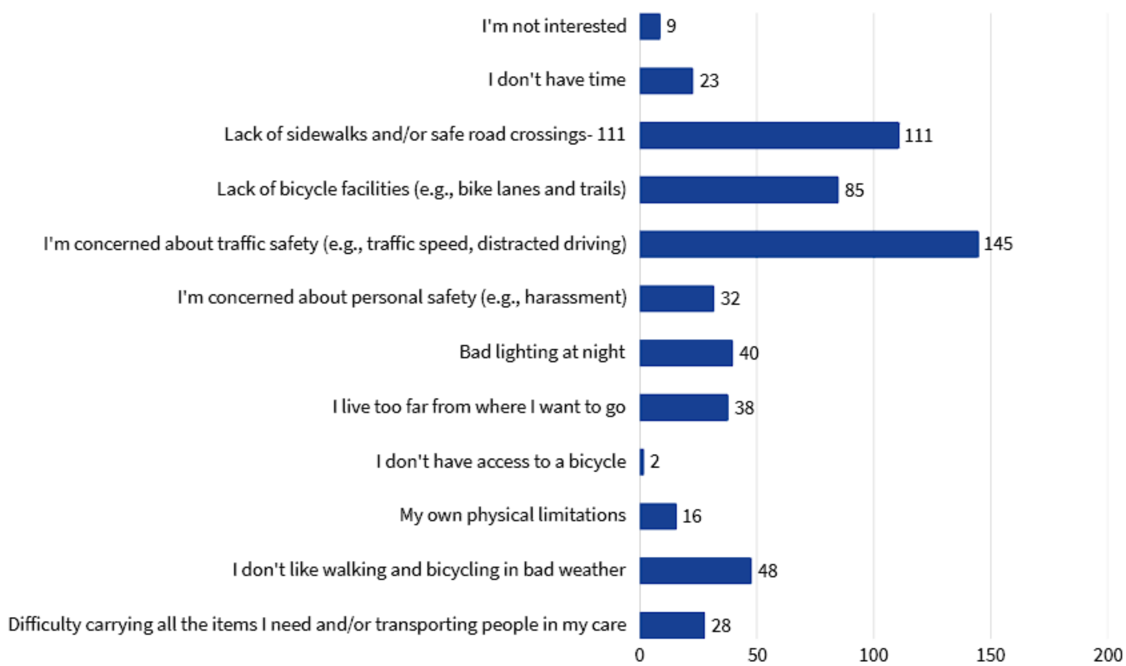
Top Barriers Preventing People from Walking or Biking More Often

The top reported barriers by people who walk/bike were:

- Concerns about traffic safety (e.g. traffic speed, distracted driving)
- Lack of sidewalks and/or safe road crossings
- Lack of bicycle facilities (e.g. bike lanes and trails)

Figure 48 provides additional details on other options.

Figure 48: Top Barriers Preventing People from Walking or Biking



Safety Hotspots Map

Through the first phase of SAP engagement, DuPage County used online web mapping tools to solicit detailed, place-based feedback regarding safety concerns. Attendees at in-person events were also invited to participate in mapping activities. All comments collected through in-person events were digitized. The map pins and comments were for information gathering purposes, not for action by County or local government.

To facilitate the exercise, respondents were prompted: "We want to understand which streets and roads you feel are the most dangerous in your everyday life. Are there certain intersections, roads, or streets that you don't feel safe using? Are there places you avoid or can't get to because of a dangerous route? Please drag a pin on the map and describe in detail what makes it dangerous (e.g., how it is incomplete, missing, poorly maintained, or unsafe)."

Members of the public were invited to enter as many map pins comments as they wanted, resulting in 628 unique pins throughout the county. Respondents could flag roadway safety concerns in the following categories: unsafe intersection, unsafe road, unsafe sidewalks or crossings, unsafe bike path, unsafe transit stop, inaccessible location, or other.

Figure 49: Safety Hotspots Map Example

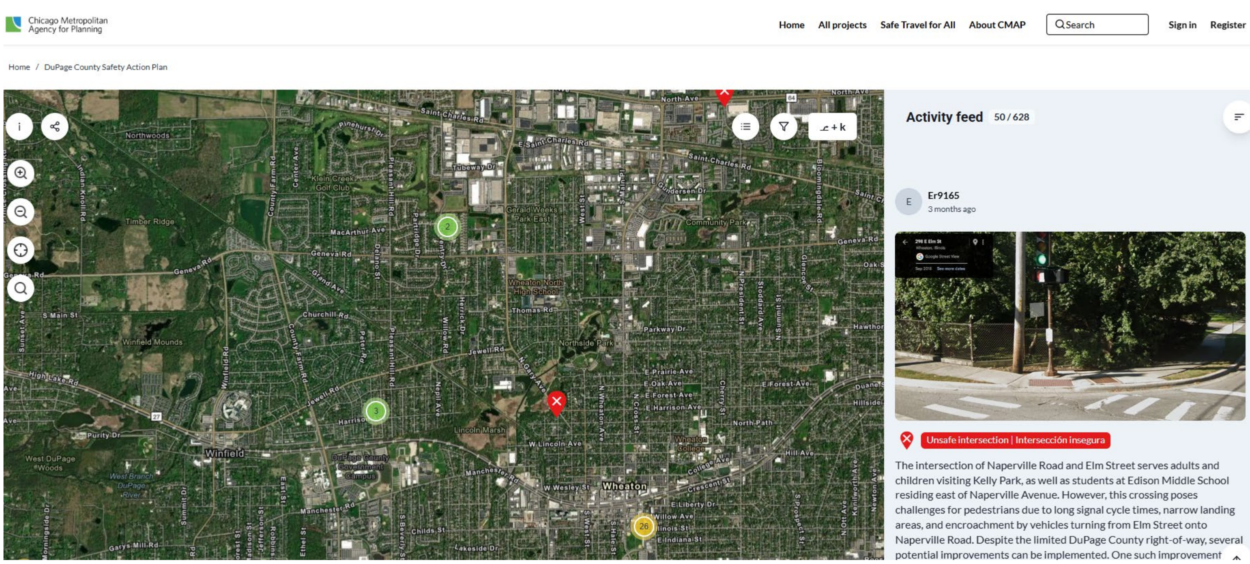


Figure 50: In-Person Mapping

The following maps illustrate the locations of the 628 map pins received across all categories. The kernel density underneath the locations of map pins indicates clustering. Strong groupings of comments – depicted in red and yellow tones – were received in Wayne, Glen Ellyn, and Villa Park. During the engagement, the consultant team checked the incoming map pins to understand representative participation.

Of the 628 map pins, the category “unsafe intersections” made up nearly 40% of all locations identified. Road designs that felt unsafe due to visibility, road configuration, lane design, and other design elements were among the main safety concerns residents cited at these intersections. Another prevalent concern at intersections was inadequate pedestrian and bicycle accommodations. Respondents noted the lack of pedestrian and bicycle infrastructure particularly around schools and parks as well as conditions on roadways they felt do not support safe travel. For example, one resident commented: “bicycle crossing difficult as car speeds high and angled visibility hard to judge.”

Locations identified as having “unsafe sidewalks/crossings” or “unsafe roads” made up another 37% of the web map respondents at 19% and 18%, respectively. As with “unsafe intersections,” these categories identified lack of pedestrian and bicycle infrastructure as concerns. Of “unsafe sidewalks/crossings", nearly 45% were flagged as lacking adequate pedestrian infrastructure, noting the need to make pedestrians more visible and feel safer when walking. Another commonly cited issue at these locations was gaps in the sidewalk network, with residents sharing comments such as: “Missing sidewalk coverage here. Please add!”

Where “unsafe roads” were identified, respondents primarily noted issues with speeding and other motorist traffic violations. Additionally, nearly half of these locations were flagged for lacking pedestrian and bicycle infrastructure, and another 20% as needing some kind of update to improve visibility, turning conditions, or other unsafe movement.

Figure 51: DuPage County Safety Hotspots Map – Comments and Clusters

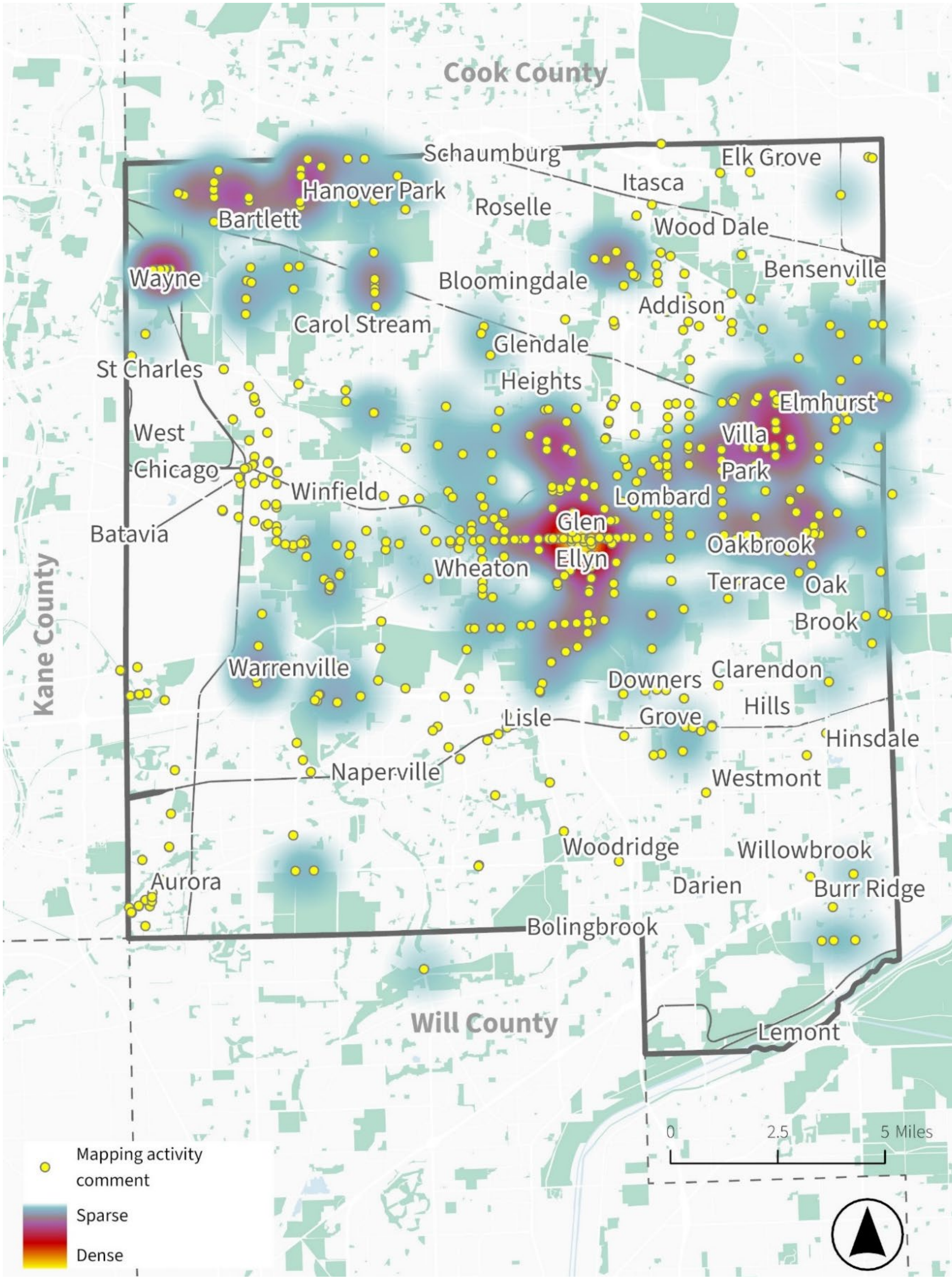
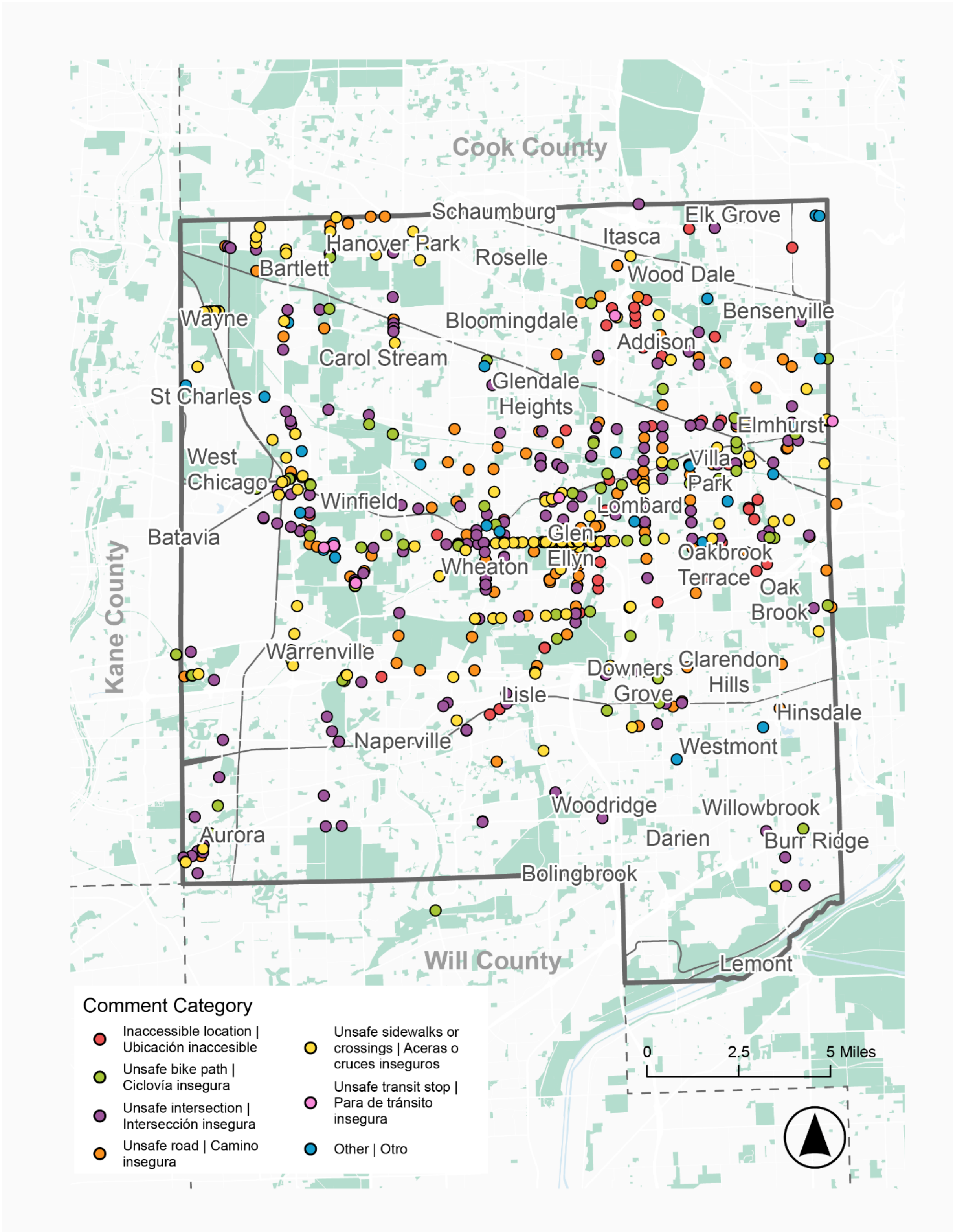


Figure 52: DuPage County Safety Hotspots Map – Comments and Categories



5 Lessons Learned

Throughout the process, DuPage County worked to receive feedback via committee meetings, open houses, pop-up events, a survey, and an interactive map. Overall, the engagement reached over 575 community members in person and many more online. Most of the community members engaged in-person included:

- Many older adults due to the engagement of the DuPage Senior Citizens Council.
- More women than men as there were opportunities to speak to diverse groups at the pop-up events.
- An observed race/ethnicity composition of mainly white participants with noted absence of Black and Hispanic/Latino participants

The project team worked to engage a representative sample of people reflecting the race/ethnicity and age composition of DuPage County's population. Future engagement should continue to work to establish and maintain relationships with a representative sample of DuPage residents during plan implementation.

Meeting underrepresented communities on their terms and providing appropriate opportunities and resources is critical to broadening engagement around the DuPage SAP as it moves ahead. Current communications methods, channels, and relationships are effective at engaging a certain portion of DuPage County's population but are insufficient to achieve proportional representation. Diverse staffing, communicating in languages beyond English, meeting people in the settings in which they are comfortable and confident, and learning about the communications and media channels they prefer should be considered for future engagement. Establishing and building direct connections between the County and community groups will take thought and time. Leveraging existing relationships with partners and existing coalitions and communities of practice like Impact DuPage, will serve to jumpstart this effort.

4 Countermeasures & Policy Recommendations

SAFE TRAVEL FOR ALL

Countermeasures & Policy Recommendations

Contents

1 Introduction

Guided by the Safe System Approach, the Countermeasures & Policy Recommendations (C&PR) section provides holistic recommendations for addressing DuPage County's transportation safety needs and opportunities as identified in the Existing Safety Conditions (ESC) and through broader Safety Action Plan (SAP) community engagement. The C&PR section recommends multiple layers of protection spanning all Safe System elements through themes, strategies, and actions as well as systemic countermeasures paired to roadway and land use typologies.

- **Themes, Strategies, and Actions**: a comprehensive set of goals, priorities, and recommendations for all of DuPage County which include specific policy, programmatic, and infrastructure solutions to guide the county and region towards the desired outcomes.
- **Systemic Countermeasures Toolbox**: a set of proven safety treatments that address identified severe crash trends in DuPage County. The toolbox is intended to inform safety practitioners, decision makers, and the public about common and effective infrastructure, behavioral, and operational interventions to address the most dangerous types of crashes found across DuPage County's multimodal transportation system.
- **Typologies:** categories of common roadway segments, intersection types, and zones across DuPage County designed to assist in analyzing locations with similar roadway features and identifying a set of appropriate systemic countermeasures.

The recommendations are evidence-based and data-driven while guided by community insights at various levels. The project team worked closely with the DuPage County Division of Transportation (DuDOT) and the Chicago Metropolitan Agency for Planning (CMAP) to review and refine these pragmatic and broad yet ambitious countermeasures and policy recommendations.

The C&PR incorporates requirements of the United States Department of Transportation (USDOT) Safe Streets and Roads for All (SS4A) action plans, the CMAP's regional safety action plan framework, and the input and direction of CMAP and DuPage County staff. The C&PR section fulfills USDOT's SS4A Self-Certification Eligibility Worksheet requirement #5: Policy and Process Changes and #6: Strategy and Project Selection.

2 Themes, Strategies, and Actions

The SAP recommended themes, strategies, and actions provide a holistic guiding framework to reduce severe crashes in DuPage County. They do not cover every possible course of action. Instead, they are targeted to address the severe crash types and locations identified through analysis and engagement and consistent with other communities working to implement the Safe System approach.

- **Themes** are high-level goals that support the DuPage Safety Action Plan target. They provide a framework for decision-making and guide the selection and development of strategies.
- **Strategies** are solutions and approaches to implement themes and achieve or advance their respective desired outcomes.
- **Actions** operationalize countywide plan strategies, representing the starting point for implementation, further analysis, or partnership to put the strategy in motion.

Process & Overview

Themes, were developed cooperatively by DuDOT staff, CMAP, and the project Technical and Steering committees. The themes were informed by a review of peer safety action plans, existing conditions in DuPage County, community feedback, and the principles of the Safe System Approach.

A series of **strategies** for accomplishing each theme was then developed by the project team, guided by DuDOT staff, CMAP, and the project technical and steering committees. Each strategy includes recommended policy changes, process updates, infrastructure improvements, educational programs, enforcement programs, and behavior change campaigns on which the County and its partners should focus their efforts. Strategies illustrate effective implementation paths at all levels of government, including individual municipalities.

The strategies were informed by the Safe System Approach, DuPage County's 2021 Local Road Safety Plan, and other peer countywide safety plans (including Montgomery County, MD's Vision Zero Action 2030 Plan, Miami Dade, FL's Vision Zero Action Plan, and Milwaukee County, WI's Comprehensive Safety Action Plan), ongoing safety initiatives, ESC findings, and community feedback.

Finally, the project team developed a series of **actions** to support the implementation of strategies. The recommended actions are rooted in the Safe System Approach and informed by DuPage County's 2021 Local Road Safety Plan, the DuPage Mobility Framework Plan, the most recent DuPage County Long Range Transportation Plan, and the DuPage Trails Plan. They build off ongoing safety initiatives as well as input from the project Technical Advisory Committee and Steering Committee. The actions were reviewed and approved by DuDOT and CMAP staff.

Key participating organizations are identified to support the actions and assist DuPage County government and DMMC to form the basis of a workplan to advance the SAP over the coming years. Municipalities and other agencies are encouraged to utilize the strategies and actions in their own planning and to identify implementers and detailed steps to carry out strategies and actions alike.

Themes & Strategies

Theme 1: Encourage Safer Speeds

Managing and reducing vehicle speeds that are unsafe for surrounding contexts and users is essential to creating safer roadways and reducing the severity of crashes. With a focus on targeting high speeds on major roads, strategies in this theme include design interventions to encourage safer speeds, adjusting speed limits to better match roadway conditions and surrounding land use contexts, and strategic enforcement to shape behavior when design alone is not enough.

Theme 1 Strategies
Manage speeds on major roads through design, education, and enforcement
Set speed limits that are appropriate for the surrounding context and safety for all users
Utilize strategic enforcement to target speeding

Theme 2: Design and Build Roads and Streets that Prioritize Safety for Vulnerable Users

Vulnerable road users, including people walking and biking, make up a disproportionate share of deaths and serious injuries in DuPage County traffic crashes. This theme centers on developing safe, welcoming streets for people walking, biking, and rolling by improving accessibility, applying Complete Streets principles, and creating complete on- and off-street networks.

Theme 2 Strategies
Provide systemic approaches to pedestrian and bicycle improvements
Complete pedestrian and bicycle network gaps, prioritizing separated or protected facilities
Incorporate Complete Streets into policy and design
Improve accessibility through Public Right of Way Accessibility Guidelines (PROWAG) compliance under the Americans with Disabilities Act (ADA)
Advance safe access to trail systems

Theme 3: Enhance Partnerships and Collaboration

Implementation of the Safety Action Plan requires effective coordination with various partners including government agencies at all levels, health care providers, non-profits, community organizations, and other stakeholders. It requires state, county, and municipal agencies to cooperate in the design, maintenance, and operations of the roadway system.

Theme 3 Strategies
Improve interagency coordination
Provide capacity-building resources for stakeholders
Foster partnerships with and between community and institutional organizations

Theme 4: Champion a Culture of Safety

Building a county-wide commitment to prioritize traffic safety relies on consistent and effective targeted messaging, outreach, and actions. Traffic safety is a shared responsibility and should be modeled and valued by everyone, including road users and the agencies that design, maintain, manage, and enforce the system.

Theme 4 Strategies
Integrate traffic safety goals as a priority across jurisdictions and planning areas
Improve safety, access, and mobility for aging road users
Provide targeted traffic safety **education and engagement**
Provide prompt emergency response and post-crash care

Theme 5: Take a Data-driven, Transparent Approach to Safety

Effective improvements to the transportation system will rely on enhanced data collection and analysis to target investments where they are most needed and a commitment to continuous improvement and open dialog about what's going well and what needs improvement.

Theme 5 Strategies
Prioritize safety resources in areas with the greatest safety needs
Increase the accessibility and use of **regional transportation data**
Support a county-wide road safety audit program
Pursue projects along the high injury network
Systemically deploy safety countermeasures
Design enforcement strategies that are regularly evaluated for their effectiveness

Actions

Proposed actions are organized under each strategy and include information on participating organizations, impact, effort, and timeframe for implementation.

Participating Organizations

Meeting DuPage County's traffic safety commitment requires collaborative involvement and effort across jurisdictions. Each action identifies supporting partners, including:

- **CMAP** – Chicago Metropolitan Agency for Planning
- **COG** – Councils of Government (such as DuPage Mayors & Managers Conference)
- **DC** – DuPage County
- **EDU** – Educational institutions
- **EMS** – Emergency medical services
- **FPDDC** – Forest Preserve District of DuPage County
- **HSS** – Health Service System
- **ICC** – Illinois Commerce Commission
- **IDOT** – Illinois Department of Transportation
- **IL** – State of Illinois
- **ISTHA** – Illinois State Toll Highway Authority
- **METRA** – Metra Rail
- **MUNI** – Communities & municipalities
- **NPO** – Nonprofit organizations
- **PACE** – Pace Suburban Bus
- **PRV** – Private industry groups
- **RTA** – Regional Transportation Authority
- **TWP** – Townships

Impact

Actions have been categorized based on their potential impact and implementation effort required. These categories guide action prioritization.

Category		Definition
Foundational	★★★	**High impact // High ability to implement** The action either has a significant direct impact on factors that lead to severe crashes in DuPage County or has a significant indirect impact on the opportunity to implement strategies, such as by resolving policy barriers or by winning buy-in from new partners. Foundational actions should be prioritized for implementation.
Supplemental	★★	**High impact // Lower ability to implement** The action has a significant direct or indirect impact but will require more complex cooperation among different jurisdictions and decision-makers. Ideally, supplemental actions should be pursued at the same time as Foundational actions but should be viewed as longer-term initiatives.
Beneficial	★	**Lower impact // Lower or High ability to implement** The action has a lower impact but may be a "quick-win" opportunity, should be considered as opportunities present themselves, or should be pursued as Foundational or Supplemental actions are accomplished.

Timeframe

A suggested timeframe for implementation is provided for each action.

Category		Time Range
Short		1 – 4 years
Medium		5 – 7 years
Long		8 – 10+ years
Ongoing	→	Already occurring, or recurs on a regular basis

Theme 1: Encourage Safer Speeds

Strategy	Actions	Participating Organizations	Impact	Time Frame
1. 1 MANAGE SPEEDS ON MAJOR ROADS THROUGH DESIGN, EDUCATION, AND ENFORCEMENT	Encourage updates to policy and companion design guidance, such as IDOT's Bureau of Design and Environment Manual and Local Roads and Streets Manual, to promote street design that encourages compliance with safer speeds through the coordinated use of right-sized roadway geometry, traffic calming infrastructure, daylighting, and signage.	DC, COG, IDOT, CMAP	★★★	◷○○
	Continue to implement portable speed feedback and radar devices, developing a program to allow for temporary installation at locations with speeding and/or speed limit reduction.	MUNI, IDOT, TWP	★☆☆	◷○○- ◷◷◷
	Improve driver awareness and/or street geometry at high-speed locations with horizontal curves.	DC, MUNI, IDOT, TWP	★★☆	◷○○- ◷◷◷
	Collect, compile, and share countywide case studies related to speeding and speed management on major streets.	DC, MUNI, IDOT, CMAP	★★☆	◷○○
	Collect data, identify priority speed corridors, and work with agencies, law enforcement, emergency responders, and stakeholders to create coordinated speed management plans.	DC, IDOT, MUNI, EMS, IL	★☆☆	◷◷○
1.2 SET SPEED LIMITS THAT ARE APPROPRIATE FOR THE SURROUNDING CONTEXT AND SAFETY FOR ALL USERS	Build shared knowledge and understanding of existing guidance and regulation on speed limit setting.	DC, MUNI, IDOT, CMAP	★★☆	◷○○
	Develop a model ordinance to facilitate speed limit reduction on local roads to better match existing street design.	MUNI, COG, CMAP	★☆☆	◷○○
	Support revisions to speed limit codes and policies at the state level: • *Speed limit restriction language in the Illinois Vehicle Code (625 ILCS 5/11-604) for clarity and usefulness to local governments who wish to reduce default citywide speed limits by ordinance.* • *Speed limit policy to set 50th percentile speed limits in urban districts and consider other changes that will result in lower speed limits wherever vulnerable road users may be present.*	IDOT, IL, CMAP, COG	★★★	◷ →
1.3 UTILIZE STRATEGIC ENFORCEMENT TARGETING SPEEDING	Seek state legislative approval for a pilot program for automated speed enforcement at high-crash locations with an assessment of the burdens of fines on communities.	COG, CMAP, IL	★★☆	◷○○
	Promote high-visibility and other education-centered enforcement programs, as detailed within the IDOT Highway Safety Plan and NHTSA Countermeasures that Work.	IDOT, MUNI	★☆☆	◷○○

Theme 2: Design and Build Roads and Streets that Prioritize Safety for Vulnerable Users

Strategy	Action	Participating Organizations	Impact	Time Frame
2.1 PROVIDE SYSTEMIC PEDESTRIAN AND BICYCLE IMPROVEMENTS	Study and launch pilot programs for quick, low-cost, and efficient traffic calming treatments and/or bike infrastructure projects.	DC, MUNI, CMAP, RTA, PRV	★☆☆	
	Enhance the safety of pedestrians and cyclists through targeted infrastructure improvements at: • *Pedestrian and cyclist high crash locations* *Locations with disproportionate severe injury crashes specific to unlit/low-lighting locations and uncontrolled midblock crossings*	DC, IDOT, MUNI	★★★	→
	Encourage the development of local traffic calming programs for neighborhoods, urban areas, and transit centers.	MUNI, RTA, PACE, METRA, DC	★★☆	
	Support infrastructure near schools to encourage students to walk or bike to school (sidewalks, crosswalks, crossing guards, safe speed limits, etc.).	DC, EDU, MUNI, IDOT, TWP, PRV	★★☆	
2.2 INCORPORATE COMPLETE STREETS INTO POLICY AND DESIGN	Adopt or strengthen local Complete Streets policies and project development checklists.	DC, MUNI, CMAP, COG	★★☆	
	Encourage the adoption of transit supportive guidelines and promote transit supportive infrastructure for all non-motorized system users. Municipalities can look to Pace Transit Supportive Guidelines and RTA Transit-Friendly Communities Guide as precedents.	DC, MUNI, RTA, PACE, METRA, CMAP	★☆☆	
	Adopt or encourage the adoption of land use and design standards that prioritize safe non-motorized travel and support transit-oriented development.	DC, MUNI, COG, CMAP	★★★	
	Advance research and policy efforts on the use of a multimodal level of service standard in urban districts for roadway construction and/or maintenance improvements. This standard should evaluate quality of service and safety for all road users.	CMAP, COG, MUNI	★★☆	

Strategy	Action	Participating Organizations	Impact	Time Frame
2.3 COMPLETE PEDESTRIAN AND BICYCLE NETWORK GAPS, PRIORITIZING SEPARATED OR PROTECTED FACILITIES	Identify and complete gaps in the pedestrian and bicycle networks countywide with jurisdiction coordination.	DC, IDOT, MUNI, CMAP, COG	★★★	◷◷○ - ◷◷◷
	Support the development and implementation of the DuPage County Active Transportation Plan and encourage the development of local active transportation plans.	DC, MUNI, CMAP	★★☆	◷ →
	Anticipate and problem-solve funding issues for network gaps in unincorporated areas.	DC, MUNI, COG, CMAP, TWP	★★☆	◷◷○
	Target improvements for safe bike and pedestrian passage at major expressways/interchanges, under/overpasses, at-grade rail crossings and stations, and bridge decks - urging agencies to mitigate barriers at these locations.	DC, MUNI, IDOT, ISHTA, ICC, METRA, RTA	★★★	◷◷○ - ◷◷◷
	Adopt or encourage the adoption of sidewalk and path permitting requirements for new development and redeveloping properties.	DC, MUNI, COG	★★☆	◷◷○
2.4 IMPROVE ACCESSIBILITY THROUGH PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG) COMPLIANCE UNDER THE AMERICANS WITH DISABILITIES ACT (ADA)	Support the development and implementation of local ADA Transition Plans, coordinating with Local Road Safety Plans.	DC, MUNI, CMAP	★★☆	◷ →
	Comply with PROWAG pedestrian access routes when implementing upgrades during repairs, construction, and routine maintenance.	DC, MUNI, IDOT, CMAP, TWP	★☆☆	◷ →
	Improve visual aids and predictability at crossings (e.g. install Accessible Pedestrian Signals and visual aids for individuals with disabilities).	DC, IDOT, MUNI	★★★	◷◷○
2.5 ADVANCE SAFE ACCESS TO TRAIL SYSTEMS	Enhance DuPage County's Trail Crossing Selection Guidance to cover conflict points such as driveways and recommend standard parking and visibility practices for trail crossings.	DC, FPDDC, IDOT, COG, MUNI	★☆☆	◷◷○
	Develop a signage and wayfinding plan to implement the signage toolkit within the DuPage County Trails Plan.	DC, FPDDC, NPO	★★☆	◷○○
	Improve and maintain the network of grade-separated bike and pedestrian crossings.	DC, FPDDC, MUNI, IDOT, CMAP	★★★	◷◷◷

Theme 3: Enhance Partnerships and Collaboration

Strategy	Actions	Participating Organizations	Impact	Time Frame
3.1 IMPROVE INTERAGENCY COORDINATION	Develop a coordinated and cross-jurisdictional approach to planning, funding, and implementing larger scale intersection or corridor mobility projects.	DC, CMAP, IDOT, MUNI, ISTHA, COG, TWP, EDU	★★★	◷◷○
	Coordinate implementation of proven safety countermeasures toolkit among agencies.	DC, IDOT, MUNI	★☆☆	◷○○
	Facilitate routine collaboration with state, township and municipal agencies on safety projects and programs.	DC, IDOT, TWP, MUNI	★☆☆	◷◷○
	Prioritize project planning and coordination with IDOT: • *Coordinate safety improvements along High Injury Network intersections and corridors* • *Collaborate on the most effective path to project funding and execution.*	DC, IDOT	★★★	◷ →
	Partner with transit service boards and communities on transit supportive infrastructure to increase service and mobility options.	DC, RTA, IDOT, METRA, PACE, MUNI	★☆☆	◷◷○
3.2 PROVIDE CAPACITY-BUILDING RESOURCES TO STAKEHOLDERS	Provide communities with grant-writing assistance, grant application examples, and letters of support.	DC, MUNI, CMAP	★★☆	◷◷○
	Collect and share model ordinances and other policy documents, including Complete Streets policy and project development checklist.	DC, COG, MUNI, CMAP	★☆☆	◷○○
3.3 FOSTER PARTNERSHIPS WITH COMMUNITY AND INSTITUTIONAL ORGANIZATIONS	Build intentional relationships with private entities to expand and bolster roadway safety and mobility planning.	DC, PRV, MUNI	★★☆	◷ →
	Collaborate with health partners (including hospitals and public health agencies) on data sharing, program development, engagement, messaging and education.	DC, HHS, EMS	★★☆	◷ →
	Partner with active transportation focused advocacy groups and non-profit organizations, collaborating and supporting relevant campaigns across the county.	DC, NPO	★★☆	◷ →
	Partner with local school districts to expand and integrate Safe Routes to Schools (SRTS) activities, education, and projects	DC, EDU, NPO, MUNI	★★☆	◷ →

Theme 4: Champion a Culture of Safety

Strategy	Actions	Participating Organizations	Impact	Time Frame
4.1 IMPROVE SAFETY, ACCESS, AND MOBILITY FOR AGING ROAD USERS	Communicate with aging road users to better understand their transportation system concerns.	DC, MUNI, PRV, NPO, HHS, TWP	★★☆	
	Partner with advocacy groups, transit services, health services, and senior services to support older driver and pedestrian education.	RTA, PACE, NPO, HHS, IL, TWP	★☆☆	
4.2 INTEGRATE TRAFFIC SAFETY GOALS AS A PRIORITY ACROSS JURISDICTIONS AND PLANNING AREAS	Develop a framework for integrating Safe System concepts and strategies into roadway and transit planning and programming efforts, along with local plans as they are updated or formed.	DC, MUNI, IDOT, RTA, PACE, METRA, COG	★☆☆	
	Provide regular education and training for local decisionmakers and municipal / county staff around traffic safety and Vision Zero.	DC, MUNI, COG	★★☆	
4.3 PROVIDE TARGETED TRAFFIC SAFETY EDUCATION AND ENGAGEMENT	Integrate traffic safety education into existing community events and public messaging around dangerous driving behaviors.	DC, MUNI, IDOT, TWP	★★☆	
	Build a grant program for community-based organizations to address dangerous driving behaviors or promote active transportation.	DC, MUNI, NPO, PRV	★★☆	
	Promote safe behaviors for all road users through targeted messaging campaigns, outreach, and accessible resources.	DC, MUNI, EDU, NPO, METRA, ICC, TWP	★★☆	
	Support learn-to-ride bicycle courses through municipal departments, school districts, and Safe Routes to School efforts.	DC, MUNI, EDU, NPO, FPDDC, TWP	★★☆	
4.4 ENSURE PROMPT MEDICAL SERVICE AND POST-CRASH CARE	Improve first responder and crash victim safety through traffic incident management best practices and training, such as IDOT's Traffic Incident Management training classes.	DC, MUNI, IDOT, ISTHA, EMS, HHS	★★☆	

Theme 5: Take a Data-driven, Transparent Approach to Safety

Strategy	Actions	Participating Organizations	Impact	Time Frame
5.1 PRIORITIZE SAFETY RESOURCES IN AREAS WITH THE GREATEST SAFETY NEEDS	Develop county project selection criteria that prioritize areas with the greatest safety needs.	DC, COG, IDOT	★☆☆	🕒 →
	Address transportation challenges associated with the physical isolation of portions of DuPage County populations.	DC, CMAP, COG, TWP, MUNI	★☆☆	🕒 →
	Track and evaluate implementation of countywide projects.	DC, CMAP, MUNI, COG, IDOT	★☆☆	🕒 →
	Update DMMC Surface Transportation Program project scoring to incorporate SAP strategies, including severe injury crashes.	DC, COG, MUNI, CMAP	★☆☆	🕒
5.2 INCREASE THE ACCESSIBILITY AND USE OF REGIONAL TRANSPORTATION DATA	Develop regional and countywide roadway network datasets that enables systemic analysis that is accessible to all agencies and updated regularly.	DC, CMAP	★★☆	🕒🕒
	Work with IDOT to expand safety portal and crash record sharing for technical analysis.	DC, IDOT, CMAP	★★☆	🕒
	Develop a traffic data training refresher course for local police departments and agencies.	IDOT, CMAP	★☆☆	🕒🕒
	Provide local partners with information on high-crash and high-risk locations and priority safety issues, with recommended countermeasures.	DC, CMAP, MUNI, IDOT	★★☆	🕒
5.3 SUPPORT A COUNTY-WIDE ROAD SAFETY AUDIT (RSA) PROGRAM	Develop a safety audit working group with a multi-jurisdictional team.	DC, CMAP, IDOT, MUNI, EMS, ISTHA	★★☆	🕒
	Conduct road safety and walk audits to educate staff and stakeholders and develop projects for funding. As part of audits, assess non-motorized movements and evaluate potential conflict locations.	DC, CMAP, IDOT, MUNI, EMS, ISTHA	★★☆	🕒🕒
5.4 PURSUE PROJECTS ALONG THE 'HIGH INJURY NETWORK'	Develop an investment strategy for the HIN, including targeted funding and timelines.	DC, COG	★★★	🕒🕒
	Explore a joint-cost participation and prioritization program on state jurisdiction HIN segments	DC, CMAP, IDOT, MUNI, TWP	★★★	🕒🕒
	Ensure that evaluation metrics within the Highway Safety Improvement Program and internal project scoring adequately consider and score the benefits of systemic roadway safety improvements	IDOT, COG	★★☆	🕒 →

Strategy	Actions	Participating Organizations	Impact	Time Frame
5.4 PURSUE MAJOR PROJECTS ALONG THE 'HIGH INJURY NETWORK' *- continued*	Update the HIN approximately every five years and provide county and municipal decisionmakers with relevant information for project prioritization based on findings.	DC, CMAP, IDOT, MUNI, COG	★★☆	◷ →
5.5 SYSTEMICALLY DEPLOY SAFETY COUNTERMEASURES	Identify opportunities to implement systemic safety improvements through future funding requests and applications.	DC, MUNI, TWP , IDOT	★★★	◷ →
	Analyze roadway geometry to identify locations with limited horizontal and/or vertical sight distances and develop subsequent critical typologies for intervention.	DC, MUNI	★☆☆	◷◷◌
	Develop typical designs for intersection lighting.	DC, MUNI	★☆☆	◷◷◌
	Coordinate agency-wide asset management programs to maintain the minimum retroreflectivity standards for traffic control devices (e.g., signing and striping).	DC, MUNI, TWP	★★☆	◷◌◌
5.6 DESIGN ENFORCEMENT STRATEGIES AND REGULARLY EVALUATE THEIR EFFECTIVENESS	Evaluate existing enforcement strategies with feedback and results from DuPage County Circuit Courts related to traffic violations, and design future strategies to reflect learnings.	DC, MUNI	★★☆	◷◷◌
	Conduct a legislative and benefits-and-burdens analysis of safety-oriented automated speed enforcement programs.	CMAP	★★☆	◷◷◌
	Evaluate the success of enforcement programs for improving safety and reducing repeat offenses and share best practice to inform ongoing and future enforcement strategies.	DC, CMAP, MUNI	★★☆	◷◷◌

Additional Considerations

The themes, strategies, and actions constitute the most critical roadway safety activities to pursue over the next ten years as identified by stakeholders. Several additional topics that were not prioritized by stakeholders or do not rise to the level of having their own dedicated strategies or actions, are also worth consideration in future safety planning efforts and coordination among partners.

Integrate Land Use into the Safe System

The Safe System Approach has five pillars for road safety: safer users, safer vehicles, safer roads, safer speeds, and post-crash care. While the five pillars support a layered approach for roadway safety, land use is not directly addressed. Land use has a direct influence on mode choice, roadway design, parking supply, and emergency response operations. While the Safe System Approach often integrates land use policies and planning, thinking of "safe land use planning" as its own pillar can guide a more cohesive and safer environment for all road users. DuPage municipalities should integrate safer land use planning that enables mode choice, makes transit convenient and attractive, separates high speed roads from mixed land uses, and considers how site plans and access points influence severe crashes into decision-making along with safer roadways.

The City of Guelph in Ontario, Canada integrated 'safe land use planning' as a sixth pillar of the Safe System Approach within their Vision Zero Action Plan for Safe Streets. The six-pillar approach considers the interactions between people, vehicles, and the environment – not just the roadway network.

Leverage Opportunities for Rail Crossing Safety Improvements

The Chicagoland area – including DuPage County – serves as one of the nation's largest railroad hubs. The railroad network and its crossings present complex conflict points for all travel modes. As noted within the ESC section of the SAP, between 2012 and 2021 there were 135 reported rail-related incidents in the DuPage analysis area, an average of 13.5 per year. Pedestrians were disproportionately involved in the crashes resulting in fatalities. The respective findings indicate that at a system-level, station-area planning is necessary to determine where and how to install context-appropriate solutions primarily for preventing people outside of vehicles from going around lowered gates or from entering restricted areas. This includes prioritizing standardization of crossings, grade separation and/or restriction of pedestrian crossing points, and updating uncontrolled pedestrian crossings, especially through station areas. Rail crossing safety requires coordination and partnership between railroad owners and operators, DuPage County, municipalities, and the state.

Pursue Innovative and Connected Transportation Systems

Intelligent transportation systems (ITS) use technology, like communications or real-time information, to enhance traffic safety, mobility, and efficiency. ITS provides the ability for agencies to be more responsive to roadway conditions.

DuPage County currently integrates by way of a centralized traffic signal system (CTSS) network having over 90% of County owned traffic signals on this common platform. Similarly, this CTSS is combined with the municipalities of Aurora, Napervile, Lombard, and Downers Grove. Through these CTSS investments, an expansive communication network composed of primarily fiber optic cable connections provides a foundation for future ITS enhancements and municipal partnerships. There is an opportunity to establish and operate a model regional traffic center covering Chicagoland where partner agencies can evaluate connected networks and operate the area signal systems in a cohesive manner. Through the partnership, agencies could also utilize emerging ITS capabilities to enhance mobility and safety, as well as develop consistent ITS and traffic improvement projects throughout the region.

IDOT's Smart Arterial Corridor projects are underway on IL Route 64 and IL Route 56. The county is a partner with IDOT to deploy ITS equipment across these extended corridors. The County should continue to work with IDOT to enhance their mutual ITS capabilities.

3 Systemic Countermeasures Toolbox

The systemic countermeasures toolbox represents a condensed and prioritized set of proven safety treatments that address identified severe crash trends in DuPage County. The toolbox is intended to inform safety practitioners, decision makers, and the public about common and effective infrastructure, behavioral, and operational interventions to address the priority emphasis areas identified in the ESC section of this plan. Systemic countermeasures incorporate, but are not limited to, the countermeasures identified in the 2021 Local Road Safety Plan (LRSP).

In the context of a Safe System Approach, 'systemic' countermeasures refer to proactive safety interventions deployed at scale that are designed to address widespread severe-crash risks across the transportation network. These countermeasures aim to prevent crashes by targeting common risk factors before serious incidents occur. Systemic countermeasures typically share the following characteristics:

- **Broad applicability:** Systemic countermeasures can be applied across multiple locations where common safety issues or crash risks are identified by network screening. They address recurring patterns of risk, such as common high-risk intersection designs, roadway segments with limited visibility, or areas prone to speeding, even in locations that may not yet have a significant crash history or pattern of risk.
- **Affordability:** Systemic countermeasures tend to be cost-effective because they do not require extensive right-of-way acquisition or a complete overhaul of infrastructure. Instead, they often involve smaller-scale, high-impact improvements (such as enhanced signage, pavement markings, or pedestrian crossing upgrades) that are relatively easy to implement in similar locations across a larger area or at defined types of intersections and corridors.
- **Risk-based, not crash-based:** Systemic countermeasures mitigate underlying risks revealed by network-level, research-based crash patterns. If a specific roadway configuration has a demonstrated history of leading to severe crashes, similar configurations elsewhere in the network may be treated preemptively, even if no crashes have yet occurred at those specific sites. Pedestrian refuge islands, for example, could be proactively implemented during street reconstruction projects in areas with significant pedestrian traffic and long crossing distances before a crash pattern emerges at a particular location.

Systemic Countermeasures Toolbox Development

To establish a list of preliminary countermeasures, the project team compiled an inventory of countermeasures in existing use or recommended by DuDOT and municipalities, starting with those identified and profiled in the LRSP. Further information on the use of countermeasures in DuPage County was provided by the Project Steering Committee, the DuPage Mayors and Managers Conference (DMMC), and municipal responses to CMAP's 2023 municipal survey.

The ESC section identified four priority emphasis areas: **speeding, intersections, older drivers,** and **pedestrians and bicyclists**. Systemic countermeasures were selected specifically to address these key priorities. The project team then reviewed high-risk crash types identified in the systemic analysis literature review in the ESC (e.g., older drivers are more susceptible to angle crashes at intersections; bicyclists are more exposed to crashes involving right-turning vehicles, etc.). Countermeasures associated with these systemic crash types were prioritized in the toolbox and flagged for the emphasis area(s) they pertain to. Additional countermeasures were sourced from publications issued by agencies such as FHWA.

Next, several meetings were held between DuDOT staff, CMAP, and the project team to discuss the intended use and future applicability of the Systemic Countermeasures Toolbox. These meetings focused on building consensus around the key transportation safety priorities within the County and the infrastructure and planning tools available to enhance safety across the network. These meetings helped to further clarify what treatments are already in use and what potential tools should be considered for more widespread adoption.

Finally, discussions with DuDOT staff established priorities for refining the final set of countermeasures:

- The toolbox should introduce and prioritize targeted infrastructure improvements, especially at intersections.
- The toolbox should prioritize countermeasures that focus on the physical separation and visibility between motor vehicles and vulnerable road users (VRU), such as pedestrians and bicyclists, to remove severe conflicts.
- Speed reduction efforts should be targeted in higher-risk areas for conflicts with vulnerable road users, such as near schools, parks, trail crossings, and local downtown corridors.

- Signal coordination – already an important focus for DuPage County – can be utilized to encourage safer speeds, and signals can be equipped with features that will give priority and improved protection to pedestrians and bicyclists at intersections.
- Countermeasures should be applicable countywide and across multiple roadway jurisdictions.

Systemic Safety Design Principles

A set of Systemic Safety Design Principles were established to guide how the Systemic Countermeasures Toolbox is ultimately applied throughout DuPage County. These principles align safety work with the Safe System Approach and are based on best practices promulgated by FHWA as well as by discussions with DuDOT staff.

- **Focus on designs that address preventable user behaviors and conflicts that lead to crashes resulting in deaths or serious injuries**, particularly those that involve speed; intersection conflicts; and people walking, biking, and rolling.
- **Consider all users**, understanding that people need a range of mobility options and may use or cross roadways even if there are not existing dedicated or comfortable facilities.
- **Deploy safety treatments systemically and proactively at locations with similar characteristics**, even if there are not reported severe crashes at particular locations, so that the multimodal transportation network becomes safer over time.
- **Harmonize speeds limits, roadway design, and signal timing so that they are appropriate for the context and enhance safety**, including the users expected to be present, surrounding land uses, network connections, and physical features like curves and blind spots.
- **Align land use and access regulations with safety** to create multimodal, ADA-compliant connections, minimize conflicts and high-risk behaviors, and support transit.
- **Pilot, evaluate, and scale new treatments** through quick-build or test locations to build support and better understand where and how to deploy treatments on a routine basis.

Systemic Countermeasures Summary

Rather than serving as explicit design guidance, the Systemic Countermeasures Toolbox is intended to be used as a decision-making aid to advance proactive treatments for corridors and intersections of concern throughout the county. While countermeasures appropriate for County highways were prioritized, the toolbox also incorporates treatments for local agencies. This will allow for flexibility across a variety of contexts and use cases while also advancing a consistent set of treatments that may eventually become more common and visible solutions to traffic safety issues throughout DuPage County.

The proposed countermeasures are organized to achieve a balance across the design hierarchy set forth by FHWA in the *Safe System Roadway Design Hierarchy*.[i] This hierarchy groups transportation safety treatments across four tiers, ranging from those that are most aligned to least aligned with Safe System principles:

- **Tier 1: Remove Severe Conflicts**
- **Tier 2: Reduce Vehicle Speeds**
- **Tier 3: Manage Conflicts in Time**
- **Tier 4: Increase Attentiveness and Awareness**

Tiers 1 through 3 seek to provide solutions that remove potential conflicts and separate vulnerable road users from traveling vehicles, with the goal of reducing kinetic energy if a crash should occur. While countermeasures that mitigate physical exposure to severe conflicts are often the most impactful (e.g., refuge islands, separated bicycle lanes), conflicts can also be managed in time through traffic control devices, such as signals or hybrid beacons, that minimize conflicts when vulnerable users do need to share space with vehicles. Tier 4 countermeasures, meanwhile, provide critical information to the road user so they can adjust and take appropriate action. Organizing countermeasures in this way helps to ensure a balance across a variety of different types of interventions, targeting improved transportation safety through multiple angles and approaches.

In addition to the guidance provided by FHWA, countermeasures are also assessed based on the expected safety impact and level of effort required to implement, according to the strategies and countermeasures outlined in IDOT's 2023 *Vulnerable Road User Safety Assessment*.[ii] These strategies were compiled by IDOT from FHWA's *Proven Safety Countermeasures* as well as Illinois-specific guidelines and policies. Impact and level of effort (LOE) ratings were developed based on cumulative input from stakeholders across a diverse range of planning and mobility contexts in Illinois – the ratings are intended to present a relative point of comparison between countermeasures and do not seek to encourage or dissuade use of any one countermeasure based on the results.

The toolbox of Systemic Countermeasures for DuPage County is presented in Table 1. While many of these countermeasures are focused on infrastructure and other physical improvements, several behavioral, enforcement, and planning tools are also addressed and included in the toolbox. In addition to the FHWA Safe System Hierarchy Tiers and IDOT VRU impact and LOE ratings, countermeasures are presented with high-level references to their associations with DuPage County priority emphasis areas.

Table 1: DuPage County Systemic Countermeasures Summary Matrix

Countermeasure	DuPage County Safety Action Plan Emphasis Area					FHWA Safe System Hierarchy	Expected Impact and Level of Effort (LOE)*	
	Speed	Intersection	Pedestrian	Cyclist	Older Drivers	Tier	Impact	LOE
HIGH-VISIBILITY SPEED ENFORCEMENT PROGRAMS	●	●			●	2, 4	Moderate	High
ACCESS MANAGEMENT		●	●	●		1, 3	High	Moderate
LIGHTING		●	●	●	●	4	High	High
INTERSECTION DAYLIGHTING		●	●	●	●	4	High	Lower
PEDESTRIAN REFUGE ISLANDS		●	●	●		1, 2	High	Lower-Moderate
RAISED PEDESTRIAN CROSSINGS & SPEED TABLES	●	●	●	●	●	2, 4	High	Moderate
CORNER TREATMENTS	●	●	●	●		2, 3, 4	High	Moderate
SEPARATED BICYCLE LANES & SHARED-USE PATHS			●	●		1	High	High*
HIGH-VISIBILITY CROSSWALKS		●	●	●	●	2, 4	High	Lower
ROAD DIETS/RIGHTSIZING	●		●	●	●	1, 2	High	Moderate-High
SIGN VISIBILITY & SIGNAL HEAD RETRO-REFLECTIVITY ENHANCEMENTS		●			●	4	Moderate*	Lower*
SIDEWALKS			●			1	High	Varies
LANE NARROWING	●		●	●		2, 4	High	Moderate
CENTERLINE HARDENING	●	●	●	●	●	2, 3, 4	Moderate	Lower
POSITIVE OFFSET TURN LANES		●			●	3, 4	Moderate*	Moderate-High*
SPEED MANAGEMENT PLANS	●		●	●		2, 4	High	Moderate
COORDINATED SIGNAL TIMING	●	●				2, 3	High	Lower-Moderate
PROTECTED LEFT-TURN PHASING		●	●	●	●	3	High	Lower-Moderate*
PEDESTRIAN SIGNAL EQUIPMENT		●	●	●		3, 4	Moderate	Lower
FLASHING YELLOW ARROWS		●			●	3, 4	Moderate	Moderate-High*

**Tool not included in IDOT VRU Assessment, cost and impact interpolated or modified as determined by local planning context*

Systemic Countermeasure Toolbox Summaries

The following section provides a more detailed profile for each of the Systemic Countermeasure Tools. These summaries present a high-level description of each tool, the targeted crash types or behaviors from the systemic safety analysis they are intended to address, and, where applicable, the crash modification factors (CMF) available from the CMF Clearinghouse database maintained by the FHWA.[iii]

Crash Modification Factors

A CMF is a numerical value that indicates the proportion of crashes that would be expected after implementing a proposed countermeasure. CMFs are expressed as multiplicative factors, such that a value less than 1.0 indicates an expected decrease in crashes while a value greater than 1.0 indicates an expected increase in crashes. For example, a CMF of 0.80 means that the proposed treatment is expected to reduce crashes by 20%. These values are commonly used in traffic safety analysis.

CMF values are derived from empirical safety studies that evaluate the effectiveness of specific roadway treatments or countermeasures using before-and-after crash data from real-world sites. FHWA reviews and compiles these peer-reviewed studies and technical reports to support benefit-cost analyses, roadway safety audits, and other traffic safety analyses and programs to aid in data-driven decision-making.

High-Visibility Speed Enforcement Programs

Source: FHWA

What is it? High-visibility enforcement involves the proactive and visible enforcement of traffic laws by law enforcement agencies. This approach utilizes marked police vehicles, officers in highly visible locations, and public awareness campaigns to deter specific, high-risk traffic violations, promote compliance with traffic regulations, and enhance road safety through increased enforcement presence.

Targeted Crash Types/Behaviors

- Single vehicle crashes (fixed object) along segments
- Speed-related pedestrian or bicyclist crashes
- Driver failure to yield to pedestrians

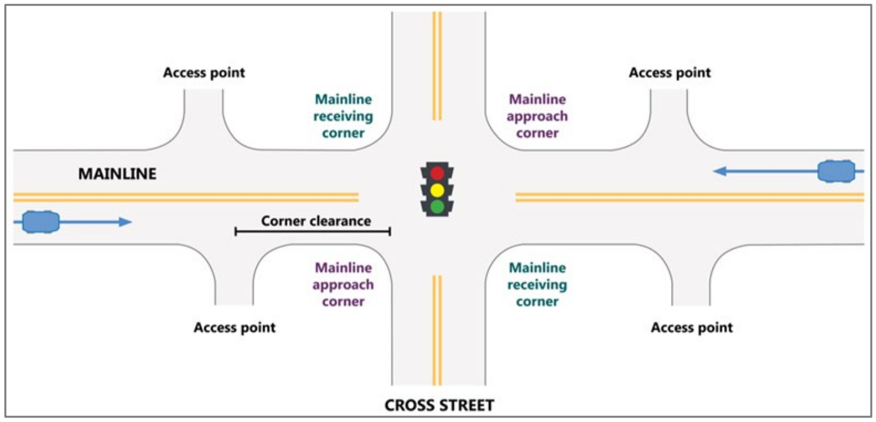
Crash Modification Factor

- N/A

More Information

- High Visibility Enforcement (HVE) Toolkit – NHTSA
- Countermeasures that Work: High-Visibility Enforcement – NHTSA

Access Management



Source: FHWA

What is it? Access management refers to the design, application, and control of entry and exit points along a roadway, such as at intersections and driveways. The aim of access management strategies is to allow access to adjacent land uses, promote efficient traffic flow, and reduce conflicts between motorists and vulnerable road users. Key to safe and efficient access management is maintaining sufficient distances between driveways and nearby intersections and consolidating the number of driveways along a roadway segment to reduce conflicts between users. Effective access management can help reduce driver fatigue in negotiating access-related conflict points, which reduces the vulnerability of people walking or biking across frequent vehicle turning points.

Targeted Crash Types/Behaviors

- Angle crashes
- Pedestrian crashes at intersections involving left-turning vehicles
- Pedestrian crashes after dark at segments/mid-block points
- Bicycle crash involving right-turning vehicle

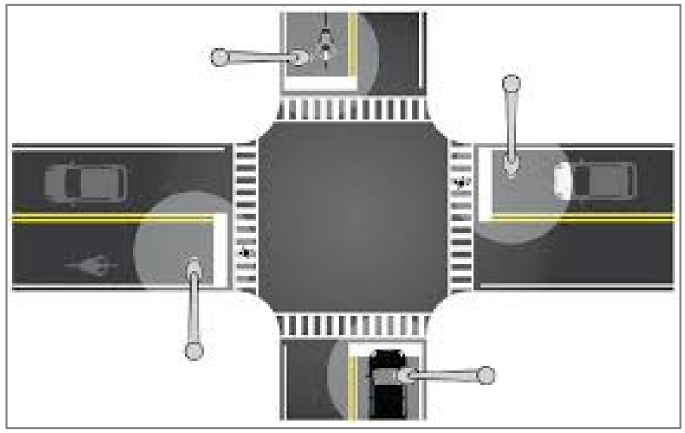
Crash Modification Factor

- Reduce driveways from 26-48 to 10-24 per mile: 0.69 (CMF ID: 178)
- Reduce driveways from 10-24 to less than 10 per mile: 0.75 (CMF ID: 179)

More Information

- What is Access Management? – FHWA
- Corridor Access Management – FHWA
- Access Management – Washington State Department of Transportation (WSDOT)

Lighting



Source: FHWA

What is it? Improved street lighting enhances visibility during nighttime and low-light conditions, reducing the risk of crashes, particularly at intersections. Pedestrian-scale lighting can create safer and more comfortable walking-conditions and may be applied differently than roadway-scale lighting treatments.

Targeted Crash Types/Behaviors

- Angle crashes after dark
- Pedestrian crashes after dark at intersections
- Pedestrian crashes after dark at segments/mid-block points
- Older driver crashes after dark

Crash Modification Factor

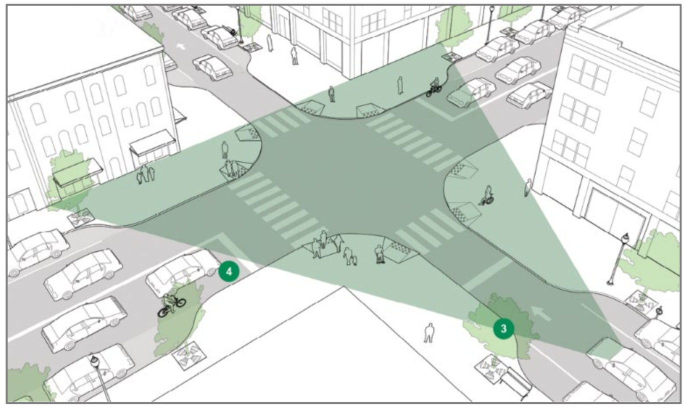
- Provide intersection illumination: 0.62 (CMF ID: 433)
- Provide highway lighting: 0.72 (CMF ID: 192)

More Information

- Proven Safety Countermeasures: Lighting – FHWA
- Roadway Lighting Resources – FHWA

Intersection Daylighting

What is it? Daylighting an intersection means reconfiguring parking or other obstructions within 20-30 feet of an intersection to enhance visibility for drivers, cyclists, and pedestrians, consistent with no parking regulations established in state law. This reduces the potential for collisions and improves overall safety at intersections and crossings. Daylighting is often enforced through signage but can be enhanced through physical infrastructure such as curb extensions or other corner treatments. Proper maintenance of vegetation is another key aspect of daylighting.



Source: NACTO

Targeted Crash Types/Behaviors

- Angle crashes at intersections
- Pedestrian crashes at intersections involving left-turning vehicles
- Pedestrian crashes after dark at intersections
- Bicycle and pedestrian crashes near trail crossings
- Bicycle crashes at intersections
- Bicycle crashes involving right-turning vehicles
- Older driver crashes at unsignalized intersections

Crash Modification Factor

- Increase triangle sight distance: 0.53 (CMF ID: 307)

More Information

- Visibility/Sight Distance – NACTO
- Vision Zero: What is Intersection Daylighting? – City of Lancaster, PA
- How to Daylight Your City's Intersections (and Why It Matters) – Strong Towns

Pedestrian Refuge Islands

What is it? Pedestrian refuge islands are raised medians in the center of a roadway at a crosswalk that provide a safe waiting area for pedestrians crossing multiple lanes of traffic. They enhance pedestrian safety by allowing people to cross one direction of traffic at a time, reducing the exposure to vehicle conflicts and improving visibility for both pedestrians and drivers.

Source: FHWA

Targeted Crash Types/Behaviors

- Pedestrian crashes at intersections involving left-turning vehicles
- Pedestrian crashes on segments with vehicles going straight, including speed-rleated crashes
- Pedestrian crashes after dark at segments/mid-block points
- Bicycle and pedestrian crashes near trail crossings

Crash Modification Factor

- Install raised median with or without marked crosswalk (uncontrolled): 0.685 (CMF ID: 8799)

More Information

- Pedestrian Refuge Island – FHWA
- Medians and Pedestrian Refuge Islands in Urban and Suburban Areas – FHWA
- Pedestrian Safety Islands – NACTO

Raised Pedestrian Crossings & Speed Tables

What is it? Raised pedestrian crossings elevate the roadway at crossing locations to slow down vehicles and enhance visibility of pedestrians. This design improves safety by requiring vehicles to slow down and by raising the profile of a crossing pedestrian. Raised crossings also improve accessibility by providing a more level crossing. Raised pedestrian crossings can be installed on minor legs of intersections or at midblock locations on streets with lower posted speeds (30 MPH or less).

Source: FHWA

Targeted Crash Types/Behaviors

- Pedestrian crashes at intersections involving left-turning vehicles
- Pedestrian crashes on segments with vehicles going straight
- Pedestrian crashes after dark at segments/mid-block points
- Bicycle and pedestrian crashes near trail crossings
- Speed-related pedestrian or bicycle crashes

Crash Modification Factor

- None currently available

More Information

- Speed Table – FHWA
- Raised Intersections – NACTO
- Speed Table – NACTO
- Raised Pedestrian Crossings – PEDSAFE

Corner Treatments

What is it? Corner Treatments modify intersection geometry to shorten pedestrian crossing distances, calm traffic, and improve visibility. Corner treatments may consist of curb extensions (also known as bump-outs) that extend the sidewalk into the roadway at intersections and/or pedestrian crossings, reducing the crossing distance and increasing pedestrian visibility. Corner treatments may also consist of reducing corner radii to calm turning vehicles and to shorten pedestrian crossing distances, reducing the time they are exposed to traffic.

Source: FHWA

Targeted Crash Types/Behaviors

- Pedestrian crashes at intersections involving left-turning vehicles
- Bicycle and pedestrian crashes near trail crossings
- Bicycle crashes involving right-turning vehicles
- Older driver crashes at unsignalized intersections

Crash Modification Factor

- None currently available for non-slip lane configurations
- Slip lane configurations: change right-turn lane geometry to increase line of sight (intersection level): 0.56 (CMF ID: 8496)

More Information

- Curb Extensions – NACTO
- Corner Radii – NACTO
- Curb Extensions – PEDSAFE

Separated Bicycle Lanes & Shared-Use Paths

What is it? Separated bicycle lanes and shared-use paths provide dedicated spaces for people biking that are physically separated from motor vehicle traffic. These facilities improve safety by adding buffers and reducing conflicts between motorists and vulnerable road users, minimizing the risk of collisions and promoting safer, more comfortable travel for non-motorized users.

Targeted Crash Types/Behaviors

- Bicycle and pedestrian crashes near trail crossings
- Bicycle crashes at intersections
- Bicycle crashes involving right-turning vehicles
- Speed-related pedestrian or bicyclist crash

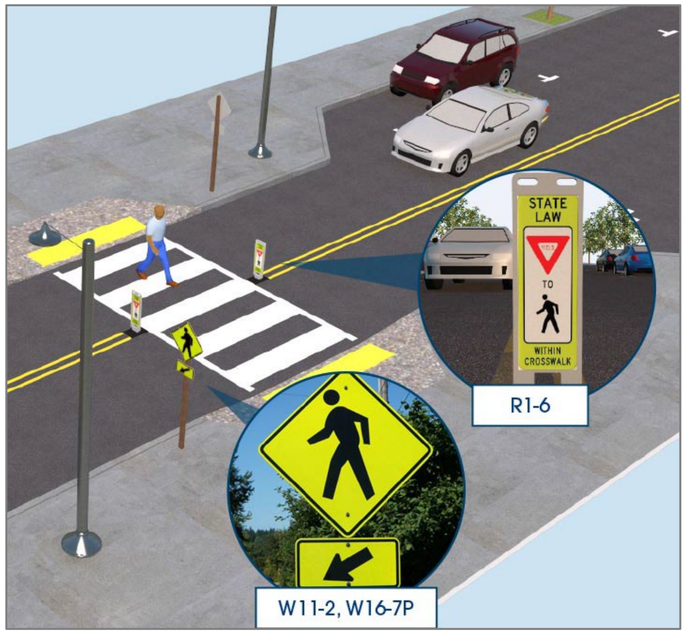
Crash Modification Factor

- Install separated bicycle lane: 0.456 (CMF ID: 11553)
- Convert traditional bike lane to separated bike lane with flexi-posts: 0.498 (CMF ID: 11294)
- Convert traditional bike lane to separated bike lane with a blend of flexi-post and other vertical elements: 0.64 (CMF ID: 11301)
- Install shared path: 0.75 (CMF ID: 9250)

More Information

- Separated Bike Lanes: Making Roads Safer for Bicyclists – FHWA
- Separated Bike Lane Planning and Design Guide – FHWA
- Separated Bike Lanes on Higher Speed Roadways: A Toolkit and Guide – FHWA
- Evaluation of Safety, Design, and Operation of Shared-Use Paths – FHWA

High-Visibility Crosswalks



Source: FHWA

What is it? High-visibility crosswalks are marked pedestrian crossings with enhanced visibility features to improve pedestrian safety. These crosswalks typically feature bold retroreflective markings and additional signage to make them more conspicuous to drivers, thereby reducing the risk of pedestrian-vehicle collisions and enhancing pedestrian access and mobility.

Targeted Crash Types/Behaviors

- Pedestrian crashes on segments with vehicles going straight
- Pedestrian crashes after dark at intersections
- Pedestrian crashes after dark at segments/mid-block points
- Bicycle and pedestrian crashes near trail crossings
- Speed-related pedestrian or bicyclist crashes

Crash Modification Factor

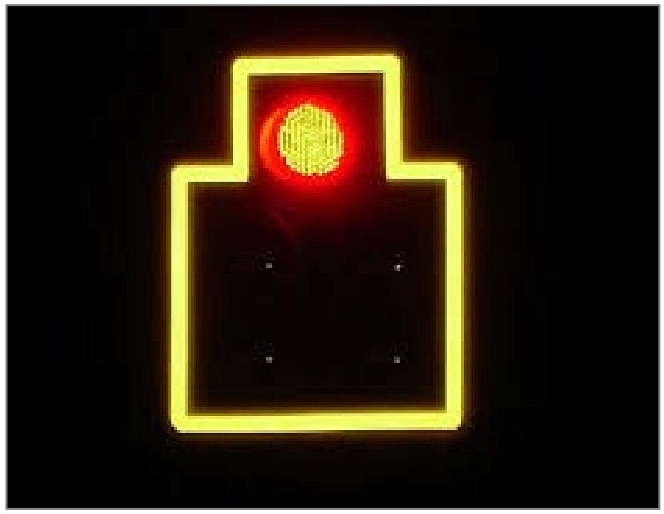
- Install high-visibility crosswalk: 0.6 (CMF ID: 4123)
- Install high-visibility yellow, continental type crosswalks at schools: 0.63 (CMF ID: 2697)
- Install advanced yield or stop markings and signs: 0.75 (CMF ID: 9017)

More Information

- Crosswalk Visibility Enhancements – FHWA
- An Overview and Recommendations of High-Visibility Crosswalk Marking Styles – Pedestrian and Bicycle Information Center
- Marked Crosswalks – PEDSAFE

Sign Visibility & Signal Head Retro-Reflectivity Enhancements

What is it? Retro-reflectivity, backplates, and low-light signage and signal head visibility enhance the visibility of traffic signals, markings, and signs in dark conditions. Retroreflective materials bounce light back to drivers, which means backplates with retro-reflective borders improve signal visibility. These measures increase safety by ensuring that road users are more likely to clearly see and respond to signs, markings, and signals, helping to reduce crash risks particularly at night and in low-light conditions.



Source: FHWA

Targeted Crash Types/Behaviors

- Pedestrian crashes at signalized intersections
- Pedestrian crashes after dark at intersections
- Older driver crashes after dark
- Older driver crashes at unsignalized intersections
- Angle crashes at signalized intersections
- Speed-related crashes on horizontal curves

Crash Modification Factor

- Improve signal visibility (includes such treatments as larger signal heads and reflective backboards): 0.71 (CMF ID: 3941)
- Improve signal visibility, including signal lens size upgrade, installation of new back-plate, and installation of additional signal heads: 0.867 (CMF ID: 4113)
- Add 3-inch yellow retroreflective sheeting to signal backplates: 0.85 (CMF ID: 1410)
- Increase retroreflectivity of stop signs: 0924 (CMF ID: 6048)
- Install new fluorescent curve signs or upgrade existing curve signs to fluorescent sheeting: 0.65 (CMF ID: 2434)

More Information

- Nighttime Visibility Sign Retroreflectivity – FHWA
- Sign Retroreflectivity Guidebook – FHWA

Sidewalks

Source: FHWA

What is it? Sidewalks provide a dedicated, separated space for pedestrians, improving safety by reducing the likelihood of pedestrian-vehicle interactions. Providing continuous and connected sidewalk networks keeps pedestrians off the roadway, can help reduce the risk of crashes, enhances walkability, and promotes safer movement in urban and suburban areas.

Targeted Crash Types/Behaviors

- Pedestrian crashes on segments with vehicles going straight
- Pedestrian crashes after dark at segments/mid-block points

Crash Modification Factor

- Install sidewalk: 0.598 (CMF ID: 11246)

More Information

- Walkways – FHWA
- Recommended Guidelines/Priorities for Sidewalks and Walkways – PEDAFE
- Sidewalks – Safe Routes to School Guide

Road Diets/Rightsizing

What is it? A road diet, also known as rightsizing or lane reduction, is a traffic calming technique that involves reallocating roadway space to accommodate multiple modes of transportation, such as pedestrians, cyclists, and public transit, while reducing the amount of space dedicated to private vehicles. This may include reducing the number of travel lanes, adding bike lanes, installing pedestrian amenities, or creating center turn lanes. Road diets are most effective when traffic volumes are appropriately low to support the reduced lane capacity. Road diets are often implemented to improve safety, reduce congestion, improve vehicle operation, enhance accessibility, and create more vibrant and walkable streetscapes.

Source: FHWA

Targeted Crash Types/Behaviors

- Pedestrian crashes at intersections involving left-turning vehicles
- Angle crashes at signalized intersections
- Older driver crashes at signalized and unsignalized intersections
- Speed-related pedestrian or bicyclist crashes

Crash Modification Factor

- Road diet (convert 4-lane undivided road to 2-lanes plus turning lane): 0.71 (CMF ID: 199)

More Information

- Road Diets (Roadway Reconfiguration) – FHWA
- Road Diet Feasibility Determination – FHWA
- Road Diet Conversions: A Synthesis of Safety Research – Pedestrian and Bicycle Information Center

Lane Narrowing

What is it? Lane narrowing involves reducing the width of motor vehicle travel lanes to encourage safer driving speeds and improve driver attention. Narrowing travel lanes can also create space for other uses, such as bike lanes or wider sidewalks, making these facilities safer for non-motorized travel.

Targeted Crash Types/Behaviors

- Speed-related single vehicle crashes with fixed objects
- Speed-related pedestrian or bicyclist crashes
- Angle crashes at signalized intersections
- Pedestrian crashes on segments with vehicles going straight

Crash Modification Factor

- Convert 12-foot lane to 11-foot lanes: 0.76 (CMF ID: 7825)
- Convert 12-foot lanes to 10-foot lanes: 0.58 (CMF ID: 7827)
- Installation of lane narrowing through rumble strips and painted median at rural stop-controlled approaches (CMF ID: 2932)

More Information

- Roadway Narrowing – FHWA
- Lane Width – NACTO
- Lane Narrowing – PEDSAFE
- Visual Narrowing – BIKESAFE
- Narrow Lanes Save Lives – Johns Hopkins

Centerline Hardening

What is it? Centerline hardening involves installing physical barriers or features, such as curbs or vertical delineators, at intersections and along roadway segments to prevent vehicles from cutting across the centerline during turns. Hardened centerlines guide motorists into the turning and receiving lane, reducing both turning speeds and the conflict zone between turning vehicles and people biking or walking. Quick-build elements are better suited for intersections with more compact roadway typology contexts, while permanent concrete medians are more appropriate for larger and more complex locations such as major arterial intersections.

Targeted Crash Types/Behaviors

- Pedestrian crashes at signalized intersections
- Pedestrian crashes at intersections involving left-turning vehicles
- Pedestrian crashes after dark at intersections
- Bicycle crashes at intersections
- Angle crashes at signalized intersections
- Older driver crashes at signalized intersections

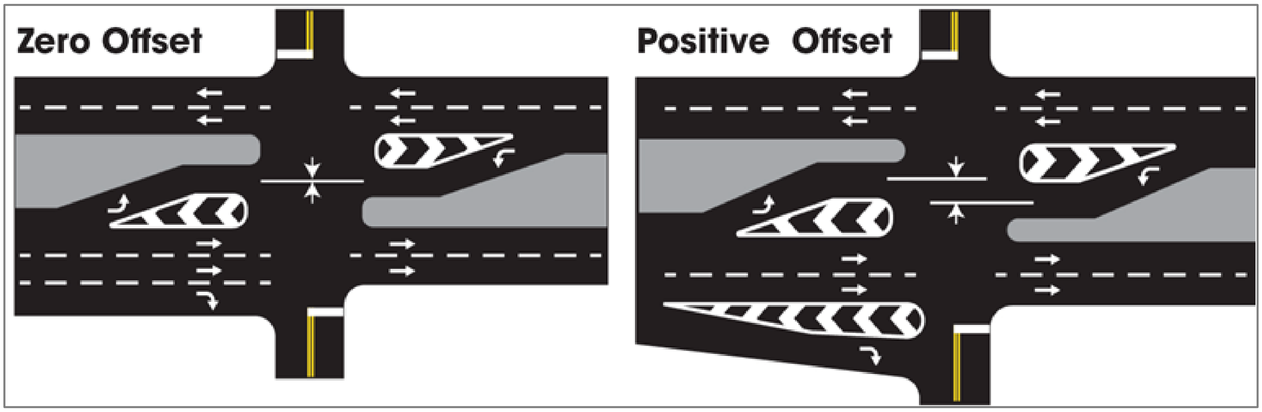
Crash Modification Factor

- Place edgeline and centerline markings: 0.76 (CMF ID: 101)
- Install edgelines, centerlines, and post-mounted delineators: 0.55 (CMF ID: 102)
- Install raised pavement markers with restriping (center and edgelines): 0.78 (CMF ID: 5505)

More Information

- Hardened Centerlines – Maryland Department of Transportation State Highway Administration Context Driven Toolkit
- Left Turn Traffic Calming – City of Chicago

Positive Offset Turn Lanes



Source: FHWA

What is it? Positive offset turn lanes are designed to improve visibility and reduce conflicts at intersections by offsetting opposing turning lanes, allowing drivers to see oncoming traffic more clearly as opposed to turn lanes with zero or negative offset, where turning vehicles may block sightlines. Positive offset turn lanes are preferable at locations with higher speeds, or where free-flow or permissive movements are possible.

Targeted Crash Types/Behaviors

- Angle crashes at signalized intersections
- Older driver crashes at signalized intersections
- Older driver crashes at unsignalized intersections
- Older driver crashes after dark

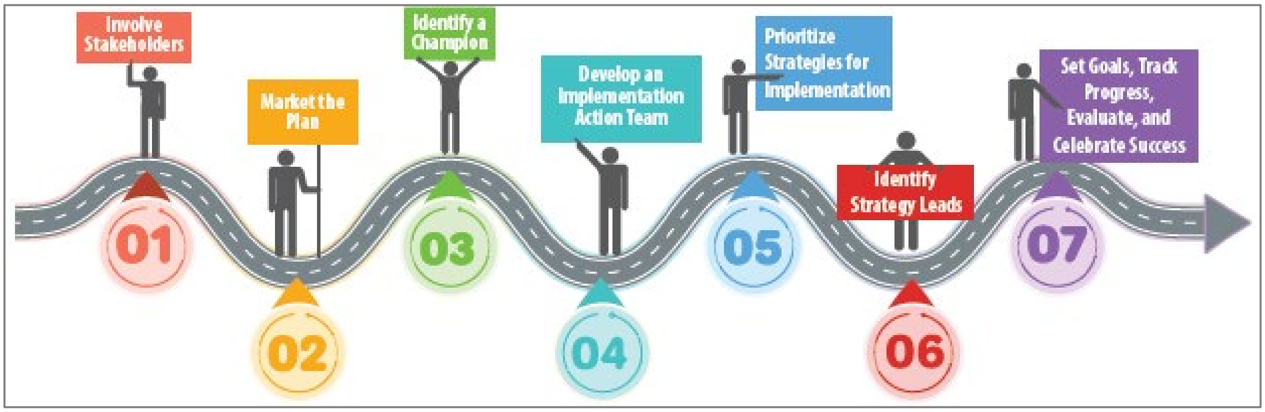
Crash Modification Factor

- Introducing zero or positive offset left-turn lane on crossing roadway: 0.74 (CMF ID: 276)
- Improve left-turn lane offset to create positive offset: 0.662 (CMF ID: 6095)
- Install offset right turn lane: 0.31 (CMF ID: 2777)

More Information

- Dedicated Left- and Right-Turn Lanes at Intersections – FHWA
- Safety Evaluation of Offset Improvements for Left-Turn Lanes – FHWA
- Provide Offset to Left-Turn Lanes – ITE

Speed Management Plans



Source: FHWA

What is it? Speed management plans involve a comprehensive approach to regulating and moderating vehicle speeds through measures such as road design, enforcement, and education. Speed management plans offer an approach to better understanding specific corridors with observed safety problems that can result in a more refined, context-sensitive menu of countermeasures to consider. These plans enhance safety for all road users by reducing future crash risks, promoting safer driving behavior, and accommodating the needs of vulnerable users like pedestrians and cyclists.

Targeted Crash Types/Behaviors

- Speed-related single vehicle crashes with fixed objects along segments
- Speed-related pedestrian or bicyclist crashes

Crash Modification Factor

- N/A

More Information

- [Speed Management Action Plan Development – FHWA]
- [Creating a Speed Management Program – ITE]
- [Speed Management: Addressing Our Regional Traffic Safety Crisis – CMAP]

Coordinated Signal Timing

Source: FHWA

What is it? Coordinated signal timing harmonizes traffic flow by synchronizing traffic signals along a corridor, which can help reduce congestion and minimize stop-and-go conditions. This improves safety by facilitating more predictable interactions for road users and establishing expectations for safer speeds with fewer interruptions.

Targeted Crash Types/Behaviors

- Pedestrian crashes at signalized intersections
- Pedestrian crashes at intersections involving left-turning vehicles
- Bicycle crashes at intersections
- Angle crashes at signalized intersections
- Older driver crashes at signalized intersections
- Speed-related single vehicle crashes along segments
- Speed-related pedestrian or bicyclist crashes

Crash Modification Factor

- Install coordination or adaptive signal timing of urban traffic signals: 0.83 (CMF ID: 6856)

More Information

- Coordinated Signal Timing – NACTO
- Traffic Signal Coordination – Maryland Transportation Systems Management & Operations

Protected Left-Turn Phasing

Source: PEDSAFE

What is it? Protected left turn phasing promotes intersection safety by allowing left-turning vehicles to proceed only after oncoming traffic has cleared, reducing the risk of collisions through a dedicated signal phase rather than relying on drivers' judgment to find a safe gap in through traffic. This is typically achieved by using the red arrow to prohibit left turns at all times except when the green arrow is displayed. Protected left-turn phasing is possible where the existing intersection geometry can safely accommodate the associated increase in drivers occupying the left-turn lane.

Targeted Crash Types/Behaviors

- Pedestrian crashes at signalized intersections
- Pedestrian crashes at intersections involving left-turning vehicles
- Pedestrian crashes after dark at intersections
- Bicycle crashes at intersections
- Angle crashes at signalized intersections
- Older driver crashes at signalized intersections
- Speed-related pedestrian or bicyclist crashes

Crash Modification Factor

- Install left-turn lane (signal has left-turn phase): 0.65 (CMF ID: 1581)
- Change permissive left-turn phasing to protected only: 0.23 (CMF ID: 4157)
- Provide protected left-turn phase: 0.69 (CMF ID: 10233)

More Information

- Safety Evaluation of Protected Left-Turn Phasing on Pedestrian Safety – FHWA
- Left Turn Phasing – PEDSAFE

Pedestrian Signal Equipment

What is it? Pedestrian signals help pedestrians more safely cross the street by clearly indicating when they have the appropriate phase and by raising the attention of vehicle users. Modernized equipment such as countdown timers further improves safety. Pedestrian signal timing is also important – adequate time should be given for pedestrians of all ages and abilities to clear the crossing. Additionally, Leading Pedestrian Intervals (LPIs) can be added to provide a walk signal a few seconds before vehicles receive a green light, allowing pedestrians to gain a more visible position before traffic is released.

Targeted Crash Types/Behaviors

- Pedestrian crashes at signalized intersections
- Pedestrian crashes at intersections involving left-turning vehicles
- Pedestrian crashes after dark at intersections
- Bicycle crashes at intersections
- Bicycle crashes involving right-turning vehicles

Crash Modification Factor

- Increase length of signal phases to allow pedestrians more crossing time: 0.49 (CMF ID: 5252)
- Replace existing walk/don't walk signals with pedestrian countdown signal heads: 0.75 (CMF ID: 1409)
- Modify signal phasing (implement a leading pedestrian interval): 0.54 (CMF ID: 9915)

More Information

- Leading Pedestrian Interval – FHWA
- Pedestrian Signal Timing – PEDSAFE
- Push Buttons & Signal Timing – PEDSAFE
- Signal Cycle Lengths – NACTO
- Intersection Signalization and Timing Plans – Accessible Pedestrian Signals

Flashing Yellow Arrows

Source: Lake County, IL

What is it? Flashing Yellow Arrows (FYA) are traffic signal indications that allow drivers to make left turns after yielding to oncoming traffic and pedestrians while they have a green signal. Flashing yellow arrows have been shown to have several benefits compared to traditional yield-on-green signal strategies, including minimizing delays and enhancing safety by reducing driver errors.

Targeted Crash Types/Behaviors

- Angle crashes at signalized intersections
- Older driver crashes at signalized intersections
- Older driver crashes after dark

Crash Modification Factor

- Install left turn flashing yellow arrow signals and supplemental traffic signs: 0.857 (CMF ID: 7730)
- Change from permissive only to flashing yellow arrow permissive only: 0.349 (CMF ID: 7701)
- Change from 5-section "doghouse" protected/permissive left turn to flashing yellow arrow protected/permissive left turn: 0.747 (CMF ID: 7697)

More Information

- Safety Evaluation of Flashing Yellow Arrow at Signalized Intersections – FHWA
- Flashing Yellow Arrow Traffic Signals – Minnesota Department of Transportation

4 Typologies

To guide implementation of the selected systemic countermeasures that will address high-crash and high-risk areas identified through the SAP, eight roadway typologies have been developed for DuPage County. These typologies demonstrate how a suite of countermeasures can be brought together to solve challenges common to a certain type of roadway or intersection with demonstrated safety issues. When evaluating a roadway or intersection for improvements, these typologies serve as a reference to help diagnose safety problems and to develop a comprehensive list of countermeasures.

Typology Development

Typologies for DuPage County were derived through close examination of the DuPage County HIN, the Systemic Safety Conditions analyses from the ESC section, and direct consultation with DuDOT and CMAP staff members. These typologies capture different forms and contexts of roadway segments, intersections, and zones across DuPage County. They are not meant to reflect every unique context where traffic safety issues may be present. Instead, this set of typologies presents how the Systemic Countermeasures Toolbox can be applied given common roadway characteristics associated with higher risk crashes. The typologies provide an opportunity for systemic application of select countermeasures through site-specific examples and discussion of shared risk factors.

The Systemic Countermeasure Toolbox treatments that accompany each typology description offer a starting point for considering tools identified in the previous section that may be most appropriate for future improvements at a certain type of location. In addition to these systemic countermeasures, other traffic safety tools may also be appropriate depending on local context and as evaluated through planning and engineering judgement. Larger and more complex improvements – such as roundabouts, grade separations, and roadway reconstruction projects – also play an important role in eliminating traffic fatalities and should be evaluated at locations with persistent safety problems as necessary. Given the significant project development timelines and limitations on resources required to implement such projects, however, the SAP focuses on the identification of systemic treatments with the potential for widespread application.

DuPage County Typologies

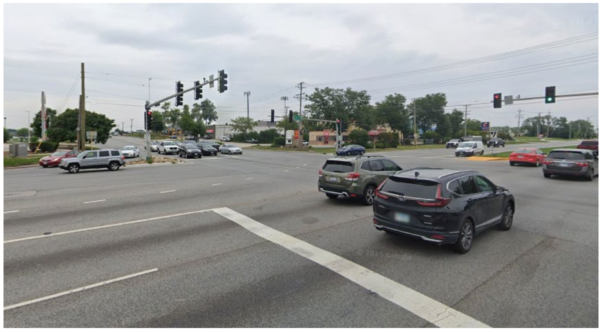
Typologies created for the DuPage County SAP based on systemic analysis, review of the HIN, and stakeholder and community feedback include:

Intersections	Segments	Zones
• Major Arterial Intersections • Uncontrolled Bicycle & Pedestrian Crossings • Unsignalized Intersections	• Major Arterials • Speed Transitions • Rural Roads	• School & Park Zones • Local Downtowns & Main Streets

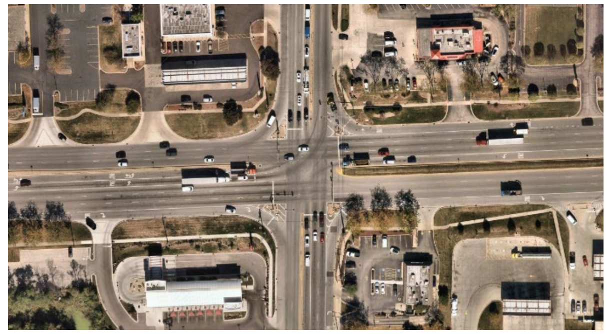
Each typology is described on the following pages by characteristic land use and roadway features, common roadway safety concerns, and potential applications for treatments identified in the Systemic Countermeasure Toolbox. A matrix of safety countermeasures by typology is presented in Table 2.

Major Arterial Intersections

Example: IL-53 & IL-64 (North Columbine Avenue/South Rohlwing Road & North Avenue) – Lombard



Source: Google Streetview



Source: Nearmap

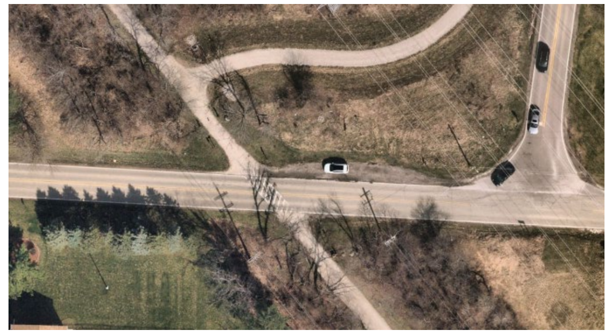
Locations where multiple high-volume and high-speed arterials (typically with five or more travel lanes) converge at signalized intersections.

Characteristic Land Use and Roadway Features	Common Safety Concerns	Systemic Countermeasure Toolbox Applications
• High traffic volumes, often exceeding 40,000-50,000 vehicles per day on at least one approach • Multiple through lanes in each direction plus dedicated left- and/or right-turn lanes • Signalized intersection controls, often with six or eight signal phases • Sparse, non-continuous, or inadequate pedestrian and bicycle infrastructure • Long pedestrian crossing distances • Large corner radii to facilitate truck movements and higher speed right turns • Limited access management near intersections and frequent driveways	• High crash frequencies, including severe crash types, such as angle and left-turn crashes • High-speed turning movements that may increase conflicts with and vulnerability for non-motorized users • Decision-making complexity for drivers resulting from multiple lanes, signal phases, and high traffic volumes • Aggressive driving behaviors	• High-Visibility Speed Enforcement Programs • Access Management • Coordinated Signal Timing • Centerline Hardening • Corner Treatments • Sign Visibility & Signal Head Retro-Reflectivity Enhancements • Sidewalks • Protected Left-Turn Phasing • Positive Offset Turn Lanes • Pedestrian Signal Equipment • Flashing Yellow Arrows

Uncontrolled Bicycle & Pedestrian Crossings

Example: Smith Road & Munger Road (Illinois Prairie Path) – Wayne

Source: Google Streetview



Source: Nearmap

Locations where sidewalks, bicycle paths, or trails cross roads without the presence of a stop-control or traffic signal, often resulting in lower yield rates and worse visibility of crossing pedestrians and bicyclists.

Characteristic Land Use and Roadway Features	Common Safety Concerns	Systemic Countermeasure Toolbox Applications
• No active traffic control (e.g., no traffic signals, stop signs) • Typically located on collector or minor arterial roads with moderate to high traffic speeds (30-45 MPH) • Presence of sidewalks, side paths, or multi-use trails intersecting the roadway • Marked crosswalks and signs are often present, but with limited other crossing treatments • Approach visibility may be limited by curves, vegetation, driveways, or skewed intersection configurations • Varied lighting conditions • Crossings may be mid-block or offset from intersections, reducing driver expectancy	• Low driver yield rates, especially where markings or signage is minimal • High-speed vehicle approaches • Pedestrian/bicyclist misjudgment of vehicle speed and gaps in traffic • Lack of visibility of crossing users, particularly in low-light or adverse weather conditions • High exposure risk for vulnerable users crossing multiple travel lanes, creating multi-threat crashes (i.e., crashes where one driver yields but another does not) • Conflicts with turning vehicles, especially near driveways or unsignalized intersections	• High-Visibility Speed Enforcement Programs • Pedestrian Refuge Islands • Raised Crossings & Speed Tables • Lighting • High-Visibility Crosswalks • Intersection Daylighting • Corner Treatments • Sign Visibility & Signal Head Retro-Reflectivity Enhancements • Lane Narrowing

Unsignalized Intersections

Example: Garys Mill Road & Roosevelt Road (IL-38) – West Chicago

Source: Google Streetview

Source: Nearmap

Locations where collector or minor arterial roadway segments intersect without traffic signals, typically featuring stop-controls on the minor leg. Unsignalized intersections may also be offset or have acute angle approaches, leading to reduced visibility. These intersections carry higher-speed and higher-volume traffic on the major approach, particularly when compared to the minor approach.

Characteristic Land Use and Roadway Features	Common Safety Concerns	Systemic Countermeasure Toolbox Applications
• Intersections, often between minor arterials and/or collectors, typically with stop-controls on the minor leg only • Major leg operates under free-flow traffic conditions • Higher-speed, higher volume traffic on the major leg; lower volumes on the minor leg • Limited gaps in traffic during peak periods on the major leg • One or more through lanes on the major leg, often with single-lane approaches on the minor leg • Approach visibility on the minor leg may be limited by curves, vegetation, driveways, or skewed intersection configurations • May lack dedicated turn lanes or channelization	• Angle crashes due to failure to yield on the minor street • Conflicts between left-turning road users and through traffic on the major roadway • High risk pedestrian and bicycle crossing conditions due to lack of or insufficient crossing infrastructure • High approach speeds reduce driver reaction time and increase crash severity • Limited driver expectancy for side-street vehicles or crossing pedestrians • Complex intersection geometry, including skews or wide corner radii that facilitate fast turns • Access management issues with nearby driveways or curb cuts	• Access Management • Lighting • Intersection Daylighting • Corner Treatments • Sign Visibility & Signal Head Retro-Reflectivity Enhancements • High-Visibility Crosswalks • Centerline Hardening • Positive Offset Turn Lanes • Lane Narrowing

Major Arterial Roads

Example: 75th Street – Downers Grove

Source: Google Streetview

Source: Nearmap

High-capacity roadway segments intended for higher-speed travel, typically featuring multiple travel lanes and elevated volumes of both passenger vehicles and trucks. These corridors prioritize vehicle throughput and often serve as key regional connectors.

Characteristic Land Use and Roadway Features	Common Safety Concerns	Systemic Countermeasure Toolbox Applications
• Multiple travel lanes per direction with wide rights-of-way or travel lanes • Designed for higher operating speeds, typically between 40-55 MPH in suburban settings • High traffic volumes, often exceeding 40,000-50,000 vehicles per day • Truck traffic, particularly near industrial zones or commercial corridors • Signalized intersections spaced at regular intervals, often with coordinated signal timing • Sparse, non-continuous, or inadequate pedestrian and bicycle infrastructure • Commercial land uses, often set behind parking lots • Lighting is often present, but coverage and consistency may vary	• High-speed crashes, including sideswipe, rear-end, and fixed-object collisions • Barriers to pedestrian and bicyclist access due to limited crossing points, high speeds, and lack of protection away from signalized intersections • Driveway-related conflicts, particularly where access management is not strictly applied • Aggressive driving and lane changing behaviors • Heavy vehicle conflicts, such as turning trucks encroaching into adjacent lanes • Low-light visibility issues	• Access Management • Speed Management Plans • Lane Narrowing • Coordinated Signal Timing • Sign Visibility & Signal Head Retro-Reflectivity Enhancements • High-Visibility Speed Enforcement Programs • Separated Bicycle Lanes & Shared-Use Paths • Sidewalks

Speed Transitions

Example: Chicago Avenue – Naperville

Source: Google Streetview

Source: Nearmap

Collector and minor arterial road segments that serve as transitional routes between higher-speed corridors and lower-speed, pedestrian- or residential-oriented areas. These road segments often exhibit changes in roadway context and travel behavior but may lack consistent infrastructure or design to better match the appropriate speeds for a roadway and adjacent land use character.

Characteristic Land Use and Roadway Features	Common Safety Concerns	Systemic Countermeasure Toolbox Applications
• Roadway segments that transition between higher-speed corridors and residential or more walkable areas • Two to four travel lanes, sometimes with center turn lanes • Inconsistent bicycle and pedestrian infrastructure, with sidewalks or bike lanes beginning or ending abruptly • Shoulders may temporarily serve as a de facto space for walking or biking where facilities are missing • Land use transitions from low-density residential or open space to more active uses (e.g., schools, parks, libraries, downtowns) • Crossings may be present but have low visibility or lack protective enhancements	• Speeding that carries over from higher-speed contexts into transitional or residential areas, with limited roadway design cues to signal a change • Discontinuous sidewalks or bike lanes, forcing users into travel lanes or shoulders near traffic • Limited crossing opportunities, especially midblock or near bus stops, with poor driver yield rates • Conflict points at unsignalized intersections • Crash risk during turning movements, where geometric changes or visibility are not well aligned with driver expectation	• Separated Bicycle Lane & Shared-Use Paths • Sign Visibility & Signal Head Retro-Reflectivity Enhancements • Sidewalks • Road Diets/Rightsizing • Lane Narrowing • Coordinated Signal Timing • Lighting • High-Visibility Speed Enforcement Programs

Rural Roads

Example: Fabyan Parkway (County Road 21) – West Chicago

Source: Google Streetview

Source: Nearmap

Roadway segments that traverse forested, agricultural, or otherwise underdeveloped areas, characterized by widely spaced intersections, limited roadside development, and minimal active transportation infrastructure. These segments may serve longer-distance travel and connect lower-density parts of the County to commercial or institutional areas.

Characteristic Land Use and Roadway Features	Common Safety Concerns	Systemic Countermeasure Toolbox Applications
• Two-lane undivided roads, typically with narrow or unpaved shoulders • Higher posted and operating speeds (40-55 MPH), with infrequent speed transitions • Longer distances between intersections, driveways, and cross streets • Segments surrounded by natural features or farmland, with minimal adjacent development • Limited access points and minimal traffic controls • Sidewalks, bike lanes, and crosswalks are typically absent • Limited lighting infrastructure	• Limited sight distance caused by horizontal or vertical curvature, vegetation, or lack of lighting • Roadway departure crashes, particularly on curves or in poor weather conditions • High-speed head-on or sideswipe collisions due to lack of median separation • Poor pavement conditions, including unpaved or degraded shoulders • Speeding and inattentive driving, especially during off-peak hours with little traffic • Absence of adequate facilities for pedestrians and bicyclists	• High-Visibility Speed Enforcement Programs • Lighting • Sign Visibility & Signal Head Retro-Reflectivity Enhancements • Speed Management Plans • Centerline Hardening • Shared-Use Paths

School & Park Zones

Example: Clarendon Hills Road & Plainfield Road – Darien

Source: Google Streetview

Source: Nearmap

Areas around schools and parks where vulnerable road users, particularly children, are frequently present. Despite the presence of lower speed limits or signage in some cases, these zones may lack adequate infrastructure, enforcement, or visibility, leading to elevated risk of conflicts between vehicles and vulnerable users.

Characteristic Land Use and Roadway Features	Common Safety Concerns	Systemic Countermeasure Toolbox Applications
• Roadway segments and intersections directly adjacent to schools, playgrounds, community centers, and public parks • High volumes of pedestrian activity, especially during arrival and dismissal hours • Reduced speed limits (20 MPH) • School zone signage and pavement markings, often with fluorescent yellow-green signs • Curb management, including no-parking zones, bus loading areas, and designated pick-up/drop-off areas • Sidewalks often present, though quality and connectivity to nearby neighborhoods may vary	• Speeding, especially outside of peak school hours or where signage is limited • Driver distraction or yielding noncompliance near crossing locations • Midblock pedestrian crossings, including children darting out between parked cars • Uncontrolled intersections near schools or parks, often lacking high-visibility crosswalks or traffic calming • Conflicts between drivers and pedestrians or bicyclists due to double parking, U-turns, or other similar behaviors	• Sidewalks • Lane Narrowing • Pedestrian Refuge Islands • Raised Crossings & Speed Tables • Lighting • High-Visibility Crosswalks • Sign Visibility & Signal Head Retro-Reflectivity Enhancements • Intersection Daylighting • Centerline Hardening • Corner Treatments • Pedestrian Signal Equipment • High-Visibility Speed Enforcement Programs • Speed Management Plans

Local Downtowns & Main Streets

Example: Lincoln Street & Hinsdale Avenue – Hinsdale

Source: Google Streetview

Source: Nearmap

Commercial main streets and local downtown areas featuring retail, dining, and civic destinations, with elevated levels of pedestrian, bicycle, and transit activity. These zones often include on-street parking, frequent turning movements, and access to Metra rail stations, requiring multimodal safety treatments and traffic calming enhancements to support a walkable environment as people transition between travel modes.

Characteristic Land Use and Roadway Features	Common Safety Concerns	Systemic Countermeasure Toolbox Applications
• Two- or three-lane streets with low to moderate vehicle speeds (typically 20-30 MPH) • On-street parking on one or both sides, with varying curb cut and driveway frequency • Street furniture, trees, lighting, and signage contribute to a people-focused streetscape • Higher pedestrian and bicycle activity • Frequent intersections and midblock crossings • Presence of Metra rail stations and/or other transit services, resulting in peak-hour pedestrian activity • Marked crosswalks	• Pedestrian-vehicle conflicts, especially at unsignalized intersections and driveways • Frequent turning movements, including left-turns through pedestrian paths and right-turns on red • Visibility issues, such as sightline obstructions from parked cars • Driver inattention to pedestrian activity, with limited yield rates • Bicycle facility gaps • Double-parking or loading zone violations • Overly large travel lanes or curb radii, enabling higher-than-intended speeds	• Separated Bicycle Lanes & Shared Use Paths • Lighting • Sidewalks • Access Management • Road Diets/Rightsizing • Lane Narrowing • Raised Crossings & Speed Tables • Pedestrian Signal Equipment • High-Visibility Crosswalks • Sign Visibility & Signal Head Retro-Reflectivity Enhancements • Intersection Daylighting • Corner Treatments • Speed Management Plans • Coordinated Signal Timing • Flashing Yellow Arrows

Table 2: Systemic Countermeasures by Typology

	Typology							
	Intersections			**Segment**			**Zones**	
	Major Arterial Intersections	Uncontrolled Bicycle & Pedestrian Crossings	Unsignalized Intersections	Major Arterial Roads	Speed Transitions	Rural Roads	School & Park Zones	Local Downtowns & Main Streets
HIGH-VISIBILITY SPEED ENFORCEMENT PROGRAMS	●	●		●	●	●	●	
ACCESS MANAGEMENT	●		●	●				●
LIGHTING		●	●		●	●	●	●
INTERSECTION DAYLIGHTING		●	●				●	●
PEDESTRIAN REFUGE ISLANDS		●					●	
RAISED PEDESTRIAN CROSSINGS & SPEED TABLES		●					●	●
CORNER TREATMENTS	●	●	●				●	●
SEPARATED BICYCLE LANES & SHARED-USE PATHS				●	●	●		●
HIGH-VISIBILITY CROSSWALKS		●	●				●	●
ROAD DIETS/RIGHTSIZING					●			●
SIGN VISIBILITY & SIGNAL HEAD RETRO-REFLECTIVITY ENHANCEMENTS	●	●	●	●	●	●	●	●
SIDEWALKS	●			●	●		●	●
LANE NARROWING		●	●	●	●		●	●
CENTERLINE HARDENING	●		●			●	●	
POSITIVE OFFSET TURN LANES	●		●					
SPEED MANAGEMENT PLANS				●		●	●	●
COORDINATED SIGNAL TIMING	●			●	●			●
PROTECTED LEFT-TURN PHASING	●							
PEDESTRIAN SIGNAL EQUIPMENT	●						●	●
FLASHING YELLOW ARROWS	●				●			●

References

[i] Federal Highway Administration Office of Safety. “Safe System Roadway Design Hierarchy,” January 2024, https://highways.dot.gov/sites/fhwa.dot.gov/files/2024-01/Safe_System_Roadway_Design_Hierarchy.pdf.

[ii] Illinois Department of Transportation, “Vulnerable Road User Safety Assessment,” November 2023, https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/manuals-guides-and-handbooks/safety/il-dot-vru-2023-11142023-final-spreads.pdf.

[iii] U.S. Department of Transportation Federal Highway Administration, “Crash Modification Clearinghouse,” https://cmfclearinghouse.fhwa.dot.gov/index.php

5 Benchmarks & Safety Performance

SAFE TRAVEL FOR ALL

Benchmarks and Safety Performance Contents

1 Introduction

Reducing roadway deaths and serious injuries in DuPage County to achieve a future state where no one loses their life or is seriously injured will hinge on a sustained commitment of all stakeholders to incorporate the Safety Action Plan (SAP) findings and strategies into their work. Consistent with the tenet of shared responsibility at the center of the Safe System Approach, DuPage County and its partners commit to monitoring safety performance across the County and accountability in demonstrating progress on the Safety Action Plan (SAP) strategies and actions. This SAP is a starting point to realize the countywide commitment to zero deaths and serious injuries. Ongoing data-driven assessment and updates to future and ongoing safety initiatives by DuPage County, the Chicago Metropolitan Agency for Planning (CMAP), and partners are anticipated as the SAP is implemented.

The Benchmarks and Safety Performance (BSP) section is composed of two pieces:

- **Performance Measures:** the metrics that DuPage County and CMAP will track on an annual basis, as data are made available. SAP performance is based on three categories:
    - Safety Action Plan Targets: progress towards the top-level plan commitment
    - Regional Safety Performance Measures: required regional reporting that informs regional safety progress
    - Supplemental Performance Measures: county-specific performance measures of key crash types and investment levels
- **Accountability**: how DuPage County and CMAP will publicly report on plan implementation and updates.

The BSP incorporates requirements of the United States Department of Transportation (USDOT) Safe Streets and Roads for All (SS4A) action plans, CMAP's regional safety action plan framework, and the input and direction of CMAP and DuPage County staff. The BSP fulfills USDOT's SS4A Self-Certification Eligibility Worksheet requirement #7: Progress and Transparency.

2 Performance Measures

Safety Action Plan Targets

Consistent with the roadway safety goal set in CMAP's most recent comprehensive plan, *ON TO 2050*, and in line with other counties in Northeastern Illinois, DuPage County has coalesced around a vision where no one loses their life or is seriously injured while using the transportation system. The 2023 benchmark is 385.4 total serious injuries and fatalities, based on the five-year moving average 2019-2023.[1]

Achieving the DuPage SAP's target will require more than just the actions of DuPage County government and the municipalities within the county. Regularly evaluating the primary outcomes of the SAP as it is implemented will shed light on whether additional partners, such as other units of government and the private sector, will need to be engaged. Similarly, roadway safety in DuPage County is shaped by safety elsewhere in the region. By comparing progress towards targets with the other five counties (Cook, Lake, Kane, Will, McHenry) in northeastern Illinois, DuPage County can learn from peers while also serving as an example.

DuPage County will monitor progress towards its aim of a 2% annual reduction of all fatalities and serious injuries. As there are relatively small numbers of deaths and serious injuries, DuPage County will monitor the five-year moving average to establish the trends for this top-line performance measure.

Achieving the target reductions will require reversing the rising trend in fatalities and continuing the work of reducing serious injuries. Figure 1 depicts the trend of historical DuPage fatalities (2008-2023), the SAP baseline, and the target trend. The equivalent performance, baseline, and target trend for serious injuries are shown in Figure 2. All future trends shown are based on the aspirations of the SAP and may not be in line with projections of past performance. For instance, in the years prior to the SAP, the five-year rolling fatality average increased. However, serious injuries have fallen much more quickly in the county on average over the past 15 years. While it will take time for the effects of the SAP to be realized, and there will likely be deviations along the way, the target trends provide a basis for informed assessment.

[1] Other sections of the SAP are based on 2018-2022 IDOT crash data. The 2023 crash year became available when developing the BSP, so the most recent data were used to establish the performance baseline.

Figure 1: DuPage County SAP Fatality Target Trend through 2050

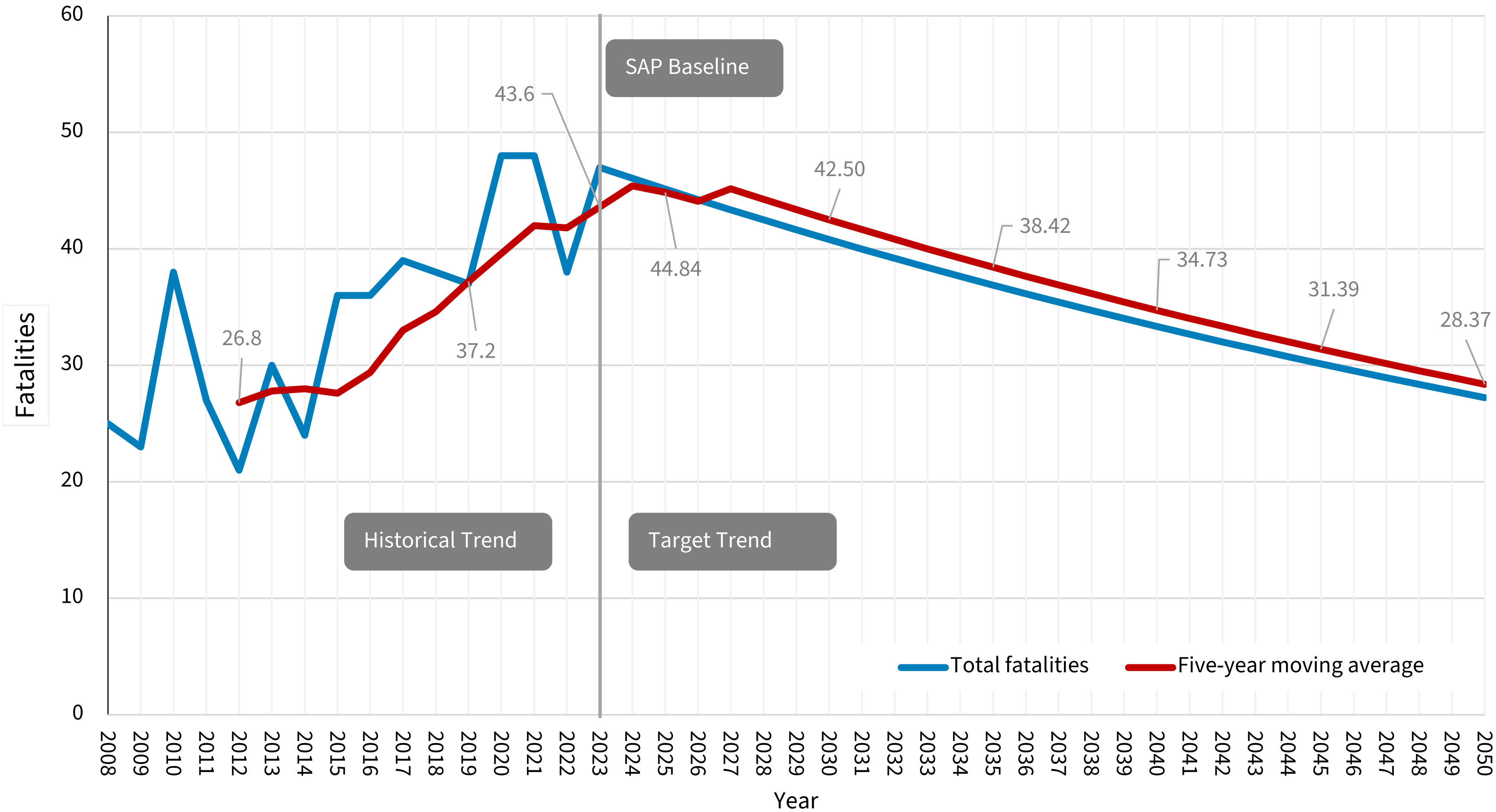
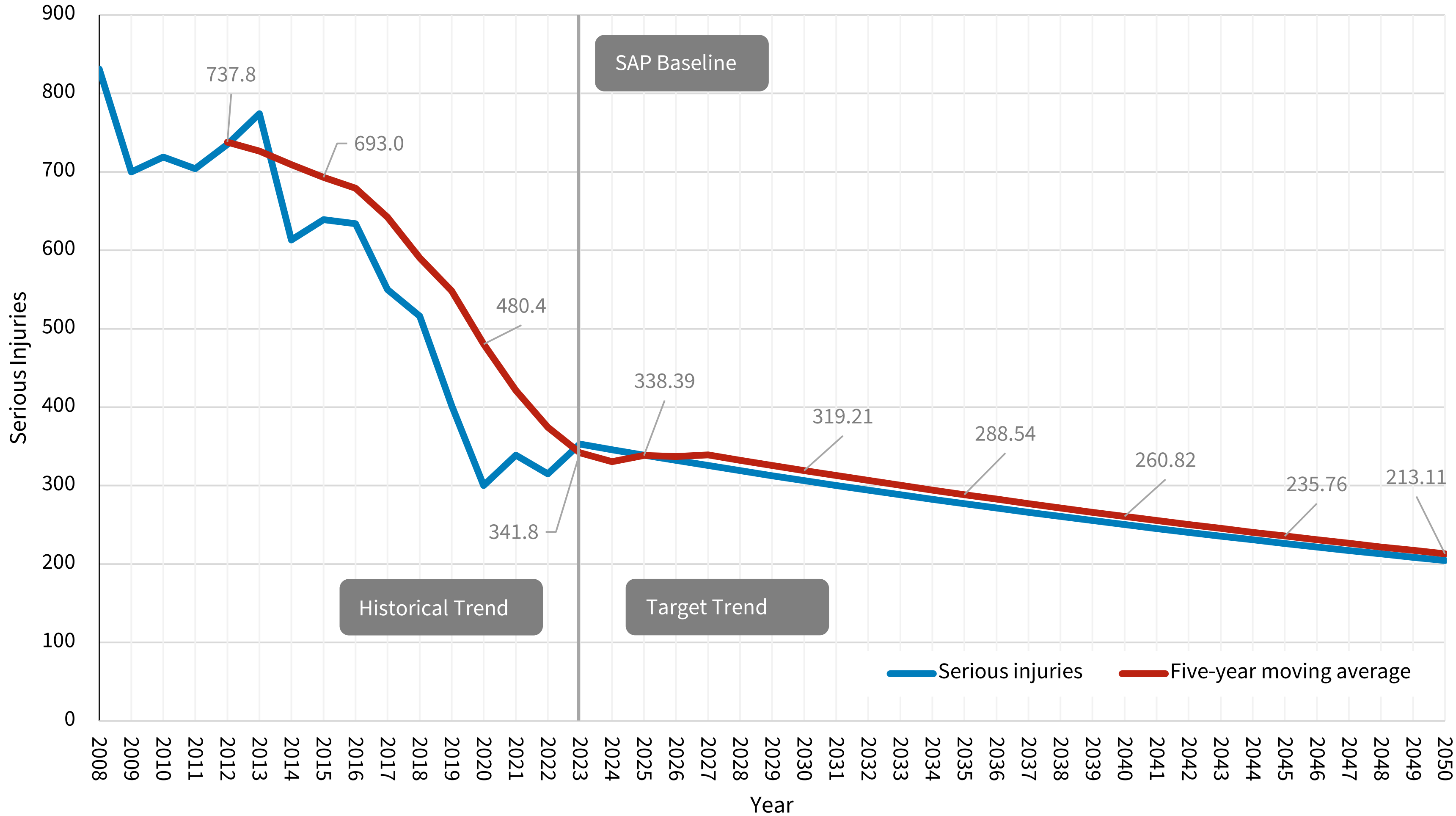


Figure 2: DuPage County SAP Serious Injury Target Trend through 2050



Regional Safety Performance Measures

To complement the annual assessment of progress towards the DuPage SAP severe crash reduction target, DuPage County will monitor existing baseline performance measures established by the Federal Highway Administration (FHWA) for the CMAP region. These performance measures are total fatalities (all users), the fatality rate per hundred million vehicle miles traveled (HMVMT), total serious injuries (all users), the serious injury rate per HMVMT, and the sum of nonmotorized (e.g., pedestrians and cyclists) fatalities and serious injuries.

Compiling these performance measures is indicative of the partnerships needed to implement the SAP. Timely, accurate crash data are needed to get trusted data into the hands of implementers and leaders to inform decision making. Similarly, regional cooperation is beneficial to compare results and trends among Counties and other units of government to put trends into perspective.

The SAP baseline, defined as the 2023 five-year moving average, for each regional safety performance measure is presented in Table 1. These performance measures will be updated on an annual basis when data become available from the Illinois Department of Transportation (IDOT).

Table 1: Regional Performance Measures, DuPage County SAP Baseline

Performance Measure	2019-2023 5-Year Moving Average
Total Fatalities	43.6
Fatality Rate (per HMVMT)	0.570
Total Serious Injuries	341.8
Serious Injury Rate (per HMVMT)	4.415
Nonmotorized Total Fatalities + Serious Injuries	51.4

Supplemental Performance Measures

In addition to the SAP target and regional safety performance measures, DuPage County will track several supplemental data points related to SAP Priority Emphasis Areas.

Speed-related crashes are one of the four priority emphasis areas in the DuPage SAP. Nearly half (46%) of all crashes that resulted in deaths or serious injuries reportedly involved speed. Safer Speeds is also one of the objectives of the Safe System Approach. When compared to statewide crash data, speed-related fatal crashes are overrepresented in DuPage County. These considerations form the basis of the SAP Theme *Encourage Safer Speeds*. Alongside other crash outcomes, DuPage County will assess speed-related fatal and serious injury crashes on an annual basis. Over the five-year period from 2018 through 2022, there were 724 speed-related fatal and serious injury crashes reported, an average of 144.8 per year, setting the performance baseline.

Older users are a priority emphasis area for DuPage County. The average age in DuPage County is increasing as people age in place. Continuing to enhance the transportation system to provide safe mobility options and age-appropriate visual cues for those who choose to continue to drive are a key aspect of the SAP's Countermeasures & Policy Recommendations. The trend in fatalities and serious injuries involving roadway users 65 years or older will be tracked over time. During the baseline period of 2018-2022, 275 users 65 years or older were killed or seriously injured, 55 in the average year.

Existing Safety Conditions analysis identified a disparity in traffic fatalities by the race and ethnicity of victims. In particular, people identified as Black alone experienced 10.91 fatalities per 100,000 residents in an average year between 2017 and 2021, over twice the population-adjusted fatality rate of all DuPage County residents of 4.5 fatalities per 100,000 people during the same period. Hispanic or Latino residents were also overrepresented when compared to the countywide baseline at 6.73 average annual fatalities per 100,000 residents. Monitoring these disparities will aid the County and its partners in assessing whether strategies are sufficiently targeted.

The complete list of DuPage SAP performance measures, their relevant baselines, frequency of assessment, and preferred data sources, can be found in Table 2. Based on data availability, some performance measures may be expressed in different reporting years, but all efforts will be made to report performance measures in the same year where possible and to provide annual snapshots alongside five-year rolling averages.

Table 2: Target, Regional, and Supplemental DuPage SAP Performance Measures

	Baseline	Base Year	Frequency	Data Source
Total Fatalities and Serious Injuries	385.4	Average Annual, 2019-2023	Annual	IDOT
Total Fatalities	43.6	Average Annual, 2019-2023	Annual	IDOT
Fatality Rate (per HMVMT)	0.57	Average Annual, 2019-2023	Annual	IDOT
Total Serious Injuries	341.8	Average Annual, 2019-2023	Annual	IDOT
Serious Injury Rate (per HMVMT)	4.415	Average Annual, 2019-2023	Annual	IDOT
Nonmotorized Total Fatalities + Serious Injuries	51.4	Average Annual, 2019-2023	Annual	IDOT
Speed-related Fatalities and Serious Injuries	144.8	Average Annual, 2018-2022	Annual	IDOT
Older User (65+) Fatalities and Serious Injuries	55.0	Average Annual, 2018-2022	Annual	IDOT
Fatalities per Capita – All Residents	4.5 / 100,000	Average Annual, 2017-2021	Annual	NHTSA / US Census
Fatalities Per Capita – Black Alone	10.91 / 100,000	Average Annual, 2017-2021	Annual	NHTSA / US Census
Fatalities Per Capita – Hispanic or Latino	6.73 / 100,000	Average Annual, 2017-2021	Annual	NHTSA / US Census

3 Accountability

Accountability is essential for championing a culture of safety and growing shared responsibility for safe roadways among multiple stakeholders and the public at large. DuPage County is committed to continuous improvement. Open dialogue about progress towards SAP targets is necessary for effective collaboration and problem solving by DuPage County, municipalities, and other partners.

All DuPage SAP performance measures will be available to the public. Through the Safe and Complete Streets program, CMAP will publish a county-level dashboard, inclusive of DuPage County performance measures.

In addition to reporting on performance measures, SAP implementation will be an agenda item for DuPage Mayor's and Manager's Conference (DMMC) TransTech meetings. Through this forum, DuPage County staff and municipalities throughout the county can provide updates on actions, develop collaborative work plans, and reflect on success and challenges in implementing the plan.

SAFE TRAVEL FOR ALL

SAFE TRAVEL FOR ALL

Safety Action Plan Appendix

JUNE 2025

DUPAGE COUNTY
ILLINOIS

ADOPTION DATE:
TENTATIVELY MAY 30th, 2025

Existing Safety Conditions Contents

1 Introduction

The Existing Safety Conditions (ESC) section uses historical crash data to evaluate key safety issues, high crash locations, and high-risk roadway characteristics. The ESC is not a comprehensive analysis of existing conditions or an exhaustive crash analysis. The ESC provides a data-driven snapshot, informed by lived experience, of the highest priority transportation safety issues facing DuPage County. The ESC lays the path forward for the development of strategies, policies, projects, and actions for the County and its partners to implement.

The ESC incorporates requirements of the United States Department of Transportation (USDOT) Safe Streets and Roads for All (SS4A) action plans, the Chicago Metropolitan Agency for Planning's (CMAP) safety action plan framework, and the input and direction of CMAP and DuPage County staff. The ESC fulfills USDOT's SS4A Self-Certification Eligibility Worksheet requirement #3: Safety Analysis as well as portions of #5: Policy and Process Changes.

The ESC is divided into six sections: **Existing Conditions Overview**, **High Injury Network**, **Systemic Safety Conditions**, **Railroad-related and Grade Crossing Incident Safety Analysis**, and **Data Recommendations**.

Data Sources

Unless otherwise noted, all crash data analyzed and presented in the following sections were obtained from the Illinois Department of Transportation (IDOT) via their Safety Portal and were sourced from the Illinois State Police and other local and regional enforcement agencies as provided by CMAP on April 1, 2024 within the boundary of DuPage County. Crash data cover the years of 2018 to 2022, the most recent available from IDOT at time of analysis, are used as-is for analysis purposes, and should be interpreted accordingly. In addition, the period of analysis overlaps with the onset of the Covid—19 pandemic in March 2020 and is impacted by resulting changes to travel and behavior. All figures, tables, and data points included in the ESC are based on this data set, unless otherwise noted.

Crashes that were not reported to law enforcement, do not meet IDOT's reportability criteria as laid out in the *Illinois Traffic Crash Report SR1050 2019 Instruction Manual for Law Enforcement Agencies*[i] or do not meet the American National Standards Institute (ANSI) definition of a motor vehicle crash[ii] are not included in the analyses in this memo. By ANSI and IDOT definitions, a crash must involve at least one motor vehicle. This includes multiple vehicle crashes, single vehicle crashes, and crashes involving a vehicle and another roadway user such as a pedestrian or bicyclist. A collision between a bicyclist and a pedestrian, a single bicyclist, and other collisions not involving a motor vehicle do not meet ANSI crash definitions and are thus not reflected in these analyses. Crashes that are not reported or do not meet reporting criteria (crashes in which no one is injured and property damage costs are very low) are not included. Underreporting is a major issue, especially for crashes involving a bicyclist or pedestrian. Research indicates that police data, for example, likely underreport the number of bicycle and pedestrian crashes, even those resulting in emergency room visits,[iii] and likely underrepresent pedestrian crash injury incidence.[iv] Furthermore, crash report form fields do not contain every data point that analysts may be interested in, such as detailed socioeconomic and demographic info, disability status, and other key data points. While some of this information may be included in death certificates and crash narratives, these data points are not available to analysts in an aggregated format.

2 Existing Conditions Overview

The existing conditions overview covers current plans and policies constituting a representative picture of the state of transportation safety practice and outcomes in DuPage County. The broad scope of the overview, which serves to identify the animating ideas and understand how they have been operationalized through policy, process, procedure, and/or ordinance, will provide ideas for strategies and actions to address the identified severe crash trends in latter stages of safety action plan development.

The overview has three sections: **plan review**, **policy and process assessment**, and **severe crash analysis**.

The overview covers the SS4A requirements for Safety Analysis "analysis of existing safety conditions and historical trends" and "analysis of the location where there are crashes, the severity, as well as contributing factors and crash types" in addition to Policy and Process Changes "assessment of current policies, plans, guidelines, and/or standards to identify opportunities to improve how processes prioritize safety."

Plan Review

State Plans

IDOT produces multiple statewide plans that set goals and describe strategies for roads and highways under its jurisdiction and for the broader multimodal transportation system.

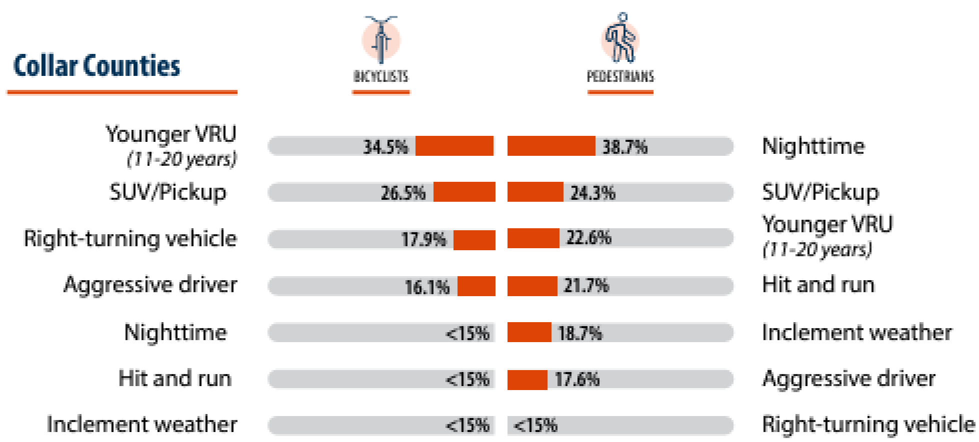
Illinois Vulnerable Roadway User Safety Assessment (2023)

IDOT completed a vulnerable roadway user (VRU) assessment in furtherance of requirements set out in the Bipartisan Infrastructure Law (BIL). The VRU assessment recognizes that historically underserved communities as defined under the Justice40 initiative in Illinois are "disproportionately affected by safety shortcomings" and that increased investment is "easy to justify and should be prioritized." The VRU assessment includes quantitative analysis, consultation, and a program of projects and strategies to meet its vision: "a future where no one loses their life or is seriously injured while biking, walking, and rolling so that IDOT can achieve the goal of zero fatalities and serious injuries on public roadways in Illinois."

The VRU assessment includes a bicyclist and pedestrian High Injury Network (HIN), which breaks out intersections and segments of elevated crash risk based on different areas of the state, including a category for collar counties, the five counties that border Cook County (DuPage, Kane, Lake, McHenry, and Will Counties). The top three routes, County Farm Road, Cass Street, and Illinois Route 59, pass through DuPage County. The analysis also includes cluster locations for pedestrians and bicyclists, with the top two locations – York, Vallette to Seminole and Geneva & County Farm, both Illinois Prairie Path crossings – located in DuPage County.

Systemic analysis reveals that, within the collar counties, the highest proportion of bicyclist and pedestrian crashes occur at unsignalized intersections. Specific contributing factors are also assessed by mode, as shown in Figure 1. Bicyclist crashes involving younger users, SUV/pickup trucks, and right-turning vehicles led the list of contributing factors. For pedestrians, night-time crashes, SUV/pick-up, and younger users constituted the top three.

Figure 1: Contributing Factors



Source: IDOT VRU Assessment 2023, Pg. 2-23

The systemic analysis matches up the identified crash types with facility characteristics to identify areas of high risk for proactive assessment and improvement. Within the collar counties, bicyclist right-turning vehicle crashes were most likely to occur on four-lane arterials with 15,000-30,000 annual average daily traffic (AADT), 30-35 MPH speed limit, and commercial land use. Pedestrian nighttime crashes were most likely to occur on two-lane arterials with 15,000-30,000 AADT, 30-35 MPH posted limits, and commercial land use.

The VRU assessment concludes by matching countermeasures to significant VRU crash types with an emphasis on countermeasures that align with the Safe System Approach, including increasing separation between users (i.e., safer roads) and setting and encouraging safer speeds. Additional design countermeasures include roundabouts, turn prohibitions, signal timing, enhanced crosswalks, and geometric improvement as well as systemic improvements like improved public transit access, speed enforcement, emergency response, data collection for exposure, legislation on speed limit setting, and Complete Streets policies.

Illinois Strategic Highway Safety Plan 2022-2026 (2022)

The *Strategic Highway Safety Plan* (SHSP) sets IDOT's vision for eliminating traffic fatalities and serious injuries for all users for the transportation system and identifies performance measures, emphasis areas, and a program of strategies that leverage design, technology, behavioral, and policy approaches to achieve them. The SHSP is a state-level plan, encompassing all roadways in Illinois regardless of jurisdiction. Thus, its general findings may differ from those found for individual counties like DuPage or municipalities. However, it serves as an instructive baseline for the state of the practice in Illinois and a benchmark for county- and local-level comparisons.

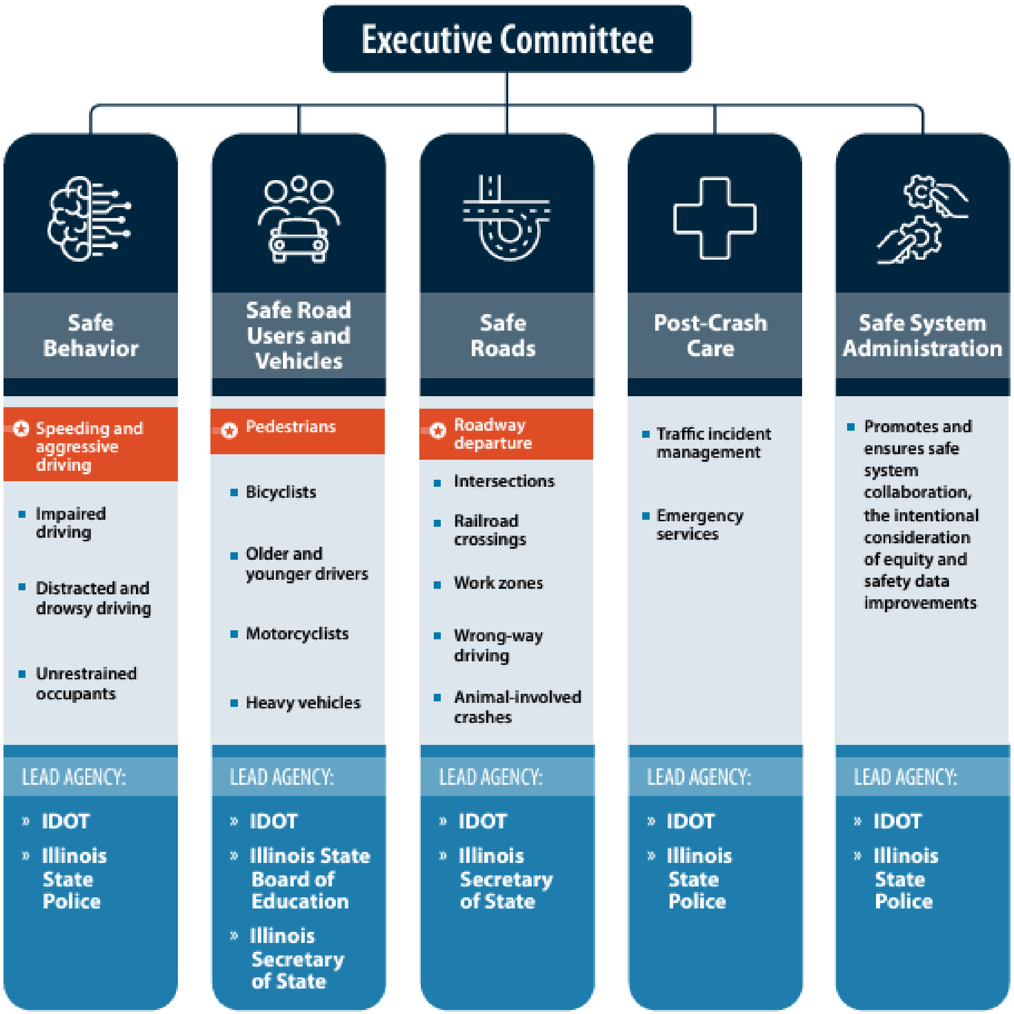
The SHSP is structured around five pillars consistent with Safe System Approach, Safe Behavior, Safe Road Users and Vehicles, Safe Roads, Post-Crash Care, and Safe System Administration, with three priority focus areas: speeding and aggressive driving, pedestrians, and roadway departure. Emphasis areas consistent with past SHSPs are also discussed and sorted under each of the five pillars. While all emphasis areas are associated with strategies and countermeasures, the three priority focus areas receive heightened attention. Recommended countermeasures are summarized in Table 1.

The SHSP assigns implementation responsibilities for the five pillars across state departments, as shown in Figure 2. Consistent with the Safe System Approach, this leadership structure reflects shared responsibility across departments for making safety the priority performance measure of the State transportation system.

Table 1: SHSP Countermeasures by Priority Focus Areas

Focus Area	Countermeasure
Roadway Departure	Countermeasures to keep vehicles from encroaching on the roadside along tangents (e.g., enhanced edge lines, shoulder rumble strips, widened shoulders)
	Countermeasures to keep vehicles from encroaching on the roadside at curves (e.g., chevrons, advanced signing, improved lighting, high friction surface treatment)
	Countermeasures to keep vehicles on the road via speed management (e.g., speed pavement markings, updated speed-limit setting policy, education)
	Countermeasures that may be implemented to reduce likelihood of crashing into an object or overturning (e.g., safer slopes, centerline rumble strips, median barriers, guardrails)
	Comprehensive effective countermeasures for mitigating roadway departure crashes (e.g., road safety audits, review design practices, stakeholder inclusion)
Speeding	Countermeasures to detect speeding and support law enforcement (e.g., strengthen speed detection, explore automated enforcement, conduct high visibility enforcement)
	Additional law enforcement resources (e.g., purchase, deploy, and use speed measuring devices, use law enforcement liaisons to link partners)
	Judicial and legislative countermeasures (e.g., support legislation to strengthen penalties, strengthen adjudication of speed citations)
	Incorporate infrastructure treatments to reduce aggressive and speeding behavior (e.g., employ traffic calming, prepare Complete Streets policies, use dynamic messaging signs)
	Improve understanding and awareness of the impacts of speed and crash outcomes (e.g., provide additional education and public information)
Pedestrians	Countermeasures to reduce pedestrian exposure (e.g., sidewalks, curb extensions, countdown times, leading pedestrian intervals, road diets, protective barrier systems)
	Countermeasures to improve visibility and awareness (e.g., crosswalk enhancements and illumination, transit stop visibility and accessibility, pedestrian hybrid beacons)
	Countermeasures for improving awareness of pedestrian safety (e.g., education, outreach, training, road safety audits, update highway design manual)
	Safe speed or slowing vehicle countermeasures (e.g., traffic calming, reduce statutory speed limits, allow creation of pedestrian safety zones, speed management training)

Figure 2: IL SHSP Leadership Structure



Source: IDOT SHSP 2022-2026, Pg. 6-2

Countywide Plans

DuPage County supplied the most recent and relevant county-level plans for review. The project team summarized each plan below, breaking out recommendations and policy directions related to safety and the Safe System Approach.

DuPage County Trails Plan (2024)

The *DuPage County Trails Plan*, developed by the DuPage County Division of Transportation (DuDOT), outlines the framework for the ownership, operations, and maintenance of DuPage County's regional trail network. This plan primarily focuses on three regional trails: the Illinois Prairie Path, Great

Western Trail, and Southern DuPage Regional Trail. The Plan aims to enhance the county's trail network by focusing on planning goals organized across path maintenance, permitting management, environmental conservation, engineering practices, unique trail elements, and creation of an accessible living document to enable interagency coordination. Strategies and action items include establishing trail crossing guidelines, implementing signage and wayfinding toolkits, and focusing on user experience to enhance opportunities for recreation and safety across the trail network.

The plan envisions DuDOT as the steward of a seamless, engaging, and well-maintained regional trail network that fosters safety, accessibility, and environmental sustainability. Regarding safety in particular, DuPage County residents identified concerns around crossings and routes where at-grade trails create conflicts with automobile traffic, indicating that high-visibility signage and clear sight lines are desired features near at-grade crossings. To standardize trail crossing enhancement guidance, DuDOT uses a table based on IDOT's *TRA-23: Guidelines for Establishing Pedestrian Crossings* policy to recommend safety countermeasures based on a roadway's posted speed limit and AADT – these include features such as high-visibility crosswalks, raised crosswalks, yield/stop lines, in-street pedestrian crossing signs, curb extensions, pedestrian refuge islands, rectangular rapid flashing beacons (RRFBs), road diets, and pedestrian hybrid beacons. Other safety themes include discomfort near high-speed bicyclists and e-bikes, as well as safe passing and trail etiquette issues.

DuPage County Mobility Framework Plan (2023)

The *DuPage County Mobility Framework Plan* lays out a comprehensive, long-term vision for enhancing the county's transportation network to meet the evolving needs of its population. Addressing challenges posed by the pandemic, the plan focuses on foundational goals and strategies while emphasizing collaboration between DuDOT, individual communities, and transit agencies. Informed by other regional planning initiatives (*CMAP Mobility Recovery Action Plan*, *RTA Transit is the Answer*, etc.) as well as community engagement, the plan identifies specific transportation needs targeted toward seniors, disabled individuals, students, and the general population.

Regarding safety, the *Mobility Framework Plan* emphasizes the role of public transportation and alternative modes like biking and walking in creating a safer and more accessible transportation network through its eight Planning Themes. Theme 8, Safety, involves enhancing the safety of transit riders, bikers, and pedestrians by improving network connectivity and implementing system safety standards. Safety interventions include improved road and rail crossings, enhanced lighting conditions, advanced warning pedestrian beacons, and protected bikeways. The plan acknowledges suburban development patterns, wide arterials, expressways, and complex intersections as barriers to pedestrian and bicyclist safety and proposes collaborative efforts between communities, service providers, and IDOT to improve infrastructure.

DuPage County Local Road Safety Plan (2021)

As fatalities and serious injuries have trended downwards in DuPage County since 2014, it remains among the top 30 counties in the state with the highest number of severe crashes. To address this issue, the *DuPage County Local Road Safety Plan* (LRSP) brought together key stakeholders to identify safety-oriented projects linked to factors contributing to severe crashes. The plan includes a system-wide safety analysis, priority emphasis areas, analysis of distinct crash types according to each emphasis area, low-cost safety treatments, and potential project locations for interventions to be deployed.

The LRSP outlines five key emphasis areas drawn from the larger list in IDOT's SHSP, including intersections, aggressive driving/speeding, older drivers, pedestrians, and pedalcyclists. The plan outlines proven strategies for each emphasis area, utilizing a framework that integrates the Four Es of Traffic Safety: engineering, enforcement, education, and emergency services. The LRSP identifies 55 miles of roadway segments and 113 intersections as potential safety improvement candidates. The plan's ultimate vision is to continuously improve safety systems, reduce fatal and serious injuries, and work towards zero deaths on local roads in DuPage County.

Table 2 summarizes the four LRSP emphasis areas, with associated goals and objectives. Two of the four emphasis areas in the LRSP, bicycle and pedestrian safety and speeding and aggressive driving align with the statewide emphasis areas defined in the SHSP.

Table 2: DuPage 2021 Local Road Safety Plan Emphasis Areas, Goals, and Objectives

Emphasis Area	Goal	Objectives
Intersections	Reduce/eliminate high severity crash types including turn, angle, and head on crashes at intersections	Monitor locations with sustained frequency of high severity crashes and evaluate intersections with high probability of future crashes
		Perform safety assessments at intersections with sustained incidence
		Identify effective countermeasures to reduce or eliminate risk and implement improvements
Bicycle and Pedestrian Safety	Ensure safety of all non-motorized transportation system users	Assess non-motorized movements and evaluate potential conflict locations
		Attain compliance with current ADA standards regarding the pedestrian environment and coordinate LRSP with established ADA Transition Plans
		Enhance pedestrian and bicycle facilities (i.e., crossings and on road facilities) with warning devices and user assists that clearly separate and prioritize non-motorized user safety
Speeding and Aggressive Drivers	Reduce speeding and aggressive behaviors that place all transportation system users at risk	Locate areas with speeding and aggressive driving clusters and assess causes
		Evaluate high severity crash risk and possible countermeasures
		Design regulatory and enforcement responses to curtail aggressive behavior and address compliance
Older Drivers	Determine locations and conditions where older drivers and non-motorized users may have difficulty safely navigating the transportation system and provide system enhancements that afford greater security	Communicate with senior users and representatives to determine their concerns regarding transportation systems
		Determine locations and network features that present confusion and risk to seniors and examine/implement improvements that provide clear guidance and consistency
		Implement senior driver and user advisory systems and encourage local information and messaging

DuPage County Long Range Transportation Plan (2021)

The *Long Range Transportation Plan* (LRTP) sets the stage for transportation infrastructure investments between 2021 and 2040, facilitating a countywide, cooperative planning process. The LRTP includes an analysis of existing travel trends and assets, projected future conditions, needs, and fiscal resources. The LRTP structure investments around five goals informed by public and stakeholder engagement, national, regional, and state goals, the *DuPage County Strategic Plan*, and other local plans: Improve Safety, Provide Mobility Choice, Efficient Operations and Maintenance, Promote Access to Opportunity and Increase Economic Vitality, and Foster Sustainability and Resilience.

Improve Safety is the first goal area in the LRTP with a vision to "improve safety on the transportation system across all modes for motorized and non-motorized users. This includes maintaining a state of good repair through continual evaluation and timely repair." The safety goal is supported by four objectives:

- Ensure a state of good repair for transportation infrastructure
- Reduce roadway incidents involving passenger and freight vehicles and non-motorized users
- Incorporate safety considerations in all transportation plans and design elements, both non- and motorized users
- Evaluate and prioritize projects that maximize safety benefit

The LRTP emphasizes that safety is DuPage County's highest priority and stresses the importance of state of good repair, with emphasis on bridges. The LRTP also references the LRSP and the importance of achieving ADA compliance for the safety of all road users. Accordingly, performance measures for the plan include pavement and bridges rated in fair to excellent condition, curb ramps upgraded to ADA standards, fatal and injury crash trends including breakouts for bicyclists and pedestrians, traffic signals modernized or repaired, and number of improvements at high crash locations.

DuPage County ADA Transition Plan (2020)

The DuPage County ADA Transition Plan, developed by DuDOT, seeks to ensure accessibility for all individuals, particularly people with disabilities, across its transportation infrastructure. The plan focuses on compliance with the Americans with Disabilities Act (ADA) and the Public Right of Way Accessibility Guidelines (PROWAG), addressing barriers in the county's 200-mile pedestrian network that includes sidewalks, curb ramps, and signalized intersections. It establishes a comprehensive framework for self-evaluation, public engagement, and an actionable strategy to improve accessibility within DuDOT rights-of-way and on the DuPage County Campus.

This plan prioritizes barrier removal and infrastructure upgrades that directly benefit vulnerable road users, such as individuals with disabilities, older adults, and children. By incorporating ADA standards into maintenance, capital programming, and permitting processes, DuDOT seeks to create a safer, more inclusive pedestrian environment. The plan also aligns with broader county goals of enhancing multimodal transportation, supporting economic self-sufficiency, and improving access to community services. Through public input, designated ADA coordinators, and a transparent self-evaluation and monitoring process, DuDOT will chart its progress toward a fully accessible transportation system that improves mobility for all.

Elgin O'Hare Regional Bicycle and Pedestrian Plan (2017)

The plan, prepared for DuPage County and CMAP, covers an approximately 70-square mile region near O'Hare Airport inclusive of 10 communities in DuPage and Cook Counties. The plan seeks to provide a vision and framework for multimodal connections along and across the Elgin-O'Hare Expressway, one of the biggest transportation network changes in decades. The core principles of the plan are as follows: Elgin O'Hare Western Access/IL 390 and I-355/I-290 will not be barriers to non-motorized travel and the plan will be multi-jurisdictional.

Applying low-stress bike- and pedestrian-friendly infrastructure to the existing street network and expanding the off-street network are the chief foci of the plan's recommended improvements. Low-stress facilities include sidepaths, separated bike lanes, and intersection improvements. The plan recommends 79 miles of multi-use paths, 22 miles of separated bike lanes, 21 miles of bike lanes, 16 miles of neighborhood greenways, 10 miles of shared lane markings, seven miles of wayfinding, traffic calming and/or streetscaping, and 4 miles of trails. The plan also includes programmatic and policy goals including commercial driver education and commuter education, pedestrian and bicycle counts in high crash areas, and Complete Street policies.

Local Plans

The project team obtained several ongoing or recently completed local plans relevant to the safety action plan. Many, but not all, municipalities in DuPage County have completed an active transportation plan. This is discussed in more detail in the Policy and Process Assessment.

Glendale Heights Bicycle & Pedestrian Plan (2024)

The *Glendale Heights Bicycle and Pedestrian Plan*, developed by the Village in partnership with CMAP, aims to create complete, connected, and safe networks for walking and biking in Glendale Heights, IL. The plan includes recommendations for bikeways, pedestrian networks, intersections, and crossings to improve safety, access, and connectivity. The plan recommends traffic calming measures, policies and programs to support walking and biking (such as Safe Routes to School), and funding and maintenance strategies to guide implementation toward a safer, more comfortable walking and bicycling experience for all residents.

One of the key aspects of the plan is the development of a future bike network, which includes adding or enhancing 28 miles of bikeways across the Village. The primary routes identified as Tier 1 facilities include shared use paths along Fullerton Avenue and Mill Pond Drive/Exchange Boulevard/Windy Point Drive, a separated bike facility along President Street, and a greenway along Belden Avenue. In addition to these bikeway recommendations, the plan addresses pedestrian infrastructure by identifying and prioritizing sidewalk gaps, especially along corridors with high pedestrian activity and at intersections and crossings near parks and schools. Project locations are prioritized based on community input, analysis of access to important destinations, and evaluation of barriers and crash hot spots. Together, the strategies and projects identified in the plan set the stage for a more walkable and bikeable Glendale Heights and align the Village with CMAP's principles of inclusive growth, resilience, and prioritized investment.

Bensenville Active Transportation Plan (2016)

The *Bensenville Active Transportation Plan* outlines a series of strategies and actions to promote active mobility options among the Village's residents. The plan encompasses various elements to enhance mobility options and improve access to local destinations. The planning process involved a six-month period of community engagement and input gathering to determine priority areas for improvement and identify major themes to guide implementation. Specific projects include the recently completed streetscape project on Irving Park Road, which has created a more pedestrian-friendly environment, and the development of a shared-use path on Church Road to improve bicycle and pedestrian connectivity. The *Bensenville Active Transportation Plan* seeks to build on this momentum and establish a robust network of streets and trails to complement these recent successes by identifying future infrastructure improvements, developing supportive policy frameworks (such as defining snow-removal responsibilities and establishing bicycle parking ordinances), and clarifying funding sources. By improving local active transportation options, Bensenville aims to help residents improve their quality of life and enable them to access local regional destinations on foot or by bike.

Policy and Process Assessment

Policy affects DuPage County's ability to reach traffic safety goals at nearly all levels. Internal municipal processes, municipal and County ordinances, control and management of right-of-way, and County and IDOT design policies shape how safety projects and programs are delivered and the safety countermeasures available to the County and municipalities alike.

This assessment focuses on the areas that DuPage County and municipalities within the county have authority over: ordinances, typical practices, standard operating procedures, and engineering guidelines, among others. The project team, however, recognizes that responsibility for creating a safe system is shared more broadly and that policies outside of the direct purview of DuPage County should be assessed. This is especially applicable as certain external policies, such as IDOT design guidelines, have local impacts and in fact influence the policy decisions of local agencies. The Safety Action Plan ultimately recommends strategies and actions incorporating improvements to traffic safety policy within the county going forward.

Assessment Process

To assess policy across levels of government, the project team reviewed documentation of existing local traffic safety policies, conducted targeted conversations with County and municipal staff, and collected input from an online survey.

Existing Surveys and Policy Inventories

The project team reviewed CMAP resources, including municipal surveys and inventories of key policies and plans, to understand the state of the practice and municipal policy priorities and sentiments within the boundaries of DuPage County. To guide its Local Technical Assistance (LTA) program and other activities, CMAP conducts a biennial survey sent to the 284 communities within the region. The project team also reviewed the *Chicagoland Bike Walk Policy & Plan Tracker*,[v] which catalogues existing Complete Streets and active transportation plans in Illinois, developed by the Active Transportation Alliance on behalf of CMAP.[vi] The project team drew on the 2022 edition of the survey.

Safety Action Plan Municipal Safety Policy Survey

The project team created an online survey about safety practices and policy needs, which DuPage County staff distributed through the DuPage Mayors and Mangers Conference (DMMC). A total of nine municipalities submitted responses. Respondents were asked to share information about existing guidance they rely on to make decisions about safe street design, barriers to achieving safe streets, and areas where they could use additional guidance.

All respondents were engineers or public works directors. While the respondents are well-qualified people in the municipalities to answer questions about the street design process and barriers, the shared background of the people filling out the survey limits the perspectives gathered.

Interviews

Project staff conducted three interviews with municipal engineering staff to gather additional details and context not captured in the survey. In addition, the project team held an interview with County transportation staff to better understand the safety policy landscape in DuPage County, including past and ongoing policy efforts and known gaps, barriers, and opportunities.

Assessment Findings

The following section catalogs the topics and themes that surfaced in the policy review. Major policy issues and opportunities that municipal and County staff raised in taking a Safe System Approach to traffic safety fell into several categories: Complete Streets and active transportation plans, speed management, jurisdiction and ownership, crash data, and design guidance.

Complete Streets and Active Transportation Plans

Many streets and roads across northeastern Illinois and in DuPage County were designed primarily to meet the needs of motorists and to facilitate their mobility. In areas outside of traditional downtowns and more urban contexts, the built environment largely lacks safe, accessible, connected, and convenient facilities for walking, rolling, and biking. While contemporary transportation planners, engineers, elected officials, and policymakers recognize the importance of designing systems that work for all users, changes to policies and practices are still underway. Designing safe streets for people outside of vehicles will continue to require intentional and consistent commitment, echoed in many recent plans completed by the County and DuPage municipalities. Creating truly multimodal networks also requires overcoming past land use decisions and permitting and regulatory challenges. Complete Streets policies and active transportation plans are key tools in delivering these safe networks for all users.

DuPage County has historically been a leader in Complete Streets, adopting its first county-level Complete Streets policy in 2004 (known as the Healthy Roads Initiative) and its first Regional Bike Plan in 1984. The policy was updated in 2008, and its first Trails Plan was completed in 2024. Other work, including an updated Active Transportation plan for the county, is ongoing.

Within DuPage County, the County government and 19 municipalities have existing Complete Streets policies (see Table 3) based on information collected through the *Chicagoland Policy Tracker*. Four communities have active transportation plans but don't yet have Complete Streets policies. Several municipalities that overlap with areas of persistent poverty in DuPage County currently lack Complete Streets policies. The institutionalization and impact of existing policies varies, as some municipalities have adopted a minimal Complete Street policy largely to meet funding requirements.

In pursuit of safe and complete networks that meet the needs of people of all ages and abilities, practitioners have significantly improved the state of the Complete Streets practice since the early 2000s. Organizations like Smart Growth America have tracked these changes and incorporated them into their Complete Streets policy ratings.[vii] Revisiting and refreshing older policies may be beneficial. Tools like Complete Streets Design Guides, Action Plans, and Checklists are also critical to moving a policy into consistent implementation across planning, design, operations, and maintenance. Assessing policies for updates on a regular schedule, no greater than ten years, embodies the principle of continuous improvement central to the Safe System approach.

Table 3: Municipal Complete Streets Policies and Active Transportation Plans

Municipality	Complete Streets Policy or Plan		Active Transportation Plan	
Addison	No	N/A	No	N/A
Aurora	Complete Streets Policy	2020	City of Aurora Bicycle & Pedestrian Plan	2009
Bartlett	Complete Streets Policy (p. 35)	2017	Bartlett & Streamwood Bicycle and Pedestrian Plan	2022
Batavia	Complete Streets Policy	2020	City of Batavia Bike and Pedestrian Plan	2023
Bensenville	Complete Streets Policy	2016	Bensenville Active Transportation Plan	2016
Bloomingdale	Complete Streets Policy	2020	No	N/A
Bolingbrook	No	N/A	No	N/A
Burr Ridge	No	N/A	No	N/A
Carol Stream	No	N/A	No	N/A
Clarendon Hills	No	N/A	No	N/A
Darien	No	N/A	No	N/A
Downers Grove	No	N/A	Village of Downers Grove Bicycle and Pedestrian Plan	2013
Elk Grove	Complete Streets Policy	2019	Elk Grove Village Bicycle Plan	2022
Elmhurst	No	N/A	City of Elmhurst Bicycle & Pedestrian Plan	2020
Glen Ellyn	Complete Streets Policy	2019	Move Glen Ellyn Active Transportation Plan	2014
Glendale Heights	Yes	2020	Glendale Heights Bicycle & Pedestrian Plan	*Anticipated 2024*
Hanover Park	Hanover Park Comprehensive Plan Update	2010	No	N/A

Municipality	Complete Streets Policy or Plan		Active Transportation Plan	
	(p. 68)			
Hinsdale	No	N/A	No	N/A
Itasca	No	N/A	No	N/A
Lemont	Complete Streets Policy	2011	Lemont Active Transportation Plan	2012
Lisle	No	N/A	Lisle Bicycle & Pedestrian Plan	2020
Lombard	Complete Streets Policy	2014	Lombard Village-wide Bicycle and Pedestrian Master Plan	2016
Naperville	Complete Streets Policy	2019	No	N/A
Oak Brook	No	N/A	No	N/A
Oakbrook Terrace	No	N/A	No	N/A
Roselle	No	N/A	No	N/A
Schaumburg	Complete Streets Policy	2018	Schaumburg Bikeways Plan	1999
St. Charles	City of St. Charles Comprehensive Plan – Ch. 7: Transportation Plan (p. 71)	2013	No	N/A
Villa Park	Complete Streets Policy	2020	Villa Park Bicycle & Pedestrian Master Plan	2018
Warrenville	Complete Streets Policy	2019	City of Warrenville Bikeway Implementation Plan	2008
Wayne	No	N/A	Bicycle Plan for Wayne Township	2015
West Chicago	No	N/A	No	N/A
Westmont	No	N/A	No	N/A
Wheaton	Complete Streets Policy	2021	Wheaton Bicycle Plan	2011
Willowbrook	No	N/A	No	N/A
Winfield	Complete Streets Policy	2016	Bicycle Plan Winfield	2014
Wood Dale	Wood Dale Comprehensive Plan (p. 83)	2018	No	N/A
Woodridge	No	N/A	No	N/A

Source: Metropolitan Planning Council Bike Ped Database

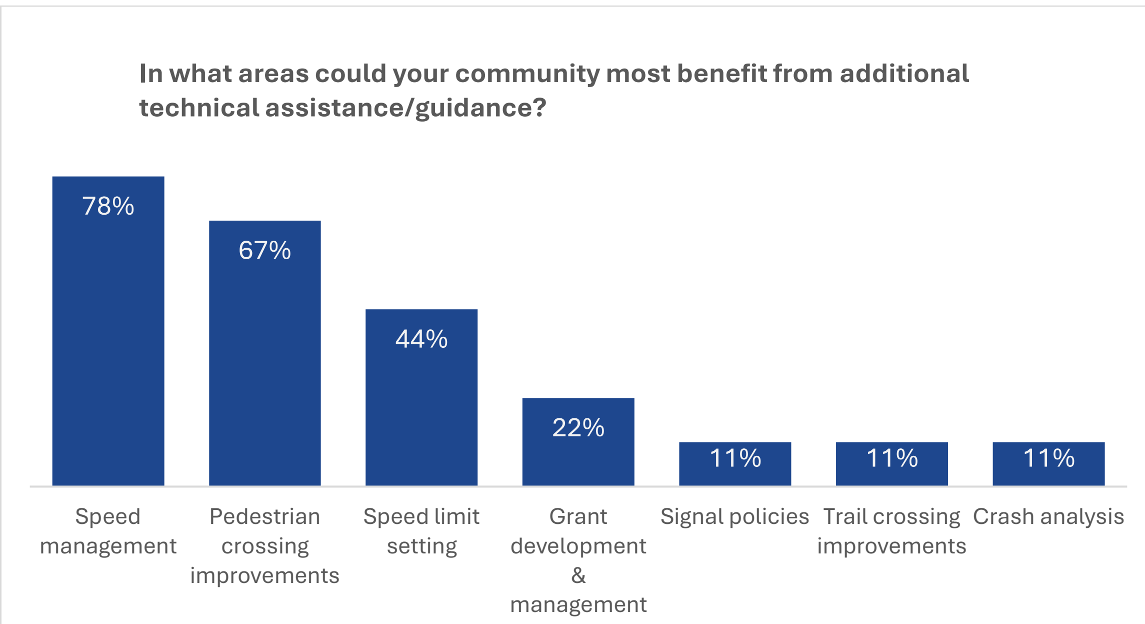
Note: The City of Chicago was removed from this list, as only unpopulated portions of O'Hare International Airport lie within the DuPage County boundary.

Speed Management

High speeds are a persistent issue at both the municipal and county level on streets across jurisdictions. As noted later in this section, speed is a leading contributor to crashes resulting in death or serious injury in DuPage County and are a priority emphasis area in the 2021 LRSP. To assess the state of speed management policy in DuPage County, transportation and safety professionals at multiple levels of government were surveyed about their current practices and technical needs.

Speed management strategies and speed limit setting guidance were two of the most requested areas for potential technical guidance in the SAP municipal survey responses, as shown in Figure 3. This finding is also supported by the results of the CMAP municipal survey, where most municipalities reported considering speeding as a high priority, with all but five considering speed management at least a low priority.

Figure 3: Municipal Technical Assistance Needs



The results of the biennial CMAP survey also indicate that many municipalities are concerned about speeding but do not connect it with Complete Streets policies and infrastructure; while most considered speeding an issue, many municipalities have yet to discuss Complete Streets policies. Municipal and County staff who participated in policy interviews noted that lowering or adjusting posted speeds should be paired with infrastructure changes that provide environmental cues to drivers to slow down.

The Illinois Vehicle Code allows municipalities to alter speed limits on local roadways based on an engineering or traffic investigation. Special speed limit zones around schools can also be established through proper signage. Opportunities for speed limit reductions are increasing as the 11th edition of the *Manual of Uniform Traffic Control Devices* (MUTCD) de-emphasizes speed limit setting based on prevailing speeds in favor of a context-sensitive approach that accounts for land use, crash history, and other factors. County and some local practitioners are awaiting IDOT to reflect these changes in their Policy on Establishing and Posting Speed Limits on the State Highway System,[viii] which models the way for many practitioners in lieu of an alternate available procedure.

Municipalities in DuPage County are taking action to set speed limits that are safe for all roadway users and consistent with residents' desires for high quality of life. In 2018, Wheaton lowered the speed limit for residential neighborhoods to 25 mph via a City Council vote. The speed limit was lowered based on a traffic study conducted by an engineering firm. Signage on the affected streets was updated, and messaging on the change was disseminated via yard signs and electronic message boards.

Several municipalities have utilized traffic calming on residential streets, predominantly using speed humps. The City of Naperville has adopted a *Traffic Calming Toolkit* that is known to safety practitioners throughout the county.[ix] City staff shared concerns about expanding traffic calming tools, especially those that utilized vertical deflection, out of concern for impacts on emergency responders.

Illinois law currently limits the use of automated safety enforcement to specific locations near parks and schools within the City of Chicago and in work zones by IDOT and the Illinois Tollway.[x,xi] In interviews with municipal and County staff, they noted that this nearly statewide prohibition renders this proven tool inaccessible and shuts down any conversations about its benefits. State law also limits the use of variable, time-of-day, speed limits. Both tools are included in FHWA's *Proven Safety Countermeasures* and are enabled in multiple states.[xii]

Jurisdiction and Funding Requirements

Many roads in DuPage County with safety concerns fall outside of local or County jurisdiction. Addressing safety issues at these locations requires substantial coordination across jurisdictions and/or does not have clear solutions. For instance, many roads and intersections are constructed to accommodate the largest vehicles and mitigate congestion, tackling these locations will require a different approach to balance safety with these current priorities. Many respondents to CMAP's municipal survey indicated that resources supporting cross-jurisdictional coordination are needed.

Intersections where state-jurisdiction roads meet municipal or County roads can prove particularly challenging for funding and design. Highway Safety Improvement Program (HSIP)-Local (HSIP-L) is the main engine for moderate-sized safety projects in DuPage County. If the County or municipalities want to address a multi-jurisdictional intersection through an HSIP-funded project, they are typically only able to modify the local legs of the intersection unless they partner with IDOT, which has a separate funding allocation for HSIP projects on state routes (HSIP-S). Joint funding applications like this are rare, per staff knowledge. Based on the safety history of multi-jurisdictional intersections, these coordination challenges are concerning gaps. Other opportunities for coordinated improvements, like the STP-Shared Fund also exist and can be leveraged for future safety improvements.

Barriers exist to expanding the sidewalk network in DuPage County. While 2021 Illinois State legislation removed the local match requirement for walking and biking infrastructure on state roads, unincorporated areas fall through the cracks per County staff feedback.

Survey respondents noted challenges associated with delivering projects that utilize state and federal funds. Given the built-out nature of roadway rights-of-way in DuPage County and constrained staffing at multiple levels of government, project development timelines for many projects continue to increase. With the extended durations for coordination, reviews, permitting, design, and land acquisition, many local agencies struggle to establish and control their project budgets and timelines.

Crash Data

The format in which traffic crash data are disseminated to the County and municipalities is difficult to navigate, making incorporating safety in day-to-day work a challenge. This sentiment was shared across jurisdictions. Respondents would particularly benefit from tools that enable staff to quickly access and view crash narratives and diagrams and to assess crash patterns at the project level. These concerns were also reflected in the CMAP municipal survey, where improved access to crash data was one of the top three resources requested.

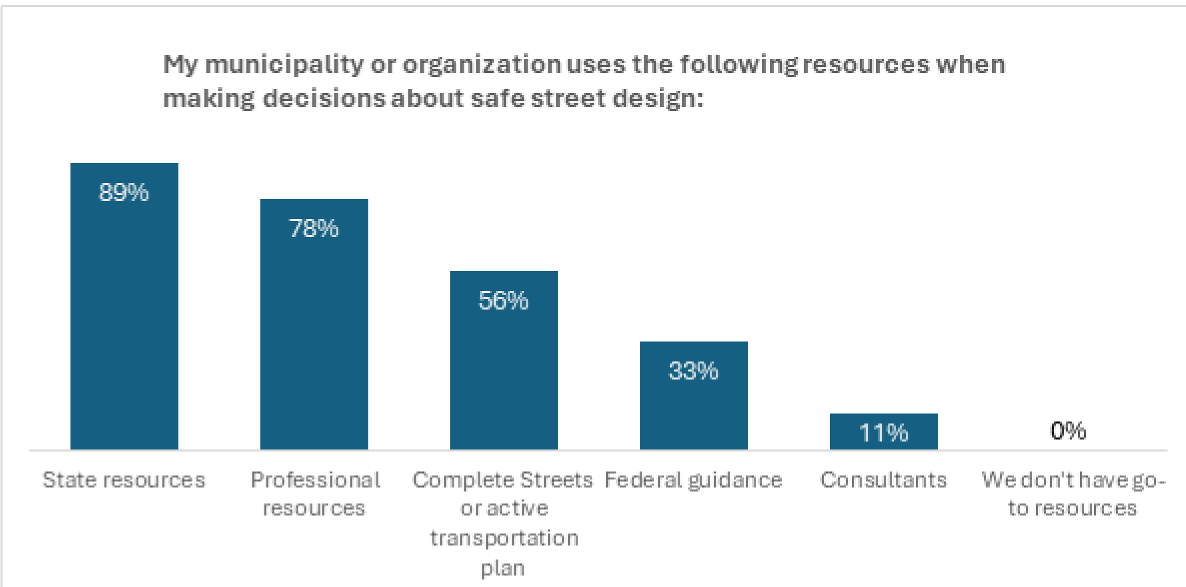
DuPage County has hosted a user-friendly online traffic crash system that allows all local agencies access to the latest crash data and system information. This online portal allows anyone to analyze localized as well as system-wide issues.

Design Guidance

There are existing and well-documented procedures, guidelines, and staff roles as part of the State and County funding processes. Many municipalities feel comfortable navigating these processes as part of their regular work. At the same time, state and federal funding requirements and timelines often impact the ability of local agencies to deliver safety projects on the schedule desired by stakeholders.

The extent to which these traffic safety infrastructure interventions are implemented on local streets in the county varies widely based on available budget, staff resources, and level of public interest and priority. In the CMAP municipal survey, respondents expressed the most interest in resources for identifying gaps in the roadway network for vulnerable road users. SAP municipal survey respondents expressed that they have access to safe streets design resources, with nearly all municipalities relying on State resources like IDOT's Bureau of Design and Environment (BDE) and Bureau of Local Roads and Streets (BLRS) manuals, as displayed in Figure 4. While these resources are standards within the state and based on commonly used guides like the American Association of State Highway and Transportation Officials (AASHTO) *Policy on Geometric Design of Highways and Streets* ("Green Book"), they are oriented toward facilitating the movement of motor vehicles rather than prioritizing safe streets for all users, including vulnerable road users. Encouragement of design flexibility and adoption of context-sensitive guidance like that produced for the National Association of City Transportation Officials (NACTO) for urban areas are potential avenues for future consideration.

Figure 4: Safe Street Design Resources



Municipal engineers are also referencing professional resources like National Association of City Transportation Officials (NACTO) and Institute of Transportation Engineers (ITE) design guides, though it is unclear from the survey responses how often tools within these guides are implemented. Within the interviews, some municipal staff acknowledged that they were aware of these guides but were not actively using them for planning or design purposes in their community or were not sure how they would apply within their community. Based on interview feedback, communities in DuPage may be slower to implement emerging safety countermeasures due to hesitations with being the "first-mover." Municipalities are interested in tools like leading pedestrian intervals (LPIs), for example, but are concerned with coordinating across corridors and jurisdictional boundaries or only applying them in limited locations.

The county and municipalities have expressed a need for clearer guidance on how to handle conflicting policies or compliance with updated state and federal requirements and guidelines that impact traffic safety. Lack of clarity about how to mitigate perceived legal liability or adjust longstanding operational practices has sometimes caused municipalities to forgo safety upgrades. For example, some have chosen to abandon lighting improvements due to concerns about conflicts with voluntary requirements like Dark Sky compliance. Others have avoided replacing markings and signage in line with minimum retroreflectivity standards published in 2022 due to uncertainty about how they would impact winter maintenance practices.

Identified Gaps, Barriers, and Opportunities

The project team identified gaps and barriers in current policies and processes, and opportunities through the interviews conducted with County staff and through the SAP municipal survey. Gaps include a lack of policies, guidance, standards, ordinances or other laws; vague or incomplete policies; or a lack of defined responsibilities that hinder the ability of implementers to make decisions. Barriers include explicit written policies, authorities, or political arrangements that expressly inhibit the ability of safety professionals to implement the projects and programs they believe are best practice. Opportunities are other areas that implementers have identified that have opening for improvement. Responses are summarized in Table 4.

Table 4: Policy and Process Gaps, Barriers, and Opportunities

Gaps	• Multiple DuPage County municipalities have not adopted Complete Streets policies. • Absence of interpretation of how to accommodate updated standards or conflicting policies can lead to inaction out of fear of noncompliance, compounded by additional costs. • Municipalities are aware of the tools available for traffic calming but do not see how the tools can be used on local roadways without unduly impacting emergency responders. • HSIP-L program funds are limited to locally-owned intersections and roadways. • Local infrastructure budgets and funding options are limited, placing high importance on state and federal programs. • Past and current policies and practices have led to sidewalk gaps where County/municipal ROW meets state ROW, resulting in incomplete networks at high-risk locations and/or locations where connectivity needs are high. • Lack of clear IDOT guidance or specific recommendations regarding pedestrian technology.

Barriers	• Automated speed enforcement is not authorized outside of municipalities with a population of 1,000,000 or more (i.e., the City of Chicago) by state law, except in work zones. • Crash narratives and diagrams are difficult to access. • Vertical traffic calming interventions face operational and weather-related challenges. • Project delivery using state and federal funds requires substantial staff resources. • Many municipalities feel limited in the action they can take on safety because larger County and State-owned roadways are perceived as the higher priority for safety improvements but outside of municipal control. • “First-mover” concerns exist around new safety countermeasures and design interventions. • Local agencies face challenges identifying sufficient funding to meet intersection lighting requirements for extended approaches and transitions. • Communities have different starting places in terms of roadway networks, land uses, and resources, resulting in varied experiences with and expectations of safety infrastructure.
Opportunities	• Encouraging the adoption of Complete Streets policies in additional municipalities. • Improving the effectiveness of existing municipal and county Complete Streets policies with the creation of a project checklist. • Creating traffic calming and / or speed management policy and toolbox county-wide to illustrate the applicability within municipalities and across roadway types. • Compiling a resource describing how to place vertical traffic calming tools and mitigate impacts on operations. • Convening a county-wide workshop for elected officials to learn about the available traffic calming tools. • Developing typical designs for trail crossing locations. • Recently adopted legislation offers counties and municipalities the opportunity to have conversations with IDOT regarding sidewalk gaps. • Adopting new local guidance for setting posted speed limits and collaborating with IDOT to align practices across the state per the 11th Edition of the MUTCD and latest best practices from FHWA. • Fatality, road safety, and walk audits to educate staff and stakeholders and develop projects. • Signage and retroreflectivity audits and replacement schedules on the high injury network (HIN) and at complex intersections/interchange through shared services. • Updates to DMMC Surface Transportation Program (STP) and STP-Shared Fund project scoring to incorporate the SAP and crashes resulting in deaths/serious injuries. • Guidance for incorporating signalization countermeasures like leading pedestrian intervals at the corridor or network level.

Severe Crash Analysis

The Safe System Approach adopted by this action plan focuses on severe crashes – those resulting in death or serious injury, also known as KSI (killed or seriously injured) or KA (fatal and incapacitating injury) – rather than taking a broad view of all crashes, including those that result only in minor injuries or property damage only. While all types of crashes may have profound effects, especially for those experiencing economic, social, or health-related insecurity, serious injuries and deaths represent outsized harms that reverberate through families and communities. The Safe System Approach also accepts that some mistakes happen because humans are not perfect actors while recognizing that tools are available to potentially lower and even prevent the risk of mistakes leading to the most serious outcomes. Therefore, the analyses in this section and throughout the ESC distinguish and emphasize those crashes that result in death or incapacitating injury separate from less severe crash outcomes, as defined by the SR 1050 crash report form KABCO scale below.

- **K, Fatality**: A fatal injury is any injury that results in death within 30 days after the motor vehicle crash in which the injury occurred. If the person did not die at the scene but died within 30 days of the motor vehicle crash in which the injury occurred, the injury classification should be changed from the attribute previously assigned the attribute "Fatal Injury."
- **A, Suspected Serious Injury:** A suspected serious injury is any injury other than fatal which results in one or more of the following:
  - Severe laceration resulting in exposure of underlying tissues/muscle/organs or resulting in significant loss of blood
  - Broken or distorted extremity (arm or leg)
  - Crush injuries
  - Suspected skull, chest or abdominal injury other than bruises or minor lacerations
  - Significant burns (second and third degree burns over 10% or more of the body)
  - Unconsciousness when taken from the crash scene
  - Paralysis
- **B, Suspected Minor Injury:** A minor injury is any injury that is evident at the scene of the crash, other than fatal or serious injuries. Examples include lump on the head, abrasions, minor lacerations (cuts on the skin surface with minimal bleeding and no exposure of deeper tissue/muscle),
- **C, Possible Injury**: A possible injury is any injury reported or claimed which is not a fatal, suspected serious, or suspected minor injury. Examples include momentary loss of consciousness, claim of injury, limping, or complaint of pain or nausea. Possible injuries are

those that are reported by the person or are indicated by his/her behavior, but no wounds or injuries are readily evident.

- **0, No Apparent Injury/Property Damage Only (PDO):** No apparent injury is a situation where there is no reason to believe that the person received any bodily harm from the motor vehicle crash. There is no physical evidence of injury and the person does not report any change in normal function.

The analysis presented in this section is based on the DuPage County IDOT crash extract prepared by CMAP for the years 2018-2022 and includes all reported crashes within DuPage County's borders including those that occurred on interstates. This differs slightly from approaches taken in other sections. By using the county boundary, IDOT data can be more readily compared with data from other sources, resulting in a more comparable analysis.

Long Range Severe Crash Trends – 2008 to 2022

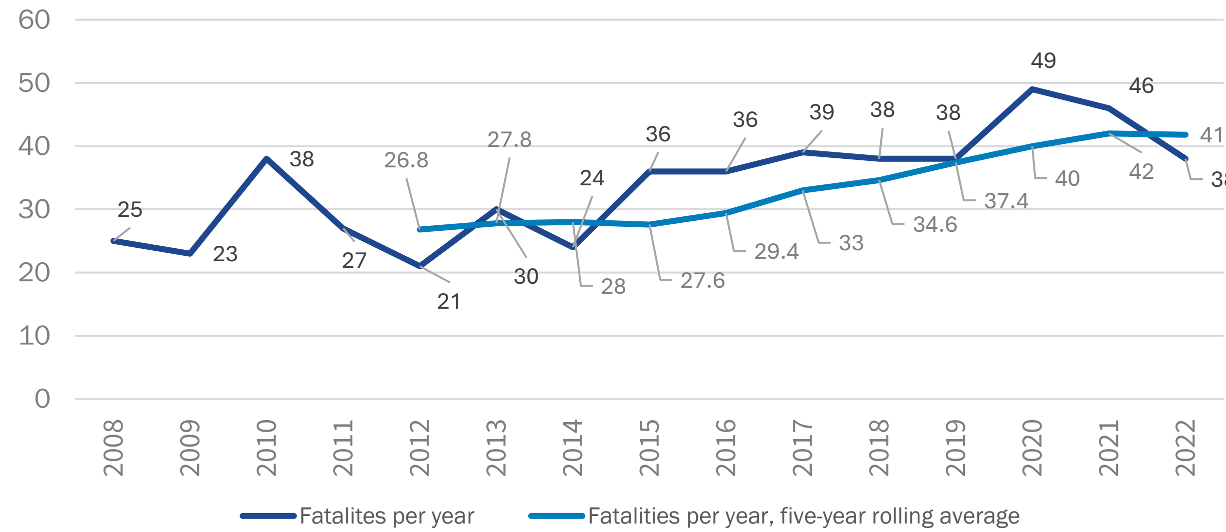
Fatalities

The National Highway Traffic Safety Administration (NHTSA) Fatality Analysis and Reporting System (FARS) is the nation's authoritative resource for fatal crash statistics. The FARS Fatality and Injury Reporting System Tool (FIRST) provides fatality data back to 2008, marking the longest time horizon for readily available fatality data comparable across county, state, and national geographies. this does not extend to serious injury data, which are not available from FARS. Analysis inclusive of crashes resulting in deaths and serious injuries is presented in the following sections for the most recent period available from IDOT at the time of writing.

All Users

In the 15 years from 2008 to 2022, 508 people died in crashes in DuPage County. As shown in Figure 5, the annual number of fatalities increased over this period, from 25 in 2008 to 38 in 2022. When transformed to a 5-year rolling average to account for year-to-year variation, the 5-year annual average increased 56% from 26.8 fatalities/year between 2008 and 2012 to 41.8 between 2018 and 2022. Large increases in total fatalities occurred between 2014 and 2015, and again between 2019 and 2020. In the most recent years, fatalities have begun to come down from the 2020 high of 49 people killed in traffic crashes in DuPage County.

Figure 5: DuPage County Fatalities, 2008-2022



Source: NHTSA, FIRST

The change in the five-year rolling fatality average from the period 2018-2022 is driven primarily by the increase in fatalities on non-interstate roadways. Over the 15-year period from 2008 to 2022, of the 508 fatalities, 99 occurred on interstates (19%), 408 occurred on non-interstates (80%), and one was marked as unknown (< 1%). Over this period, fatalities on interstates increased from 4.6 per year on average between 2008 and 2012 to 9.2 per year between 2018 and 2022, representing a 100% increase. Fatalities on non-interstates rose from 22 between 2008 and 2012 to 32.6 between 2018 and 2022, representing a 48% increase. While the increase on interstates was relatively higher, the small number of interstate fatalities is subject to greater variability. The bulk of the increase between the two periods resides primarily within non-interstate fatalities (10.6 per year on average increase).

The magnitude of the change in the five-year rolling average at the beginning and end of the period of analysis may be influenced by the historic fatality lows seen nationally and in Illinois following the Great Recession of 2008 and the surge in traffic fatalities following the onset of the Covid-19 pandemic in 2020. The increase in DuPage County's five-year rolling fatality average considerably outpaced the Illinois state average and the national average over the 15-year period, as shown in Table 5. Since the number of fatalities in DuPage County is comparatively low to the state and national averages, the size of the change is more sensitive to random variation or crashes resulting in multiple fatalities. The use of a five-year rolling average reduces this sensitivity.

Table 5: Change in 5-year Rolling Fatality Averages, DuPage, Illinois, and US

	5-Year Rolling Fatality Average, 2008-2012	5-Year Rolling Fatality Average 2013-2017	5-Year Rolling Fatality Average, 2018-2022	% Change, 2008-2012 vs. 2018-2022
DuPage County	26.8	33.0	41.8	56%
Illinois	951.0	1,016.2	1,167.8	23%
United States	34,113.2	35,280.0	39,588.2	16%

Source: NHTSA, FIRST

When adjusted per capita, the change in annual fatalities in DuPage County between 2010 and 2020 was 27% as shown in Table 6. DuPage County is growing slowly. Between the 2010 and 2020 decennial Censuses, the county grew by 16,000 residents. Table 6Notably this change is on par with that of Illinois (differences between this finding and that in the table above are due not to changes in population, but variation due to annual averages). In both 2010 and 2020, per capita fatalities were well below Illinois and the US as a whole.

Table 6: Change in Fatality Rate Per Capita, DuPage, Illinois, and US

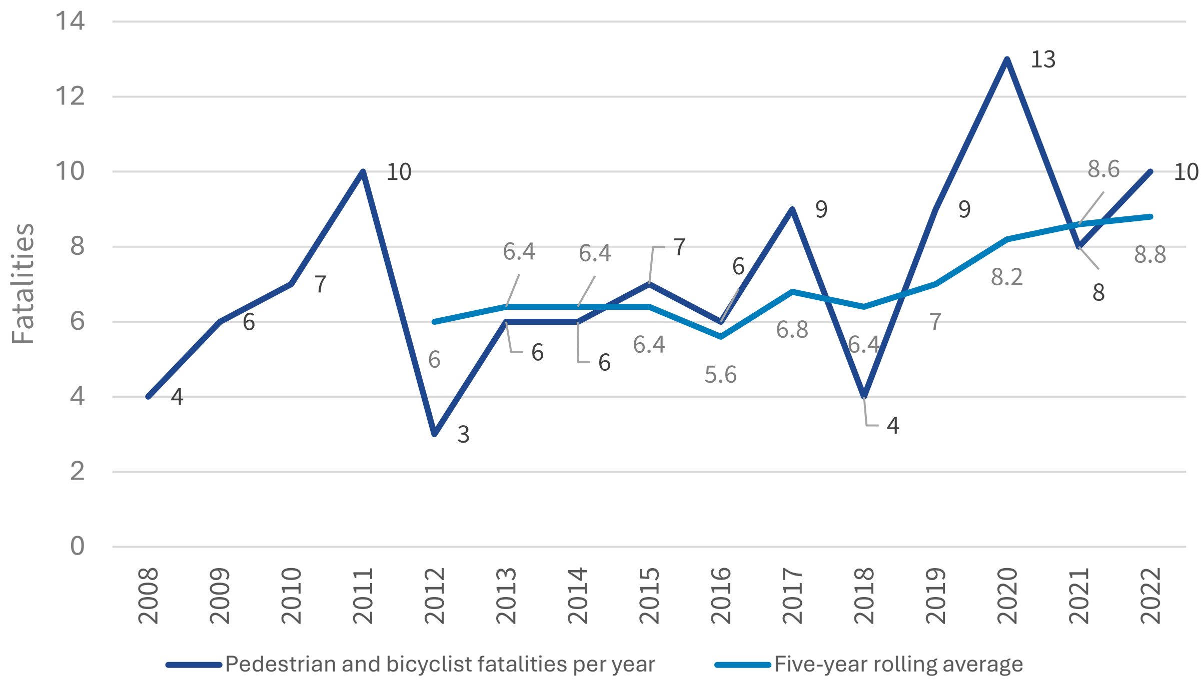
	Fatalities per 100,000 Residents, 2010	Fatalities per 100,000 Residents, 2020	% Change
DuPage County	4.14	5.25	27%
Illinois	7.22	9.31	29%
United States	10.69	11.79	10%

Source: NHTSA, FIRST; US Census Bureau

People Walking and Biking

Between 2008 and 2022, 108 people died while walking and biking in DuPage County, or 21.3% of total fatalities over the 15-year period. The annual trend and 5-year rolling average for pedestrian and bicyclist fatalities is shown in Figure 6. The 5-year rolling average from 2008-2012 to 2018-2022 increased from an average of 6 people killed while walking, rolling, or biking to 8.8, an increase of 22%. This increasing trend mirrors that in Illinois and the nation over the same period.

Figure 6: DuPage County Pedestrian and Bicyclist Fatalities, 2008-2022



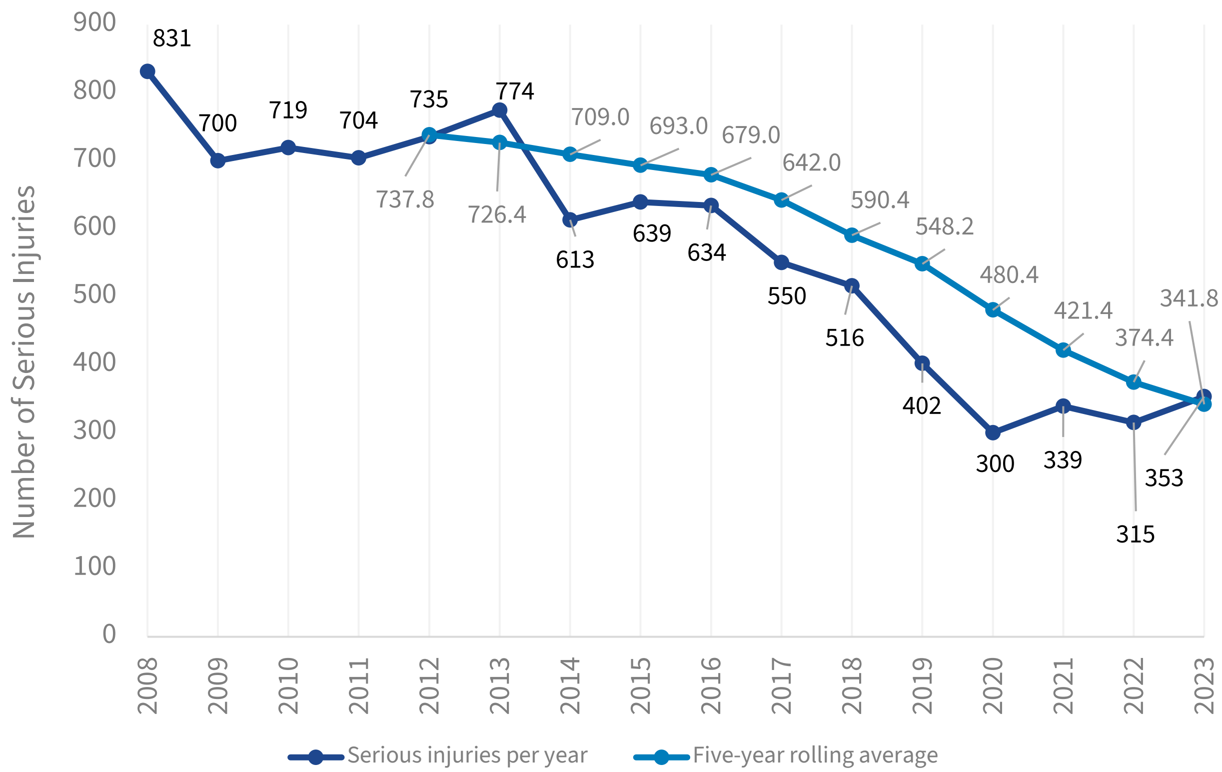
Source: NHTSA FIRST

Like the trends for all users, pedestrian and bike fatalities spiked between 2019 and 2020 with bicyclist fatalities jumping from 0 to 4 and pedestrian fatalities from 8 to 13, although both crash types have since fallen back down closer to pre-pandemic levels.

Fatalities and Serious Injuries

Late in the development of the DuPage Safety Action Plan, 15-year range of crash data spanning 2008 to 2022 became available from IDOT, enabling investigation of longer-term serious injury crash trends. The long-term trend in serious injury crashes indicates a substantial and sustained reduction, as illustrated in Figure 7.

Figure 7: DuPage County Serious Injuries, 2008-2022



Source: IDOT Crash/Occupant data set

Between 2008 and 2023, the number of serious injuries on all roadways in DuPage County fell from 831 to 353, a 58% decrease. While the trend has stalled and reversed since 2020, the long-term picture is highly encouraging. On average, there have been 32 fewer serious injuries in DuPage County, year-over-year. This downward trend significantly exceeds any increase in vehicle miles traveled, illustrating a robust improvement in safety performance.

Severe Crash Trends – 2018 to 2022

According to IDOT's historical crash database, from 2018 to 2022, there were 83,316 reported crashes across all public roadways – including interstates – in DuPage County. This includes 193 crashes resulting in at least one fatality, representing 0.2% of the total crashes, and 1,576 crashes resulting in serious injuries, accounting for 1.9% of all crashes in the county. Overall, the data indicates there were 25,999 (KABC) injuries caused by 19,185 crashes over the five-year span. The remaining 87.3% of people involved in crashes (179,259), were categorized as uninjured (0 injury), with the crash resulting in property damage only (PDO).

Table 7 summarizes the crashes by severity as well as the number of injuries sustained by people involved in those crashes; the percentage columns are rounded to the nearest tenth and may not add to exactly 100% due to rounding multiple numbers.

Table 7: DuPage County Crashes and Injuries by Severity, 2018-2022

Severity	Crashes		Injuries	
	Count	%	Count	%
K	193	0.2%	209	0.1%
A	1,576	1.9%	1,859	0.9%
B	8,317	10.0%	10,908	5.3%
C	9,099	10.9%	13,023	6.3%
0/PDO	64,131	77.0%	179,259	87.3%
KABC Subtotal	19,185	23.0%	25,999	12.7%
TOTAL	83,316	100.0%	205,258	100.0%

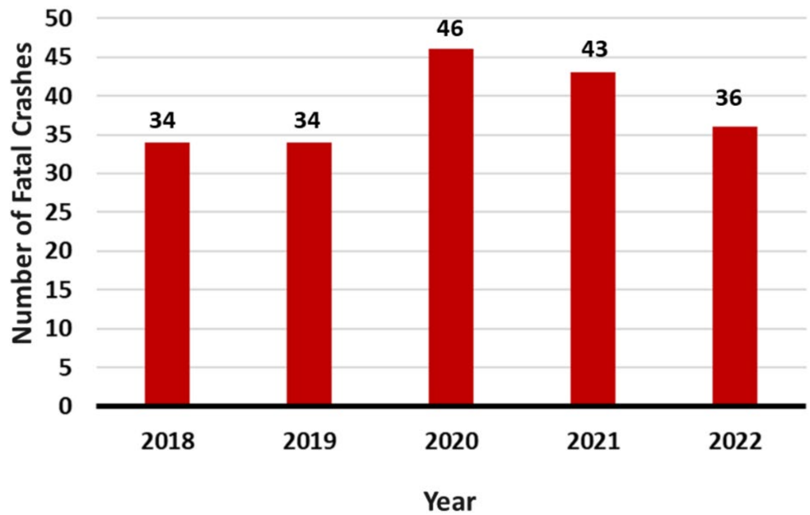
Note: crash severity is determined by the most severe outcome that occurs in a given crash

Figure 8(a) shows the number of fatal crashes in DuPage County per year from 2018 through 2022. From 2018 to 2019 the number of fatal crashes remained constant at 34 for both years. In 2020, there was an increase in fatal crashes, going from 34 in 2019 to 46 in 2020. The number of fatal crashes then decreased to 43 in 2021 and further declined to 36 in 2022.

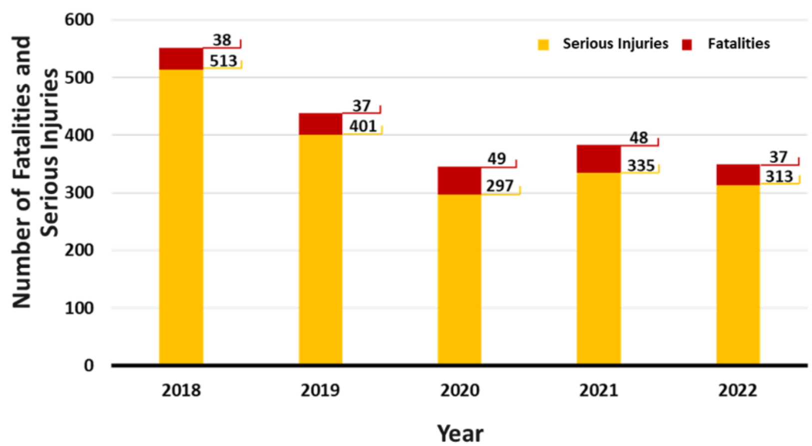
Figure 8 (b) provides a more detailed breakdown of the fatalities and serious injuries that occurred in DuPage County during the same period. Note that Figure 8(b) highlights the fatalities and serious injuries and non-fatal crashes or serious injury crashes. The yellow bars represent the number of serious injuries, while the stacked red bars indicate the number of fatalities. In 2020, while the number of fatal crashes increased, the number of fatalities also increased, but the number of serious injuries declined by roughly 25% compared to the previous year.

This divergence in 2020 suggests that although there were fewer serious injury-causing crashes, the severe crashes that occurred resulted in fatalities more often, possibly due to changes in behavior and travel patterns associated with the Covid-19 pandemic. Consequently, 2020 was an anomaly in the roadway safety trend in DuPage County, with the fewest serious injuries but the most fatalities in the five-year span.

Figure 8: DuPage County Fatal Crash, Fatality, and Serious Injury Trends, 2018-2022



(a) Total Fatal Crashes: 193



(b) Total Fatalities and Serious Injuries: 2068

The number of people killed and seriously injured in crashes in DuPage County between 2018 and 2022 differed markedly across age groups on a per-capita basis. Fatalities, serious injuries, and per capita rates by age group are presented in Table 8. Over the five-year period, the average annual fatality rate across all age groups was 4.6 per 100,000 people.[1] The average annual per capita fatality and serious injury rate was 45.0 per 100,000 people.

[1] Note that this number differs from NHTSA figures due to the difference in Census data used and time frame of analysis, due to data availability.

Table 8: DuPage County Fatalities and Serious Injuries by Age Group, 2018-2022

Age Group	Persons	Fatalities	Annual Average Fatalities/ 100,000 Persons	Serious Injuries	Fatalities and Serious Injuries	Annual Average Fatalities and Serious Injuries per 100,000 Persons
0-4	50,036	1	0.4	9	10	4.0
5-9	52,163	1	0.4	14	15	5.8
10-14	56,788	0	0.0	30	30	10.6
15-17	35,686	12	6.7	57	69	38.7
18-20	38,268	12	6.3	121	133	69.5
21-24	47,281	26	11.0	167	193	81.6
25-34	107,040	53	9.9	378	431	80.5
35-44	119,812	23	3.8	261	284	47.4
45-54	116,963	21	3.6	293	314	53.7
55-64	124,474	23	3.7	277	300	48.2
65-74	101,368	19	3.7	146	165	32.6
75-84	50,781	14	5.5	68	82	32.3
85+	18,972	5	5.3	37	42	44.3
TOTAL	**919,632**	**210**	**4.6**	**1,858**	**2,068**	**45.0**

Source: Impact DuPage, 2024

Of the 209 fatalities over the five-year period,[2] 21–24-year-olds had the highest fatality rate, at 11.0, over twice as high as the countywide baseline. Younger and older people were above average, with very young people and middle-aged adults below 4.6 per 100,000 persons. When compared, people in their teens through early thirties experienced higher fatality rates per capita than seniors.

The most-affected age groups change when serious injuries are introduced, with older and teen drivers less affected and middle-aged adults disproportionately impacted, per capita. This difference is likely shaped by the higher number of motor vehicle trips working-aged adults take. People aged 21-24, however, remain the most affected age group at 81.6 average annual fatalities and serious injuries per 100,000 people.

[2] The IDOT CRASH and PERSON data provided by CMAP differ slightly in the number of fatalities (209/210) and serious injuries (1,859/1,858), but the total number is the same across both data sets.

Crash records from FARS shed light on the disparate impact of traffic fatalities on different populations. While FARS does not include comprehensive data covering all areas of focus, race and ethnicity are recorded.

As demonstrated in Table 9, Black and Hispanic/Latino people were overrepresented in overall traffic fatalities in DuPage County and were impacted by traffic fatalities at higher rates per 100,000 residents than their peers between 2017 and 2021 (data for 2022 were not yet available at time of analysis). The fatality rate for Black residents was nearly three times as high as that of white residents (189% higher) while that of Hispanic/Latino residents was almost twice as high as that of white residents (79% higher). These disparities in traffic crash fatalities by race and ethnicity are more pronounced than that of the nation as a whole from 2015-2019, as reported by the Governors Highway Safety Association.

Table 9: DuPage County Fatalities by Race and Ethnicity, 2017-2021

	White Alone, Non-Hispanic or Latino	Black Alone	Asian Alone	Hispanic or Latino	Other Race	Unknown	Total
Fatalities 2017	20	2	3	14	0	0	39
Fatalities 2018	22	4	1	11	0	0	38
Fatalities 2019	22	3	6	7	0	0	38
Fatalities 2020	25	7	3	12	0	2	49
Fatalities 2021	23	12	1	4	1	5	46
Total Fatalities	112	28	14	48	1	7	210
Share of Fatalities	53%	13%	7%	23%	0%	3%	100%
Population	598,907	51,308	126,871	142,730	13,060	NA	932,877
Share Population	64%	6%	14%	15%	1%	NA	100%
Annual Fatalities per 100k Residents	**3.74**	**10.91**	**2.21**	**6.73**	**1.53**	NA	**4.50**

Source: NHTSA FARS, Census 2020

Severe Crash Rates

Calculating crash rates provides a high-level metric allowing one roadway network to be compared to a similar roadway network. However, comparing a largely rural county's crash rate to a largely urban county's crash rate would not necessarily result in a legitimate 'apples to apples' comparison. Annual crash rates for the entirety of DuPage County's roadway network were calculated using the segment collision rate equation provided by FHWA - this equation is provided below.[xiii] The resulting crash rate is measured per hundred million vehicle miles traveled (HMVMT), shown in Table 10.

$$KA\ Crash\ Rate, per\ HMVMT = \frac{Number\ of\ KA\ Crashes\ along\ All\ Segments * 100{,}000{,}000}{Number\ of\ Crash\ Years * County\ Segment\ Length * Segment\ AADT * 365}$$

Table 10: DuPage County Crash Rates by Year, 2018-2022

Year	Annual VMT*	KA Crashes	KA Crash Rate (HMVMT)	KABCO Crashes	KABCO Crash Rate (HMVMT)
2018	8,641,461,881	461	5.33	20,638	238.83
2019	8,525,783,822	380	4.46	18,859	221.20
2020	6,899,051,103	296	4.29	12,173	176.44
2021	7,417,134,898	324	4.37	15,177	204.62
2022	7,951,158,394	308	3.87	16,469	207.13
’18-‘22	39,434,590,098	1,769	4.49	83,316	211.28

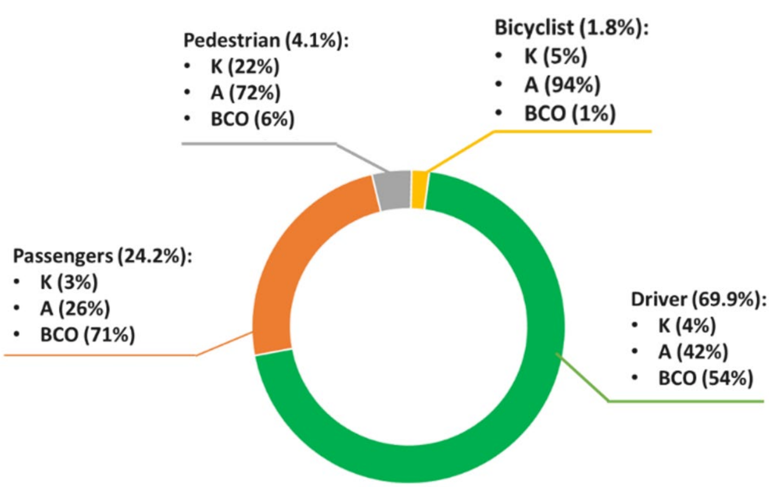
Source: 2022 Illinois Travel Statistics

Over the five-year period, the KA crash rate dropped by nearly one crash per hundred million vehicle miles traveled. This decline is largely driven by the drop in serious injury crashes over the same period.

Crash Severity by User

Figure 9 depicts the proportion of different road user types involved in crashes resulting in KA injuries, even if they did not suffer a KA injury. The pie chart shows that among all of these individuals (4,654) involved in the 1,769 KA crashes, drivers and passengers accounted for the vast majority at 94.1%, while pedestrians and bicyclists made up a combined 5.9% of those involved.

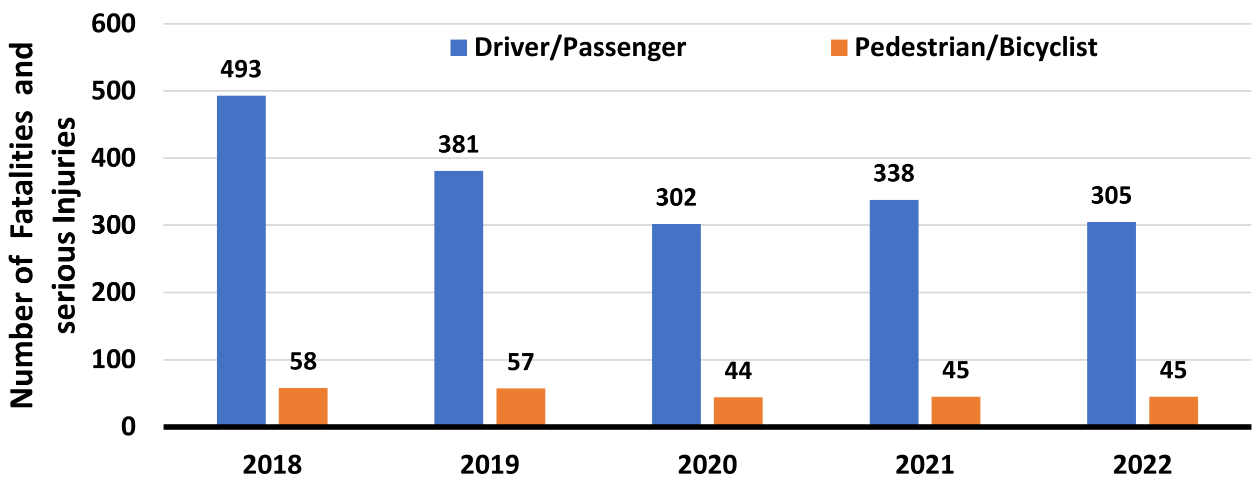
Figure 9: Crash Severity by User Type, 2018-2022



However, when examining the distribution of injuries for each of the users involved in a KA injury crash, pedestrians and bicyclists faced an extremely high risk. Almost all, 94%. of pedestrians involved in a crash sustained a KA injury. For bicyclists, 99% of crashes led to a KA injury. This highlights the disproportionate vulnerability of pedestrians and bicyclists compared to vehicle occupants when a crash occurs.

As shown in Figure 10, the number of fatalities and serious injuries for both drivers/passengers and pedestrians/bicyclists (Vulnerable Road Users, or VRU) exhibited an overall declining trend between 2018 and 2022. However, the reduction was more pronounced for drivers/passengers, with the number decreasing from 493 in 2018 to 305 in 2022, a 38% reduction In contrast, the number of VRU fatalities and serious injuries decreased from 58 in 2018 to 45 in 2022, showing a smaller percentage decline of 22%.

Figure 10: Fatalities and Serious Injuries by User Type, 2018-2022



High Crash Locations

Understanding where severe crashes occur most frequently can indicate future paths for analysis and opportunities for collaboration, assessment, and investment. Figure 11 shows the density of KA crashes throughout DuPage County. Red and orange areas of the map have a higher density of KA crashes, while the green and non-colored areas have few to no KA crashes. This map is purely a representation of severe crash density and is not normalized by population, traffic exposure, or any other metric. Figure 12 provides greater detail on KA crash locations across the county, while Figure 13 indicates the average number of KA crashes per square mile for each municipality in DuPage County. Between 2018 and 2022, Bensenville, Elmhurst, Lombard, Oakbrook Terrace, Downers Grove, Lisle, and Willowbrook had the highest average KA crashes per square mile of all DuPage municipalities.

Figure 11: KA Crash Heatmap, 2018-2022

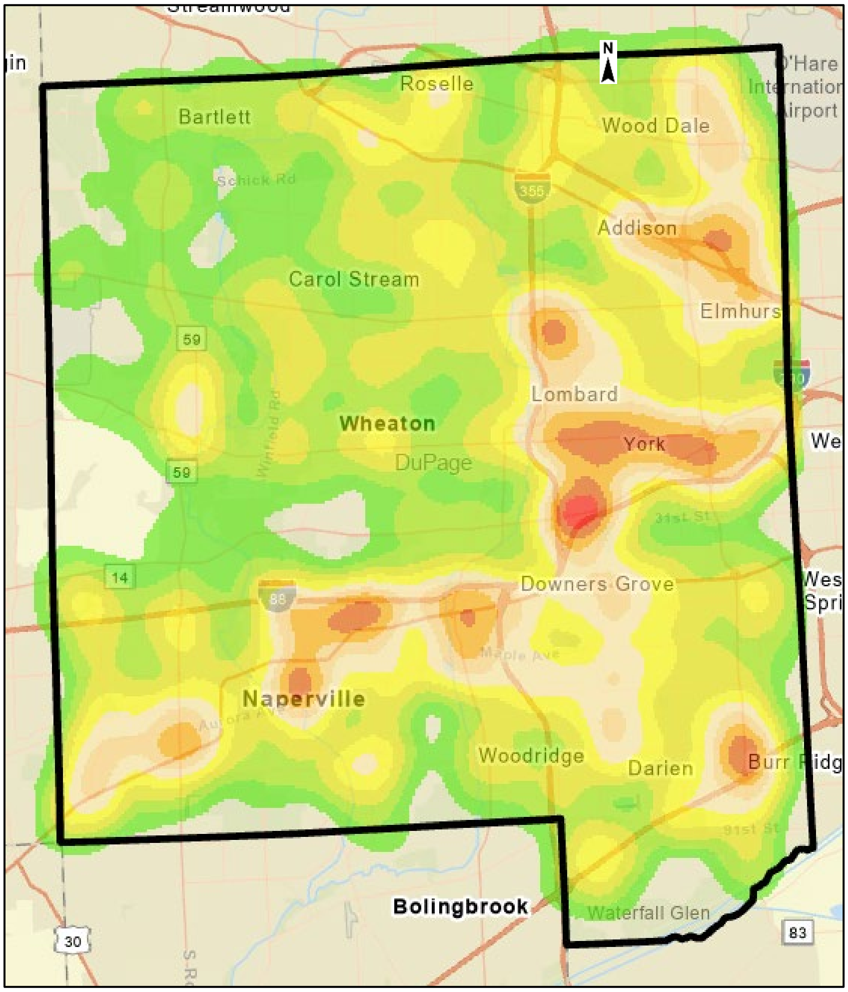


Figure 12: KA Crashes Locations, 2018-2022

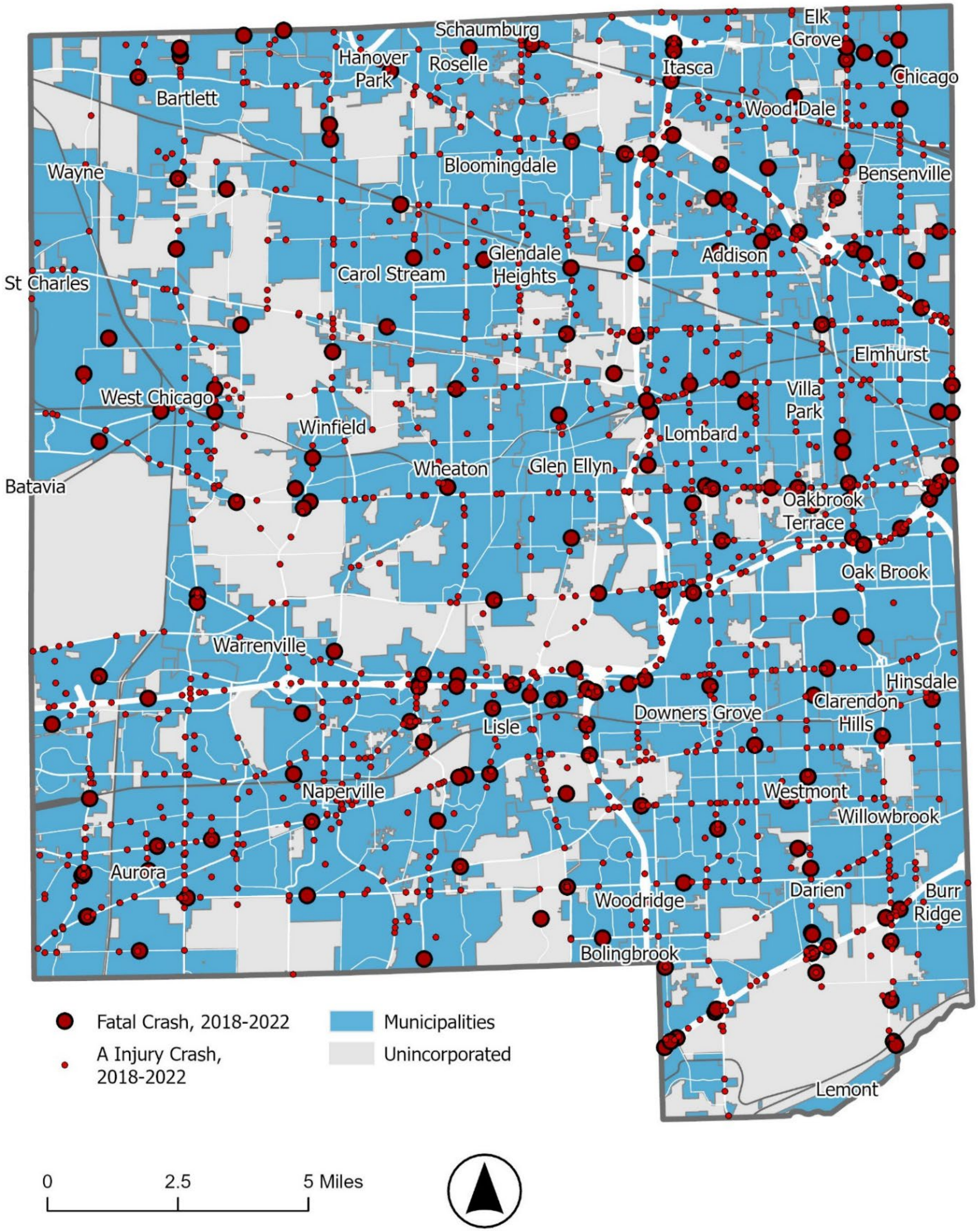


Figure 13: KA Crashes by Square Mile, DuPage Municipalities, 2018-2022

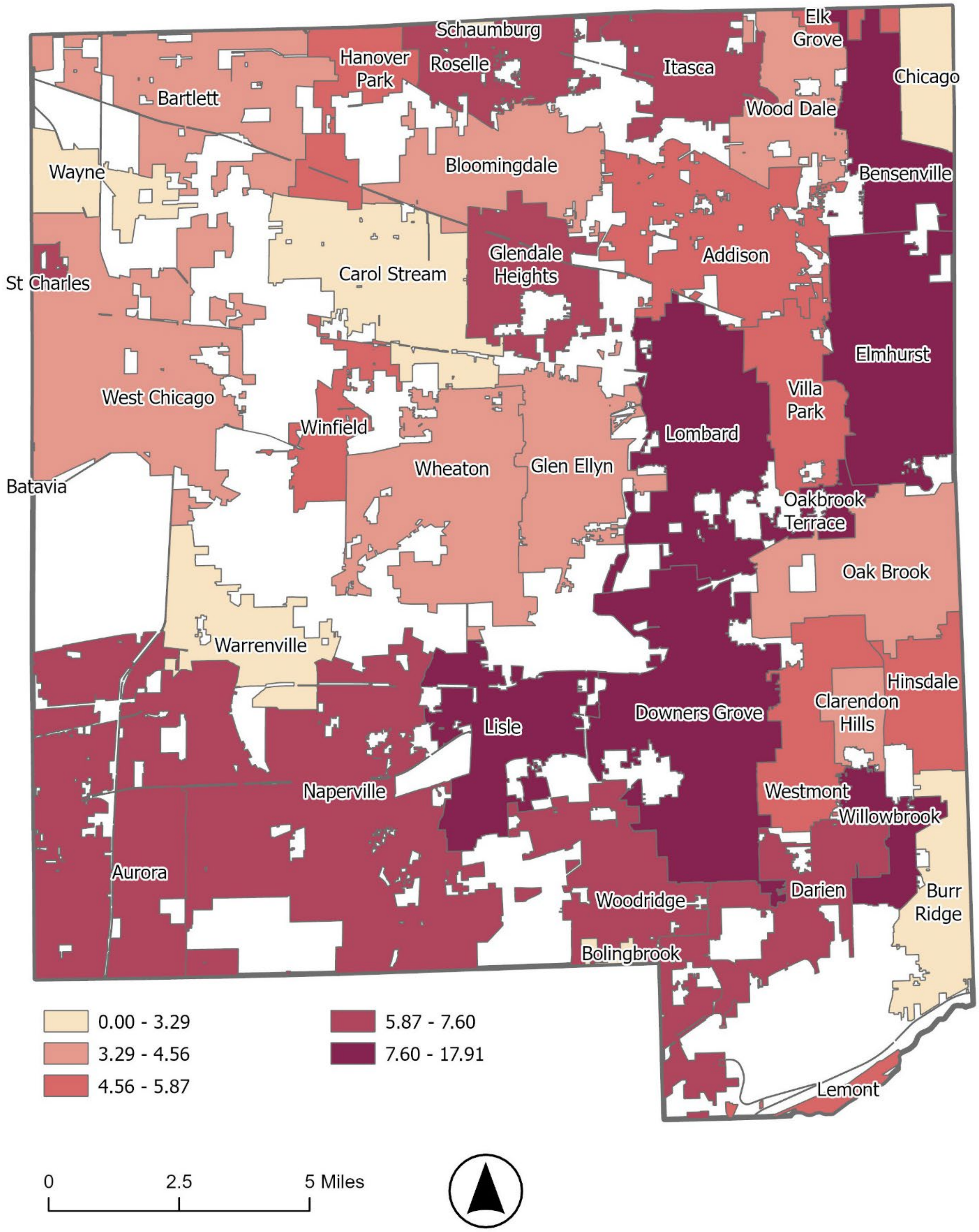


Table 11 ranks the municipalities in DuPage County by KA crashes per 100,000 people for the five-year study period.[3] Oakbrook Terrace had the highest number of KA crashes per capita at 841.6 per 100,000 people. The most KA crashes overall occurred in unincorporated areas. The municipality with the highest count of KA crashes was Naperville, 50 KA crashes higher than the next highest municipality, Downers Grove.

To normalize the findings and identify disparities, a per capita KA crash ratio was developed for each municipality. On a per capita basis, the municipalities with the highest KA crashes per 100,000 people were Oakbrook Terrace (841.6), St Charles (504.2), Wayne (400) Bensenville (329.6), and Oakbrook (294.0). These municipalities are especially overrepresented when compared to the countywide KA crashes per capita, 189.6.

Some municipalities, like Schaumburg, span multiple counties. Even though the majority of Schaumburg is in Cook County, when crashes occurred in the DuPage portion of Schaumburg, they were assigned to DuPage County. Several of these municipalities have very high KA crashes per 100,000 people, but this is due to the small area/population within DuPage.

Table 11: DuPage Municipalities by KA Crashes per 100,000 Residents, 2018-2022

KA Rank	Municipality Name	KA Total	KA %	KABCO Total	KABCO %	Population	KA Crashes per 100,000 Residents
1	Oakbrook Terrace	23	1%	915	1%	2,733	841.6
2	St Charles*	3	0%	96	0%	595	504.2
3	Wayne*	6	0%	141	0%	1,500	400.0
4	Bensenville	62	4%	2,284	3%	18,813	329.6
5	Oak Brook	24	1%	2,221	3%	8,163	294.0
6	Willowbrook	27	2%	1,421	2%	9,250	291.9
7	Lombard	130	7%	4,099	5%	44,562	291.7
8	Downers Grove	138	8%	4,772	6%	50,233	274.7
9	Itasca	26	1%	804	1%	9,543	272.5
10	West Chicago	68	4%	2,369	3%	25,614	265.5
11	Unincorporated	241	14%	13,769	17%	96,733	249.1
12	Lisle	56	3%	1,877	2%	23,767	235.6

[3] Per-capita calculations are a second-best method for normalizing crash rates with total trips being the first-best option. Many non-residents travel in or through any given place. However, these data were not available to the project team, necessitating the per-capita approach.

KA Rank	Municipality Name	KA Total	KA %	KABCO Total	KABCO %	Population	KA Crashes per 100,000 Residents
13	Winfield	21	1%	649	1%	9,788	214.5
14	Aurora*	104	6%	5,034	6%	51,588	201.6
15	Elmhurst	91	5%	3,970	5%	45,778	198.8
16	Roselle	37	2%	1,185	1%	18,953	195.2
17	Naperville*	188	11%	8,751	11%	98,016	191.8
18	Burr Ridge*	13	1%	559	1%	6,826	190.4
19	Darien	41	2%	1,844	2%	21,965	186.7
20	Bartlett*	42	2%	1,353	2%	23,797	176.5
21	Addison	55	3%	2,702	3%	35,579	154.6
22	Bloomingdale	33	2%	2,192	3%	22,382	147.4
23	Woodridge	48	3%	2,341	3%	34,137	140.6
24	Wood Dale	19	1%	886	1%	13,846	137.2
25	Hinsdale*	19	1%	1,457	2%	15,023	126.5
26	Warrenville	17	1%	1,054	1%	13,553	125.4
27	Villa Park	27	2%	1,925	2%	22,272	121.2
28	Hanover Park*	21	1%	1,123	1%	17,383	120.8
29	Glendale Heights	38	2%	2,452	3%	33,171	114.6
30	Westmont	28	2%	1,366	2%	24,446	114.5
31	Glen Ellyn	29	2%	2,225	3%	28,905	100.3
32	Wheaton	51	3%	2,840	3%	53,970	94.5
33	Carol Stream	33	2%	1,952	2%	39,817	82.9
34	Clarendon Hills	5	0%	395	0%	8,702	57.5
35	Bolingbrook*	0	0%	16	0%	1,468	0.0
36	Lemont*	2	0%	46	0%	6	0.0
37	Elk Grove Village	3	0%	220	0%	0	0.0
	Batavia*	0	0%	2	0%	0	0.0
	North Lake*	0	0%	1	0%	0	0.0
	Schaumburg*	0	0%	8	0%	0	0.0
	Grand Total	1,769	100.0%	83,316	100.0%	932,877	189.6

*Community split by county boundary, population represents the total within DuPage County will not equal full community population where a municipality spans multiple counties; unincorporated communities includes all census blocks whose centroids lie outside of official municipal boundaries

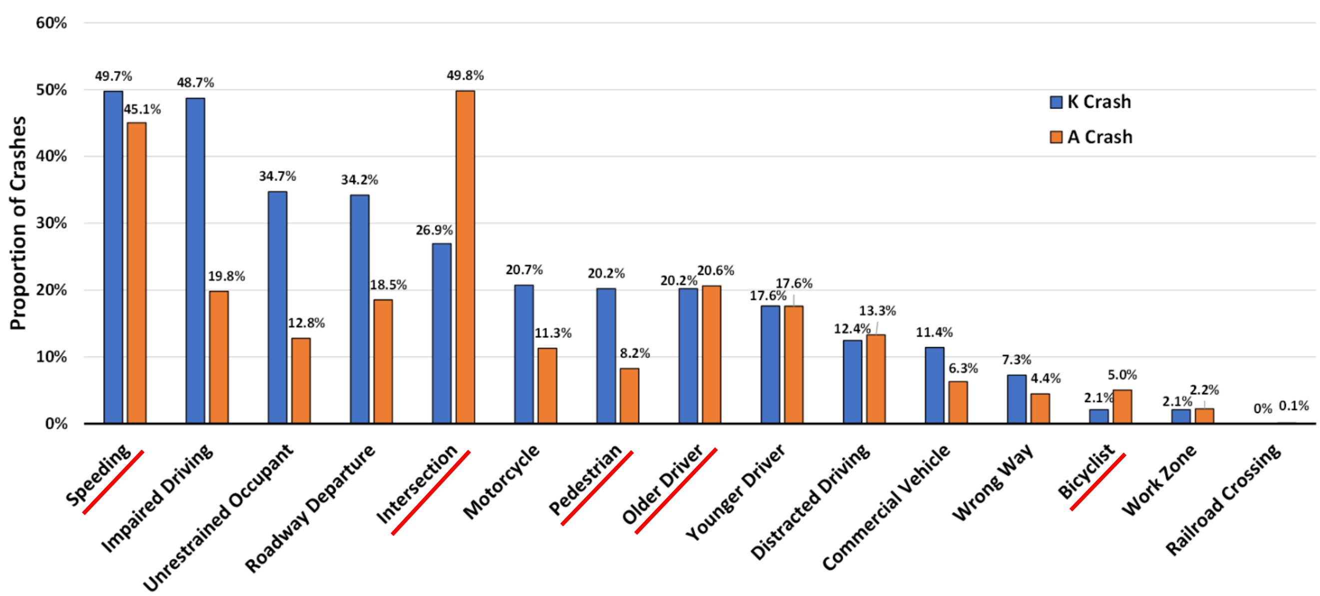
Source: Census 2020 block-level population

Priority Emphasis Areas

The project team identified county-specific priority emphasis areas to focus the direction of the Safety Action Plan. Emphasis areas are defined categories of crashes or roadway user behaviors that represent a unique area of concern. They are typically selected based on patterns in crash data, local policies, and community need, and are intended to guide and unify strategic planners and stakeholders toward the goal of reducing fatal and injury crashes and improving traffic safety for all road users. Recommendations in the following sections of the plan are structured around the priority emphasis areas, the smaller group of emphasis areas determined to most align with the safety needs and broader priorities of DuPage County.

The 15 emphasis areas defined in the Illinois Strategic Highway Safety Plan (SHSP) formed the basis of the analysis. Figure 14 presents the share of KA crashes in DuPage County from 2018 to 2022 by SHSP emphasis area. Emphasis areas underlined in red correspond to those prioritized by DuPage County and stakeholders in the *DuPage County LRSP*.

Figure 14: Share of KA Crashes by Emphasis Area, 2018-2022



Emphasis areas that represent at least 20% of fatal or serious injury crashes during the period of analysis or are of particular interest to safety practitioners are briefly discussed below.

- **Speeding:** 49.2% of fatal crashes and 46.3% of serious injury crashes were speed-related (as defined by IDOT's emphasis area definition and reported by law enforcement). With an increase in driving speed, kinetic energy increases, leading to an increased risk that a crash is more likely to result in a serious injury or fatality.[xiv] This risk is especially elevated for people outside of a vehicle since they have no occupant protection.

- **Intersections:** 50.5% of serious injury crashes and 26.9% of fatal crashes in DuPage County are intersection-related (as defined by IDOT). At intersections, there are multiple conflicting movements which create the potential for collisions – such as left-turning traffic conflicting with through traffic or right-turning traffic conflicting with a pedestrian crossing. The safety performance of these intersections can often be improved by either reducing the number of conflict points present using innovative intersection designs or signal timing strategies, or by reducing the probability or severity of crashes which may occur at existing conflict points using other safety treatments. Though intersections are commonly designed to maximize operational performance – e.g., traffic throughput – they may not yet be optimized for safety performance and may exhibit opportunities for further targeted safety improvements.
- **Pedestrian and Bicyclists:** When combined, pedestrian and bicyclist crashes account for 22.3% of fatal crashes and 13.6% of serious injury crashes in DuPage County. With fatalities of vulnerable road users on the rise across the United States, many agencies are exploring opportunities to be more pedestrian- and bike-friendly through infrastructure that better accommodates their needs and vulnerabilities, increased connectivity, and the elevation of active transportation as an essential form of travel. Identifying and addressing high-risk locations can help create a more walkable and bikeable network, protect vulnerable users, and support a reliable, sustainable, and safe culture of active and multi-modal transportation within the county.
- **Younger Drivers:** Fatal crashes and serious injury crashes included a younger driver (those between 16 and 20 years old) approximately 17% of the time in DuPage County of the five-year period. Research shows that experience leads to safer driving; as new drivers start with little real-world driving experience, they are at risk of experiencing crashes at higher frequencies than other drivers, with this likelihood decreasing over the first decade of driving.[xv] Aggressive and risky driving behaviors are also more prominent among younger drivers, endangering them as well as fellow road users.
- **Older Driver:** Older drivers are involved in 20.2% and 20.6% of all fatal crashes and serious injury crashes in DuPage County, respectively. Age-related physical and cognitive changes can present challenges. Decreased visual acuity, slower reaction times, and reduced flexibility can impact their ability to navigate complex driving situations safely. Despite this, older drivers often self-regulate their driving habits to accommodate their limitations. To support the safety of older drivers, it is essential to provide resources, educational programs, and assistive technologies that help them adapt to age-related changes. By addressing their specific needs,

we can foster a comprehensive approach to traffic safety that recognizes the value of experience while accommodating the unique challenges of aging.

- **Roadway Departure:** Crashes involving vehicles leaving their designated travel lanes account for a large portion of traffic fatalities and serious injuries: 34.2% of all fatal crashes in DuPage County were roadway departures. These roadway departure crashes occur due to factors such as driver distraction, fatigue, operating too fast for conditions, or adverse weather conditions. When a vehicle unintentionally leaves the roadway, the chances of striking fixed objects, or rolling over increase dramatically, leading to severe outcomes. Proactively addressing roadway departure risks and educating drivers can reduce the occurrence and severity of these crashes.
- **Unrestrained Occupants:** 34.7% of fatal crashes in DuPage County involved unrestrained occupants. The use of seat belts and proper restraints is demonstrated to be one of the most effective ways to reduce fatalities and serious injuries in motor vehicle crashes. Unrestrained occupants are at a significantly higher risk of being ejected from the vehicle or sustaining severe injuries in the event of a crash than those using proper restraints. Encouraging consistent seat belt use through public education campaigns, high-visibility enforcement, and the promotion of technological solutions such as seat belt reminders can help increase restraint use rates and mitigate the consequences of crashes involving unrestrained occupants.
- **Impaired Driving:** Driving under the influence of alcohol, drugs, or other substances continues to be a major contributing factor to traffic crashes, fatalities, and serious injuries: 48.2% of fatal crashes and 20.9% of serious injury crashes in DuPage County involved an impaired user. These impaired drivers exhibit diminished judgment, reduced reaction times, and weakened motor skills, putting themselves and others at risk.
- **Motorcycles:** 20.7% of fatal crashes in DuPage County involved a person riding a motorcycle. Motorcycle riders are particularly vulnerable road users due to their lack of structural protection, speeds, and reduced visibility to other motorists. Crashes involving motorcycles often result in severe injuries or fatalities. Motorcycle safety efforts focus on promoting rider education and training, increasing motorist awareness of motorcycles, and encouraging the use of proper protective gear, such as helmets and reflective clothing. Implementing motorcycle-friendly infrastructure, such as improved road surfaces, can also help reduce the risk of crashes.

Many of these emphasis areas are associated with one another. Increased rates of speed, for instance, can lead to roadway departure crashes, more severe outcomes for motorcyclists and people outside of vehicles, and lead to deaths and serious injuries of unrestrained occupants. Younger drivers may be more likely to get into severe crashes at intersections where there are more potential conflicts and risk-taking behaviors have more consequences. These associations are important to keep in mind when prioritizing emphasis areas.

Maps that illustrate the locations of the severe crashes coinciding with the emphasis areas prioritized in the DuPage LRSP illustrate that the selected emphasis areas cut across the county. Crashes may fall into multiple emphasis areas, therefore the points represented on each map are not mutually exclusive (e.g., a speed-related crash that occurred at an intersection may appear on the speeding emphasis area map and the intersection-related map), Figure 15 indicates that there is no area of the county that is not touched by severe crashes that resulted in a death or serious injury between 2018 and 2022, including more urbanized and more rural areas of the county. This pattern is borne out in Figure 16 (intersections) and Figure 18 (older drivers). Pedestrian and bicyclist crashes occurred throughout DuPage County but appear to be concentrated in the more urbanized municipalities and areas east of I-355 or south of I-88, as depicted in Figure 17.

Figure 15: KA Crashes, Speeding Emphasis Area, 2018-2022

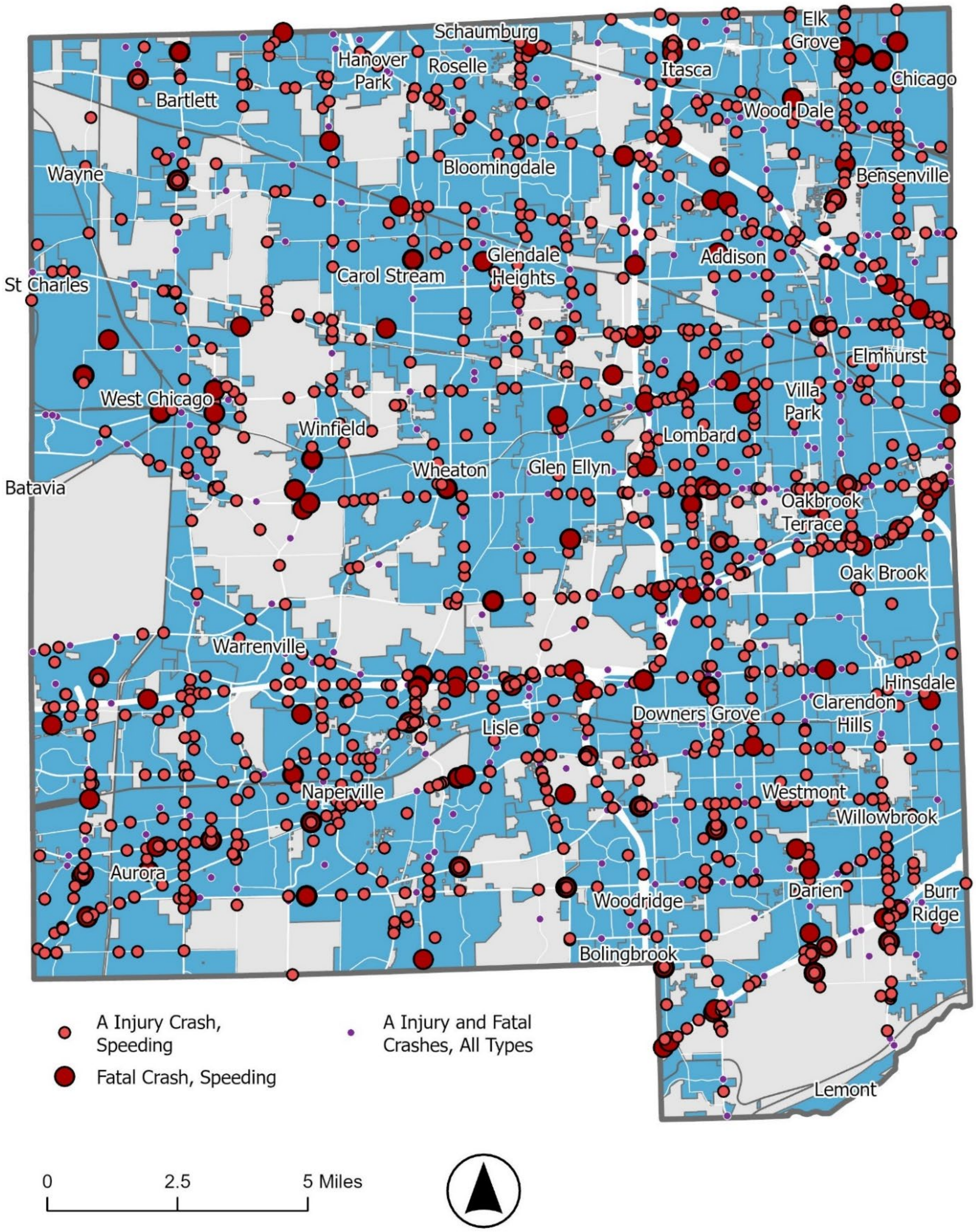


Figure 16: KA Crashes, Intersection Emphasis Area, 2018-2022

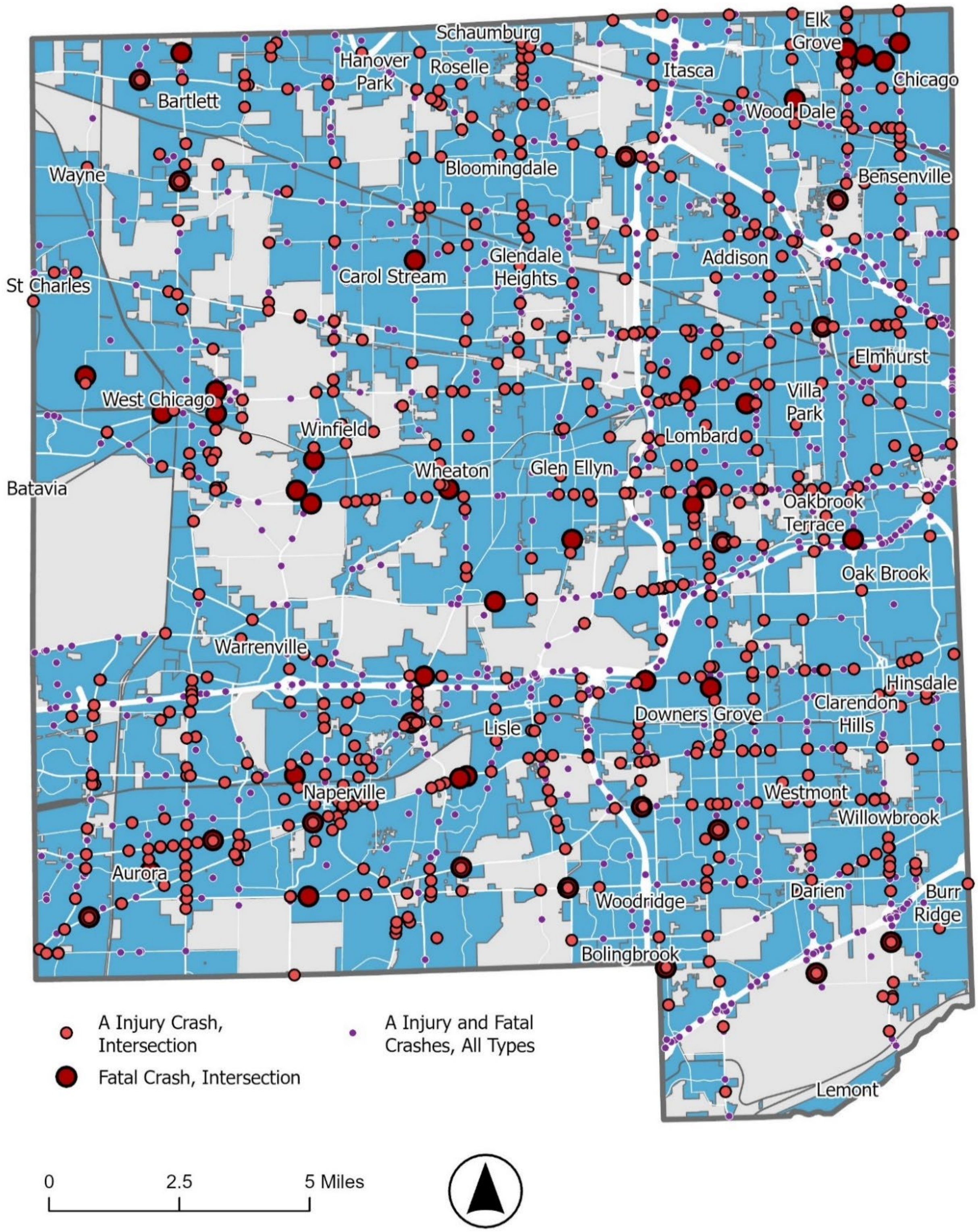


Figure 17: KA Crashes, Bicycle and Pedestrian Emphasis Area, 2018-2022

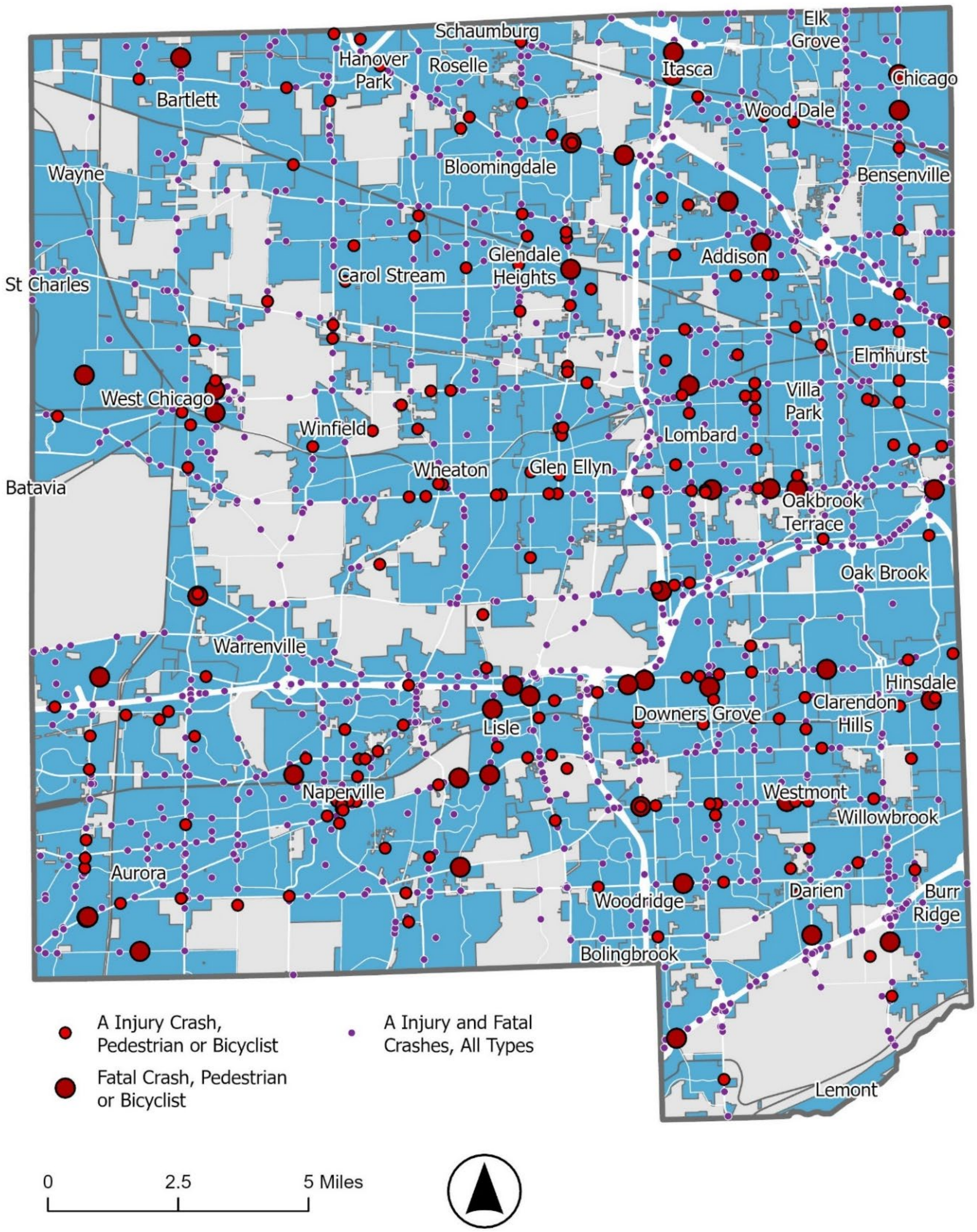
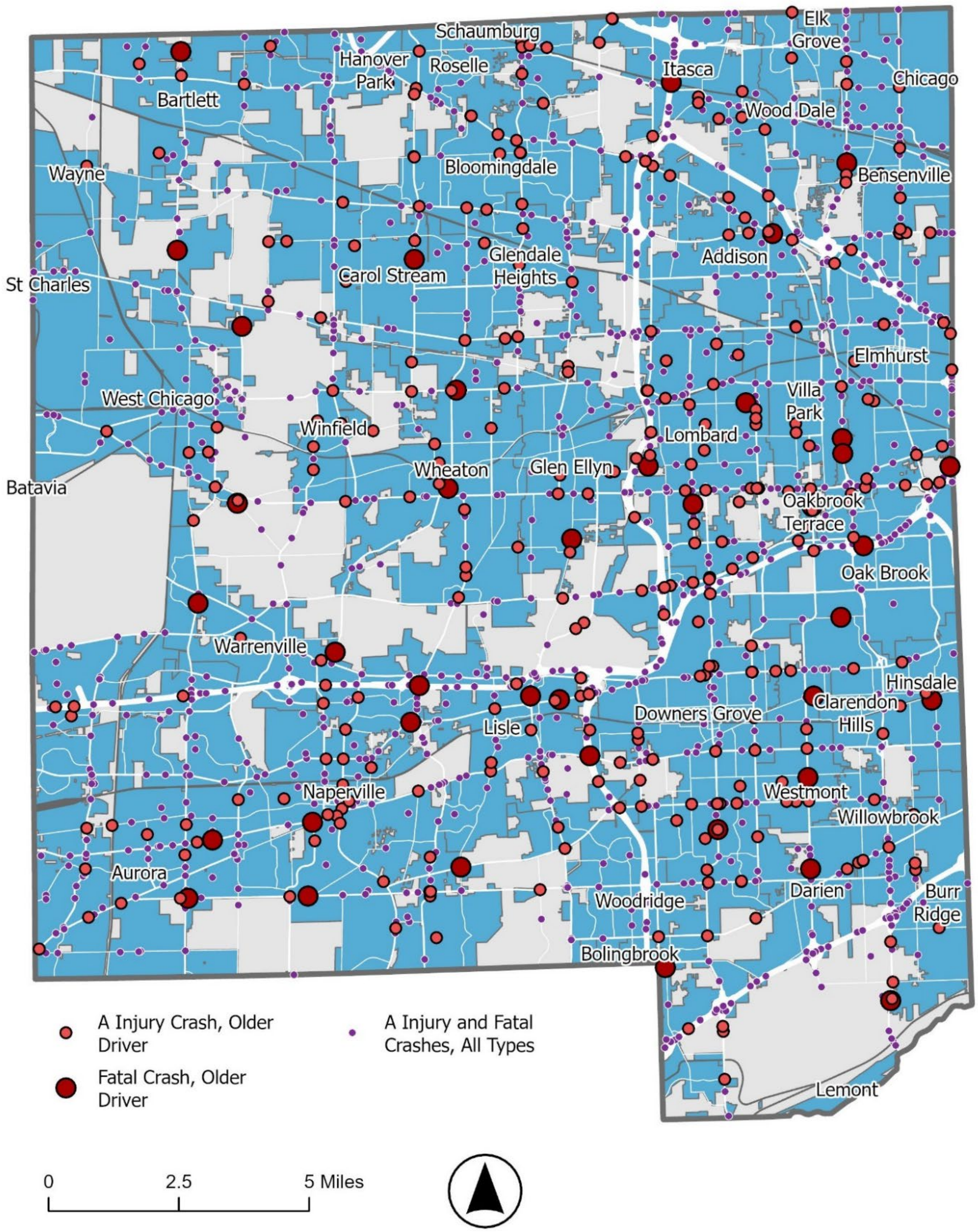


Figure 18: KA Crashes, Older Drivers Emphasis Area, 2018-2022



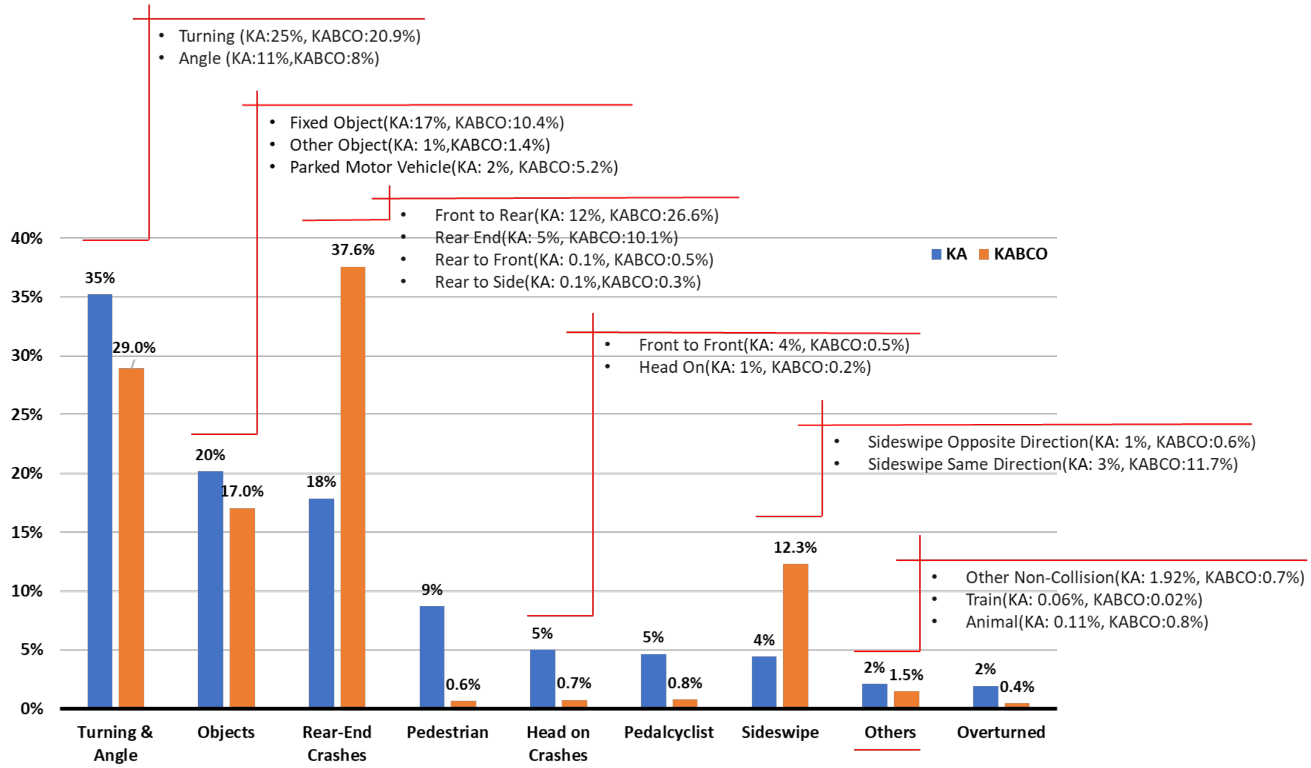
Severe Crash Types

Crash type can yield additional information about the behaviors and maneuvers that preceded crashes resulting in serious injury or fatality and the manner of collision.

The bar chart in Figure 19 illustrates the proportions of different crash types in DuPage County from 2018 to 2022 for both KA and KABCO crashes. The KA bar represents the percentage of all crashes resulting in a death or serious injury for each crash type, while the KACBO bar represents the share of all crashes represented by the stated crash type, For some sections of the chart, the percentages are broken down further to indicate additional details about the crash. The analysis reveals the following:

- **Turning & angle crashes**, which mainly occur at intersections, represent the second largest percentage of crash types based on KABCO crashes (29%) and highest percentage KA crashes (35%), highlighting a critical area for safety improvements.
- **Pedestrian crashes** constitute approximately 9% of KA crashes and 0.6% of KABCO crashes, indicating that when they occur, crashes involving people walking or rolling have a disproportionately high risk of resulting in death or serious injury.
- **Bicycle crashes** account for ~5% of KA crashes and 0.8% of KABCO crashes, underlining the vulnerability of these road users.
- **Object collisions** (20% for KA and 17.0% for KABCO) constitute a major share of KA collisions.
- **Rear end crashes** make up 18% of KA collisions and 38% of all crashes in DuPage County. They are much less likely to result in a severe outcome than most other crash types.
- **Sideswipe collisions** (both opposite and same direction) represent 4% of KA crashes and 12.3% of KABCO crashes. Overall, they are much less likely to result in a severe outcome than most other crash types. Sideswipe opposite direction crashes are comparatively more severe than sideswipe same direction crashes, with 2% of opposite direction crashes resulting in a death or serious injury, compared to less than 1% of same direction crashes.
- **Head-on crashes** represent 5% of KA crashes and 0.7% of KABCO crashes.
- **Other** types, including other non-collision, animal, and train collisions, account for 2% of KA crashes and 1.5% of KABCO crashes.

Figure 19: Share of KA Crashes, by Crash Type, 2018-2022

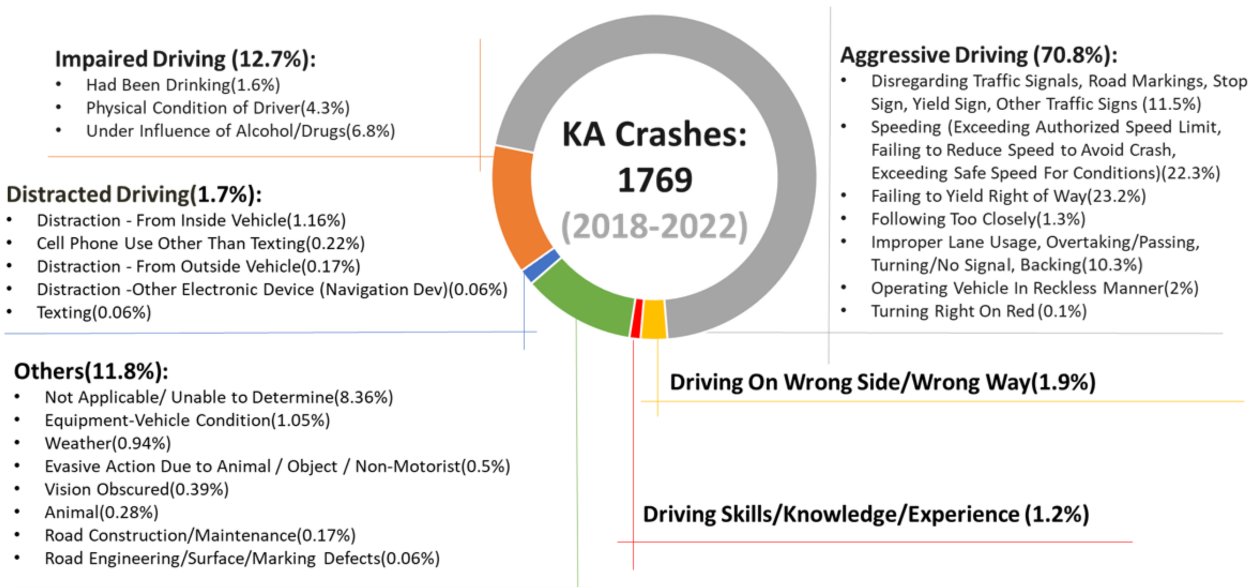


Action plans must balance being comprehensive with prioritizing a select group of crashes and behaviors for targeted and collective action. Turning and angle crashes, as the most substantial percentage for KA (35.2%), highlight an area where targeted resources and specific interventions could yield significant safety improvements. Severe crashes involving objects, pedestrians, pedalcyclists, and head-ons are all overrepresented and also command specific attention.

Leading Crash Cause

Figure 20 summarizes the leading contributing factors to KA crashes in DuPage County, as identified in the crash report by the responding officer. This analysis is similar to, but not synonymous with, emphasis area analysis. The leading crash cause only allows the officer to select a primary contributory crash cause. Emphasis area analysis, on the other hand, is not mutually exclusive, meaning one crash can satisfy multiple different emphasis areas criteria.

Figure 20: Share of KA Crashes by Leading Cause of Crash, 2018-2022



The analysis above categorizes the leading contributing causes into several key groups, many of which are made up of multiple contributory causes as defined by IDOT.

- **Aggressive Driving (70.8%)**: This is by far the largest contributing factor, with aggressive driving behaviors such as speeding (22.3%) and failing to yield (23.2%) leading the list.
- **Impaired Driving (12.7%)**: A considerable portion of the KA crashes were due to impaired driving, which includes being under the influence of alcohol or drugs (6.8%), had been drinking (1.6%) and Physical condition of drivers (4.3%).
- **Others (11.8%)**: A notable number of KA crashes are categorized under 'Others', which could encompass a range of less common causes. This ambiguity highlights a gap in data specificity that hinders targeted intervention, specifically crashes where the responding officer rules the primary contributory cause “not applicable” or “unable to determine.”
- **Distracted Driving (1.7%)**: The strikingly low percentage of reported KA distracted driving crashes in the data suggests a potential under-reporting issue. Many drivers involved in crashes caused by distracted driving are reluctant to admit fault, as doing so could result in citations, penalties, or other legal consequences. This 'unwillingness to self-report' can lead to distracted driving being underrepresented in official statistics and datasets, obscuring the true extent and impact of the problem. Addressing this reporting gap is crucial for developing effective strategies to combat distracted driving and improve road safety.
- **Wrong-Way Driving and Driving Skills (3.1%):** Wrong-way driving makes up a small share of primary contributory causes at 1.9%. Knowledge, experience, and skills are an even emaller

subset of primary causes at 1.2%, well below the number of young drivers involved in KA crashes during the period of analysis. In many young driver crashes, the responding officer presumably concluded that other factors, like speeding, were more important in leading to the crash.

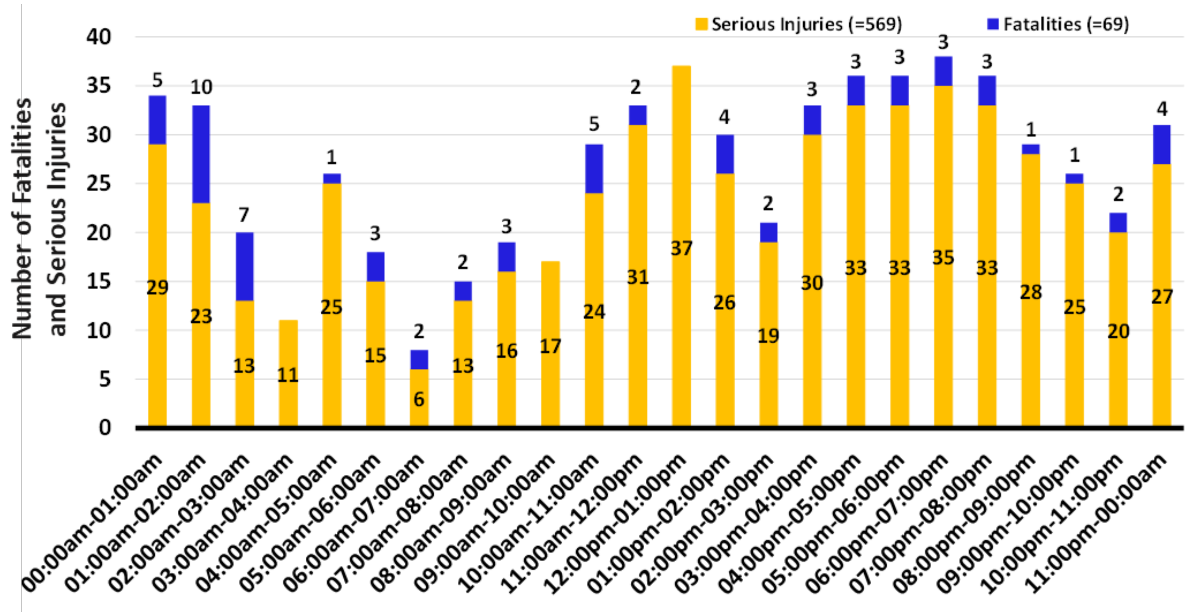
Time and Day of Week

The distribution of crashes by time of day and assessment of typical patterns and abnormalities provides insights into the severe crash causes or potential options for crash mitigation. Figure 21 summarizes the frequency of KA injuries and KA crashes during weekends and weekdays in DuPage County from 2018-2022.

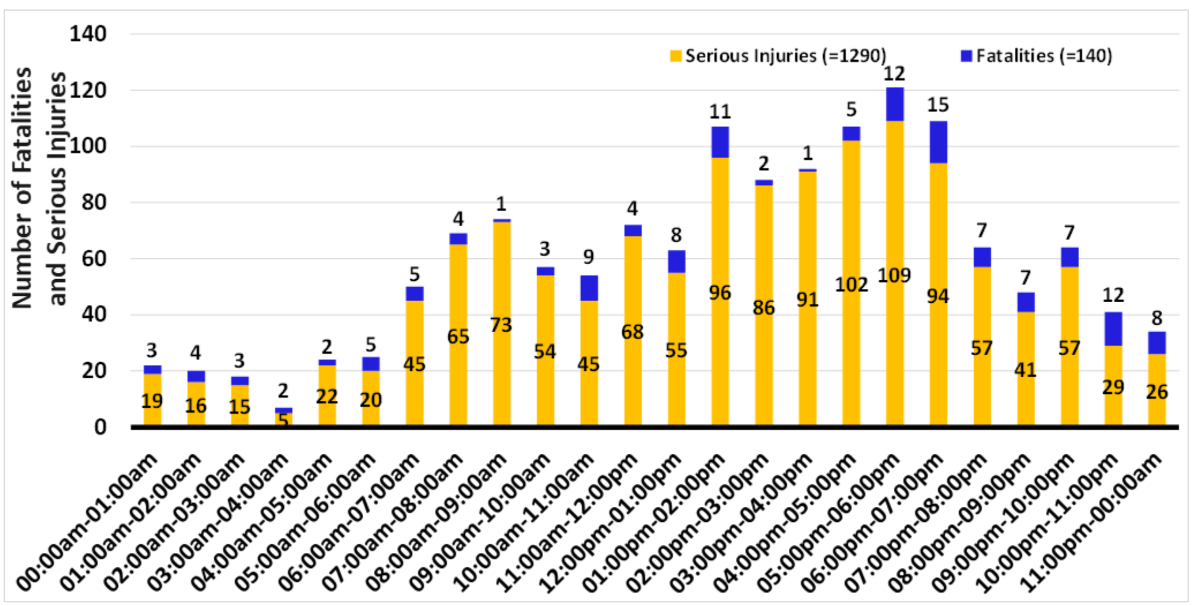
A distinct pattern of severe crashes during late night hours is apparent on weekends. In particular, the hours between 11 PM and 2 AM exhibit a high number of serious injuries and fatalities (98 total), with fatalities peaking between 1 AM and 2 AM. Of these 98 serious injuries and fatalities, 29, or 29.6%, occurred in crashes where the primary contributory cause was reported as “under the influence of alcohol/drugs” or “had been drinking” – higher than the baseline across all days and times. As the day progresses, the number of serious injuries and fatalities on weekends gradually lowers from 4 AM to 10 AM, ticking back up in the late afternoon and early evening hours.

By contrast, serious injuries and fatalities occurring on weekdays are more concentrated in the afternoon hours, with a less pronounced overnight pattern. The evening rush hour between 5 PM and 6 PM has the highest single-hour frequency of serious injuries, with the highest number of fatalities occurring between 6 PM and 7 PM.

Figure 21: Fatalities and Serious Injuries by Hour, 2018-2022



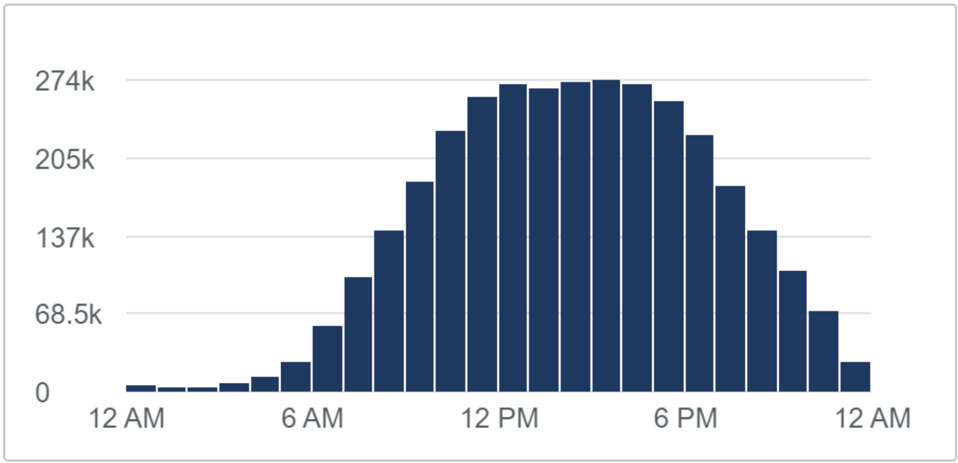
(a) Weekends



(b) Weekdays

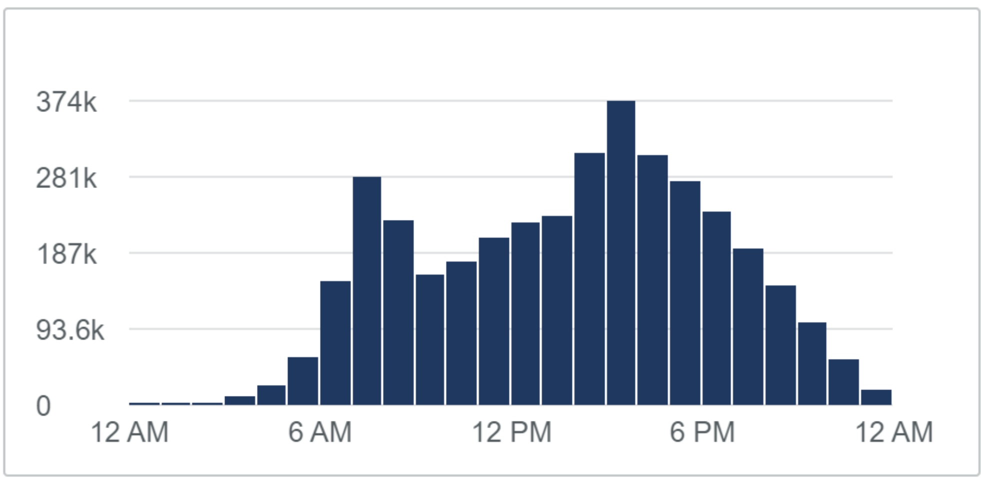
These disparities and trends are confirmed when looking at travel trends shown in Figure 22 and Figure 23, which show trip starts with origins in DuPage County in the Fall of 2022 based on simulated travel demand model data created by Replica based on cellphone data.

Figure 22: Weekend DuPage County Trip Origin Starts by Hour, Fall 2022



Source: Replica, Great Lakes, Fall 2022, Sat

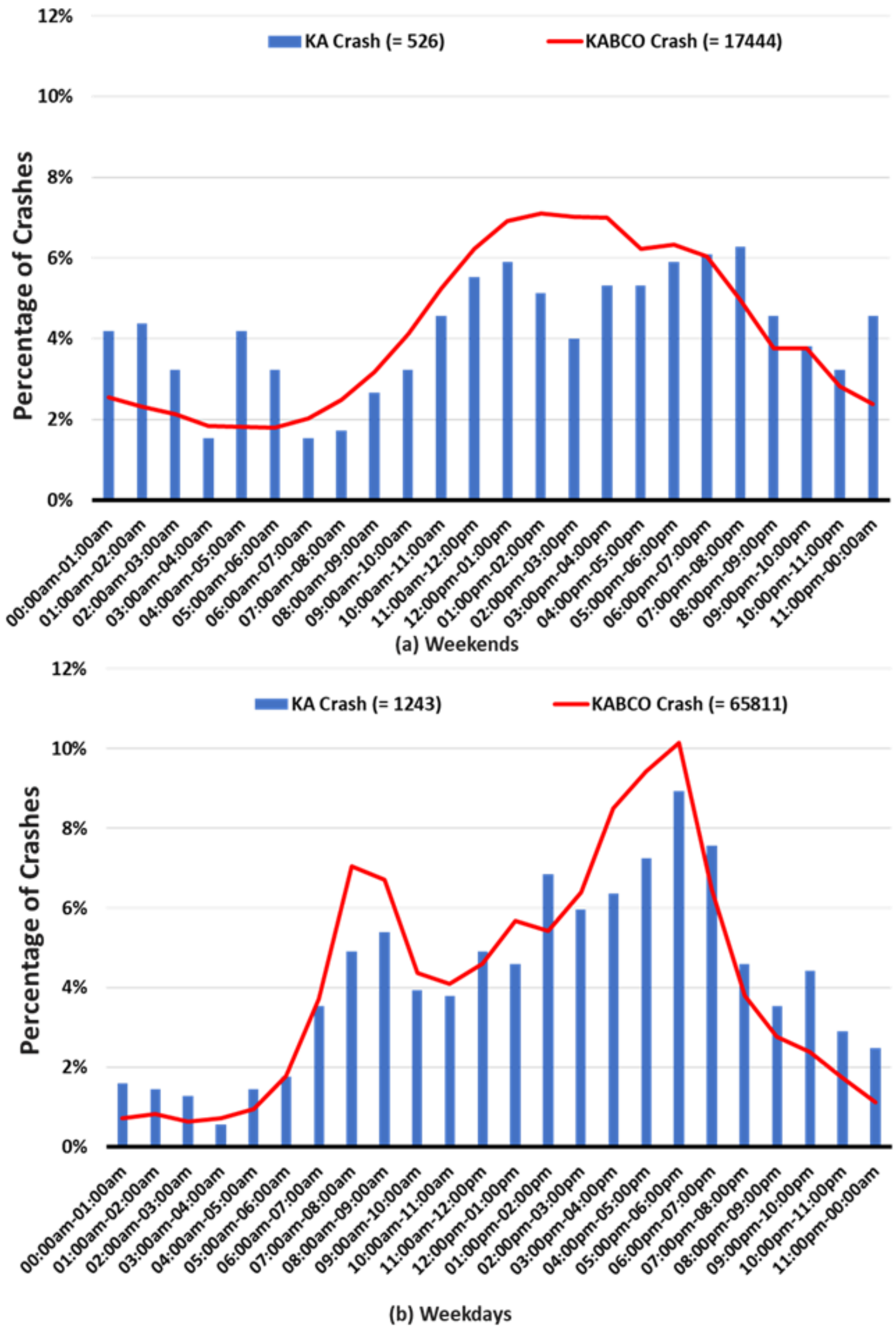
Figure 23: Weekday DuPage County Trip Origin Starts by Hour, Fall 2022



Source: Replica, Great Lakes, Fall 2022, Thurs

Figure 24 compares the KA crashes only against all KABCO crashes for both weekdays and weekends. On weekends, a distinct pattern emerges between 11 PM to 5 AM. During these hours, the proportion of KA crashes exceeds KABCO crashes. While fewer crashes generally occur during these hours, there is a higher likelihood of fatalities and serious injuries.

Figure 24: Share of KA Crashes Compared to All Crashes by Hour, 2018-2022



On weekdays, KA and KABCO crashes exhibit bimodal peaks coinciding with the AM and PM rush hours. There is less variation on weekdays between KA and KABCO crashes, although crashes are more severe overnight.

Weather and Roadway Conditions

Figure 25 illustrates the distribution of fatal and serious injury crashes in relation to prevailing weather conditions over the years 2018 to 2022. Overall, the results indicate that KA predominantly occur during clear weather, with rainy and cloudy/overcast conditions constituting only a small percentage of fatal and serious injury crashes. Cloudy conditions are prevalent in northeastern Illinois, leading to the conclusion that the breakdown between cloudy/overcast and clear assessments may be unreliable.

Figure 25: Share of KA Crashes by Weather Condition, 2018-2022

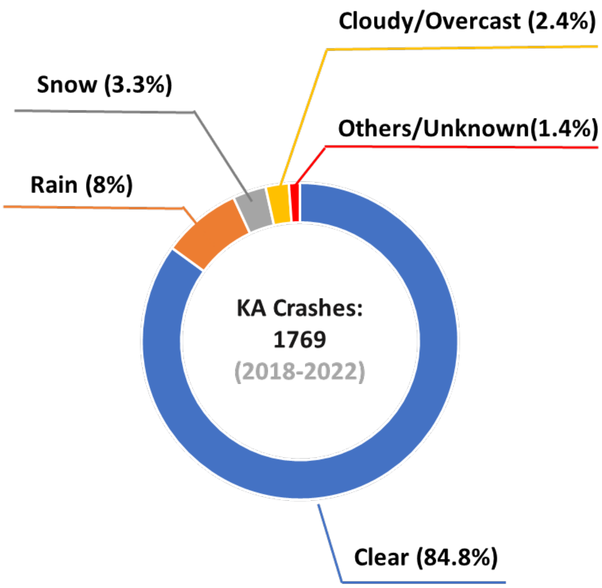


Table 12 presents the share of KA and KABCO crashes by roadway surface conditions at the time of the crash. The majority, 80.7%, of KA crashes happened on dry surfaces, a higher share than KABCO crashes as a whole. Wet surfaces were associated with 15.4% of KA crashes while ice/snow/slushy surface conditions were only 3.5% of KA crashes. Overall, the results illustrate that less severe crashes are more likely to be weather-driven than crashes resulting in serious injuries and fatalities.

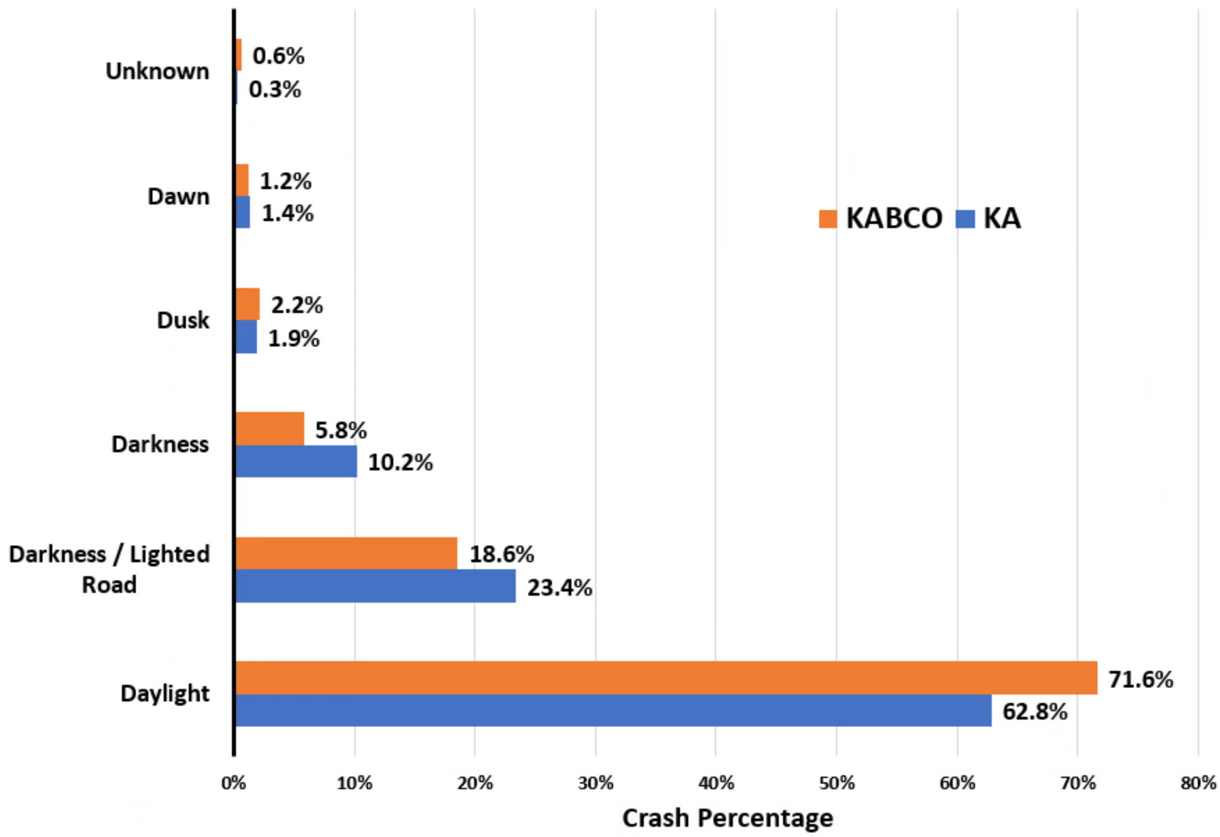
Table 12: KA and KABCO Crashes by Surface Condition, 2018-2022

Surface Condition	Percentage of KA Crashes	Percentage of KABCO Crashes
Dry	80.7%	74.7%
Wet	15.4%	16.6%
Ice/Snow/Slush	3.5%	7.6%
Other/Unknown	0.5%	1.1%

Lighting Conditions

Figure 26 shows the distribution of KA and KABCO crashes in relation to light conditions. As expected, daylight conditions account for the highest percentage of both KA (62.8%) and KABCO (71.6%) crashes. However, the proportion of KA crashes is lower in daylight compared to KABCO crashes, suggesting that daylight crashes are less likely to result in severe injuries or fatalities.

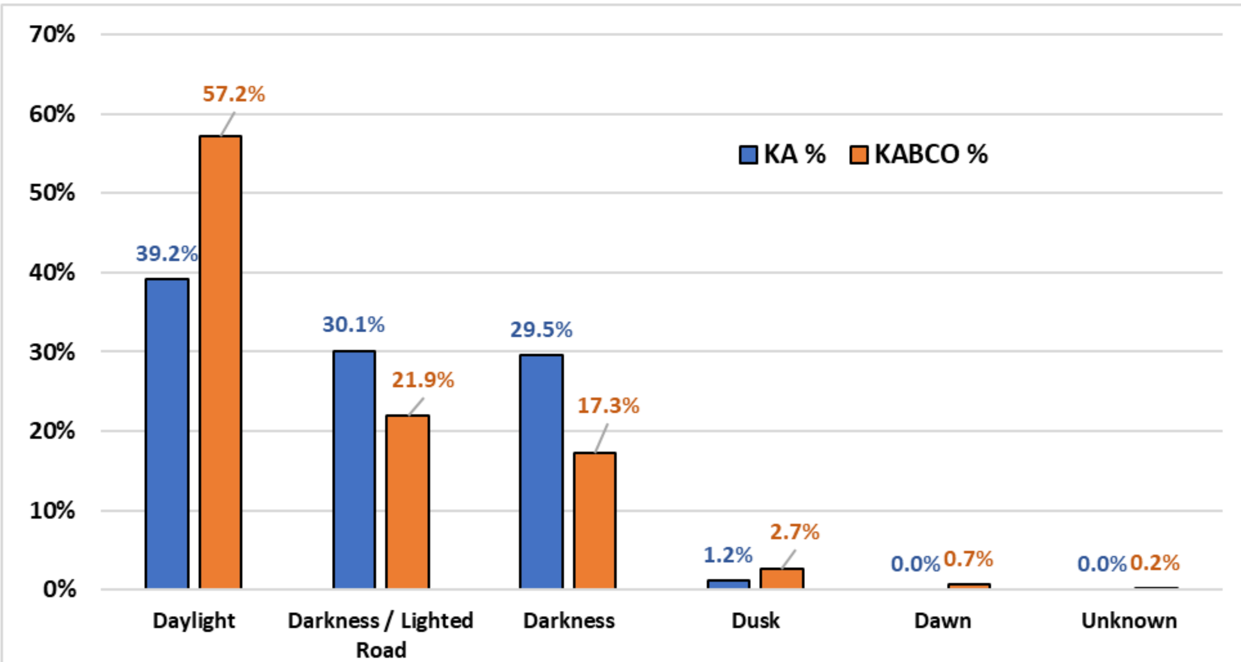
Figure 26: Share of KA and KABCO Crashes by Lighting Condition, 2018-2022



Crashes in darkness account for a higher percentage of KA crashes compared to KABCO crashes, emphasizing the critical role of visibility in crash severity during dark conditions. Specifically, crashes in darkness on lighted roads make up 23.4% of KA crashes and 18.6% of KABCO crashes, while crashes in darkness on unlighted roads account for 10.2% of KA crashes and 5.8% of KABCO crashes. While the distinction between darkness and darkness/lighted road is based on officer judgment, the results are consistent: the higher proportions of KA crashes in both dark conditions highlight the increased risk of severe injuries or fatalities when visibility is compromised.

Figure 27 shows the lighting condition at the time of pedestrian crashes. For all pedestrian crashes, daylight is about 2.5 times more likely to be the lighting condition at the time of a pedestrian crash when compared to the next highest percentage, Darkness on a Lighted Road, coming in at 21.9%. This is likely due to more pedestrian activity during daylight hours. When isolated to crashes with severe outcomes alone, the share of daylight pedestrian crashes drops sharply. Darkness/Lighted Road and Darkness account for 59.6% of all pedestrian KA crashes. This stands in contrast to KA crashes inclusive of all users, where Darkness/Lighted Road and Darkness represent 33.6% of the total.

Figure 27: Lighting Condition at Time of Pedestrian Crash, 2018-2022



Intersection and Mid-Block Crashes

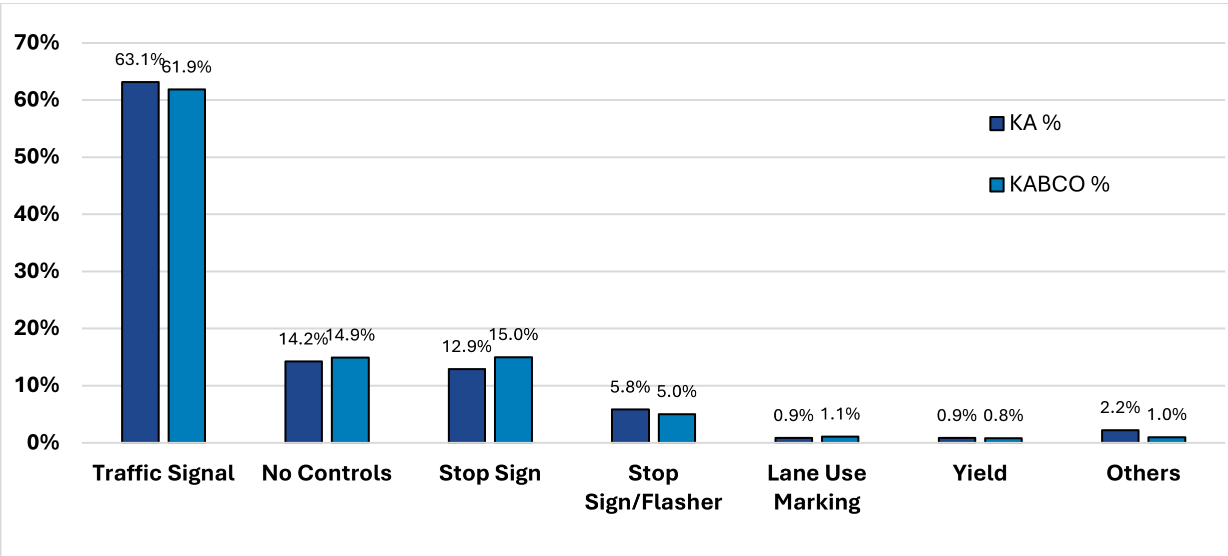
Per CMAP's intersection assignment procedure, crashes were assigned as intersection-related if the crash occurred within 200 feet of a signalized intersection's centerpoint, within 100 feet of an all-way stop-controlled intersection centerpoint, or within 50 feet of an intersection where the control type is coded as unknown (based on a comparison of several locations, this is typically an intersection where one or more legs is uncontrolled). If a crash occurred within two of these buffer areas, the crash was assigned to the nearest intersection. Crashes that did not meet any of these three parameters were considered segment related.

When viewed at the county level, the distribution of intersection to segment crashes indicates that more fatal and serious injury crashes occurred outside of intersections than at intersections. Based on

IDOT crash data, 54% (947) of fatal and serious injury (KA) crashes from 2018 to 2022 occurred at mid-block locations and 46% (822) occurred at intersections.[4]

Figure 28 reveals that 63% of intersection-related KA crashes occurred at signalized intersections, based on reporting by the responding officer. Notably, 14% of intersection-related KA crashes happened at locations with no reported traffic controls, while nearly 19% occur at intersections with stop signs or stop signs with flashing beacons.

Figure 28: Share of Intersection-related KA Crashes by Traffic Control Device, 2018-2022



Functional Classification

Figure 29 compares the percentage of KA crashes and overall crashes across different road functional classifications present in DuPage County. Other principal arterials and minor arterials, which characterize the County and State arterial systems, are the most critical, accounting for the highest percentages of both KA crashes (31% and 27%, respectively) and total crashes (29% and 22%, respectively).

Local roads and interstates have similar percentages of overall crashes (15%), but local roads have a higher percentage of KA crashes (13%) compared to interstates (11%). Collectors contribute to about 10% of KA crashes and 9% of total crashes, while unknown road classifications have the lowest

[4] Note that this result is based on the buffer distances specified by CMAP and may differ when using a larger or smaller or larger search distance.

percentages of both KA crashes (8%) and KABCO crashes (9%). These insights highlight the need for targeted interventions and safety improvements on other principal arterials and minor arterials, as they account for a disproportionately high share of severe and overall crashes.

Figure 29: Share of KA and KABCO Crashes by Functional Classification, 2018-2022

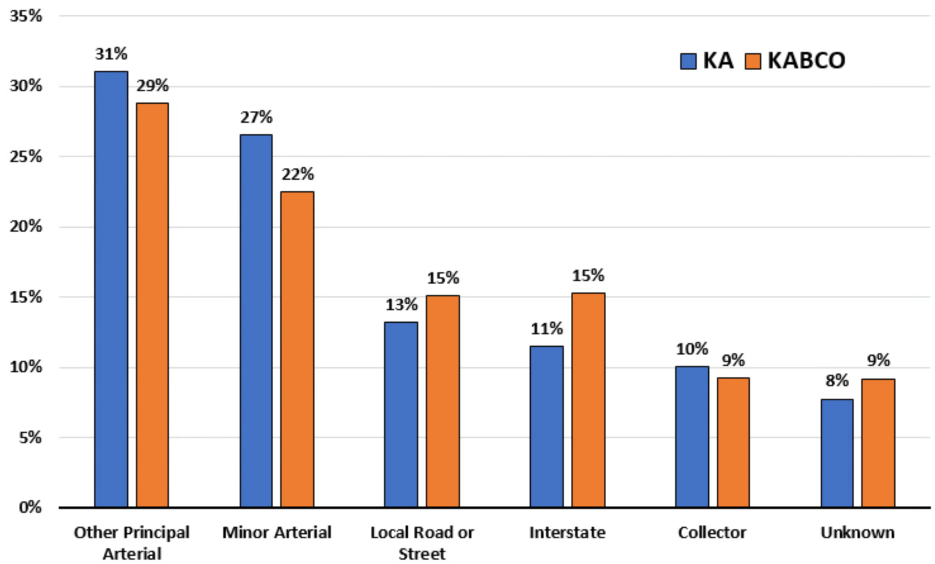


Table 13 presents the distribution of crashes and centerline mileage across different road functional classifications in DuPage County. This table allows comparison of the proportion of crashes that occur on a given road functional classification to the proportion of centerline miles in the county.

Table 13: KA Crashes by Functional Classification Mileage and AVMT, 2018-2022

Functional Classification	KA Crashes	Centerline Miles**	KA/Centerline Mile**	KA Crashes per 100M AVMT**
Unknown	136	n/a	n/a	n/a
Interstate, Freeway/Expressway	204	56.97	3.58	7.46
Other Principal Arterial	549	195.14	2.81	26.73
Minor Arterial	469	253.3	1.85	35.07
Collector	35	n/a	n/a	n/a
Major Collector	118	272.33	0.56	27.65
Minor Collector	25	110.86	0.23	30.51
Local Road or Street	233	2,738.26	0.09	20.74
Total	**1,769**	**3,626.86**	**0.49**	**22.44**

*Recent changes in the latest version of the IRIS dataset exclude "Collector" as a functional class." Collector" crashes are combined with Major collectors in KA/Mile and KA Crashes per 100M AVMT.

**Source: IDOT 2023 Illinois Travel Statistics

Despite having the highest centerline mileage, local roads did not experience the highest percentage of crashes. Other Principal Arterials show the highest proportion of KA as well as KABCO crashes and account for a much smaller share of centerline miles of unrestricted roadways. Minor Arterials have a higher proportion of crashes, considerably higher compared to their centerline mileage. Even when adjusted for average vehicle miles traveled (AVMT), high-volume arterials still exhibit above-average KA crash rates with minor arterials exhibiting the highest crash rate over the five-year period at 35.07, over 50% greater than the countywide average. Arterials account for a disproportionate number of KA crashes in both percentage and rate while being a relatively small share of overall centerline miles, making them a high priority for safety improvements.

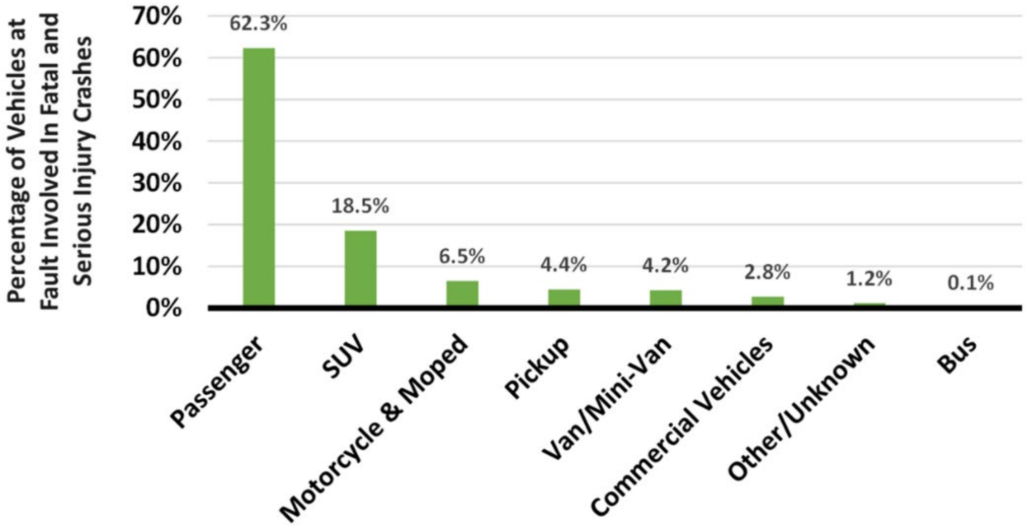
A small percentage of crashes (2.7%) are attributed to an unknown functional classification, indicating the need for improved data collection and reporting.

Overall, the table highlights the importance of considering both crash data, centerline mileage, and volumes when analyzing safety performance and prioritizing interventions across different functional classifications of roads. It suggests that targeted safety improvements may be warranted for specific road types, such as Minor Arterials, Major Collectors, and Interstates, to address their disproportionate share of crashes relative to their mileage. Further discussion on roadway risk factors can be found in Section 4: Systemic Safety Conditions.

Vehicles Involved

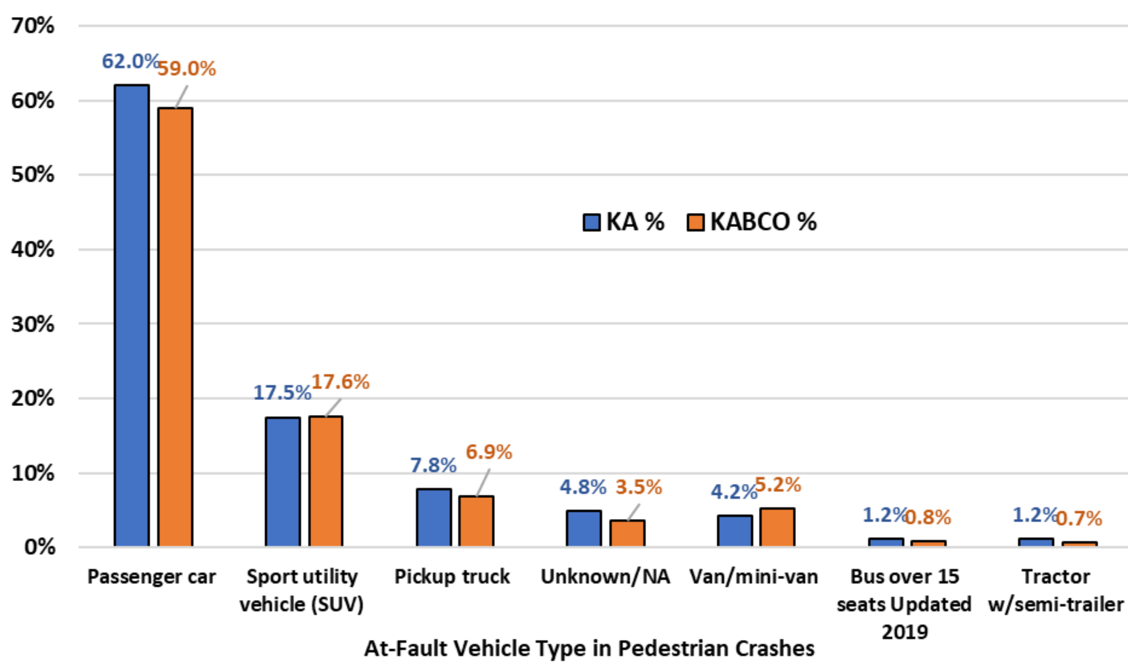
As shown in Figure 30, passenger cars were the primary at-fault vehicle type, accounting for 62.3% of fatal and serious injury crashes. Sport utility vehicles (SUVs) were the second most prevalent at-fault vehicle type, responsible for 18.5% of fatal and serious injury crashes. Due to their larger size and weight, SUVs can contribute to increased crash severity whether they are at fault or not, potentially causing more fatalities and serious injuries. Similar to SUVs, pickup trucks are generally larger than passenger vehicles and drivers of these vehicles were at fault in 4.4% of fatal and serious injury crashes. Despite their substantial size, blind spots, and increased stopping time, commercial vehicles and buses collectively accounted for 2.9% of at-fault fatal and serious injury crashes. Motorcycles and mopeds, often viewed as high-risk regardless of who is at fault, were at fault in 6.5% of fatal and serious injury crashes.

Figure 30: Distribution of Vehicles at Fault for KA Crashes by Type, 2018-2022



Regardless of the size of the vehicle, crashes between a vehicle and pedestrian are often very unforgiving to the pedestrian. Figure 31 shows the vehicle type of the at-fault party in a crash where a pedestrian is involved. Any vehicle type that accounted for at least 1% of KA or KABCO is shown in Figure 31 while all others are excluded. When compared to all KA crashes, SUVs represented a slightly reduced share of pedestrian-involved KA crashes, while pickup trucks were at-fault at an elevated rate.

Figure 31: Vehicle Type of At-Fault Party in Pedestrian Crashes, 2018-2022



3 High Injury Network

The High Injury Network (HIN) is a tool for identifying the roadways and intersections with the highest number of crash fatalities and serious injuries in DuPage County. HINs, composed of a limited set of corridors and/or intersections within a given geography, are frequently used to identify safety study locations and potential safety projects, to prioritize investments, and to direct campaigns and engagement. The HIN enables focused action to address the most potentially significant safety concerns and demonstrate progress towards a goal to eliminate all deaths and serious injuries.

The HIN section is broken into four sections: **data preparation and interpretation**, **high injury network segments**, **high injury network intersections**, and **validation with community feedback**.

The HIN section meets the SS4A Safety Analysis requirement "geospatial identification of higher risk locations."

Data Preparation and Interpretation

Analysis Area and Network

Unlike the severe crash analysis in an earlier section, at the direction of CMAP and the *Regional Framework* (June 3, 2023 version), the development of the HIN is not based only on the boundaries of DuPage County. As discussed earlier in the ESC, many municipalities along DuPage County's borders cross over into another adjacent county (e.g., Burr Ridge is split between DuPage and Cook Counties). To correct for this and to provide HIN segments applicable to complete municipalities, CMAP assigned municipalities to DuPage County that roughly, but do not exactly, conform to its borders and total population. Similarly, segments and intersections in some municipalities (e.g., Aurora) are included in the HINs of other counties. The municipalities that make up the DuPage Safety Action Plan HIN analysis area, in addition to all of unincorporated DuPage, are listed in Table 14. No unincorporated portions of other counties are included.

Table 14: HIN Analysis Area Municipalities

Municipalities Fully within DuPage	Border Municipalities Assigned to DuPage	Border Municipalities Assigned to Other Counties
Addison	Bartlett	Aurora
Bloomingdale	Bensenville	Bolingbrook
Carol Stream	Burr Ridge	Chicago (O'Hare)
Clarendon Hills	Elmhurst	Elk Grove
Darien	Hanover Park	St Charles
Downers Grove	Hinsdale	
Glen Ellyn	Itasca	
Glendale Heights	Naperville	
Lisle	Oak Brook	
Lombard	Roselle	
Oakbrook Terrace	Wayne	
Villa Park	West Chicago	
Warrenville	Wood Dale	
Westmont	Woodridge	
Wheaton		
Willowbrook		
Winfield		

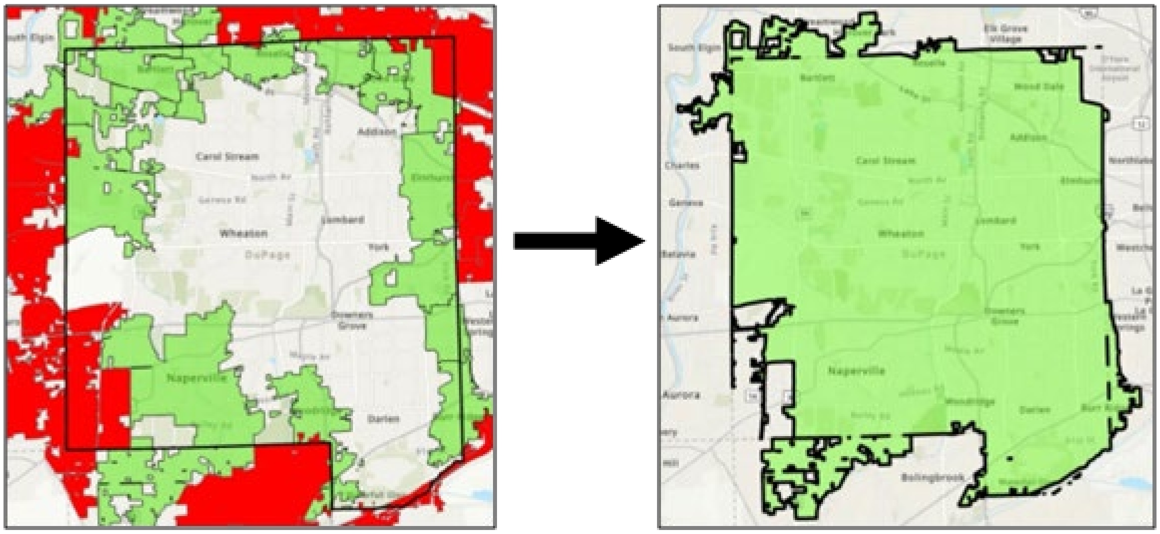
Source: CMAP

Figure 32 illustrates the analysis area used for all HIN analyses, with the official border of DuPage County on the left shown side-by-side with the final analysis area, illustrated in green on the right. Municipalities shown in red were not assigned to DuPage County, therefore the portions that fall within the county boundary are excluded. Through the remainder of the ESC, this area will be referred to as the "DuPage SAP analysis area."

CMAP took a similar approach to assigning streets on County and municipal borders so that no streets were accidentally omitted from the analysis. These assignments are also carried through the HIN analyses.

The HIN is based on five years of IDOT fatal and serious injury crash data, 2018-2022, consistent with IDOT data analyzed in the severe crash analysis earlier in the ESC. Unlike those earlier analyses, crash data for the HIN are analyzed using the DuPage SAP analysis area – they therefore include some crashes outside the DuPage County boundary and exclude others in municipalities assigned to other counties (e.g., Aurora).

Figure 32: Development of the DuPage SAP Analysis Area



The number of crashes in the HIN analysis area is summarized in Table 15. Between 2018 and 2022 there were 1,829 severe crashes resulting in 2,153 deaths and serious injuries, or 1.17 deaths and serious injuries per severe crash. This compares to the 1,769 severe crashes resulting in 2,068 deaths and serious injuries within the DuPage boundary over the same period, with the same ratio of crashes to deaths and serious injuries.

Table 15: HIN Analysis Area Crash Data Summary, 2018-2022

Basis	Metric	Segment-related Count	Intersection-related Count	Total Count
Crashes	Fatal Crashes	123	83	206
	Serious Injury Crashes	559	1,064	1,623
	Subtotal – KA Crashes	**682**	**1,147**	**1,829**
Injuries	Fatalities	133	90	223
	Serious Injuries	677	1,253	1,930
	Subtotal – KA Injuries	**810**	**1,343**	**2,153**

Segment HIN Assignment and Calculation

Segment crashes, those that CMAP did not assign to an intersection using the methodology described in the *Regional Framework,* are assigned to a simplified network of candidate street centerline segments (inclusive of all functional classifications) supplied by CMAP within the analysis area. To create the candidate segments, the project team dissolved and then split street segments at signalized and four-way stop intersections to create longer segments for analysis and to better align with potential logical termini for future project development. Therefore, each candidate segment includes smaller segments to, from, and between minor intersections (the typically uncontrolled intersection of a local functional classification street and a collector or arterial) located between major intersections. Crashes were then assigned to the nearest street segment, with limited exceptions for crashes found to be within private parking lots or crashes incorrectly located far away from street centerlines, which were screened out of the data set.

Based on the instruction in the *Regional Framework*, the project team calculated the number of deaths and serious injuries (person-level, not crash-level) involving all users for each candidate segment based on the assigned crashes. The project team then calculated the number of KA injuries per segment centerline mile to normalize each candidate for segment length. No weighting is applied to deaths or serious injuries (both are counted equivalently) and no distinction is made between users (e.g., pedestrian fatalities were not broken out or given additional weight).

Following assignment and calculation, the project team reviewed the data and developed a limited number of screening criteria in consultation with the criteria in the *Regional Framework*. To control for excessively high KA injuries per centerline mile, the project team removed all segments with lengths less than 0.1 miles (based on project team assessment, setting a threshold of 0.25 miles would remove many downtown segments in downtown/village center contexts). To ensure that the HIN was indicative of locations where more than one KA injury occurred in the last five years, all segments with one KA injury were dropped from consideration. To back up this determination, the project team posits that a segment with one KA injury reflects a tragic collision but does not reflect a pattern and thus is not eligible for inclusion.

Intersection HIN Assignment and Calculation

CMAP assigned intersection crashes to the center point (centroid) of intersecting roadway centerlines across the region prior to receipt of the data. No additional assignment was undertaken by the project team. Crashes were joined to intersection centroids that fell within the HIN analysis area. Like segments, the project teams calculated the number of deaths and serious injuries involving all users for each intersection. Like the segment analysis, no weights were applied.

Certain complex intersections may be represented by multiple intersection points. Offset intersections, for example, may function as one intersection but could be represented in a GIS shapefile as two intersection points. Complex intersections may have multiple points where the centerlines of constituent segments overlap. The project team did not assess these situations or make changes to the CMAP-supplied intersection file due to the high number of potential intersections in the study area.

Interpretation

Per the CMAP regional framework, the project team created two versions of the HIN: the comprehensive HIN and the contextual HIN. The comprehensive HIN includes all functional classes, including interstates, for the purposes of fulfilling USDOT guidelines for the preparation of safety analyses. Interstates are not included in the contextual HIN. The only significant difference between the comprehensive and contextual HINs are at the segment level. Since there are no true intersections on the interstate system (entrance and exit ramps are merges), all intersections belong to both contextual and comprehensive HINs.

Across both comprehensive and contextual HINs, KA injuries per mile are used to compare the relative severity of each included segment. The project team assessed the data and methodology at multiple steps in the HIN development process to check the utility of the outputs. Due to the large extent of the HIN analysis, all segments could not be checked for appropriate termini, whether changes in land use or roadway features occurred along the segment, or whether adjacent segments should be extended, combined, or shortened. Therefore, while KA injuries/mile are useful for comparison purposes, it is not a precise tool. Segments that are artificially short due to how the DuPage SAP analysis area boundary was constructed, for example, may be over-represented. Intersections cannot be normalized by length and are thus represented as a raw frequency.

The methodology used to create the HIN segments and intersections is based purely on historical IDOT crash data for all users and excludes crashes that did not result in a death or serious injury. Systemic and predictive factors are not factored in the development of the HIN, based on instruction in CMAP's *Regional Framework*. Future users of the HIN may seek to apply their own weighting factors and overlay other characteristics to produce more context-sensitive analyses or to create project prioritization indices.

A step-by-step methodology used to prepare the HIN can be found in the Appendix: HIN Development for Segments and Intersections Technical Memorandum.

High Injury Network Segments

HIN segments indicate corridors of potential concern and priority for safety assessment and intervention. The selected segments must therefore constitute a high concentration or density of fatalities or serious injuries, represent a relatively small fraction of the overall network, and indicate a pattern of severe crashes.

CMAP's *Regional Framework* suggests thresholds for HIN network lengths (5% minimum, 40% maximum) and fatalities or serious injuries (60% study area minimum). Most crashes that resulted in deaths and serious injuries in DuPage County and in the DuPage SAP analysis area between 2018 and 2022 occurred at intersections, limiting the pool of KA injuries for assessment. After screening out segments that did not meet the criteria laid out in the previous section, the project team determined that all eligible segments with two or more fatalities or serious injuries were needed to achieve CMAP's recommended threshold for the comprehensive HIN. Based on the diffuse pattern of KA injuries in the study area for the contextual HIN, achieving this threshold would require selecting many candidates with only one KA injury over the study period. As a result, the ability of the HIN to illuminate patterns of severe crashes would be diminished. In this case, the HIN segments would simply map where KA crashes have occurred.

The DuPage analysis area segments included in the comprehensive and contextual HINs are described in Table 16. The comprehensive HIN segments represent 60.9% of segment KA injuries between 2018 and 2022 but only 3.4% of the overall network. The contextual HIN segments, those that exclude interstate segments, represent 35.0% of KA injuries (50.1% of all KA injuries when interstates are excluded) and are only 2.0% of the total network in the analysis area by length.

Table 16: DuPage Analysis Area Segment HIN Summary

Segment Type		Count	Length (mi)	Percent Total Length	Segment KA Injuries	Percent Total KA Injuries
All Segments		16,383	3,954.3	100%	810	100%
Comprehensive	Candidate Segments	16,383	3,954.3	100%	781*	96.4%
	HIN Segments	135	133.3	3.4%	494	60.9%
Contextual	Candidate Segments	16,340	3,892.7	98.4%	567	70.0%
	HIN Segments	99	79.3	2.0%	284	35.0%

Source: CMAP

*29 crashes with KA injuries were removed from consideration as they were assessed to be located on private property (principally located in parking lots)

On a KA injuries per mile basis, the comprehensive HIN experienced 3.71 KA injuries per centerline mile while the contextual HIN experienced 3.58 KA injuries per centerline mile between 2018 and 2022, illustrating rough comparability.

Comprehensive and contextual HIN segments in the DuPage SAP analysis area are shown in Figure 33. In addition to the interstates, significant portions of IL-83, IL-56 (Butterfield Road) and IL-38 (Roosevelt Road) on the eastern side of DuPage County are identified in both the comprehensive and contextual HINs.

The top ten segments by KA injuries per centerline mile in the comprehensive and contextual HIN are listed in Table 17. While the comprehensive HIN includes interstates, none had sufficient KA injuries per mile to make the top ten list, so the comprehensive and contextual top ten segment lists are mutually inclusive. A complete table of candidate and scored segments can be found in the Appendix.

Figure 33: Comprehensive and Contextual HIN Segments

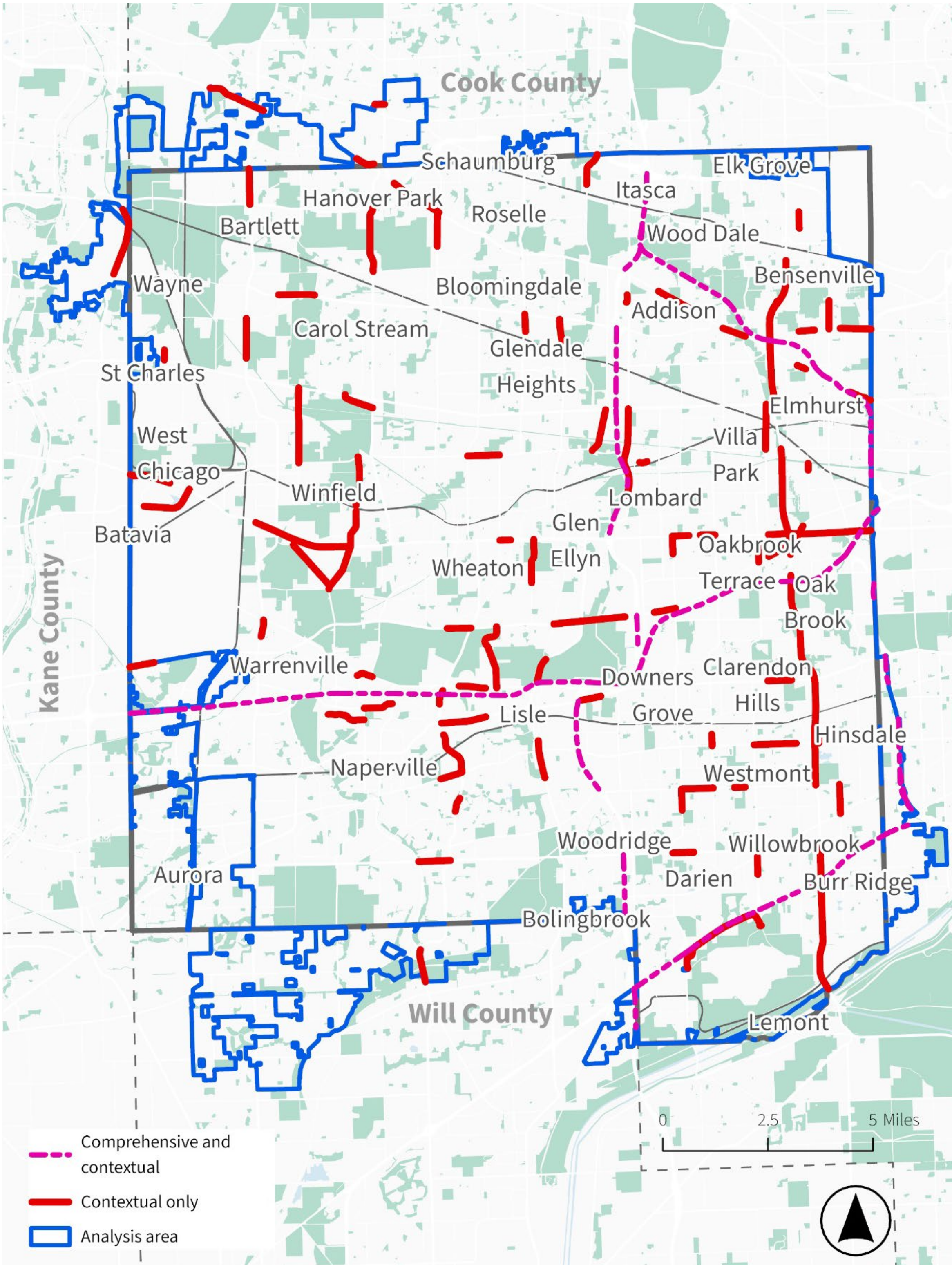


Table 17: Top 10 Comprehensive and Contextual HIN Segments by KA Injuries per Mile

Corridor	From	To	Municipality	Jurisdiction	KA Injuries 2018-2022	Length (mi)	KA Injuries /mi
Lake Street (US-20)	Horizon Drive	IL-59	Bartlett	IDOT	7	0.44	16.0
Naperville Rd	Diehl Road	Tollway Sign Shop/Central Park Signal	Naperville/ Lisle	DuPage County	5	0.34	14.9
Lake Street (US-20)	N Church Road	N Walnut Street	Elmhurst	IDOT	3	0.22	13.8
Lincoln Ave (IL-53)	Main Street	Maple Avenue	Lisle	IDOT	3	0.24	12.9
S Spring Road	Prairie Path Lane	W Vallette Street	Elmhurst	Municipal	2	0.16	12.2
Dunham Road	Canadian National Railway	Union Pacific Railroad	Wayne	Kane County	5	0.41	12.1
W St Charles Road	Crescent Boulevard	S Elizabeth Street	Lombard	Municipal	2	0.18	10.9
Lake Street (US-20)	I-355 SB Off Ramp	I-355 NB On Ramp	Hanover Park	IDOT	3	0.28	10.8
Washington Street	S Washington St	Royce Rd	Naperville	Municipal	3	0.28	10.8
Lake Street (US-20)	Greenbrook Blvd	Bartels Rd	Hanover Park	IDOT	4	0.37	10.7

The DuPage SAP analysis area includes assigned municipalities and unincorporated DuPage County (no unincorporated areas of Will County, Kane County, or Cook County are included). A breakdown of HIN segments by municipality is presented in Table 18. The project team assigned segments that pass through multiple municipalities to the municipality that represented the highest percentage of the segment length. Interstate segments are broken out as they pass through multiple municipalities and represent the exclusive set of non-contextual HIN segments. The municipalities with the highest mileage of HIN segments are West Chicago, Westmont, and Naperville. Hanover Park, Bartlett, and Naperville had the highest number of KA injuries on HIN segments. When adjusted for KA injuries per mile, Elmhurst (7.3), Bartlett (6.6), and Lisle (6.0) led peers with over a mile of contextual HIN segments within their borders (inclusive of all jurisdictions).

Table 18: Comprehensive and Contextual HIN Segments by Municipality

Municipality	Total HIN Segment Miles	KA Injuries	KA Injuries/mi
Interstate	53.97	210	3.9
West Chicago	7.6	16	2.1
Westmont	5.4	10	1.9
Naperville	4.9	18	3.6
Hanover Park	4.3	20	4.6
Oakbrook Terrace	4.0	15	3.8
Winfield	4.0	9	2.3
Downers Grove	3.6	14	3.9
Darien	3.5	7	2.0
Lombard	3.5	15	4.3
Wheaton	3.3	9	2.7
Burr Ridge	3.1	14	4.6
Bartlett	3.0	20	6.6
Unincorporated DuPage	3.0	10	3.3
Lisle	2.9	17	5.8
Elmhurst/Addison	2.9	7	2.5
Addison	2.8	8	2.9
Bensenville	2.6	15	5.8
Villa Park	2.1	5	2.3
Glen Ellyn	2.1	4	1.9
Elmhurst	1.6	12	7.3
Wayne	1.6	9	5.6
Clarendon Hills	1.6	4	2.5
Oak Brook	1.5	4	2.7
Glendale Heights	1.0	5	5.0
Willowbrook	1.0	4	4.2
Roselle/Itasca	0.8	2	2.5
Aurora	0.6	3	5.1
Bolingbrook	0.5	3	6.0
Total	**133.3**	**494**	**3.7**

A summary of comprehensive HIN segments by jurisdiction is included in Table 19 and a summary of comprehensive segments is presented in Table 20. Roadways under the jurisdiction of IDOT constitute the largest portion of both the comprehensive and contextual HINs by length and number of KA injuries on the HIN. When interstates are removed (and thus Illinois Tollway-owned facilities), the second highest share of length and KA injuries shifts from Tollway jurisdiction to County. Despite owning the most roadway on a per-centerline-mile basis, municipalities own just 9% of the comprehensive HIN and 15% of the contextual HIN.

Table 19: Comprehensive HIN Segments by Jurisdiction

Jurisdiction	HIN Length (mi)		KA Injuries	
	Count	%	Count	%
County	19.9	15%	78	16%
IDOT	61.6	46%	237	48%
Municipality	12.1	9%	42	9%
Tollway	36.1	27%	129	26%
Township or Road District	3.5	3%	8	2%
Total	**133.3**	100%	**494**	100%

Table 20: Contextual HIN Segments by Jurisdiction

Jurisdiction	HIN Length (mi)		KA Injuries	
	Count	%	Count	%
County	19.9	25%	78	27%
IDOT	43.8	55%	156	55%
Municipality	12.1	15%	42	15%
Township or Road District	3.5	4%	8	3%
Total	**79.3**	100%	**284**	100%

High Injury Network Intersections

High Injury Network intersections illustrate the intersections where the highest frequency of KA injuries occurred in the DuPage SAP analysis area between 2018 and 2022. The HIN intersections are the same across the comprehensive and contextual HINs as there are no true intersections on interstates and none are apparent on review of CMAP's intersection file.

The project team established a minimum threshold of three KA injuries per intersection over the five years between 2018 and 2022 based on an assessment of the variation in KA injuries across intersections eligible for analysis. As illustrated in Table 21, this threshold results in 117 intersections encompassing 473, or 35.0%, of KA injury crashes at intersections. Lowering the threshold to two KA injuries more than doubles the number of potential HIN intersections to 293 and significantly increases the coverage of KA injuries to 829 (61.3% of all intersection KA injuries). However, using this lower threshold tilts the HIN intersection list towards locations with single KA crashes resulting in multiple serious injuries. For this reason, the project team recommends using the smaller sample for greater precision and prioritization.

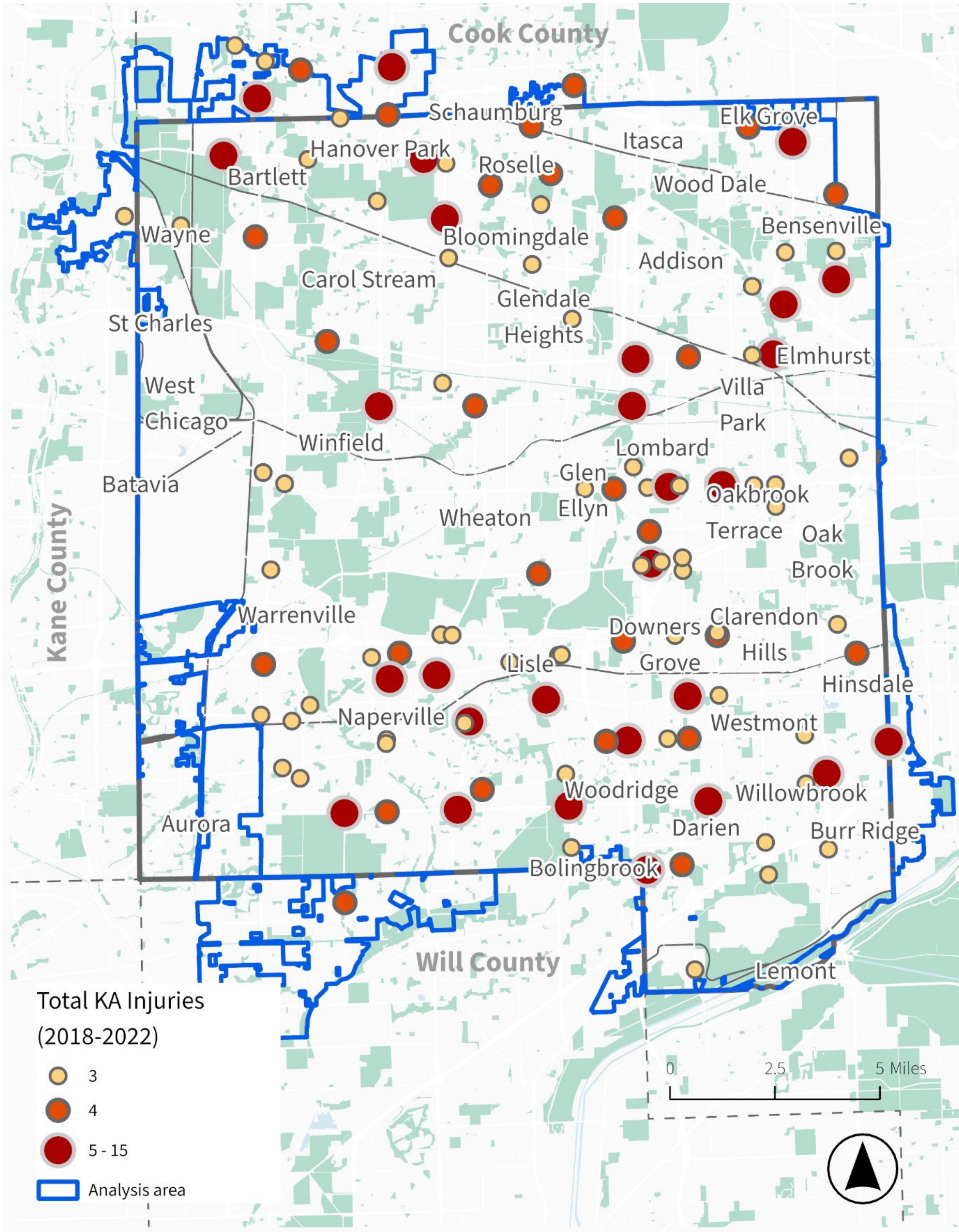
Table 21: DuPage Analysis Area HIN Intersection Summary

Intersection Type	Count	Percent of Intersections	Intersection KA Injuries	Percent Total KA Injuries
All Intersections	21,444	100%	1,352	100%
HIN Intersections	117	0.6%	473	35.0%

The distribution of the 117 HIN intersections across the DuPage SAP analysis area and the variation in KA injuries by intersection are shown in Figure 34. HIN intersections are located across the DuPage SAP analysis area but are more sparsely distributed on the western side of it. There are multiple adjacent HIN intersections along US-20 (Lake Street), IL-64 (North Avenue), IL-38 (Roosevelt Road), IL-56 (Butterfield Road), US-34 (Ogden Avenue), 63rd Street, and 75th Street. Of the 117 intersections on the intersection HIN, 59 (50%) are state jurisdiction (complete information on jurisdiction was not included in the CMAP intersection file so only state-owned intersections can be broken out).

The top twenty intersections by KA injuries are listed in Table 22. At 15 KA injuries between 2018 and 2022, the intersection of IL-64 and IL-53 has almost double the number of KA injuries as the next highest ranked intersections. Multiple intersections along 75th Street, IL-64 (North Avenue), and IL-53 appear in the top twenty. Seven of the twenty intersections are included in crash analyses created by the DuPage Division of Transportation using the three most recent years of crash data based on an injury severity-weighted formula (this differs from that recommended by CMAP due to its inclusion of PDO and minor injury crashes). Multiple intersections have been improved since 2019. A full list of HIN intersections is provided in the Appendix.

Figure 34: HIN Intersections by KA Injuries



HIN intersections are predominantly signalized. One hundred out of 117 are signalized, two are all-way stops, and the remaining 15 are at intersections with one or more uncontrolled approaches. All HIN intersections either have three legs or four; none are located at complex, multi-legged intersections based on the information provided in CMAP's intersection file. Most HIN intersections have high combined average annual daily traffic (AADT); 74 of 117 had over 30,000 vehicles per day on average, inclusive of major and minor leg volumes. Twenty-two had combined AADTs greater than or equal to 50,000.

Table 22: Top 20 HIN Intersections by KA Injuries

Major Road Name	Minor Road Name	State Juris.	KA Injuries	Rank	Municipality	Recently Completed Project
IL-64 (North Ave)	IL-53 (Columbine Ave)	Yes	15	1	Lombard	
IL-59 (Sutton Rd)	West Bartlett Rd	Yes	8	2	Bartlett	Yes
IL-38 (Roosevelt Rd)	Westmore-Meyers Road	Yes	8	2	Lombard	
Naper Blvd	75th St		8	2	Naperville	Yes
IL-53	75th St	Yes	8	2	Woodridge	
Grand Ave	York Rd		8	2	Bensenville	Yes
75th St	Fairmount Ave		7	7	Darien	Yes
Stearns Rd	Munger Rd		7	7	Bartlett	Yes
Barrington Rd	Irving Park Rd	Yes	6	9	Hanover Park	Yes
Plainfield Rd	County Line Rd		6	9	Burr Ridge	
County Farm Rd	Geneva Rd		6	9	Winfield	
IL-56 (Butterfield Rd)	Finley Rd	Yes	6	9	Downers Grove	
Gary Ave	Schick Rd		6	9	Bloomingdale	
Main St	55th St		6	9	Downers Grove	Yes
63rd St	Belmont Rd		6	9	Downers Grove	
IL-83 (Busse Rd)	Bryn Mawr Ave	Yes	6	9	Bensenville	
US-34 (Ogden Ave)	Iroquois Ave	Yes	6	9	Naperville	
Catalina Dr	Arlington Dr E.		5	18	Hanover Park	
IL-64 (North Ave)	Villa Ave	Yes	5	18	Villa Park	
Kingery Hwy (IL-83)	Plainfield Rd	Yes	5	18	Willowbrook	Yes

HIN intersections are in 27 municipalities and unincorporated DuPage County. Naperville has the highest number of HIN intersections at 20, followed by Downers Grove with 15 (in both municipalities, less than a third of HIN intersections are under IDOT jurisdiction). A full count of HIN intersections by municipality is listed in Table 23.

Table 23: HIN Intersections by Municipality

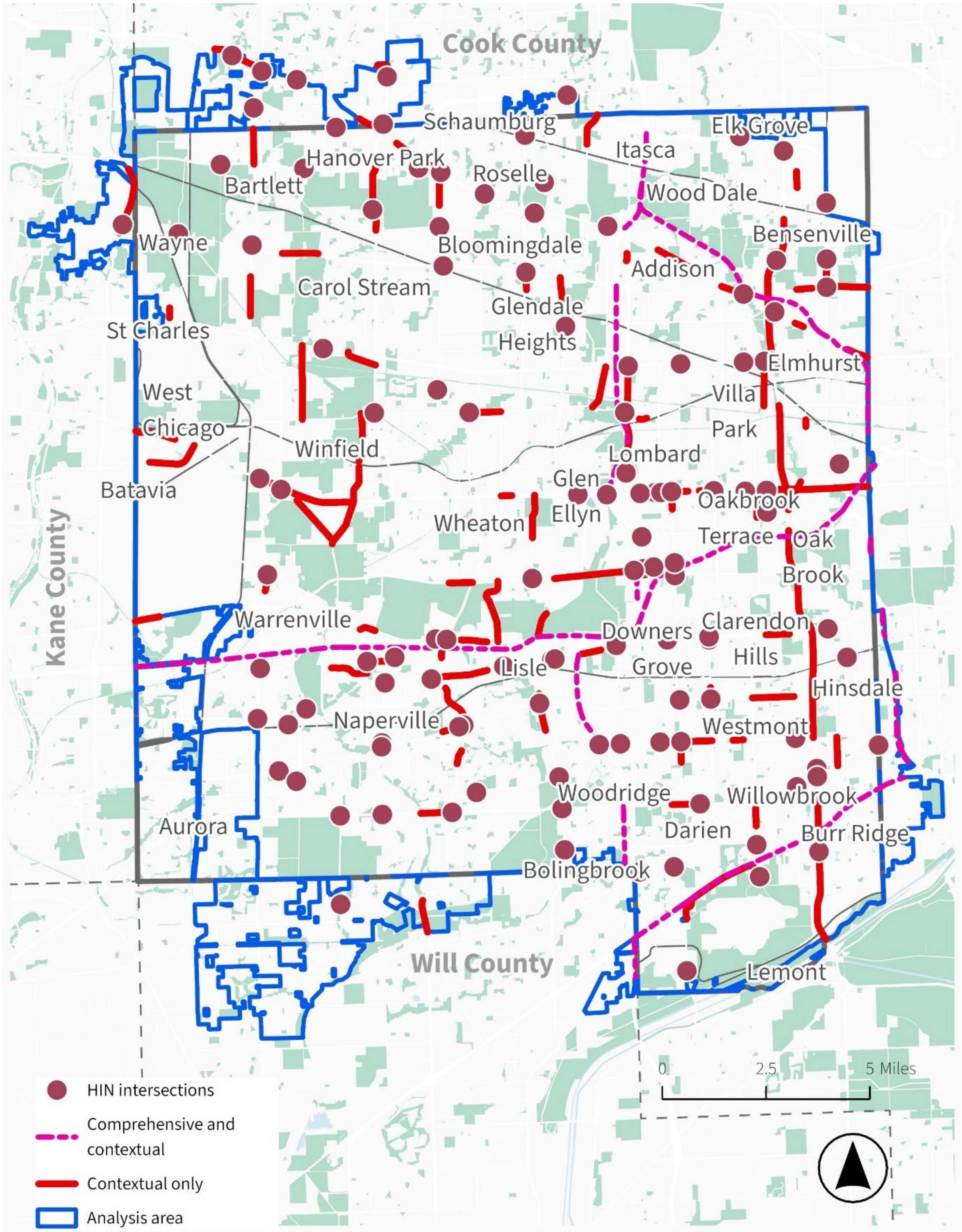
Municipality	HIN Intersection	KA Injuries
Naperville	20	77
Downers Grove	15	61
Lombard	11	58
Bartlett	8	35
Woodridge	6	26
Bensenville	4	21
Roselle	5	19
Hanover Park	4	18
Unincorporated	4	15
Lisle	4	14
Darien	4	13
Bloomingdale	3	12
Elmhurst	3	11
Villa Park	3	11
Willowbrook	3	11
Wheaton	2	8
Addison	2	7
Hinsdale	2	7
Burr Ridge	1	6
Glendale Heights	2	6
Oakbrook Terrace	2	6
Wayne	2	6
West Chicago	2	6
Winfield	1	6
Wood Dale	1	4
Carol Stream	1	3
Glen Ellyn	1	3
Warrenville	1	3
Grand Total	**117**	**473**

When segments and intersections are combined into one network, the comprehensive HIN represents 44.9% of all KA injuries in the DuPage SAP analysis area while the contextual HIN represents 35.4% of all KA injuries (39.1% when interstates are dropped). A complete summary is provided in Table 24. This network represents a small number of total intersections and segment miles, enabling planners and engineers to focus on limited portions of the network to break a complex, seemingly impossible task down into smaller and more manageable tasks to address. The complete HIN is also shown in Figure 35.

Table 24: Complete HIN Summary

HIN Component	Count	Percent Total	KA Injuries	Percent Total KA Injuries	Percent KA Injuries, Excluding Interstates
Comprehensive Segments	133.3 miles	3.4%	494	22.9%	n/a
Contextual Segments	79.3 miles	2.0%	284	13.3%	14.7%
Intersections	117 intersections	0.6%	473	22.0%	24.4%
Comprehensive Total			**967**	44.9%	n/a
Contextual Total			**757**	35.2%	39.1%

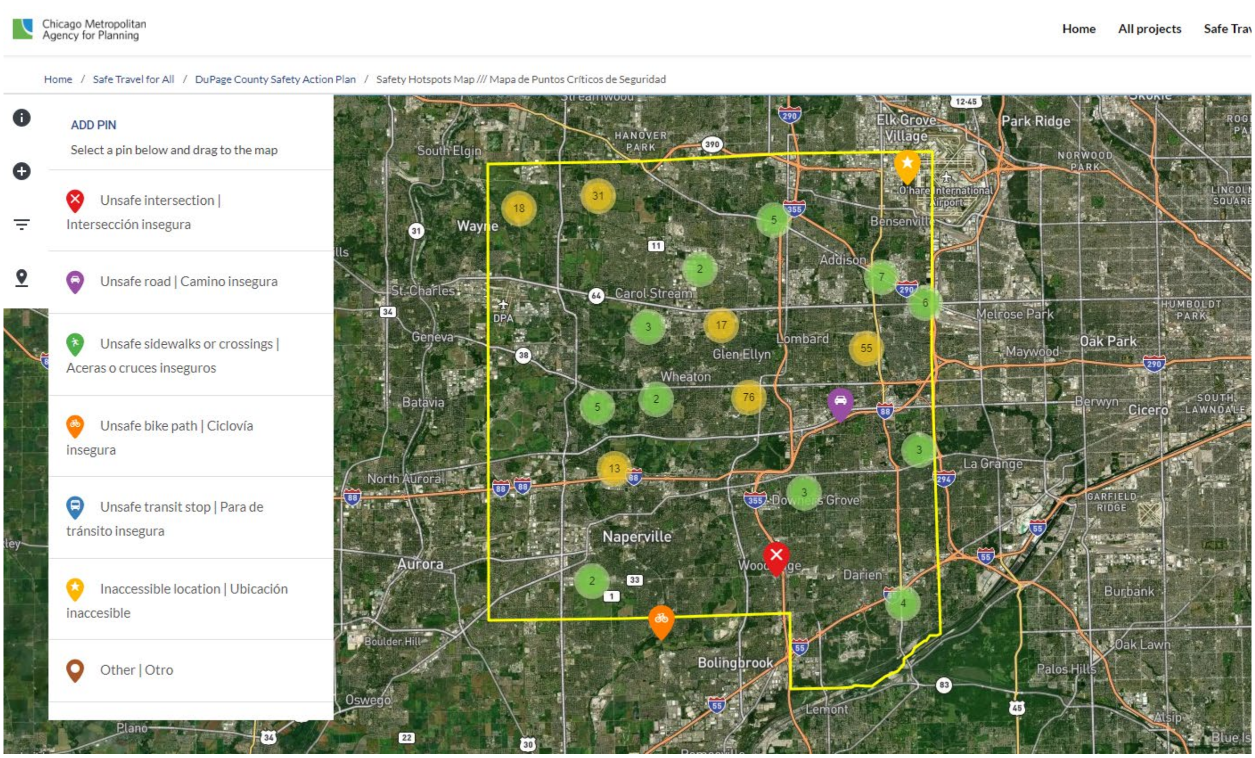
Figure 35: Complete HIN, DuPage Analysis Area



Validation with Community Feedback

The DuPage SAP utilized in-person and virtual engagement tactics to identify perceived safety hotspots across the county. The project engagement website, based on the EngagementHQ platform, included a Safety Hotspots Map interactive widget. The interactive map prompted visitors to add pins to flag locations they felt were either unsafe intersections, unsafe roads, unsafe sidewalks or crossings, unsafe bike paths, unsafe transit stops, inaccessible locations, or had other safety concerns. Visitors could enter as many comments as they liked and also provide an image. A screen capture of the web map is provided in Figure 36. A companion physical mapping activity was conducted as part of the DuPage SAP Open House in Elmhurst on September 12, 2024 and the DuPage SAP Open House in Bensenville on November 14, 2024. As of the end of the consultation on January 31, 2025, participants had contributed 626 concerns in-person or via the web map. No HIN materials had been posted prior to soliciting comments on location-based safety concerns.

Figure 36: DuPage SAP Safety Hotspots Map



Many participant-submitted comments point to identified HIN segments and intersections, but most tend to identify safety concerns along other corridors and intersections. Locations of comments received are shown in Figure 37. Prominent clusters of comments were received in the center of the county in Villa Park, Lombard, Glen Ellyn, Wheaton, and Winfield, with smaller clusters of comments in other areas.

Areas flagged in respondent comments that overlapped the HIN included:

- Purnell/Winfield/IL-38/Roosevelt Rd triangle in Winfield near Cantigny Park and Blackwell Forest Preserve, inclusive of the West Branch DuPage River Trail crossing at IL-38/Roosevelt Rd & Garys Mill Rd
- Il-56/Butterfield Rd between Naperville Rd and Highland Ave

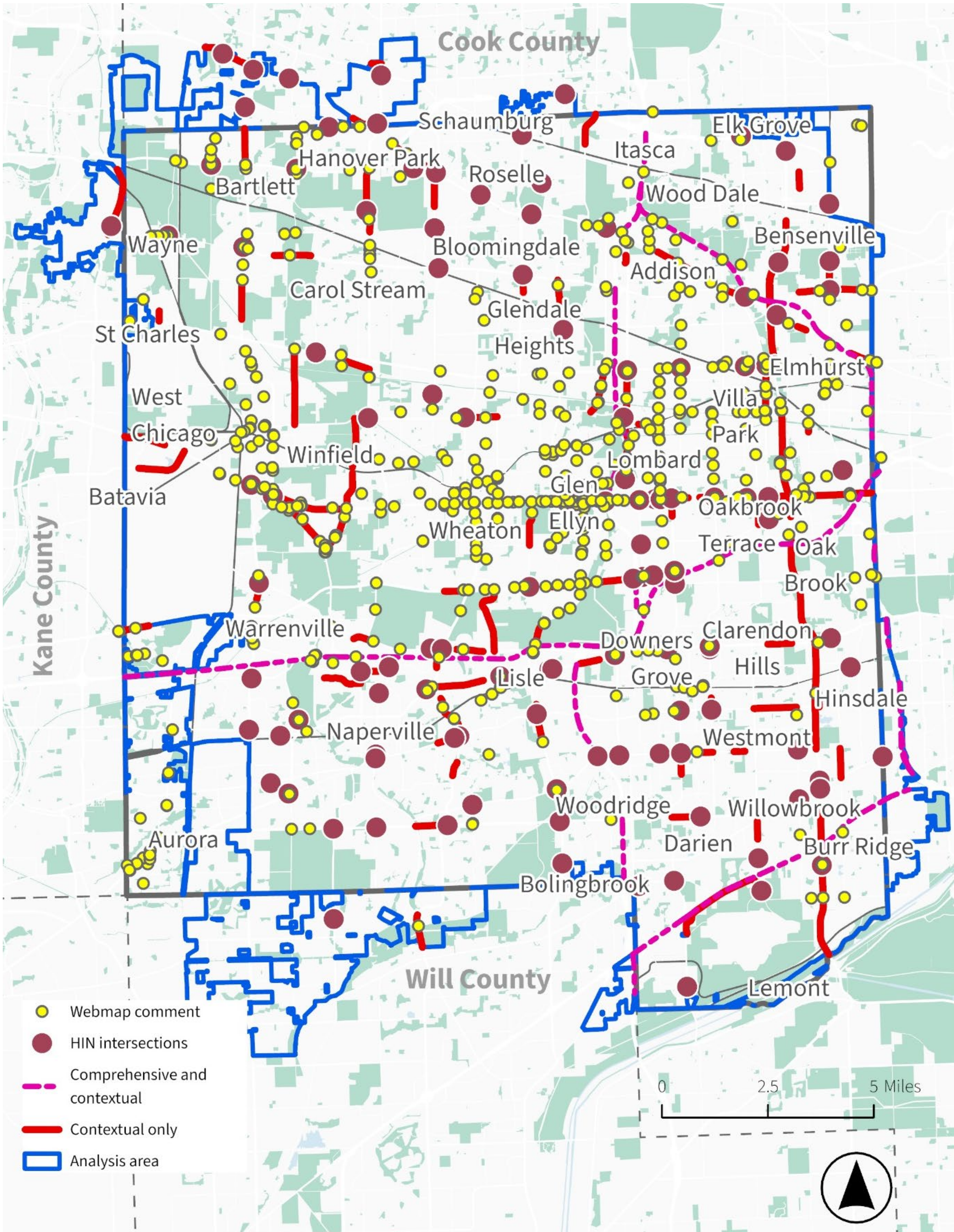
Areas that respondents flagged but that did not coincide with the HIN included:

- Il-38/Roosevelt Rd through Wheaton and Glen Ellyn
- IL-53 from Roosevelt Rd to Warrensville Rd, passing the Morton Arboretum and into Lisle
- Il-59/Neltnor Blvd in West Chicago (also identified through a separate VRU analysis by DuPage County)
- Naperville Road through Wheaton
- St Charles Road through Villa Park
- Main Street through Lombard
- Grace Street through Lombard
- Crossings along the Illinois Prairie Path

Few comments were received in southern DuPage County including Naperville. This is more likely a reflection of a need for additional outreach and engagement through future roadway safety engagement efforts than an absence of safety concerns.

Investigation into the responses illustrates that just like any methodology, the HIN methodology has limitations. It cannot capture all areas where improvement is desired or would be beneficial or all aspects of safety. These results indicate that perceptions of locations with safety concerns (at least the perceptions of those who participated in the survey) may differ from the locations where severe crashes occur most frequently. Many of the responses and locations are associated with barriers to walking and biking. This reflects the need to consider how high-speed roadways, disconnected networks, and other roadway engineering and behavioral conditions create perceived barriers that might not be borne out in crash data but are meaningful in the lives or DuPage County residents and visitors.

Figure 37: Complete HIN and Web Map Comments



Recent Investments

Roadway agencies in DuPage County are actively utilizing crash analysis to identify and prioritize locations for safety improvements. IDOT, the DuPage County Division of Transportation (DuDOT), and multiple municipalities perform crash analysis and coordinate with law enforcement agencies to identify crash hot spots and locations where there is a history of behavioral concerns.

DuDOT regularly creates and disseminates segment- and intersection-level crash severity rates for arterial and collector roadways. These rates are based on the most recent three years of IDOT crash data, average daily traffic (ADT), fatal crashes, injury crashes, and property damage only crashes. Intersections are broken out by type of control and ADT. DuDOT integrates crash performance into its signals database, enabling engineers to identify opportunities for upgrades to meet safety needs.

Multiple intersections and segments identified through the HIN analysis have received safety improvement during the 2018-2022 analysis period and in the years since or are slated for improvements. These locations are summarized in Table 25. This table, however, does not include all locations where municipalities have made or are planning safety investments.

Table 25: Recent HIN Location Infrastructure Investments

HIN Location	Jurisdiction	Improved by	Municipality	Description
75th Street at Plainfield-Naperville Road	DuDOT	County	Naperville	Improved in 2017-18, the project added dual left turn (LT) on 75th and right turn (RT) lanes. Improvement restricts LT to protected only to reduce angle and turn crashes.
75th Street at Modaff Road	DuDOT	County	Naperville	Recently completed addition of RT lanes on 75th Street and extension of LT storage on 75th Street legs to reduce rear end crashes.
75th Street at Naper Boulevard	DuDOT	County	Naperville	Added dual LT on 75th Street in 2020, prohibiting unprotected left turns to reduce or eliminate turn and angle crashes.
IL 53 at 75th Street	IDOT	IDOT	Woodridge	IDOT improvement pending, addition of dual left and right turns to reduce turn and angle crashes.
87th Street at Woodward Avenue	DuDOT	County	Woodridge	Completed in 2024, the project added dual LT on all but the north leg to reduce turn and angle crashes.
IL 83 at Plainfield Road	IDOT	Permit/ IDOT	Willowbrook	Completed in 2020-21, the project added dual LT on Plainfield Road. to reduce or eliminate turn and angle crashes.
US 34 at Finley-Belmont Road	IDOT	County/ IDOT	Downers Grove	The project is currently in Phase I engineering to widen intersection and include dual LT on all legs and restrict unprotected left turns. Construction is expected in 2028-29.
55th Street at Fairview Avenue	DuDOT	County	Downers Grove	The project, completed in 2020-2021, added left lanes on N, E and W legs and upgraded signals and pedestrian accommodations for a potential reduction of rear end, night-time, pedestrian, and sideswipe same direction crashes.

HIN Location	Jurisdiction	Improved by	Municipality	Description
63rd Street at Main Street, Downers Grove	DuDOT	County	Downers Grove	In 2023, DuDOT completed installation of protected left turn phasing to reduce turning and angle crashes and installed new signal mast arms and signal heads with reflective back plates to increase nighttime visibility and reduce crashes.
63rd Street - Williams to Americana	DuDOT	County	Westmont, Willowbrook	DuDOT is proposing to install Flashing Yellow Arrow protocol in the corridor to reduce turn and angle crashes at Cass Avenue and Clarendon Hills Road
County Farm Road at Geneva Road	DuDOT	County	Winfield	County has initiated Phase I engineering to study geometric options to reduce turn and angle as well as pedestrian-vehicle conflicts.
Fabyan Parkway - IL 38 to Technology Blvd	DuDOT	County	West Chicago	DuDOT expects to widen Fabyan Parkway in 2026-27. Design includes raised medians, striping, lighting and retroreflective markings to reduce head on and sideswipe crashes.
Grand Avenue at York Road	DuDOT	County	Elmhurst/ Bensenville	DuDOT improved the geometrics, lighted street signs and new signals with reflective backplates at the intersection to provide better pedestrian accommodations, better overall visibility and improved delineations to reduce pedestrianand nighttime crashes.
County Farm Road - Schick Road to Stearns Road	DuDOT	County	Hanover Park	DuDOT improved County Farm and Schick Road in 2017-18 to include new signals, signal heads with reflective backplates, and new lighting to reduce night time crashes and peak hour rear end crashes.
Gary Avenue at US 20/Lake Street	IDOT	IDOT	Hanover Park/ Roselle	Intersection improvement in 2023/24 including new signals and new pedestrian accommodations.
IL 19 /Irving Park Road at York Road	IDOT	IDOT	Bensenville/ Chicago	Major geometric improvement at intersection tied to O'Hare Modernization Program and Western Access. Completed in 2019, the project added dual left turn lanes NB and SB and improved signalization for visibility and to reduce turn and angle crashes.

HIN Location	Jurisdiction	Improved by	Municipality	Description
Army Trail Road at Munger Road	DuDOT/Muni	County	Wayne/Bartlett	DuDOT installed all-way stop control in 2023 and Forest Preserve added high-visibility trail crossing. Feasibility/Phase I study underway to evaluate further improvements.

4 Systemic Safety Conditions

Systemic safety analysis seeks to understand where crashes that result in deaths and serious injuries are more likely to occur, identifying the collection of characteristics that are associated with higher rates of these crashes. Using these collections of features, safety analysts can then screen entire networks to identify segments and intersections that are associated with higher severe crash risk, even if deaths and serious injuries have not yet occurred. Systemic safety tools can then be matched to crash and the segment and intersection types to develop project lists. Used in this way, systemic safety analysis can form the basis of a proactive approach.

As demonstrated in the HIN analysis, the number of deaths and serious injuries, particularly on segments, are relatively low and may not constitute defined patterns. Systemic analysis is therefore an especially important tool where anticipating, rather than responding to, severe crashes may be more effective to eliminate deaths and serious injuries.

This section is broken into several parts, each of which build on one another. **High risk crash types** identify the types of severe crashes that are of particular concern in DuPage County. The **roadway features systemic risk factor analysis** then quantifies the relative risk for the high-risk crash types based on segment and intersection characteristics.

Like the HIN analysis, the systemic analysis is based on crashes, segments, and intersections for municipalities assigned to DuPage County by CMAP and thus all analysis is for the DuPage SAP analysis area.

The systemic safety conditions section meets the SS4A Safety Analysis requirement “Analysis or systemic and specific safety needs.”

High Risk Crash Types

Traffic crashes represent a major concern no matter where or how they occur across the transportation network. However, research indicates that not all types of crashes pose the same levels of risk. Additionally, some severe crash types may be more or less likely to occur based on the presence (or absence) of certain roadway features and nearby land use development patterns. A central goal of this countywide safety action plan is to eliminate the most dangerous types of crashes affecting DuPage County: those resulting in serious injuries or fatalities. To that end, this literature review examines crash types that are most likely to impact DuPage County’s Priority Emphasis Areas and the associated street features or land uses that elevate or mitigate the most severe crash outcomes. The County's Priority Emphasis Areas include bicycles and pedestrians, intersections, older drivers, and speed-related crashes.

Bicycle and Pedestrian Crashes

Crash types that most severely impact bicycles and pedestrians include crashes at intersections, crashes involving turning vehicles, midblock, on road crashes with vehicles going straight, and crashes that take place after dark. For pedestrians, crashes at signalized intersections were found by a 2022 FHWA study to be positively related with both increasing pedestrian and vehicle volumes (i.e., more pedestrian- and vehicle-heavy intersections tend to experience more crashes) – while this positive association is not surprising, pedestrian crash risk at these intersections is further compounded by increasing corner radii and shoulder widths. Additionally, the number of pedestrian crashes was higher when both intersection legs were one-way streets with traffic moving away, or when there was a mix of two-way and one-way operations at the intersection. When on-street parking existed on the approach leg of a signalized intersection, however, fewer pedestrian crashes occurred.[xvi]

For both bicyclists and pedestrians, vehicle turning movements play a major role in determining crash risk and severity. In Illinois, for example, bicyclists tend to be at greater risk from right-turning vehicles, with 17.9% of all bicycle crashes in the collar counties involving a driver making this maneuver. According to the IDOT *Vulnerable Road User (VRU) Assessment*, these crashes also tend to be associated with roadway and land use characteristics such as four-lane corridors, arterial streets, streets with between 15,000 and 30,000 AADT, 30 to 35 MPH speed limits, and commercial land uses.[xvii] Conversely, pedestrians face greater crash risks at intersections from left-turning vehicles. Key variables associated with left-turning pedestrian crashes include increasing motor vehicle volumes, the number of intersection legs, and the number of lanes at intersections.[xviii] In other words, pedestrian crash risk from permissive left-turning vehicles increases with greater intersection complexity and vehicle throughput, even where pedestrian crossing signals are present.

Unsurprisingly from the descriptive crash analysis, bicyclists and pedestrians both face elevated risk of severe crash outcomes for crashes occurring after dark. Darkness and lack of visibility associated with nighttime conditions was the single highest contributing factor to VRU crashes in Illinois, with 28% of these crashes occurring at night.[xix] For pedestrians, after dark crash risk increases significantly when motor vehicle volumes increase from low (0-5,000 AADT) to medium (5,000-10,000 AADT); beyond this, increasing crash risk is only marginal. Another crash type adversely impacting pedestrians are crashes on segments with vehicles going straight, otherwise known as mid-block crashes. These crashes are more likely to occur when blocks are longer and pedestrians have fewer convenient options to cross at a designated intersection, making them more prone to attempt a crossing mid-block. These types of crashes are also more likely to fall along state roads and arterials as opposed to local streets.[xx]

Intersection Crashes

Intersections are more prone to traffic crashes due to the complex and conflicting movements of vehicles, bicyclists and pedestrians converging from different directions. Many of the crash types across other DuPage County Emphasis Areas occur at intersections, which further compound other forms of risk. Of particular concern are angle crashes at intersections, or crashes in which two vehicles traveling in different directions collide at an angle where drivers or passengers are most vulnerable (also known as T-Bone crashes). High-speed roadways with wide medians and/or side-street, stop-controlled intersections may present greater risk of severe angle crashes.[xxi]

According to Montgomery County, Maryland's *Predictive Safety Analysis*, angle crashes at intersections in Montgomery County were more likely to occur on state roads, where crash risk is 225% higher relative to county roads. Such a discrepancy in crash risk across jurisdictions is likely attributable to the types of traffic that state roads tend to carry and the land uses they travel through. Nationally, many state roads experience greater throughput and higher speeds on average than roads under county or local control, putting them at greater risk. In addition to design and physical factors, policy also plays a significant role. According to the *Predictive Safety Analysis*, higher posted speed limits increase the likelihood of severe crash types such as angle crashes – increasing the speed limit by 5 MPH increases crash risk by 15%, while increasing it by 10 MPH increases risk by 32%.[xxii]

To prevent angle crashes at intersections, agencies such as FHWA and California Department of Transportation (Caltrans) recommend that signalized intersections should be designed as close to 90 degrees as possible, and should not be designed to less than 75 degrees.[xxiii] In situations where perpendicular intersections or interchange ramps are infeasible, such as through high-angle channelized right turns, for example, pedestrian refuge islands can be an effective countermeasure.[xxiv]

Another design feature that can mitigate angle crashes at intersections are reduced conflict intersections (RCIs), which have been shown to reduce severe crashes of this type by 70%.[xxv] RCI is a general term used to describe several types of design strategies to improve safety and traffic flow by reducing the number of potential conflict points. The most common type of RCI design involves the elimination of left turns from side streets onto busier main roads; these intersection designs simplify decision-making for drivers by allowing them to focus on one direction of traffic at a time rather than look for a gap in high-volume, bidirectional traffic. For example, a restricted crossing U-turn (RCUT) is a type of RCI that requires minor road traffic to make a right turn followed by a U-turn at a nearby designated location to continue in the desired direction. According to FHWA, conversion of an unsignalized intersection to an unsignalized RCUT can reduce fatal and serious injury crashes by 63%.[xxvi] RCIs offer a lower-cost alternative to grade separation infrastructure and may be more effective at reducing severe angle crashes than signalization strategies.

Other alternative intersection designs, such as roundabouts, have been found by FHWA to be broadly effective at reducing fatal and serious injury crashes for all road users when compared to traditional signalized intersections. Planning and design of these facilities are critical in achieving safer outcomes, and FHWA provides detailed design guidance for implementing projects that effectively center vulnerable road users like pedestrians and bicyclists in a variety of configuration types.[xxvii] While roundabouts may sometimes lead to short-term increases in minor crash types such as side-swipes or rear ends, more severe crash types such as angle crashes are often virtually eliminated due to all vehicles being brought into the same direction at a lower speed.[xxviii]

Older Driver Crashes

Crashes among older drivers (65 years and over) are of significant concern in DuPage County, especially as this segment of the population continues to grow at a faster rate than other age demographic groups. While the effects of aging on people as drivers, pedestrians, or bicyclists are highly individual, common challenges that may impact people as they age include declining vision, decreased flexibility and psychomotor performance, and changes in perceptive and cognitive ability.[xxix] Older drivers, then, may be particularly susceptible to crashes at points where the transportation network becomes most complicated, such as intersections (both signalized and unsignalized), interchanges, networks that do not conform to a predictable pattern such as a grid, and in instances where visibility becomes especially challenging, such as when driving after dark and/or in adverse weather.

According to a Florida State University study on aging road users and intersection safety, estimates of a perception reaction time to yellow signals, often assumed as one second, were found to be inadequate in accounting for age-related changes; the study ultimately recommends that this standard should be increased.[xxx] Additionally, left-turn lanes at suburban unsignalized intersections can be challenging roadway features to navigate effectively. According to the FHWA, crashes and undesirable driving behaviors among older drivers tend to increase as the corresponding median width increases.[xxxi] As people age and may begin to drive less frequently, older adults may also be more vulnerable than the average population as pedestrians. Countermeasures such as pedestrian countdown signals, refuge islands, high-visibility crosswalks, and longer walk times become especially warranted when emphasizing reducing crashes among older users of the transportation network.[xxxii]

Speed-Related Crashes

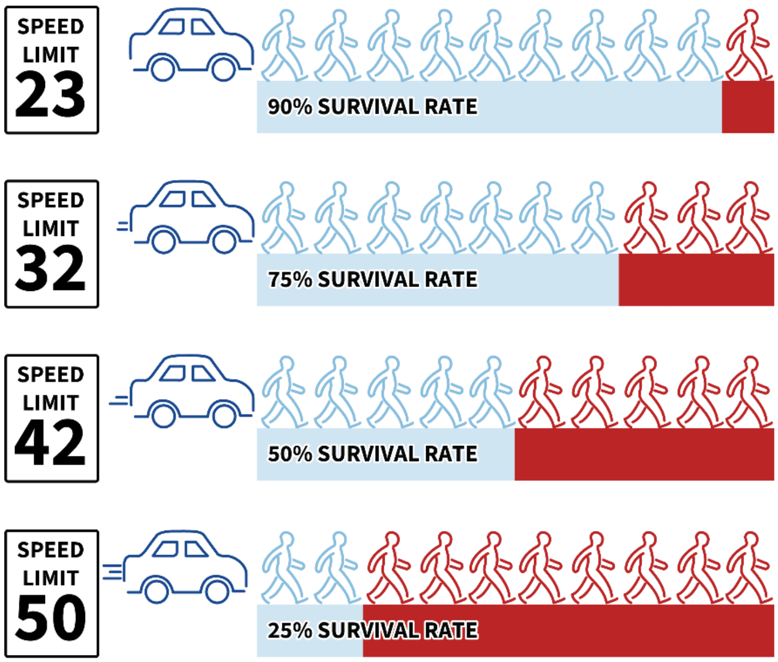
Crashes involving speeding are crucial targets for reducing the number of fatal and serious injury crashes in DuPage County. Speeding results in greater potential of losing control of a vehicle, less time for driver perception responses to avoid crashes, the need for increased stopping distances, and increased crash severity (especially for people outside of a vehicle). As a result, speed-related crash types of particular concern involve single vehicle crashes to fixed objects along roadway segments and speed-related crashes involving pedestrians or bicyclists.

Key variables associated with speed-related single vehicle crashes along roadway segments include increasing motor vehicle traffic and the presence of a traffic signal at adjacent intersections. This indicates that single vehicle crashes may be more likely when there is a concentration of other vehicles on the road and drivers feel the need to perform complicated maneuvers to maintain high speeds at pace with other traffic. The presence of traffic signals, meanwhile, provides drivers with the expectation that it is safe to continue through an intersection while maintaining their speed, potentially diminishing their ability to react appropriately when encountering unexpected changes in roadway conditions. This can prove especially risky when roadway features on new segments change even slightly, giving speeding drivers even less time to react and adjust.

Interestingly, pedestrian traffic is inversely related to speed-related crashes involving single vehicles with fixed objects – increasing daily pedestrian traffic from 10 to 100 and from 100 to 1,000 pedestrians decreases predicted crashes by 21%.[xxxiii] This indicates that sidewalks and the presence of other road users may be discouraging factors when it comes to speeding, increasing attention to both their environment and driving behavior. These factors provide insight into the types of street features that can form the basis of a proactive county approach to reducing and eliminating speed-related crashes.

High-speed crashes are extremely dangerous for pedestrians and bicyclists, who are unprotected by a vehicle shell. As illustrated in Figure 38, as vehicle speeds rise, pedestrian survivability decreases significantly. While pedestrians hit by a vehicle traveling 20 MPH face a 5% likelihood of a fatal crash outcome, this risk jumps to 85% for a vehicle traveling at 40 MPH.

Figure 38: Vehicle Speed and Pedestrian Survival Rate



Source: FHWA

While interstates typically have the highest speeds anywhere across the transportation network, speeding-related fatalities in northeastern Illinois occur more frequently on non-interstate roads. These roads are more likely to serve multiple modes of travel, connecting to neighborhoods, business districts, and other settings where there are likely to be a variety of road users. Indeed, the highest rate of speed-related fatalities and serious injuries (fatal or serious injury crashes per 100 million miles of vehicle miles traveled) in the CMAP region for both drivers as well as bicyclists and pedestrians occur on streets with a posted speed limit of 30 MPH.[xxxiv] Countermeasures to curtail speed-related crashes on these sorts of urban and suburban streets include lower speed limits as part of street redesign projects, installation of traffic calming infrastructure such as speed tables and raised intersections, and implementation of targeted enforcement measures, including automated speed cameras where allowed by statue.

A summary of high-risk crash types identified in the literature by DuPage County Priority Emphasis Area, along with associated street features and potential countermeasures, is presented in Table 26.

Table 26: Summary of Systemic Crash Types from the Literature Review, by Emphasis Area

DuPage County Emphasis Area	Crash Type	Associated Street Features or Land Uses	Potential Countermeasures
Bicycle and Pedestrian Crashes	Crashes at Signalized Intersections	• Increasing curb radii (+) • Increasing shoulder widths (+) • One-way streets (+) • Mix of two-way and one-way operations (+) • Presence of on-street parking (-)	• Smaller curb radii or truck aprons • Narrower shoulder widths • Corner islands
	Pedestrian Crashes Involving Left-Turning Vehicles	• Suburban and Town Center area types (+) • Motor vehicle volumes (+) • Number of intersection legs (+) • Number of intersection lanes (+)	• Protected/permissive and/or flashing yellow arrow left turn signals • Protected-only left turn signals • Leading pedestrian intervals
	Bicycle Crashes Involving Right-Turning Vehicles	• Four-lane corridors (+) • Arterial streets (+) • 15,000 – 30,000 AADT (+) • 30 – 35 MPH speed limits (+) • Commercial land (+)	• Protected bike lanes or shared use paths • Protected intersection designs • Signal phasing and timing strategies (e.g., leading bicycle intervals)
	Crashes After Dark at Intersections	• Pedestrian traffic (+) • Motor vehicle traffic (+) • Maximum number of through lanes (+) • Presence of a traffic signal (+)	• Improved street lighting • High-visibility crosswalks and bike lanes
	Pedestrian Crashes with Vehicles Going Straight	• Motor vehicle traffic (+) • Block length (+) • State road jurisdiction/arterial classification (+)	• Mid-block crossings • Pedestrian refuge islands • Rectangular Rapid Flash Beacons (RRFBs) • Pedestrian Hybrid Beacons • Road diets
Intersection Crashes	Angle Crashes at Signalized Intersections	• State road jurisdiction (+) • High speeds/posted speed limits (+) • Non-perpendicular intersections (+)	• Reduced conflict intersections • Roundabouts • Lower speed limits • Protected-only left turn signals • Positive offset or zero offset left turn lanes • Red light cameras • All-red clearance intervals • Grade separation

DuPage County Emphasis Area	Crash Type	Associated Street Features or Land Uses	Potential Countermeasures
Older Drivers	Crashes at Signalized Intersections	• Longer yellow signal timing (-) • High speeds/posted speed limits (+)	• Pedestrian countdown signals • Enhanced intersection lighting • Daylighting • High-visibility crosswalks • Increased vehicle clearance or change intervals
	Crashes at Unsignalized Intersections	• Left turn lane median width (+)	• Reduced left-turn conflict intersections • Roundabouts
	Crashes After Dark	• Rainy weather (+) • Dark roadways (+)	• Improved roadway and/or intersection lighting • On-demand public transportation
Speed-Related Crashes	Single Vehicle Crashes (Fixed Objects) Along Segments	• Motor vehicle traffic (+) • Presence of a traffic signal at adjacent intersections (+) • Pedestrian traffic (-)	• Narrower travel lanes • Speed enforcement, including automated enforcement (speed cameras) • Dynamic speed feedback signs • Clear zones • Safety Edge • Rumble strips • Guardrail • Lighting
	Speed-Related Pedestrian or Bicyclist Crashes	• Non-interstate roads (+) • Streets with 30 MPH posted speed limits (+)	• Narrower travel lanes • Wider sidewalks • Speed enforcement, including automated enforcement (speed cameras) • Protected bicycle lanes • Reduced speed limits

Note: (+) indicates a positive relationship with the specified crash type and associated street feature or land use; (-) indicates a negative relationship with the specified crash type and associated street feature or land use

Roadway Features Systemic Risk Factor Analysis

The roadway features systemic risk factor analysis summarizes the relative likelihood of serious injuries and fatalities occurring at or on various intersection and roadway segment types in DuPage County by subtypes or groupings of different intersection and segment features consistent with the summary of the research in the preceding section. This section includes a description of data preparation followed by high-level findings at the intersection and segment level. Complete analysis tables are provided in the Systemic Risk Factor Analysis Appendix.

Subtypes and Data Preparation

The project team assigned crashes from 2018 to 2022 to segments and intersections with the DuPage SAP analysis area using the same methodology and data sets described in the earlier HIN section. Crashes that occurred at intersections, as defined by the buffer distances set in the CMAP framework, are analyzed together; while all other crashes, those determined to be midblock, are analyzed at the segment level.

The project team reviewed intersections and segment data for the analysis area provided in the CMAP-provided database “CMAP_SS4A_final.gdb.” The team assessed the consistency of data included in key fields that aligned with features in typical systemic analysis and the high-risk crash types research. Available features selected for use in the systemic analysis are summarized in Table 27. Each of the values for each feature then became a variable for future cross tabulations.

Table 27: Systemic Feature Fields

Type	Data Source	Consistently Available Features
Intersection	CMAP_Intersections	• Control Type (Uncontrolled/Unknown,[5] All-way sop, Signal) • AADT_Major (range) • AADT_Minor (range)
Segment	CMAP_Segments (IDOT IRIS)	• AADT (range, n/a assumed to be no observation) • FUNC_CLASS (1-7) • JUR_TYPE (1-9) • LNS (1-12) • SP_LIM (0-70)

[5] In CMAP’s data set, the associated variable is “Unknown.” Project team spot reviews using Google Streetview concluded that intersections with “Unknown” controls were predominantly 2-way stop location where at least one leg was uncontrolled but infrequently include intersections with no controls present (like a slip ramp) or other forms of control.

The project team determined that a useful intersection systemic analysis could not be created with the CMAP_Intersections file without breaking down intersections by the types of functional classifications that intersect at those locations. Functional classifications were assigned to CMAP intersections based on the Illinois Roadway Information System (IRIS) functional classification of intersecting roadways in the CMAP_Segments file (based on field FUNC_CLASS). The project team created the following three intersection functional classifications to simplify the analysis to meaningful levels:

- Arterials/Collectors Only - all intersecting roadways are listed as functional classifications 3, 4, 5, or 6.
- Arterials/Collectors & Local - at least one intersecting roadway is listed as functional classifications 3, 4, 5, or 6 and at least one intersecting roadway is listed as functional classification 7.
- Local Only - all intersecting roadways are listed as functional classification 7.

Besides classifying intersections by functional classification, the project team made no further changes to the CMAP_Intersections file and was unable to validate the accuracy of provided data. Since the analysis is at the county-level, the effect of errors may be washed out due to the large number of intersections and segments.

Notably, the systemic analysis is limited by the lack of some fields or inconsistently available fields in both data sets. Presence of a median and lane width, for instance, are not consistently available. While some of these data are available at a regional level, like presence of a sidewalk or bikeways, accurately incorporating these disparate data sets would be a significant effort outside the scope of this project. While the available data sets include information on vehicle volumes, they lack information on exposure of people walking, rolling, and biking. Data sets like Replica that leverage big data from cellphones and employ sophisticated simulation may provide estimates that suffice for high-level differentiation but were similarly not within project scope.

DuPage County Division of Transportation maintains more detailed intersection and segment data for major intersections and segments in the county. This data set contains many of the desired missing features, land uses, and proximity to points of interest and is consistently quality controlled by staff. Data do not extend outside of county boundaries, however. Based on the instruction of CMAP, the project team used the more limited CMAP-supplied database as it covers segments and intersections in parts of assigned municipalities that lie outside of DuPage County. County data may be leveraged for deeper dives into areas of particular interest in later project phases.

Interpretation

The risk factor analysis is based on a modified matrix approach adapted for available intersection and segment data based on person-level injury data (e.g., number of fatalities, number of serious injuries). Similar to crash trees, intersections and segments are broken down into types (e.g., arterial) and then further broken down into subtypes, also referred to as typologies (e.g., four-lane arterial with a posted speed limit of 30 MPH). The frequency of fatalities and serious injuries for each severe crash emphasis area were then calculated based on crashes assigned to intersections or segments within each subtype. The variation in observed frequencies across subtypes forms the basis of findings.

Unlike the typical matrix or crash tree approach, however, serious injury and fatality frequencies were normalized by the number of intersections within each subtype or the mileage of segments within each subtype, depending on the unit of analysis. Without performing this adjustment, the most common subtypes (primarily local residential streets and intersections) would be overrepresented in the analysis. In typical crash tree approaches, for instance, this usually results in the local system being overrepresented.

The systemic risk factor analysis goes one step further, calculating a baseline number of deaths and serious injuries per intersection or segment subtype and developing a relative risk score. A relative risk score of 1.0 indicates that the subtype is at the baseline, or mean, number of deaths and serious injuries per intersection or per mile across the whole system. A score under 1.0 indicates that there is a below average level of death/serious injury risk for that subtype, and a score above 1.0 that the level of risk for that subtype is above average.

Relative risk is calculated for all crash emphasis areas and crash types listed in Table 26 for intersections as well as segments (the intersection-related emphasis area is assumed to be covered by the intersection systemic risk factor analysis). However, as crash emphasis areas and network characteristics are broken down more finely, observed deaths and serious injuries become less frequent, even at the county scale of the analysis. Where the number of deaths and serious injuries or total intersections or mileage fall below a critical threshold, findings have been omitted. These thresholds are discussed in more detail below.

Intersection Systemic Risk Factor Analysis

This section presents an overview of severe crash risk across intersections. For the analysis, intersections were defined as any location where IRIS roadway segments met, including both controlled and uncontrolled intersections within municipalities and on border streets assigned to DuPage County by CMAP.

The analysis breaks out intersections by general functional classification (as described above), control type, and net AADT.[6] To prevent excessively small numbers from overbiasing the findings, the project team established several thresholds: all intersection subtypes/typologies with fewer than ten intersections or fewer than three KA injuries (similar to the HIN methodology) were excluded from the analysis. These subtypes are present but grayed-out in the tables included in the following sections and in the Appendix. Intersections with an unknown AADT (shown as N/A in tables below) were also grayed out. Based on spot checks, the analysis team found errors in coding intersection control type and/or functional classification but did not systemically quality control or edit provided data. Errors were assumed to be random and that their impact would not impact the generalizability of the findings.

All Crashes

The systemic risk factor analysis for all intersection crashes in the analysis area between 2018 and 2022 is shown in Table 28. Relative risk for each subtype is found in the far-right column.

When compared to other types of intersections, the intersections of two major streets, either an arterial and another arterial, an arterial and a collector, or a collector and another collector, are substantially overrepresented in the relative risk of death and serious injury. Signalized intersections have the highest risk, with risk rising as traffic volumes increase. The 56 signalized intersections with over 50,000 AADT have over 37.3 times the number of deaths and serious injuries per intersection (2.34) than the baseline (0.06) and over three times that of all other major intersections (0.74). Nearly across the board, as volumes rise, risk rises, with the most significant jumps from lower volumes (<25,000 AADT) to higher volumes (25,000 – 50,000 AADT).[7]

Whether looking at all crashes or at specific emphasis areas, the relative risk factors of certain subtypes are so high because the relative risk of the predominant intersection type in the DuPage analysis area – local-local with at least one uncontrolled leg and less than 25,000 AADT is so low (0.2 KA injuries per intersection). Since all relative risk ratios, however, are calculated from a common baseline, they can all be compared to one another to illustrate which subtypes are highest risk, either

[6] Net AADT captures the summed AADT of minor and major legs of each intersection (AADT_Major + AADT_Minor). To simplify analysis, net AADT was broken down into three categories: <25K, 25K-50K, >50K mirroring typical DuPage County Division of Transportation practices.

[7] This may also be affected by posted speed/design speeds, which tend to be higher at busier intersections. These attributes, unfortunately, are not available at the intersection level and thus were not included in the analysis.

across the whole network or within each functional classification type. Risk for each subtype is provided to facilitate these comparisons.

Table 28: Intersection Systemic Risk Factors, All Intersection Crashes, 2018-2022

Functional Class Type	Control Type	AADT	Int Count	Injury Count A	Injury Count K	Injury Count KA Total	Injuries, per-Int. A	Injuries, per-Int. K	Injuries, per-Int. KA Total	Relative Risk A	Relative Risk K	Relative Risk KA Total
Arterial-Arterial, Arterial-Collector, or Collector - Collector	All Stop	<25K	37	4	0	4	0.11	0	0.11	1.9	0.0	1.8
		25K-50K	1	0	0	0	0	0	0	0.0	0.0	0.0
	Signal	<25K	128	54	2	56	0.42	0.02	0.44	7.2	4.7	7.0
		25K-50K	200	261	15	276	1.3	0.08	1.38	22.2	18.8	22.0
		>50K	56	126	5	131	2.25	0.09	2.34	38.5	21.2	37.2
		N/A	103	60	4	64	0.58	0.04	0.62	9.9	9.4	9.9
	Uncontrolled/ Unknown	<25K	127	18	0	18	0.14	0	0.14	2.4	0.0	2.2
		25K-50K	25	4	0	4	0.16	0	0.16	2.7	0.0	2.5
		>50K	3	1	0	1	0.33	0	0.33	5.6	0.0	5.3
		N/A	75	4	0	4	0.05	0	0.05	0.9	0.0	0.8
		Subtotal	**755**	**532**	**26**	**558**	**0.70**	**0.03**	**0.74**	**12.0**	**8.1**	**11.8**
Arterial - Local or Collector - Local	All Stop	<25K	232	27	0	27	0.12	0	0.12	2.1	0.0	1.9
		N/A	4	0	0	0	0	0	0	0.0	0.0	0.0
	Signal	<25K	282	91	13	104	0.32	0.05	0.37	5.5	11.8	5.9
		25K-50K	164	131	16	147	0.8	0.1	0.9	13.7	23.5	14.3
		>50K	19	19	0	19	1	0	1	17.1	0.0	15.9
		N/A	5	2	0	2	0.4	0	0.4	6.8	0.0	6.4
	Uncontrolled/ Unknown	<25K	4,032	243	18	261	0.06	0	0.06	1.0	0.0	1.0
		25K-50K	479	88	14	102	0.18	0.03	0.21	3.1	7.1	3.3
		>50K	22	4	1	5	0.18	0.05	0.23	3.1	11.8	3.7
		N/A	80	2	0	2	0.02	0	0.02	0.3	0.0	0.3
		Subtotal	**5,319**	**607**	**62**	**669**	**0.11**	**0.01**	**0.13**	**2.0**	**2.7**	**2.0**
Local - Local	All Stop	<25K	15	4	0	4	0.27	0	0.27	4.6	0.0	4.3
		N/A	2	0	0	0	0	0	0	0.0	0.0	0.0
	Signal	<25K	17	1	0	1	0.06	0	0.06	1.0	0.0	1.0
		N/A	12	7	0	7	0.58	0	0.58	9.9	0.0	9.2
	Uncontrolled/ Unknown	<25K	13,040	96	2	98	0.01	0	0.01	0.2	0.0	0.2
		N/A	2,259	1	0	1	0	0	0	0.0	0.0	0.0
		Subtotal	**15,345**	**109**	**2**	**111**	**0.01**	**0.00**	**0.01**	**0.1**	**0.0**	**0.1**
Unknown	Signal	N/A	18	8	1	9	0.44	0.06	0.5	7.5	14.1	8.0
		Total/Baseline	21,427	1,256	91	1,347	0.06	0.00	0.06	1.0	1.0	1.0

Summaries by Priority Emphasis Areas

High-level summaries for each priority emphasis area follow to illustrate the similarities and differences among the top high-risk intersection features. Detailed systemic analysis tables for each emphasis area and specific crash types within those priority emphasis areas are provided in the Appendix for purposes of space and brevity.

All Crashes

The top five intersection subtypes, by relative risk of death and serious injury, for all crashes are summarized in Table 29, with high-level discussion in the bullets below:

- All subtypes within the top five were signalized intersections.
- For all KA injuries across all crashes in the study period, signalized arterial/collector intersections with >50,000 net AADT had the highest relative risk, at over 37 times the countywide baseline KA injuries per-intersection. Signalized arterial/collector intersections with lower net AADT 25K-50K have the second highest relative risk at 22 times the baseline for all crashes.
- Risk was also elevated at high-volume (>25,000 net AADT), signalized intersections where an arterial/collector met local streets.

Table 29: Top Five Intersection Subtypes, All Crashes

Rank	Functional Class	Control Type	Net AADT	Relative Risk
1	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	>50K	37.2
2	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	25K-50K	22.0
3	Arterial – Local or Collector - Local	Signal	>50K	15.9
4	Arterial – Local or Collector - Local	Signal	25K-50K	14.3
5	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	<25k	7.0

Many intersections of concern to safety professionals and members of the public are uncontrolled. While these intersection subtypes have a lower relative risk when compared to major signalized intersections, it is instructive to understand which stand out the most. The results in Table 30 assume that all intersections marked “unknown” in CMAP’s intersection data set are uncontrolled on at least one leg – that is, not controlled by a signal or all-way stop. Uncontrolled intersections of minor, local streets and high-volume major streets (arterials and collectors with an AADT above 25,000) outstrip other intersection subtypes with relative risk scores of 3.7 and 3.3. Relative risk drops notably at similar locations on lower volume major streets with AADTs <25,000. This may in part reflect other related characteristics that are not coded to the intersection level like posted limits, number of lanes, and widths.

Table 30: Top Five Unsignalized Intersection Subtypes, All Crashes

Rank	Functional Class	Control Type	Net AADT	Relative Risk
1	Arterial- Local or Collector - Local	Uncontrolled/ Unknown	>50K	3.7
2	Arterial- Local or Collector - Local	Uncontrolled/ Unknown	25K-50K	3.3
3	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Uncontrolled/ Unknown	25K-50K	2.5
4	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Uncontrolled/ Unknown	<25K	2.2
5	Arterial- Local or Collector - Local	Uncontrolled/ Unknown	<25K	1.0

Uncontrolled intersections between major streets are a mix of contexts, which could be broken out in future analyses. These include some unsignalized intersections of collectors with arterials in commercial and industrial areas as well as slip lanes and ramps between arterials without signalization. Of these, almost half of these locations (47%) are collector-collector, 33% are arterial-collector, and 20% are arterial-arterial.

Pedestrian Crashes

The top five intersection subtypes, by relative risk of death and serious injury, for pedestrians[8] are summarized in Table 31, with high-level discussion in the bullets below:

- Signalized intersections constitute four of the five highest relative risk ratings for pedestrian crashes.

[8] Pedestrian injuries are assumed to be all injuries in crashes marked as FirstCrashType == Pedestrian

- Relative risk for KA pedestrian injuries per intersection was highest (0.11 or 22 times the baseline of <0.01) at mid-AADT (25,000 – 50,000) signalized intersections where arterials or collectors met local streets. The relative risk for this subtype was even more pronounced looking at KA pedestrian injuries per intersection with dark lighting conditions (0.09 or 29 times the baseline of <0.01). This subtype also had the highest risk of left-turn crashes resulting in a pedestrian death or serious injury (0.02 or 18.7 times the baseline of <0.01).
- At signalized intersections between only arterials and collectors, pedestrian KA injury risk was also higher at locations with lower volumes (<50,000 net AADT).

Table 31: Top Five Intersection Subtypes, Pedestrian Crashes

Rank	Functional Class	Control Type	Net AADT	Relative Risk
1	Arterial – Local or Collector - Local	Signal	25K-50K	22.0
2	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	25K-50K	13.0
3	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	<25K	12.5
4	Arterial – Local or Collector - Local	Signal	<25K	7.1
5	Arterial – Local or Collector - Local	Uncontrolled/ Unknown	<25K	5.4

Bicycle Crashes

The top five intersection subtypes, by relative risk of death and serious injury, for bicyclists[9] are summarized in Table 32, with high-level discussion in the bullets below:

- While most of the intersections subtypes within the top five were signals, one unsignalized subtype, all-way stops at intersections between major streets and smaller local streets, made the top five.
- Relative risk for KA bicycle injuries was highest at higher volume (>25K net AADT), signalized intersections featuring only arterials and collectors (major-major intersections).

[9] Bicycle injuries are assumed to be all injuries in crashes marked as FirstCrashType == Pedalcyclist

Table 32: Top Five Intersection Subtypes, Bicyclist Crashes

Rank	Functional Class	Control Type	Net AADT	Relative Risk
1	Arterial – Local or Collector - Local	Signal	25K-50K	18.4
2	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	>50K	16.2
3	Arterial-Arterial, Arterial-Collector, or Collector - Collector	Signal	25K-50K	15.1
4	Arterial – Local or Collector - Local	All-way Stop	<25K	5.2
5	Arterial – Local or Collector - Local	Signal	<25K	3.2

Other Emphasis Areas and Crash Types

The systemic analysis also includes analysis of older-driver crashes as well as detailed subtypes within pedestrian and bicycle crashes. These analyses are more limited since the pool of crashes tends to be smaller. High-level findings of leading intersection subtypes for these crash types that meet the threshold criteria are as follows:

- Relative risk for KA injuries resulting from angle crashes was highest at signalized intersections with only arterial or collector legs and >25,000 net AADT, at over 31 times the countywide baseline KA angle crash injuries per-intersection. There is a major jump in relative risk from lower volumes (5.3 at <25,0000 ADT to 32.6 between 25,000 and 50,000).
- For KA crash injuries sustained by older drivers (people 65+), signalized arterial/collector only intersections with >25,000 net AADT had the highest relative risk, at over 22 times the county-wide baseline.
- Speed-related crashes resulting in bicyclist or pedestrian deaths or serious injuries were most likely to occur at signalized intersections of collectors or arterials with local streets with 25,000 to 50,000 net AADT, similar to all pedestrian and bicyclist crashes. Other subtypes were not analyzed due to low numbers of KA injuries.

Segment Systemic Risk Factor Analysis

This section presents an overview of severe crash risk across roadway segments. For the analysis, all IRIS roadway segments were included.

The analysis breaks up roadway segments into jurisdiction types (local, county/township, IDOT/state, Tollway, and other) and then into subtypes by functional classification, total number of through lanes (broken down into two categories, less than or equal to two or greater than or equal to three),[10] posted speed limit (broken down into less than or equal to 25 MPH, 30 to 35 MPH, and greater than or equal to 40 MPH), and AADT (less than 10,000, 10,000 to 20,000, and 20,000 or greater; segments without an observed AADT are identified as "n/a"). Injuries and fatalities are tabulated for each roadway segment subtype and used to calculate a relative risk score, indicating subtypes/typologies with above or below average injuries and fatalities per-mile.

All segment subtypes with fewer than three total miles or fewer than three KA injuries were excluded from the analysis, alongside any segments where AADTs were unknown. These subtypes are present but grayed-out in the tables below and those included in the Appendix.

All Crashes

The systemic risk factor analysis for all midblock crashes in the analysis area between 2018 and 2022 is shown in Table 33. Relative risk for each subtype is found in the far-right column. At the summary-level, roadway segment jurisdiction is dropped for comparability to the intersection information and to cut down on the high number of subtypes that were screened out based on the criteria above.

Like intersections, high risk ratios are the result of a low baseline attributable to the low number of fatalities and serious injuries on low-volume local network segments. For instance, local functional classification segments account for nearly three-quarters of total centerline mileage and had a risk ratio of 0.21. As with the intersection systemic analysis, the baseline ensures comparability among all segment subtypes.

Expressway segments with three or more through lanes, speed limits over 40 MPH, and AADTs over 20,000 have the highest relative risk of deaths and serious injuries per mile among all types of qualifying segment subtypes, at nearly 15 times (2.85 KA per mile) the baseline (0.2). In general, state-

[10] Number of lanes indicates the prevailing number of through-traffic lanes covering both directions during peak hour operation, per the IDOT IRIS manual.

and Tollway-owned roadway segments, with a relative risk of 2.25 and 2.42, respectively, have the highest relative risk per any jurisdiction type for all KA injuries.

Among qualifying non-expressway segment subtypes, arterial segments with three or more total through lanes, speed limits over 40 MPH and AADTs over 20,000 have the highest relative risk of deaths and serious injuries across all crashes in the study period, at roughly six and a quarter times the baseline.

Table 33: Segment Systemic Risk Factors, All Midblock Crashes, 2018-2022

Functional Classification	Number of Lanes	Posted Speed Limit	AADT	Length (mi)	Count			Per Mile			Relative Risk
					A	K	KA Total	A	K	KA Total	
Local	<=2	<=25	<10K	280.4	6	2	8	0.02	0.01	0.03	0.15
		30-35	<10K	57.0	10	1	11	0.18	0.02	0.19	0.99
		N/A	<10K	2561.2	93	7	100	0.04	0.00	0.04	0.20
	Subtotal			**2,921.56**	**111**	**10**	**121**	**0.04**	**0.00**	**0.04**	**0.21**
Collector	<=2	<=25	<10K	95.2	8	3	11	0.08	0.03	0.12	0.59
		30-35	<10K	128.7	24	4	28	0.19	0.03	0.22	1.12
		40+	<10K	45.3	13	4	17	0.29	0.09	0.38	1.93
		N/A	<10K	72.4	11	0	11	0.15	0.00	0.15	0.78
	Subtotal			**393.23**	**64**	**11**	**75**	**0.16**	**0.03**	**0.19**	**0.98**
Arterial	<=2	30-35	<10K	26.7	10	3	13	0.37	0.11	0.49	2.51
		40+	<10K	18.6	5	3	8	0.27	0.16	0.43	2.21
			10K-20K	19.8	10	0	10	0.51	0.00	0.51	2.61
	3+	30-35	<10K	17.6	4	0	4	0.23	0.00	0.23	1.17
			10K-20K	58.5	30	5	35	0.51	0.09	0.60	3.08
			>20K	31.4	29	5	34	0.92	0.16	1.08	5.57
		40+	<10K	28.9	8	3	11	0.28	0.10	0.38	1.96
			10K-20K	119.1	65	14	79	0.55	0.12	0.66	3.41
			>20K	127.5	129	26	155	1.01	0.20	1.22	6.25
	Subtotal			**467.70**	**297**	**59**	**356**	**0.64**	**0.13**	**0.76**	**3.92**
Interstate	3+	40+	>20K	65.4	152	34	186	2.33	0.52	2.85	14.65
	Subtotal			**72.20**	**158**	**39**	**197**	**2.19**	**0.54**	**2.73**	**14.04**
Total				**3,854.7**	**630**	**119**	**749**	**0.16**	**0.03**	**0.19**	**1.00**

Note: sums will not total to 100% as rows that do not meet the criteria are not included in this table, but are reflected in subtotals and total

When like-for-like arterial segments are compared, differences emerge. For instance, when controlling for AADT, arterials with higher numbers of through lanes and higher posted speeds have higher risk ratios that streets with fewer through lanes and lower posted speeds. Arterials posted with speed limits of 40 MPH or greater with two or fewer through lanes in the 10K-20K AADT range, for instance, have a relative risk of 2.61 as compared to the same segments with three or more lanes, which come in at 3.41, all else being equal.

These differences become more pronounced when roadway ownership is added in. IDOT-owned segments are significantly over-represented in risk, as summarized in Table 34. While arterial roads with two through lanes have a lower relative risk across the board, the trend is consistent with arterials with three or more through lanes across jurisdiction. Eligible state-owned, two-lane arterial segments have a higher relative risk than county/township- or municipally owned facilities with the same characteristics.

Table 34: Multi-lane Arterial Segment Relative Risk, All Crashes, 40+ MPH

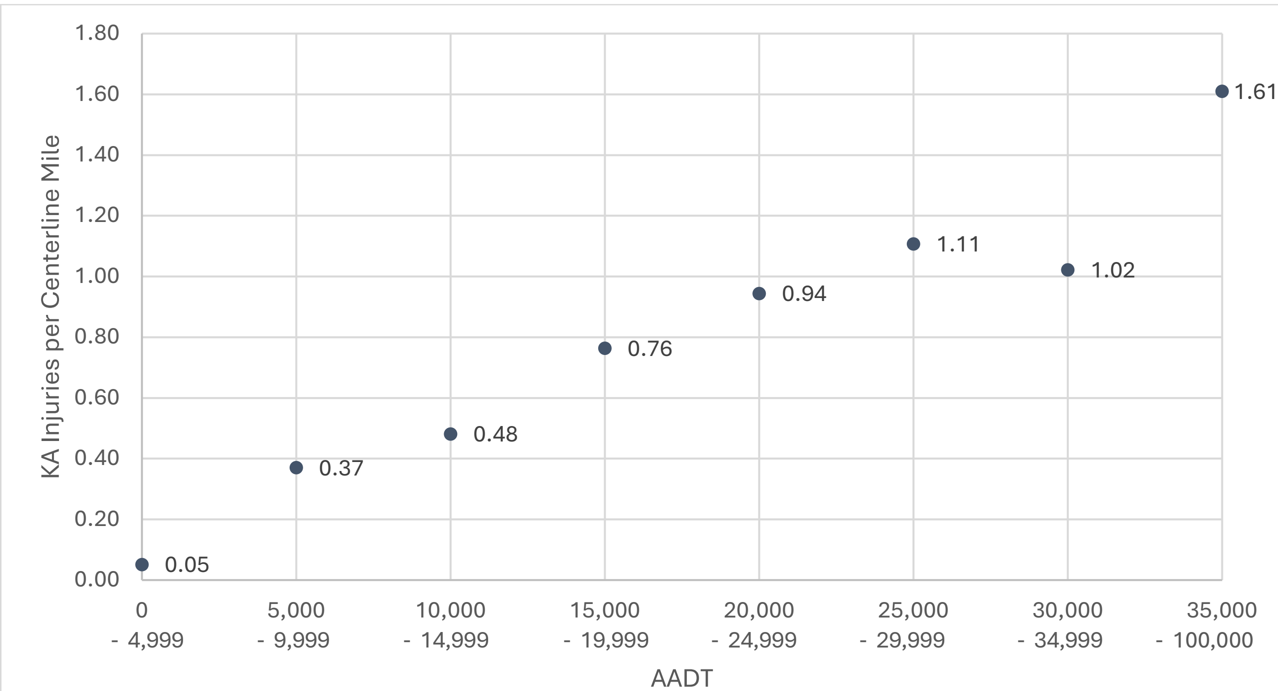
Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
State	Arterial	>= 3	40+	10K-20K	5.8
County or Township	Arterial	>= 3	40+	10K-20K	3.2
Municipal	Arterial	>= 3	40+	10K-20K	0.9

Differences in relative risk at the segment level cannot be chalked up to AADT alone. Table 35 and Figure 39 illustrate that at AADTs below 30,000, KA crashes per centerline mile rise relatively linearly with AADT for non-expressway segments. Above 35,000 AADT, however, KA crashes per mile spike, nearly doubling in certain 5,000 AADT bands (although these individual bands might be biased by small-numbers and are thus not presented below). This observation may help to explain why arterials tend to have higher severe crash rates when adjusted for volume, as previously found in Table 13.

Table 35: Segment KA Crashes by AADT, Non-Expressway Segments

AADT Range	Length (mi)	Count			Per Mile
		A	K	KA Total	KA
0-4,999	3,224.1	150	17	167	0.05
5,000-9,999	170.0	49	14	63	0.37
10,000-14,999	145.3	62	8	70	0.48
15,000-19,999	81.1	52	10	62	0.76
20,000-24,999	42.4	32	8	40	0.94
25,000-29,999	37.9	36	6	42	1.11
30,000-34,999	40.1	34	7	41	1.02
35,000+	41.6	57	10	67	1.61

Figure 39: Segment KA Crashes per Centerline Mile and AADT, Non-Expressway Segments



Summaries by Emphasis Area

High-level summaries for each emphasis area follow to illustrate the similarities and differences among the top high-risk segment features. Detailed systemic analysis tables for each emphasis area and specific crash types within those emphasis areas are provided in the Appendix for purposes of space and brevity.

All Crashes

The top five segment subtypes, by relative risk of death and serious injury, for all crashes are summarized in Table 36, with high-level discussion in the bullets below:

- Four of the five subtypes are expressway segments with moderate or high posted speed limits, the remaining subtype is arterial.
- Four of the five subtypes are state-jurisdiction, one is Tollway.

Table 36: Top Five Segment Subtypes, All Crashes

Rank	Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
1	State	Expressway	>= 3	>=40	>20K	17.1
2	Tollway	Expressway	>= 3	>=40	>20K	12.3
3	State	Expressway Ramps	<= 2	30-35	<10K	6.5
4	State	Arterial	>= 3	>=40	>20K	6.4
5	State	Expressway Ramps	<= 2	<=25	<10K	6.1

All Crashes – Non-Expressway Segment Subtypes

The top five non-expressway segment subtypes, by relative risk of death and serious injury, for all crashes are summarized in Table 37, with high-level discussion in the bullets below:

- Four of the five subtypes are arterial segments with moderate or high posted speed limits, the remaining is a lower-speed arterial.
- Four of five subtypes are state-jurisdiction, the remaining subtype is county or township.

Table 37: Top Five Non-Expressway Segment Subtypes, All Crashes

Rank	Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
1	State	Arterial	>=3	>=40	>20K	6.4
2	State	Arterial	>= 3	>=40	10K-20K	5.8
3	State	Arterial	>= 3	30-35	10K-20K	5.2
4	State	Arterial	>= 3	30-35	>20K	5.2
5	County or Township	Arterial	>= 3	>=40	>20K	3.3

Pedestrian Crashes

The top five segment subtypes, by relative risk of death and serious injury, for pedestrians[11] are summarized in Table 38, with high-level discussion in the bullets below:

- All five subtypes are segments with moderate or high posted speed limits.
- Ownership varies between state (top two slots), Tollway, and county or township
- State-owned arterials with three or more through lanes, a posted speed limit between 30 and 35 MPH, and AADT greater than 20,000, has the highest relative risk at 9.5 times higher than the baseline. These same segments have more than 17 times the baseline for KA pedestrian injuries in dark lighting conditions.
- While expressways account for two of the five subtypes, it is likely that these crashes represent persons outside of their vehicle on the expressway shoulder (possibly changing a tire) and point to a different type of safety risk than non-expressway segments.

[11] Pedestrian injuries are assumed to be all injuries in crashes marked as FirstCrashType == Pedestrian

Table 38: Top Five Segment Subtypes, Pedestrian Crashes

Rank	Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
1	State	Arterial	>= 3	30-35	>20K	9.5
2	State	Expressway	>= 3	>=40	>20K	7.6
3	Tollway	Expressway	>= 3	>=40	>20K	6.4
4	County or Township	Collector	<=2	>=40	<10K	5.8
5	State	Arterial	>= 3	>=40	>20K	3.8

There was insufficient data to compare pedestrian crashes across comparable subtypes by jurisdiction.

Bicycle Crashes

There were too few data points within subtypes to meet the criteria set by the project team and thus no reportable results.

Speed-related Crashes

The top five segment subtypes, by relative risk of death and serious injury, for crashes categorized as speed-related through the emphasis area fields in the CMAP-provided crash data, are summarized in Table 39, with high-level discussion in the bullets below:

- The highest risk ratio is on high-speed and high-volume state-owned expressways, at 18.7 times the baseline. Tollway segments are also in the top five, at 17.5 times the baseline.
- High-volume state-owned arterials with three or more through lanes and speed limits above 40 MPH are the only non-expressway in the top five, at 6.0 times the baseline.

Table 39: Top Five Segment Subtypes, Speed-related Crashes

Rank	Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
1	State	Expressway	>=3	>=40	>20K	18.7
2	Tollway	Expressway	>=3	>=40	>20K	17.5
3	State	Expressway Ramps	<=2	30-35	<10K	11.6
4	Tollway	Expressway	<=2	>=40	10K-20K	8.6
5	State	Arterial	>=3	>=40	>20K	6.0

The top five non-expressway segment subtypes, by relative risk of death and serious injury, for crashes categorized as speed-related through the emphasis area fields in the CMAP crash data, are summarized in Table 40, with high-level discussion in the bullets below:

- Four of the five subtypes are state-owned arterial segments with three or more lanes and moderate or high posted speed limits.
- Low volume municipally owned arterials are the outliers on the list, with nearly as many speed-related KA crashes per mile as high-volume state arterials, at 4.5 times the baseline.

Table 40: Top Five Segment Subtypes, Speed-related Crashes

Rank	Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
1	State	Arterial	>=3	>=40	>20K	6.0
2	State	Arterial	>=3	30-35	10K-20K	4.7
3	Municipal	Arterial	<=2	>=40	<10K	4.5
4	State	Arterial	>=3	>=40	10K-20K	3.5
5	State	Arterial	>=3	30-35	>20K	3.3

When comparing multi-lane arterials like-for-like across ownership/jurisdiction, variation persists, as shown in Table 41.

Table 41: Multi-lane Arterial Segment Relative Risk, Speed-related, >=40 MPH, 10K-20K AADT

Jurisdiction	Functional Class	Thru Lanes	Speed Limit	AADT	Relative Risk
State	Arterial	>= 3	>=40	10K-20K	3.5
County or Township	Arterial	>= 3	>=40	10K-20K	3.1
Municipal	Arterial	>= 3	>=40	10K-20K	1.7

Other Emphasis Areas and Crash Types

The systemic analysis also includes an analysis of specific emphasis area crashes, including older-drivers, angle crashes, and roadway departure crashes. These analyses are more limited since the pool of crashes tends to be smaller. High-level findings of leading segment subtypes for these crash types that meet the threshold criteria are as follows:

- KA angle crash injuries have high relative risk on multiple types of expressway and arterial roadways;[12] however, the highest relative risk is found on state expressways with three or more lanes, at least 40 MPH speed limits, and greater than 20,000 AADT.
- KA roadway departure crash injuries are at highest risk on state expressways with three or more lanes, at least 40 MPH speed limits, and greater than 20,000 AADT. This crash type also has an elevated risk on state-owned arterial roadways and Tollway-owned expressways.
- KA crash injuries involving older drivers in dark conditions are at highest risk on Tollway-owned expressways with three or more lanes, at least 40 MPH speed limits, and greater than 20,000 AADT. This crash type also has an elevated risk on state-owned arterial roadways with three or more lanes, at least 40 MPH speed limits, and greater than 20,000 AADT.

[12] Since these crashes do not, by definition, occur at intersections, they may be related to driveways.

5 Railroad-related and Grade Crossing Incident Safety Analysis

Multiple passenger and freight railroads run across DuPage County. The Illinois Commerce Commission (ICC), roadway owners, and railroads have a long history of collaboration around safety, particularly around grade crossings where railroad lines intersect with other transportation networks. Metra owns and operates four rail lines (Rock Island, Metra Electric, Milwaukee District North and Milwaukee District West). Three Metra lines are operated by Metra employees over tracks owned by freight railroads through trackage rights or lease agreements (Heritage Corridor, North Central Service and SouthWest Service). Four additional Metra lines are operated directly by freight railroads through purchase-of-service agreements (BNSF, Union Pacific North, Union Pacific Northwest and Union Pacific West). Along the lines that are owned by other railroads, Metra works cooperatively to implement proposed safety improvement projects.

Data Preparation and Interpretation

Like the HIN and Systemic analyses, the railroad-related and grade crossing incident safety analysis pertains to the DuPage SAP analysis area consistent with the municipalities and unincorporated DuPage County areas assigned by CMAP and listed in the first two columns of Table 14.

Unlike other analyses in the ESC, the railroad safety analysis is based on the northeastern Illinois regional rail incident data set created and provided by CMAP in cooperation with the Illinois Commerce Commission (ICC).[13] The data set, spanning 2012 to 2021, includes crashes involving trains and vehicles but also collisions where motor vehicles are not involved, such as trains striking people walking, rolling, or biking. Therefore, the number of incidents may not exactly align with train-related crashes in the IDOT data set.

A subset of rail incidents within the analysis area were created for the following analysis. The data is broken out by reported incidents as well as deaths and injuries. Injury severity was not included in the CMAP/ICC data set and thus may not be comparable to IDOT crash injury severities.

[13] https://cmapgis.maps.arcgis.com/home/item.html?id=9e3ad7852549472aa4877fa2f411170d

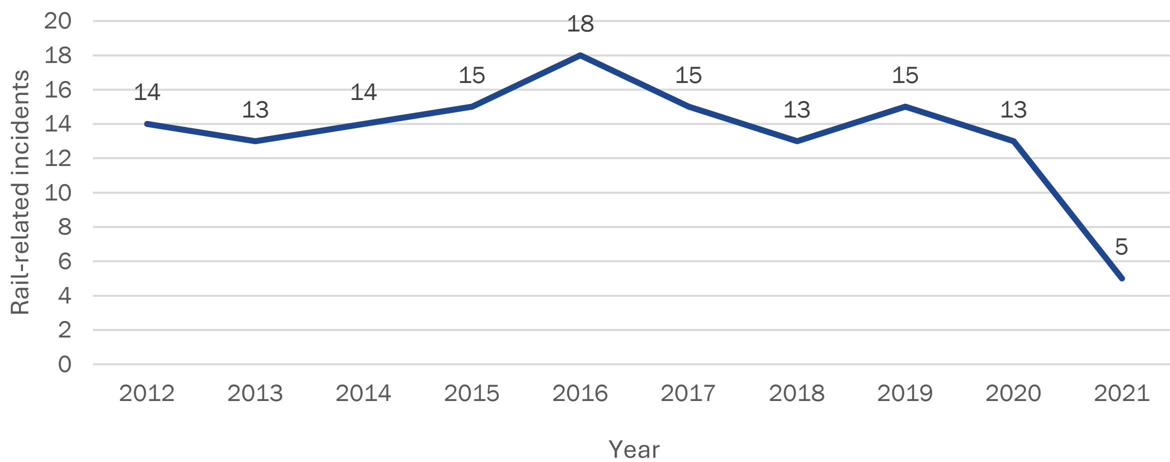
Railroad Safety Trends

Annual Trends

Over the ten-year period between 2012 and 2021 there were 135 reported rail-related incidents in the DuPage analysis area, an average of 13.5 per year. As shown in

Figure 40, the trend has been decreasing in the last five years, with a peak of 18 incidents in 2016 and a low of 5 incidents in 2021, the most recent year in the CMAP data set. When 2021 and 2016 are removed from the analysis, however, the trend is mainly flat, accounting for minor variation year to year.

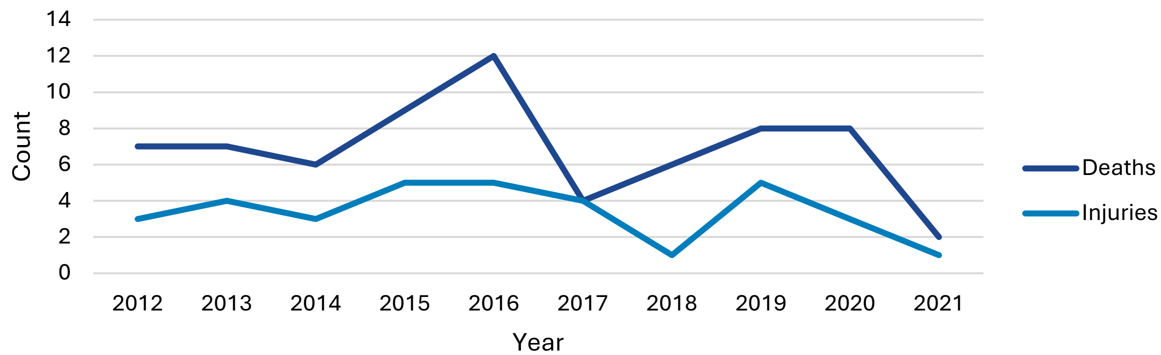
Figure 40: Rail-related Incidents per year, 2012-2021



Source: CMAP, ICC

As a result of those 135 incidents, 69 people were killed and 34 others injured, 10.3 in total on an average year. Figure 41 illustrates the annual trend for fatalities and injuries, which, like incidents, has peak in 2016 and a sharp decline in 2021. In every year beside 2017, more people were killed than injured in rail-related incidents.

Figure 41: Rail-related Fatalities and Injuries, 2012-2021



Source: CMAP, ICC

More recent data within the official borders of DuPage County shared by ICC with the project team illustrate that 2021 may have been an outlier, with total incidents rising to 15 in 2022 and 10 in 2023. This appears to be borne out with the 2022 and 2023 ICC data, suggesting that this low number may not be an artifact of the data set and surveillance protocols but a potential low observation. While 2021 was in the midst of the Covid-19 pandemic, it is unlikely that the pandemic was the only factor contributing to the record low in 2021, considering that there were more than twice as many events in 2020 than in 2021, and travel was significantly reduced in 2020 during the pandemic's onset.

Incidents, deaths, and injuries are detailed by year in Table 42.

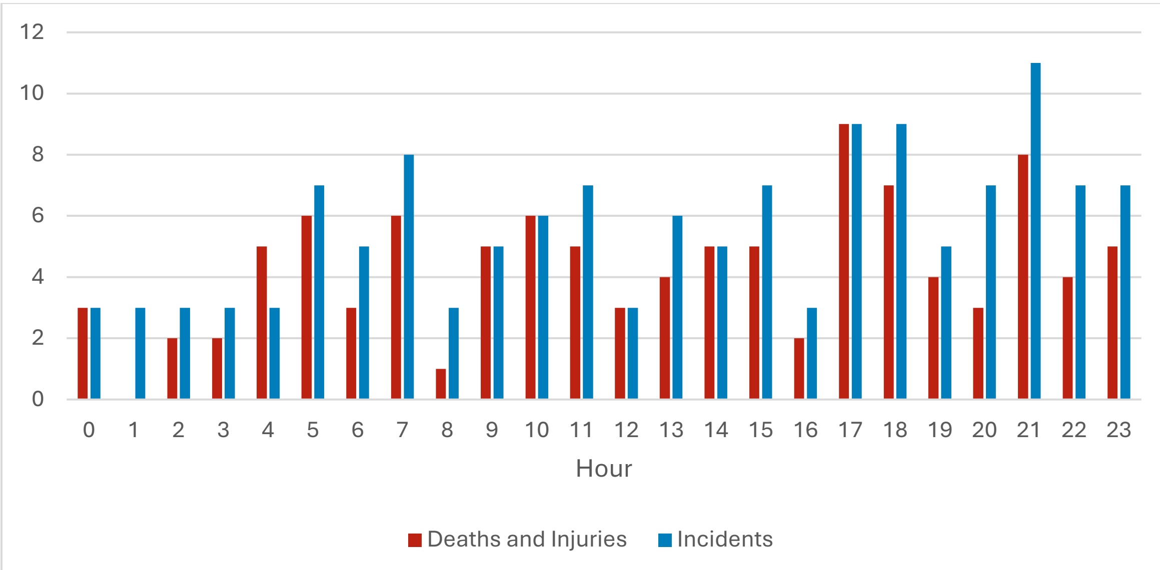
Table 42: DuPage County Railroad Incidents, 2012-2021

Year	Trespass			Non Trespass			Total		
	Incidents	Injuries	Deaths	Incidents	Injuries	Deaths	Incidents	Injuries	Deaths
2012	7	2	5	7	1	2	14	3	7
2013	3	0	3	10	4	4	13	4	7
2014	6	0	6	8	3	0	14	3	6
2015	8	1	7	7	4	2	15	5	9
2016	7	2	5	11	3	7	18	5	12
2017	4	2	2	11	2	2	15	4	4
2018	6	1	5	7	0	1	13	1	6
2019	11	4	7	4	1	1	15	5	8
2020	7	1	6	6	2	2	13	3	8
2021	3	1	1	2	0	1	5	1	2
Total	**62**	**14**	**47**	**73**	**20**	**22**	**135**	**34**	**69**

Source: CMAP, ICC

Between 2012 and 2021, incidents, deaths, and injuries varied across the day, as illustrated in Figure 42. Peaks appear in the AM and PM commute periods, dropping slightly during the daytime but remain high through the evening hours: incidents hit their maximums overnight between 9:00-10:00 PM. The most deaths and injuries occurred at rush periods, between 5:00 PM and 6:00 PM.

Figure 42: Rail-related Incidents, Deaths/Injuries by Hour of Day, 2012-2021



Source: CMAP, ICC

Between 2012 and 2021 the highest number of incidents were trespasser-involved, followed by passenger vehicle (car, pick-up truck, and van) and pedestrian and bicyclists.[14] Table 43 provides annual detail. Auto-related incidents remained relatively constant across the period with a peak in 2014 at 8. Pedestrian and bicyclist incidents were relatively rare but exhibited two spikes, the first in 2013 and the second in 2016. Trespasser incidents exhibit more variability year-over-year, with a high of 11 in 2019.

[14] Incidents reviewed in CMAP data did not enable breakouts into pedestrians and bicyclists. One record, a motorized bicycle, was included in the pedestrian and cyclist statistics.

Table 43: Annual Rail-related Incidents by Mode, 2012-2021

Year	Auto	Pedestrian or Bicyclist	Truck-Trailer	Employee	Trespasser	Total
2012	5	2	0	0	7	14
2013	3	6	0	0	3	12
2014	8	0	0	0	6	15
2015	4	2	1	0	8	15
2016	4	7	0	0	7	18
2017	5	4	2	1	3	15
2018	6	1	0	0	6	13
2019	3	1	0	0	11	15
2020	3	2	1	0	7	13
2021	1	1	0	0	3	5
Total	**42**	**26**	**5**	**1**	**61**	**135**

Source: CMAP, ICC

When broken down into deaths and serious injuries as in Table 44, rail-related incidents in the study area most affected trespassers and people walking and biking across the ten years in the period of analysis. Forty-seven people were killed in trespass-related incidents and 13 more injured. Twenty-two people were killed while walking, biking, or rolling and four more were injured in the same timeframe. People in passenger vehicles and trucks were less likely to be killed or injured. Between 2012 and 2021, no drivers or passengers died in the 42 rail-related incidents in the data set.

Table 44: Annual Rail-related Deaths and Injuries by Mode, 2012-2021

Mode	Deaths	Injuries	Total
Auto	0	10	10
Pedestrian or Bicyclist	22	4	26
Truck-Trailer	0	6	6
Employee	0	1	1
Trespasser	47	13	60
Total	**69**	**34**	**103**

Source: CMAP, ICC

Railroad incidents, deaths, and fatalities occurred on tracks owned by eleven railroads in the study area between 2012 and 2021. As demonstrated in Table 45 , the highest number of incidents of all kinds, 53, occurred on property associated with the Union Pacific West (UP-W) Metra line: 53. Incidents on public crossings most frequently occurred on UP-W (21), and Milwaukee District West (MD-W) Metra line (10). Over the same period, the railroads with the highest frequencies of trespassing incidents were the UP-W (29) and Burlington Northern Santa Fe (24) or BNSF Railway (BNSF) Metra line

Table 45: Rail-related Incidents by Railroad Owner and Type, 2012-2021

Railroad Owner	Trespassing	Ped Crossing	Private Crossing	Public Crossing	Total
Amtrak	2	0	0	1	3
Burlington Northern Santa Fe	24	1	0	15	40
Canadian National – Chicago Central and Pacific	1	0	0	6	7
Canadian National – Elgin, Joliet, and Eastern	2	0	0	1	3
Canadian National – Wisconsin Central	0	1	0	3	4
Canadian Pacific Kansas City	0	0	0	2	2
Progressive Railroad	0	0	0	4	4
Milwaukee District West	4	5	0	10	19
Union Pacific West	29	2	1	21	53
Total	**62**	**9**	**1**	**63**	**135**

Source: CMAP, ICC

As shown in Table 46, the highest number of total deaths and injuries occurred on the UP-W and BNSF lines. Thirty deaths, the highest for any railroad owner in the period of analysis, occurred on UP-W property, the majority of which were trespass-related.

Table 46: Rail-related Deaths and Injuries by Railroad Owner, 2012-2021

Railroad Owner	Deaths	Injuries	Total
Amtrak	1	2	3
Burlington Northern Santa Fe	24	9	32
Canadian National – Chicago Central and Pacific	2	4	6
Canadian National – Elgin, Joliet, and Eastern	1	1	2
Canadian National – Wisconsin Central	0	2	2
Canadian Pacific Kansas	0	1	1
Progressive Railroad	0	0	0
Milwaukee District West	11	2	13
Union Pacific West	30	14	44
Total	**69**	**34**	**103**

Source: CMAP, ICC

Table 47 breaks down incidents by railroad operator. Of the 135 incidents reported between 2012 and 2021, 63 involved freight trains, 71 involved passenger trains, and 1 involved maintenance of way equipment. Of the 63 freight incidents, 26 were trespass-related and 33 occurred at public crossings.

Table 47: Rail-related Incidents by Railroad Operator and Type, 2012-2021

Operator	Trespasser	Ped Crossing	Private Crossing	Public Crossing	Total
Amtrak-BNSF	3	0	0	1	4
Freight	26	3	1	33	63
Metra-BNSF	11	0	0	9	20
Metra-MILW-West	4	5	0	10	19
Metra-UP-West	18	1	0	9	28
Maintenance of Way Equipment	0	0	0	1	1
Total	**62**	**9**	**1**	**63**	**135**

Source: CMAP, ICC

Of the 103 deaths and injuries in the analysis period, 41 involved freight operators, 61 involved passenger operators, and one involved maintenance of way equipment, as shown in Table 48.

Table 48: Rail-related Deaths and Injuries by Operator, 2012-2021

Operator	Deaths	Injuries	Total
Amtrak-BNSF	2	2	4
Freight	22	19	41
Metra-BNSF	13	5	18
Metra-MILW-West	11	2	13
Metra-UP-West	21	5	26
Maintenance of Way Equipment	0	1	1
Total	**69**	**34**	**103**

Source: CMAP, ICC

Railroad Incident Clusters

The project team identified clusters in the DuPage analysis area based on locations with multiple reported incidents as well as sections of railroad with multiple adjacent incidents.

Individual Location Clusters

Incidents occurred at 123 different locations in the DuPage SAP analysis area between 2012 and 2021, inclusive of grade crossings and different locations on railroad property, and deaths and injuries occurred at 95 unique locations. The 11 locations with multiple incidents or deaths and injuries are listed in Table 49.

Table 49: Locations with Multiple Rail-related Incidents or Deaths and Injuries, 2012-2021

Location	Incidents		Location	Deaths and Injuries
Main Street, Downers Grove	6		Main Street, Downers Grove	5
Grace Street, Lombard	4		Grace Street, Addison	3
Finley Road, Lombard	3		Grace Street, Lombard	3
Garfield Avenue, Hinsdale	3		Prospect Avenue, Roselle	2
Prospect Avenue, Roselle	3		Stough Street, Hinsdale	2
Sunset Avenue, Winfield	3		Villa Park Depot, Villa Park	2
Villa Park Depot, Villa Park	2		Washington Street, Wheaton	2
Washington Street, Wheaton	2		West Avenue, Elmhurst	2

The characteristics of locations with either multiple reported incidents or multiple deaths and injuries in the DuPage analysis area are summarized in Table 50. The project team determined location characteristics based on the most recent available Google Streetview and aerial imagery.

Locations with multiple incidents vary in terms of location type, land use context, and activity levels. There are several potential patterns. Four of the eleven are adjacent to Metra stations (Main Street, Downers Grove; Garfield Avenue, Hinsdale; Villa Park Depot, Villa Park; Stough Street, Hinsdale) and are associated with both grade-crossings and pedestrian crossings internal to the station. Three are in mixed-use downtown areas (Main Street, Downers Grove; Garfield Avenue, Hinsdale; Prospect Avenue, Roselle). The location with the highest number of incidents, Main Street, Downers Grove, has three crossings within the functional area of the station Most, but not all, are located on streets with low- or moderate vehicle volumes, with multiple AADTs in the hundreds and all AADTs save one (Grace Street, Lombard) under 10,000.

Multiple-incident clusters tend to have similar roadway configurations – one through lane in each direction. Only one location (Grace Street, Addison) had multiple through lanes. Safety equipment was also consistent across locations. All crossings with multiple incidents, injuries, or deaths had active warning devices including beacons and gate arms. Two locations (Main Street, Downers Grove and Grace Street, Lombard) have strategically located concrete medians to deter attempts to drive around closed gates. No locations have gate arms that provide full roadway closures in both directions. Finally, all locations had open track access – lacking high fencing suitable for preventing trespass.

Table 50: Cluster Characteristics, 2012-2021

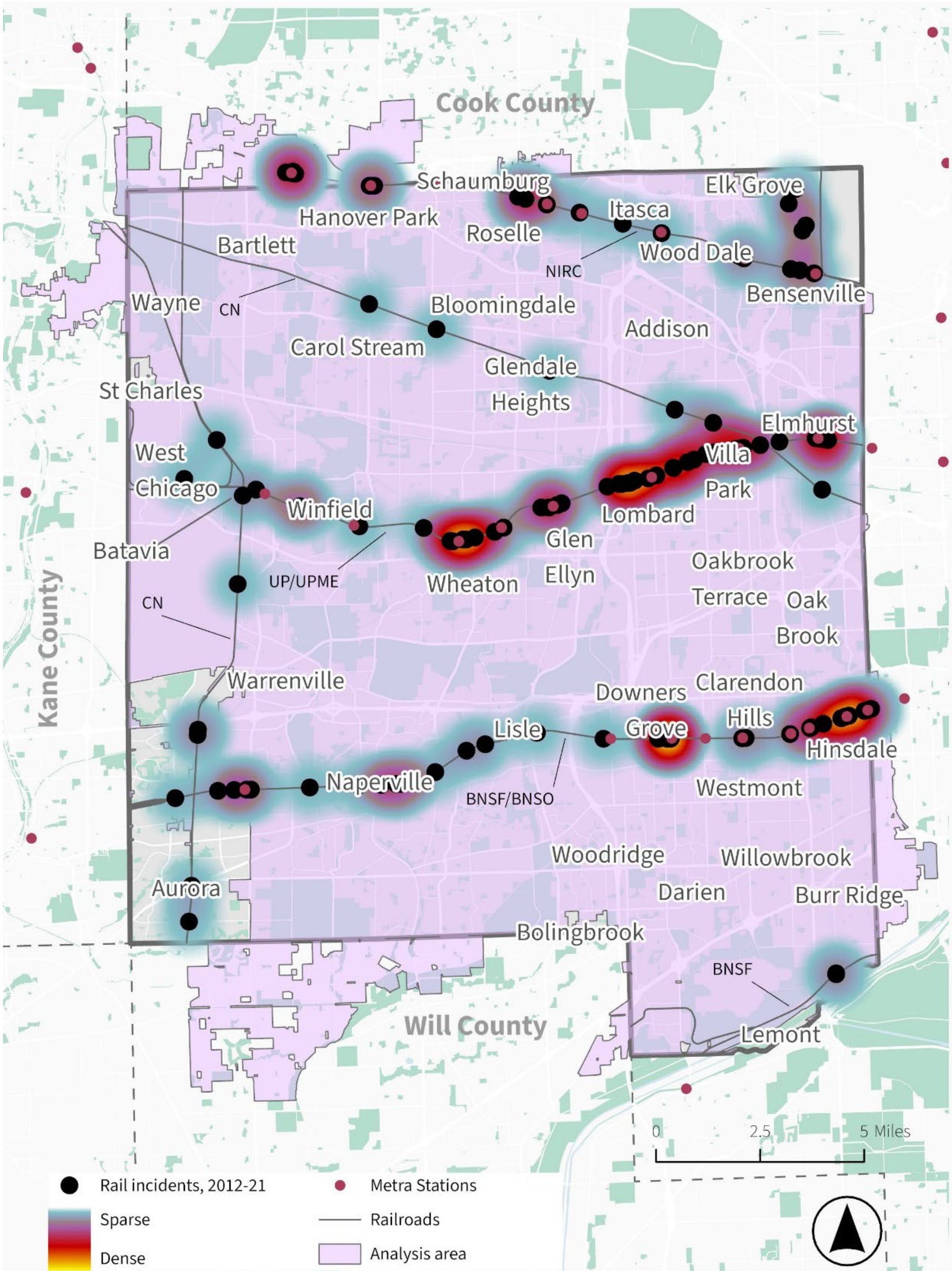
Location	RR	Location Type	Land Use	Roadway Configuration	Safety Equipment
Main Street, Downers Grove	BNSF	At-grade triple-track crossing adjacent to Metra station	Downtown mixed use	One thru lane and dedicated right turn lane in each direction; concrete median; sidewalks on both sides; 6,800 AADT (IDOT 2020)	Active warning devices incl. beacons and partial coverage gate arms with concrete median; sidewalk gate arms
Finley Road, Lombard	UP-W	At-grade triple-track crossing	Low-density residential	One thru lane in each direction; sidewalk on east side only; 6,800 AADT (IDOT 2020)	Active warning devices incl. beacons and partial-coverage gate arms; sidewalk gate arms
Garfield Avenue, Hinsdale	BNSF	At-grade triple-track crossing adjacent to Metra station	Downtown mixed use	One thru lane and dedicated left turn lane in each direction; sidewalks on both sides; 7,100 AADT (IDOT 2020)	Active warning devices incl. beacons and partial-coverage gate arms; sidewalk gate arms
Grace Street, Lombard	UP-W	At-grade triple-track crossing	Low-density residential; commercial; park	One thru lane in each direction; concrete median; sidewalk on both sides; 14,500 AADT (IDOT 2020)	Active warning devices incl. beacons and partial coverage gate arms with concrete median; sidewalk gate arms
Grace Street, Addison	CN	At-grade single track crossing	Industrial; open space	Two thru lanes in each direction; no sidewalks; 5,300 AADT (IDOT 2020)	Active warning devices incl. beacons and partial gate-arms
Prospect Avenue, Roselle	MD-W	At-grade double track crossing	Downtown mixed use	One thru lane in each direction; sidewalks on both sides; 325 AADT (IDOT 2020)	Active warning devices incl. beacons and partial gate-arms; sidewalk gate arms

Location	RR	Location Type	Land Use	Roadway Configuration	Safety Equipment
Sunset Avenue, Winfield	UP-W	At-grade triple-track crossing	Low-density residential	One thru lane in each direction; 700 AADT (IDOT 2020)	Active warning devices incl. beacons and partial gate-arms
Villa Park Depot, Villa Park	UP-W	Triple-track ped crossing at Metra station	Medium-density residential	Ped crossing	Active warning devices incl. beacons and gate-arms
Washington Street, Wheaton	UP-W	At-grade triple-track crossing	Medium-density residential; educational institution; adjacent to Illinois Prairie Path	One thru lane in each direction; sidewalks on both sides; 2,500 AADT (IDOT 2020); Pace service	Active warning devices incl. beacons and partial-coverage gate arms; sidewalk gate arms
Stough Street, Hinsdale	BNSF	At-grade triple-track crossing adjacent to Metra station	Low-density residential; park	One thru lane in each direction; sidewalks on both sides; 850 AADT (IDOT 2020)	Active warning devices incl. beacons and partial-coverage gate arms; sidewalk gate arms
West Avenue, Elmhurst	UP-W	At-grade triple-track crossing	Industrial low-density residential; educational institution	One thru lane in each direction; sidewalk on east side only; 5,300 AADT (IDOT 2020)	Active warning devices incl. beacons and partial-coverage gate arms; sidewalk gate arms

Railroad Segment Clusters

The project team assessed rail segments with multiple incidents between 2012 to 2021 in the DuPage SAP analysis area to determine potentially related clusters of crashes. The 135 incidents are mapped inFigure 43. A kernel density or heat map, illustrating the relative density of incidents, is displayed. The project team referred to this kernel density map to identify the most densely clustered incidents for deeper investigation along three lines: Milwaukee District West, Union Pacific West (, and BNSF Railway. Significant segment-level clusters were not present on other lines in the analysis area such as Canadian National freight rail corridors. Several of the areas that appear as “dense” in the heat map are in the location cluster list identified above.

Figure 43: Rail-related Incidents, DuPage SAP Analysis Area, 2012-2021



Milwaukee District West Segments

Beyond location clusters, there was one notable segment-level cluster on the Milwaukee District West line around Bartlett Metra station, as summarized in Table 51.

Table 51: Milwaukee West District Segment Clusters, 2012-2021

Location	Limits	Total Incidents	Total Deaths	Total Injuries	Trespass Incidents
Bartlett Metra Station	Western Ave to Main Street (Bartlett)	5	1	1	0

There were five incidents along the Bartlett Metra Station segment, resulting in one death and one injury. The incidents occurred between Western Avenue on the western end of the segment and the Bartlett Depot east of S Oak Avenue on the eastern end, as shown in Figure 44. Of the five incidents along the segment, four involved vehicles (four personal vehicles and one truck and trailer) and one involved a pedestrian. While two of the incidents were marked as occurring at the Bartlett Depot pedestrian crossing, one involved no pedestrians but instead a vehicle. Incidents occurred at various hours throughout the day with no discernable trend. The Bartlett Depot area is similar to other downtown Metra stations in the DuPage SAP analysis area: parking and access is provided along frontage roads along either side of the rail line with limited designated pedestrian crossings. The platform itself is on a small embankment.

Figure 44: Bartlett Metra Station Cluster

Union Pacific West Segments

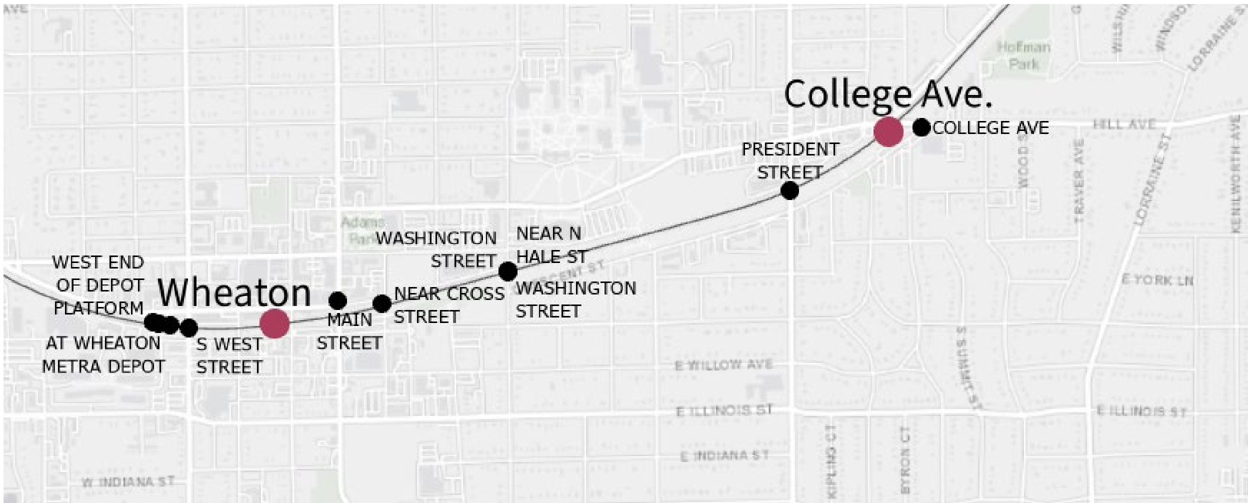
The project team identified four segment-level clusters on the Union Pacific West Line as summarized in Table 52. Three, Wheaton, Glen Ellyn, and Elmhurst, were located in suburban downtown environments. Finley Road, located half a mile to the west of the Lombard Metra station, was the outlier.

Table 52: Union Pacific West Segment Clusters, 2012-2021

Location	Limits	Total Incidents	Total Deaths	Total Injuries	Trespass Incidents
Wheaton	Ellis Avenue to Hill/College Avenue (Wheaton)	11	6	4	5
Glen Ellyn	Prospect Avenue to N Montclair Avenue (Glen Ellyn)	5	4	0	3
Finley Road	I-355 to St Charles Rd (Glen Ellyn/Lombard)	8	4	1	4
Elmhurst	Cottage Hill Avenue to Haven Avenue (Elmhurst)	6	3	2	3

Eleven incidents occurred in Wheaton during the study period in the segment between the Wheaton and College Avenue stations, resulting in six deaths, marking it as the cluster with the most incidents on the Union Pacific West line. The cluster, shown in Figure 45, includes the Washington Street location described above. Five incidents along the segment were trespassing-related, with three trespassing incidents at the Wheaton Metra station. Three additional incidents involved people walking and biking. The cluster runs parallel to the Illinois Prairie Path and serves Wheaton College. Like many downtown Metra stations, network connectivity is higher around the station than upstream or downstream of the station. Incidents, including trespassing, occurred throughout the day.

Figure 45: Wheaton Cluster

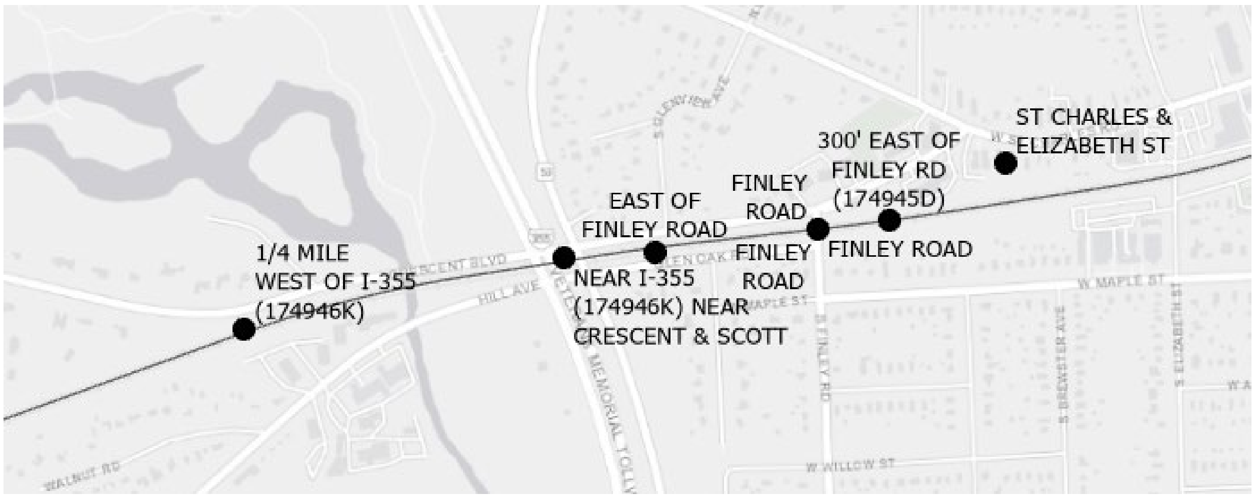


Five incidents occurred in the area around the Glen Ellyn Metra station between Prospect Avenue and approximately N Montclair Avenue, as shown in Figure 46. Four incidents, three of which were trespass-related, resulted in deaths, all involving people outside of vehicles. Like the Wheaton and Bartlett segments, this pattern roughly matches the limits of downtown Glen Ellyn and like Wheaton and is located along the Illinois Prairie Path. Two of the three trespasser incidents occurred east of the Metra platform in the area of the Montclair Parking Lot, which is fenced to the north but open on the southern side.

Figure 46: Glen Ellyn Cluster

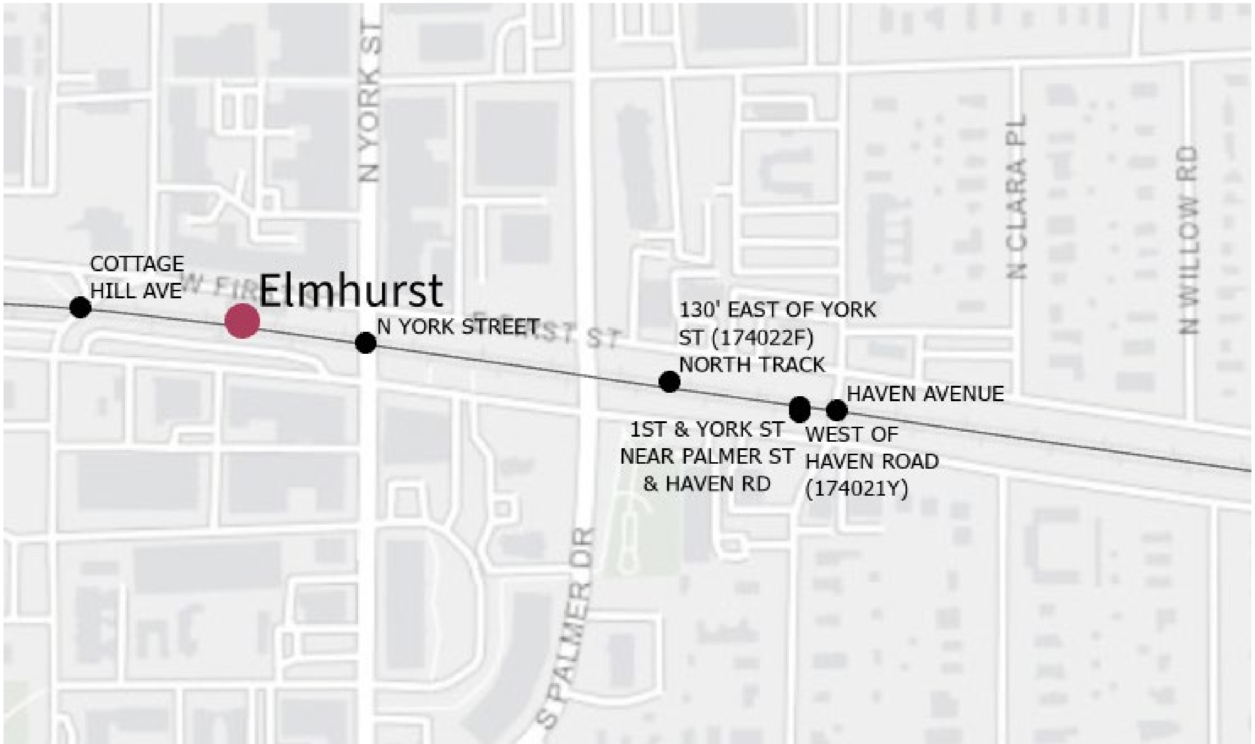
Between 2012 and 2021 there were eight rail-related incidents in the area around Finley Road on the eastern border of Glen Ellyn and the western border of Lombard seen in Figure 47. The types of incidents and modes involved are very different than those in the downtown environments. Four incidents were trespassing-related and the remaining four involved motor vehicles. Vehicle-related incidents were a minority in the downtown clusters. Several natural and manmade barriers, the East Branch of the DuPage River and I-355, limit connectivity in the area. The nearest north-south crossing to the west of Finley Road is at Taylor Avenue, 1.4 miles to the West. This connection is constricted and impracticable for most drivers, making the nearest feasible at-grade crossing west of Finley Road at Park Avenue in downtown Glen Ellyn, 1.8 miles away. All but one incident on this segment occurred during darkness.

Figure 47: Finley Road Cluster



The easternmost cluster along the Union Pacific West was in the area around Elmhurst Metra station in downtown Elmhurst. Figure 48 shows the six incidents between Cottage Hill Avenue and Haven Avenue between 2012 and 2021. Four of six incidents were trespasser-related or involved a pedestrian; all four of which occurred between S Palmer Drive and Arlington Avenue/Haven Road. Railroad right-of-way in this area is open and unfenced. Incidents along this segment predominantly occurred during the daytime.

Figure 48: Elmhurst Station Cluster



BNSF Railway Segments

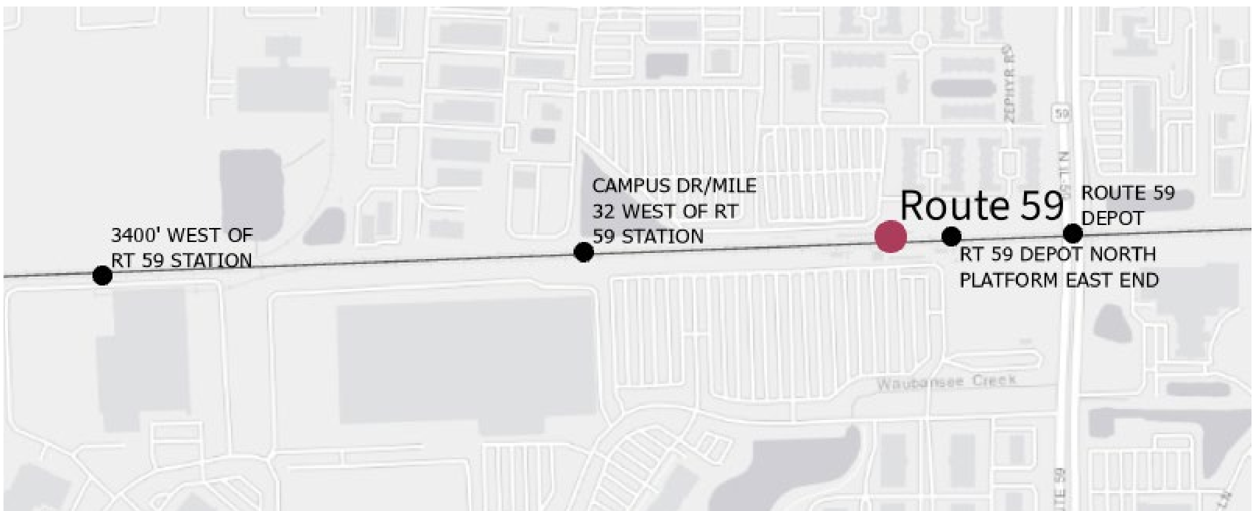
Over the analysis period three segment-level clusters appeared, all in the vicinity of Metra stations along the BNSF line. Main Street and Hinsdale are coincident with location-specific clusters identified in the previous section.

Table 53: BNSF Railway Segment Clusters, 2012-2021

Location	Limits	Total Incidents	Total Deaths	Total Injuries	Trespass Incidents
Route 59	3,400’ West of Route 59 to Route 59 Depot (Naperville)	4	1	3	4
Main Street	1,000’ West of Forest Avenue to Main Street (Downers Grove)	9	6	2	4
Hinsdale	Lincoln Street to Garfield Avenue (Hinsdale)	6	1	0	1

Four incidents occurred in the area around the Route 59 Metra station between 2012 and 2021, as shown in Figure 49 all of which were trespass-related and occurred between early morning and early afternoon. Unlike other clusters along the BNSF, Route 59 is not located in a traditional commuter-suburb downtown – it is instead on the exurban edge between Naperville and Aurora. Major parking lots abut the station on both sides of the tracks with multifamily housing to the northwest and major job centers all around. Besides the pedestrian crossing at the station there are no easily accessible crossings connecting the land uses on either side of the tracks. Tracks in the station area are open and unfenced. A single below-grade access point at the east end of the parking lots that serve the station connects the northern and southern Metra platforms.

Figure 49: Route 59 Station Cluster



The segment with the highest number of incidents on the BNSF between 2012 and 2021 was around Main Street Metra station in Downers Grove. Nine incidents occurred in the area indicated in Figure 50, including the Main Street at-grade crossing previously identified. Like other downtown segments, most of the incidents involved people outside of vehicles – only one involved a personal vehicle at the Main Street crossing. The area around the station is walkable with destinations on both sides of the tracks, which are open and unfenced. Almost half of the incidents, four of nine, occurred overnight.

Figure 50: Main Street Station Cluster

The third and final segment on the BNSF is Hinsdale Metra station between Lincoln Street and Garfield Avenue, as shown in Figure 51. The six incidents between 2012 and 2021 occurred in the area around downtown Hinsdale and include the at-grade crossing at Garfield Avenue identified earlier. All incidents occurred either early in the morning or overnight. Unlike other downtown areas, almost all of the incidents involved motorists at the Washington, Garfield, and Lincoln at-grade crossings.

Figure 51: Hinsdale Station Cluster

Shared Cluster Characteristics

Across location and segment-based clusters several patterns emerge:

- Incidents involving people trespassing, walking, and biking account for nearly all deaths.
- Most clusters are at or near downtown/village center Metra stations with destinations along both sides of the rail line. The majority of incidents at these locations involve people outside of vehicles and include at-grade crossings as well as crossings through depot areas and near parking lots.
- Stations where clusters occur are predominantly open.
- Incidents at clusters typically occur across the day with no dominant patterns.
- Adjacent network connectivity is a potentially important factor in trespassing and may also contribute to higher rates of gate violations where partial gates are in place.

The above findings indicate that at a systemic-level, station-area planning is necessary to determine where and how to install context-appropriate solutions to educate or prevent people outside of vehicles from going around lowered gates or entering restricted areas. Further analysis into whether these incidents were intentional or unintentional is also needed to shed light on potential countermeasures. The clusters in this list could constitute a starting point to develop a station-area planning list.

6 Data Recommendations

While developing the ESC, the project team uncovered areas where enhanced or improved data would open opportunities to be more data-driven, accurate, or proactive in identifying and addressing severe crashes in DuPage County and throughout the region. Most recommendations are likely beneficial to other agencies and communities in northeastern Illinois.

Crash Data

Complete, accurate, detailed, and timely crash data are a prerequisite to effective safety analysis and response. Beyond legal system and insurance reporting needs, crash data may be analyzed at the network level to identify trends and priorities, as the ESC illustrates, at the project-level, and at the individual crash level.

SR1050 Reports and IDOT Crash Data

Incomplete SR1050 crash reports reduce the level of certainty with which analysts can report findings at a high level and may obscure crash details at a project level. In IDOT crash data reviewed for the ESC, it appears that responding officers filled out crash data fields like Primary and Secondary Contributory Cause as “other” or “unknown.” If the officer did not input any data into the crash report, the post-processing efforts may have yielded an empty cell, ‘null’, or ‘<blank>’. These types of inputs do not provide sufficient context or value to data analysts, resulting in potential holes or missed opportunities for identifying improvements. When a crash results in a fatality or an A-injury, the responding officers should thoroughly and accurately fill out the crash form to help provide data analysts with a complete view of what occurred at the scene of the crash and identify next steps for mitigations.

Feedback from respondents to the DuPage SAP policy survey note the importance of the SR1050 crash narrative and diagram in identifying potential safety issues and mitigations. Narratives and diagrams provide a more granular level of detail illustrating exactly where crashes occurred, the sequence of events, and much more. Facilitating access to these aspects of the crash report, particularly in bulk, is a priority for roadway safety professionals in DuPage County.

E-mobility devices like e-bikes and scooters have proliferated in Illinois and across the country. These devices cannot be explicitly identified using the most current SR1050 form and are not mentioned, leading to potential for misclassification. E-mobility devices and their classifications/motor sizes may be mentioned in the narrative, which is currently unavailable in the IDOT crash data set, but not in a way that can be readily picked up in network-level analyses. Upcoming updates to the SR1050 should provide clear direction and explicit field(s) to identify whether the crash involved an e-mobility device and its type. The NTSB has identified that the lack of e-scooter and e-bike codes in crash report forms nationwide inhibits assessing the risk and prevalence of e-mobility crashes.[xxxv] Similar changes made to incorporate dooring crashes have been instrumental in creating safer streets in northeastern Illinois.

Alternative Crash Data Sources

The ANSI standard for crashes limits the definition of crashes to collisions involving motor vehicles. Reports and data on crashes involving non-motorized users, like bicyclists, are highly desired by safety analysts, planners, and engineers. DuPage County is home to multiple off-street trail systems but does not have comprehensive information on severe crashes, limiting ability to understand potential safety issues.

As cited earlier in the ESC, research has shown that crashes involving people walking and biking are significantly underreported, even those that lead a person to seek medical attention following the event. Emergency room data, collected at scale, could be evaluated to determine the level of additional need. Collaboration between health system and transportation professionals to utilize this information and spatially locate the underreported crashes would be beneficial for identifying high injury locations for people walking and biking.

Systemic Data

The regional segment and intersection data sets, based on IDOT's Highway shapefile, are a good starting point for systemic analysis, but are limited. Certain parts of the region do not meet existing reporting standards, leading to reduced ability to identify safety needs and opportunities in certain communities or in certain portions of communities. To meet the desired elements mentioned in the research conducted in the systemic analysis section, roadway and intersection data should exceed the Model Inventory Roadway Elements (MIRE) 2.1 standard.[xxxvi] DuPage County Division of Transportation has produced an excellent example that includes additional roadway features as well as adjacent land use information. CMAP also produces a sidewalk inventory and regional bicycle information system (BIS) that could supplement existing roadway information.

Improving roadway features and adjacent land-use data should be coordinated and regional in scale. Even county-level data is potentially insufficient for yielding reportable systemic results, especially for more uncommon crash types or detailed roadway feature subtypes. As demonstrated earlier in the ESC, there were insufficient data points to arrive at conclusive findings for pedalcyclist crashes in the DuPage SAP analysis area. Robust findings would likely require analysis at the scale of multiple or all collar counties.

Rail Incident Data

Northeastern Illinois is privileged to have a comprehensive rail incident data set that includes crashes with vehicles and collisions with people outside of vehicles on public and railroad rights-of-way. Fields available in the data set limit understanding of the circumstances and details of individual incidents. For instance, there were no data points in the provided data set to indicate whether a trespassing-related incident was intentional or unintentional or information about the people involved (e.g., age, gender). Privacy concerns may limit the availability of these data. Additional information is needed to provide informed recommendations on safety treatments either at specific locations or systemically. As with the crash data, narratives and diagrams are of high value.

Demographic Data

IDOT crash data and NHTSA's FARS provide limited data on the people affected by and at-fault in crashes resulting in deaths or serious injuries. Information on age, sex, and race/ethnicity (in the case of NHTSA FARS) are critical but insufficient to pinpoint who is most affected. As assumptions are unhelpful and counterproductive, analysts must go without these data points. As the ESC demonstrates, crash data provide significant value in understanding crash types and locations, but little information on the people involved. This creates implications for crafting messaging, developing communications and targeted behavior change campaigns, and understanding the demographic impacts of severe traffic crashes. More information is needed regarding where people involved in severe crashes live (at least at the census tract level), their socioeconomic background (e.g., income, educational attainment), and their disability status, at minimum. To protect personally identifiable information, care must be taken in providing this data at the appropriate level, balancing privacy with potential use cases.

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Glen Ellyn Capital Improvements Commission
535 Duane Street
Glen Ellyn, IL 60137

Meeting 8/13/2025 7:00 PM
Department: Public Works - Internal Services
Department Head:
Category: Report
Prepared By: Richard Daubert

AGENDA ITEM (ID # 2025-672)

DOC ID: 2025-672

Engineering Division Project Activity Report August 8, 2025

Statement of the Issue:
The August 8, 2025 Engineering Division Project Activity Report is attached for review by the Capital Improvements Commission.

Analysis:

Budget Impact:

Contribution to Strategic Plan

Action Requested:

Attachments:
1. Engineering Project Report 8-8-25

August 8, 2025

ENGINEERING DIVISION PROJECT ACTIVITY REPORT

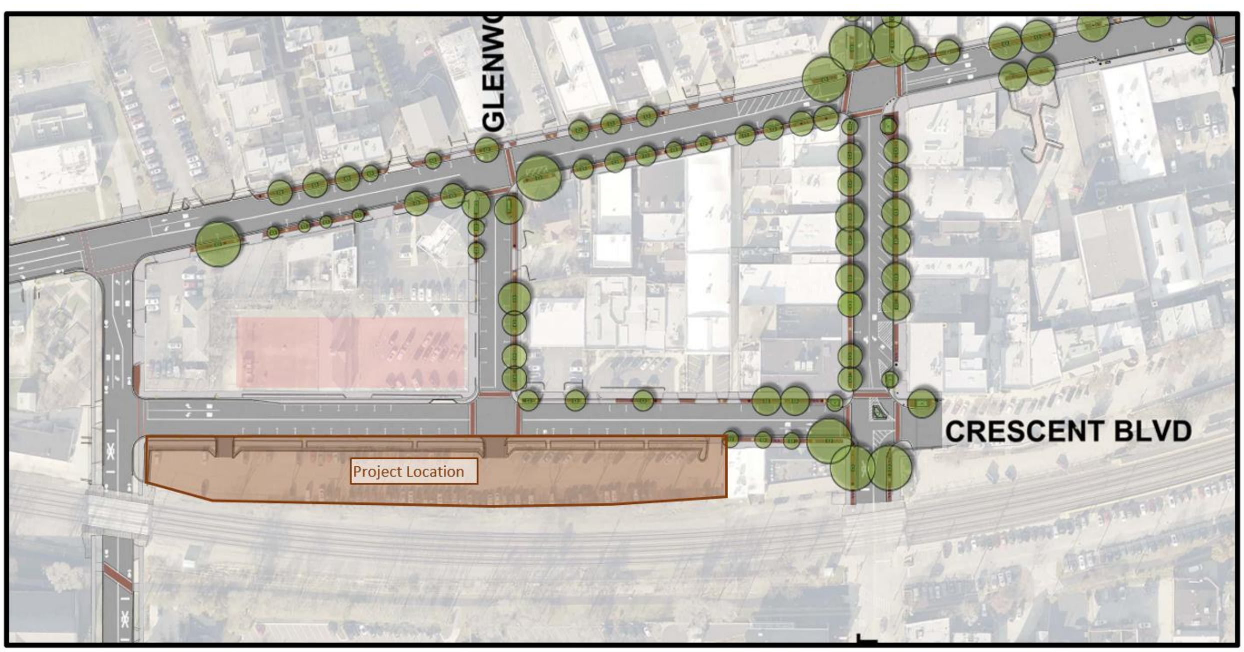
CONSTRUCTION PROJECTS IN PROGRESS

CRESCENT-GLENWOOD PARKING LOT AND MEDIAN REHABILITATION – Contractor: Abbey Construction (Value of Construction Contract = $1,208,252.93)

This project involves the resurfacing and modest reconfiguration of the parking lot along with reconstruction of the north side median with addition of new trees and other plantings, and the addition of new parking lot lighting. At their July 28th meeting, the Village Board approved awarding of the construction contract to the low bidder, Abbey Construction. At the same meeting the Board approved a construction engineering contract with BLA, Inc..

The construction contract has now been submitted to IDOT for their approval and signature, given the proposed use of Motor Fuel Tax funds for eligible project expenses. Pending IDOT turnaround times, construction could begin as soon as late August. The project completion date is November 7, 2025. The biggest challenges with the project timeline are anticipated to be the material orders (light poles, luminaires). There has been advance coordination with suppliers during design and bidding to attempt to minimize any delays.

Once the construction schedule is dialed in, there will be outreach to the public and surrounding stakeholders regarding anticipated impacts during construction. There have been conversations with the Parking Committee over the past year regarding alternate parking locations during the various project stages.



2025 MFT/Rebuild Illinois Street Resurfacing Project** – Contractor: **A Lamp Concrete Contractors

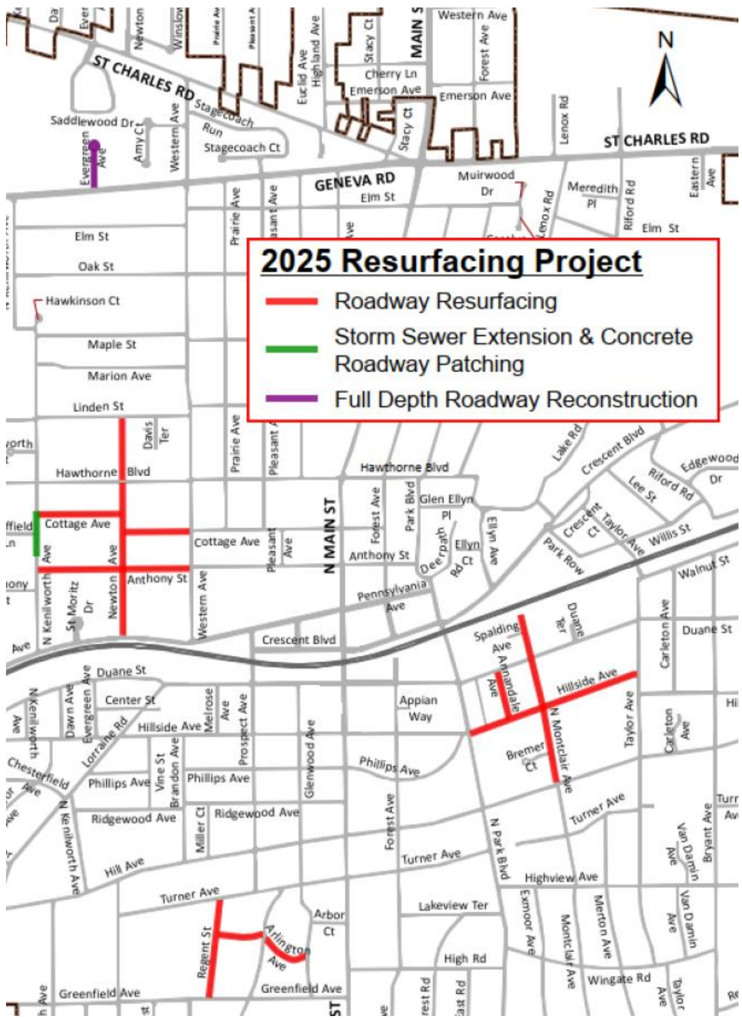
(Project No. 25001; Value of Construction Contract = $3,052,075.77)

This project involves utility and roadway improvements along approximately 2.4 centerline miles of streets shown in the location map to the right. The project was awarded to A Lamp Concrete Contractors at the February 24 Village Board Meeting. Substantial completion is required by August 29th

The contractor has divided the project area into three phases, with the Anthony-Cottage-Newton plus Evergreen area being phase 1, the Hillside-Montclair-Annandale area streets being phase 2, and the Arlington-Regent area being phase 3.

Asphalt surface was paved on Evergreen Avenue the week of June 9th and sodded in early July. All items except sod have been completed in the Phase 1 area, which is anticipated to be completed by early September, weather permitting. Concrete sidewalk and curb replacement work was completed in Phases 2 & 3 throughout July. Milling of the existing pavement was completed on August 1st and 4th, with the first layer of asphalt paving scheduled to be completed August 7th through 11th. It is the goal to the final layer of asphalt paved prior to school activities beginning on August 21st.

It is worth noting that the replacement of lead service lines has been completed through each of the Phase 1-3 areas as part of a separate contract managed by the Utilities group in Public Works.



2025 UTILITY AND ROADWAY IMPROVEMENTS PROJECT DESIGN** – Contractor: **John Neri Construction Company

(Project No. 25002; Value of Construction Contract = $4,568,404.95)

Sanitary point repairs have been completed on Grandview, May, Revere, and Melrose. The contractor has completed all underground work on Lowell and Grandview (south of May). All concrete items and asphalt binder has also been completed on these streets. The majority of all concrete sidewalk and curb replacements have been completed on Grandview, May, and Revere, in advance of utility structure adjustments and milling of the asphalt surface, which is anticipated to be completed the week of August 11th. The remainder of paving operations are anticipated to immediately follow, with the May-Grandview area targeted for substantial completion by early September. Staff received very positive feedback from residents on the closure of the gap in the sidewalk on the south side of Revere. Said improvement is pictured below.

Newly constructed sidewalk on south side of Revere, just east of Bryant

Underground crews also started work on Traver Avenue the week of July 7th. Sanitary sewer main and service replacements have been completed, and the contractor began water main installation the week of July 28th. Once water main is installed, water services, storm sewer extensions, roadway excavation, and roadway construction will be completed in the following weeks. Traver and the resurfacing of Melrose are projected to be completed in the fall.

<u>CBD STREETSCAPE AND UTILITY IMPROVEMENTS – Phase 1 –</u> *<u>Contractor:</u>* ***<u>A Lamp Concrete Contractors</u>***

(Project No. 15006; Value of Construction Contract = $5,704,293)

Minor remaining items in the Phase 1 area include: completion of a remaining electrical item at 504 Hillside (in coordination with ComEd and Nicor), and replacement of concrete around the trench drain behind Fire & Wine. These items are targeted to be completed this year as part of final closeout of the Phase 1 project.

The other big item in the Phase 1 area is the sanitary sewer replacement, storm sewer work, and pavement reconstruction in the Main Street alley (west of Main, south of Duane). As per previous communication, this alley work was not part of the original Phase 1 construction contract, but was an add-on item in response to the inability to line the alley sanitary sewer as part of the Phase 1 work. Plans were finalized and the project was advertised for bid on July 18, 2025, wth the bid opening conducted on July 7th.

There was wide range four as-read bids received. Based upon contractor feedback, this was attributed to contractor concerns over the challenging construction conditions for the project, with the constrained zero-setback alley with utility poles as an additional complicating factor. That said, the low bid was within the margins of the engineer's estimate of cost. The bids are being tabulated and reviewed at the time of this writing. Provided the low bid does not have any irregularities, the current plan is to present the low bidder construction contract to the Village Board at their August 25th meeting.

CBD STREETSCAPE AND UTILITY IMPROVEMENTS – Phase 2-3 – *Contractor:* ***A Lamp Concrete Contractors***

(Project No. 15006; Value of Construction Contract = $16,298,499

Staff is continuing work with the contractor to complete the remaining punchlist items for full project closure this year. Updates on the remaining larger items are below.

- **Concrete sidewalk/driveways –** As mentioned previously, there are some areas where the concrete surface has signs scaling and/or spalling. These are concentrated along the north side of Pennsylvania Ave (Main to Prospect) and the west side of Main Street (Anthony to Crescent). After further research and multiple field walks, we have reached agreement with the contractor on areas of concrete sidewalk for replacement.

  A key consideration was identifying sidewalk squares with surface deterioration that may be progressive versus a more aesthetic surface condition not likely to be progressive and where the solution (disturbance associated with full concrete replacement) may not be warranted by the superficial condition. In the end, the primary areas targeted for full sidewalk replacement are concentrated at driveways where the loading and future salt exposure are greater. The concrete replacement work is currently targeted for September, with an eye toward avoiding impact to any of the major downtown events.

- **Brick pavers –** As mentioned previously, there are select bricks throughout the project area that are showing signs of deterioration. While most of the bricks are fine, some are visibly deteriorating. After further investigation and multiple field walks with the paver brick supplier and contractor, we have now identified select furniture zone bricks for replacement. Due to the mixing of brick batches, the bricks for replacement are scattered throughout the various furniture zone fields rather than being concentrated in one area like the concrete. In some fields there are just a few bricks slated for replacement whereas in a few concentrated areas (east side of Fire Station) most of the soldier course bricks are proposed for replacement. The brick paver replacement is planned to occur after the concrete sidewalk work, since some sidewalk work may impact brick pavers, and there is a desire to do the brick paver punchlist work just once

- **Plants –** The Phase 2-3 plantings punchlist has been finalized. Due to the significant loss of plants, staff are coordinating with a representative of the Environmental Commission on and the project design consultant on an alternate selection of plant species that while not native, can still meet many of the goals of native plants (e.g. sustainable, pollinator-friendly) but may be better suited to the small planter streetscape setting, rather than replacing the plants that did not survive in kind.

- A final re-planting plan has now been submitted to the contractor for them to coordinate with their landscaping subcontractor. We are awaiting final work on scheduling of the replantings. Note that the plants punchlist includes the replacement of 8 trees that are not expected to survive. Six of the trees are London Planetrees which for whatever reason have not fared well in the downtown. Another tree is a Swamp White Oak that is struggling. And the final is a Marmo Maple that was struck by a vehicle last year and therefore needs replacement. With the exception of the maple, Forestry has identified alternate species for the replacement trees to better ensure future survival.

2024 UTILITY AND ROADWAY IMPROVEMENTS** – Contractor: **John Neri Construction

(Value of Construction Contract = $13,148,961)

Construction was largely completed last November. A handful of remaining work items including isolated sod placement, landscaping installation, and culvert epoxy injection at Glen Crest creek were completed this spring. The project team is currently reviewing the punchlist in order to proceed to project closeout. As part of the punchlist, portions of Forest Avenue and High Avenue will be re-paved at the Contractor's expense to address some deficiencies. Milling of the pavement will be completed the week of August 11th

OTHER AGENCY PROJECTS

Butterfield Road Reconstruction (IDOT)

The State continues to advance its project to reconstruct Butterfield Road from 700 feet west of Arboretum Drive to I-355. The project involves complete reconstruction of IL-56 with the end deliverable being 3 through travel lanes in each direction from Route 53 to IL-355. The intersection of IL-56 and IL-53 will also be improved with all approaches to the intersection to have dual left- turn lanes and exclusive right-turn lanes. The intersection improvements will extend north and south along IL-53 with the State continuing to work through the design process for future reconstruction of IL-53 down to Park Boulevard.

The project will also include the construction of a 10-foot-wide shared use bicycle path on the north side of IL-56 between Arboretum Drive and Lloyd Avenue. As part of the shared use path construction, a new pedestrian bridge will be constructed over the East Branch of the DuPage River. New sidewalks will also be constructed along the west side of IL-53 from the southern Walmart entrance to Pinegrove Court and along the south side of IL-56 from the Abbington to IL-53.

The Contractor has been working on widening the north side of Butterfield Road with temporary pavement which will allow staging of future traffic to the outside lanes of Butterfield Road. Utility relocations continue to be a controlling item in advancing the roadway reconstruction work. However, the construction team is hopeful that work will be able to be started on the bridge over the East Branch in the coming months.

Roosevelt Road Bridge Repair (Over IL-53/West of Baker Hill Drive (IDOT)

This IDOT project involves reconstructing the joints at each end of the bridge, partial and full depth bridge deck and abutment repairs, overlaying the bridge with a latex modified concrete, asphalt overlay of ~40' of the concrete pavement approaching the bridge, sidewalk replacement, railing/fencing replacement, guardrail replacement, and other various items of work.

Per the original project schedule, there was generally anticipated to be approximately two weeks work on the south side of the bridge (Stage 1), then two weeks in the middle (Stage 2), and two weeks on the north side of the bridge (Stage 3), with traffic diverted around the work zone in each stage. With project completion in mid to late July.

However, during Stage 1 removals, an issue was identified with the bridge joint that required evaluation and re-design through various divisions of IDOT. As a result, the project has been stuck in Stage 1 (south side work zone). A resolution was finally approved through IDOT at the end of July and the project is again progressing. The IDOT Resident Engineer anticipates the project construction will be able to move into Stage 2 with the next week.

Route 53 Resurfacing from Bemis Road to ~ 400' south of Pershing Avenue (IDOT)

This IDOT project consists of pavement patching, milling of the asphalt surface, placing new binder and surface course, replacing aggregate shoulders with asphalt shoulders, drainage structures adjustment and cleaning, placement of pavement markings, sidewalk ADA improvements, detector loops replacement, and incidental and collateral work necessary to complete the improvement.

IDOT submitted preliminary plans to the Village for review earlier this year. After a couple rounds of coordination, the plans were finalized in April and the project was let by IDOT on June 13, 2025. As of last communication, the State is looking to complete letting, award, and construction of the project in 2025.

Route 53/Spring Avenue Traffic Signal Installation and APS Pushbuttons at IL-38/Nicoll (IDOT)

IDOT is working through the design of a project involving the replacement of the temporary cable hung (trombone) traffic signal equipment at Route 53 and Spring Avenue. The project proposes to install all new permanent traffic signal equipment including a new controller cabinet and electrical service, post and mast arm mounted signal heads, accessible pedestrian signals, and sidewalk ADA improvements.

The State is also looking to replace the pedestrian pushbuttons at IL-38 and Nicoll Way/Ave with Accessible Pedestrian Signal (APS) pushbuttons. APS pushbuttons provide non-visual walk and don't walk indications (audible and vibrotactile) for visually impaired individuals.

The State is currently reviewing staff's request that the project be communicate to residents within a logical vicinity of the intersection of 53/Spring. Staff provided sample notification letters to IDOT along with a phone conversation as to outline communication expectations.

ENGINEERING PROJECTS

LAMBERT AND RIFORD FEDERAL AID PROJECTS *– Engineer:* ***AECOM***

These projects involve the potential use of federal funding through the Local Surface Transportation Program. They are on contingency lists for funding in the amounts of $1,201,306 for Lambert and $338,788 for Riford. The Lambert Road project involves the resurfacing of Lambert Road from Roosevelt Road to the southern Village Limit which is just south of the College of DuPage. The Riford Road project involves the resurfacing of Riford Road between Crescent and Saint Charles Road.

The Prefinal plans, specifications, and cost estimate were submitted to the State in advance of a July 28th deadline to stay on track for the November State letting. A request for proposals was also issued to consultants for construction engineering services for the two projects. Seven proposals for Lambert and five proposals for Riford were received and evaluated by staff according to the Village's Qualification Based Selection procedures. Staff held interviews with the top ranked firms for each project and re-ranked them after interviews were complete. Staff is beginning negotiations with the top ranked firm (for both projects). Staff will continue to work with the State to prepare the final Engineering and Construction agreements/resolutions for consideration of Village Board Approval.

HILL AVENUE UTILITY IMPROVEMENTS *– Engineer:* ***Walter E. Deuchler Associates***
(Project No. 00511)

This project involves the construction of sanitary sewer and water distribution system improvements on Hill Avenue between Golf Avenue and the East Branch of the DuPage River. The improvements will ultimately result in the Village's water main being continuous and looped along both Hill Avenue and Crescent Boulevard. Also, this will allow the Village to serve the fronting properties on Hill Avenue with potable water service.

Easement documentation was prepared for the Elliot Construction property with the documents signed by the respective party. A similar easement is needed on the north side of Hill Avenue; staff has met with the property owner to review draft easement documents. Most recently, staff evaluated an alternative corridor that the property owner requested and a follow up meeting was held with the property owner and his attorney to discuss the complications of an alternative alignment for the utilities. Having said that, staff was able to identify and opportunity to reduce the footprint of the easement which was of interest to the property owner. Next step is to revise the design plans to align with the revised easement. Other various comments will also need to be addressed by the Engineer. This will allow the project design to ultimately be finalized, easements secured, permits amended or refreshed, and project to be competitively bid.

TRAIN STATION / PEDESTRIAN TUNNEL *– Engineer:* ***CDM Smith/KMI Architects***
(Project No. 16016)

Staff received the 90% plans and specifications for the project on June 16. Said documents are under review by staff, Metra, and Union Pacific. Staff also completed its review of the hazmat report with CDM Smith now revising the report. The hazmat report simply identifies construction materials that must be carefully handled during demolition of the existing station and shelters.

Land Acquisition procedures are now underway with staff coordinating with IDOT's Bureau of Land Acquisition on the approval of the members of the land acquisition team. Other various items that are of focus now include design of interpretive signage to document/commemorate the existing depot, coordination with IDOT on Phase I Design Approvals, and continued review of value engineering the project with a primary focus being on warming shelters.

TRAFFIC SIGNAL MODERNIZATION PROJECT** – Engineer: **AECOM

(Project No. 23006)

Work is underway on design of the improvements to the six Village-owned traffic signals, consistent with the 2024 Recommendations Report created by AECOM. While work on the six Village-owned traffic signals is to be spread over three years (2026-2028), initial design on all six signals is being conducted this year. The intent is to be ready to package the first bid package in late 2025, for 2026 construction. The target intersections for each construction year are still under discussion and will be part of budget discussions.

The AECOM contract also provides for optimization of the Village intersections in 2025. Traffic counts, using video detection technology, were conducted the week of May 12th, before schools let out for the year. AECOM is now using these counts to model the intersection operations and determine optimal timings for each location.

On Thursday, July 24th, the traffic signal cabinet at the Lambert/Fawell intersection sustained damage from a lightning strike. As a result, the signals are currently operating in a fixed time pattern that is less efficient than the former actuated, traffic responsive mode. The intersections of Lambert/Tallgrass and Lambert/College, while not damaged by the lighting, are part of an interconnect with Lambert/Fawell and are therefore also affected to a degree.

The surge damaged much of the equipment in the cabinet. Temporary equipment is currently in place allowing for basic signal operation. However, given the age of the cabinet and equipment, replacements for some of the equipment are not readily available and new equipment is not compatible with some of the older systems. As a result, Village staff is working with AECOM and Meade Electric on the potential acceleration of the planned cabinet replacement/upgrades at the Village intersections along this corridor. The remaining signalized intersection improvements that are part of the overall modernization recommendations would still be part of future year improvements, only the cabinet upgrades would be accelerated at this time, and out of more immediate necessity.

ADA PUBLIC RIGHT-OF-WAY TRANSITION PLAN – CMAP TECHNICAL ASSISTANCE** – Project Partner: **Chicago Metropolitan Agency for Planning (CMAP)

In March of 2024, Public Works applied to CMAP for assistance with creation of its federally-required ADA Transition Plan, as part of CMAP's 2024 Technical Assistance Call for Projects. Out of a competitive process (122 applications submitted, 30 awarded), the Village was selected to receive assistance.

Since the last update, the consultant has completed processing the data from the lidar survey of the all the sidewalks and curb ramps through the Village. The consultant anticipates delivering the list of priority deficiency locations along with the updated prioritization matrix to staff by late

August. The consultant will then meet with staff to review this information and discuss/make any adjustments prior to the next steering committee meeting. Items of consideration include evaluating the weighting factors for the prioritization matrix verses the severity of the deficiencies, costs, etc.

The overall planning process will likely extend beyond October, due to the additional time that was needed to process the survey data.

WATER DISTRIBUTION SYSTEM STUDY** – Engineer: **Christopher B. Burke Engineering Limited (CBBEL)

This project involves the development of a model of the Village's water distribution system which will be used to optimize operation of the system as well as identify and confirm needed capital improvements. The model and a technical report will be the ultimate deliverables of the assignment. Through a competitive RFP Process, staff identified CBBEL as the best firm for the completion of the assignment. The Village Board approved an agreement with CBBEL on January 27th. The project is expected to be completed in 2025.

The consultant has completed the initial modeling of the Village's pipe network and water facilities. Hydrant flow testing, conducted at eleven locations the week of May 5th, was used to help calibrate the model. Public Works staff met with CBBEL on July 1st to review preliminary results. There was significant discussion around the areas of four-inch watermain in the Village that result in reduced fire-flow volumes, and are a likely first priority for replacement. The consultant will be working on a matrix to help weight the various factors involved with prioritizing watermain needs in the face of constrained budgets. These factors are to take into account historic watermain breaks, concentrations of lead services, interaction with the Village's pavement management program, etc.

CONSTRUCTION MAINTENANCE PROGRAMS

Public Works seeks the best vendor prices for various annual municipal and utility maintenance and operations activities. This effort includes local bidding of projects or joint purchasing initiatives, including the Municipal Partnering Initiative (MPI), a consortium of DuPage County communities.

Project	**2025 Estimated VGE Cost***	**Status**
2025 Asphalt Roadway Patching	$188,630	The project scope includes roadway patching throughout the Village. Locations will be determined by staff utilizing both the Village's 2024 Pavement Management System Data and field inspections. This program had a February 26th bid opening and R.W. Dunteman provided the low bid of $188,630. R.W. Dunteman was awarded the contract at the March 10th Board Meeting for the full bid amount. Work will start in early September and is expected to take 3 days.
2025 Crack Sealing	$40,000	The 2025 Crack Sealing program targets candidate locations using Pavement Condition Index (PCI) Study data and visual inspections. The 2025 budget for the program is $45,000. Bids were opened on February 12th with Denler, Inc. providing the low, responsible, and responsive bid of $33,700. Denler,

Project	2025 Estimated VGE Cost*	Status
		Inc. was awarded the contract at the March 10th Board meeting in the not-to-exceed amount of $40,000, which resulted in $5,000 in savings in the Capital Projects Fund. The contract specifies that crack sealing takes place between August 1st-October 15th, which is the ideal time for this maintenance.
2025 Sidewalk and Concrete Street Repairs	$400,000	This annual program includes repairs to deteriorated or damaged sidewalk and concrete roadway infrastructure and the installation of new sidewalk throughout the Village. Bids were opened on February 12th, with Schroeder & Schroeder (S&S) providing the low, responsible, and responsive base bid of $424,700. Since the 2025 budget included $150,000 for Sidewalk Replacement and $250,000 for Concrete Patching, staff asked the contractor to agree to reduced quantities to bring their proposal within budget limits. S&S was awarded the contract at the March 10th Board Meeting in the not-to-exceed amount of $398,620. Staff is waiting for receipt of DuPage County permit approvals for work at Main and St. Charles (and Main and Elm – Village ROW) and expects that project to be completed before D41/Forest Glen Elementary students' first day of school on August 27th. The rest of the sidewalk program will take place in late August or early September.
Sidewalk Sawing Repair Program	$35,000	Staff proposed using Safe Step to evaluate sidewalks for trip hazards in three areas (the Derby Glen neighborhood, the Surrey/Briar neighborhood, and Revere Rd between Main and Park Blvd.) based on the defect identification criteria that Safe Step and the Village developed together. Safe Step's patented process uses waterless saws, which eliminates slurry and water runoff contamination, and a dust-abatement system designed to capture fine dust. Safe Step makes sawcut repairs tapered to a 1:12 slope ratio with a smooth, uniform finish and are ADA-compliant. Safe Step was awarded a contract at the April 14th Board Meeting. In May, Safe Step surveyed three areas and provided a report with locations, descriptions, suggested repair types, and photos of each identified defect. The Village reviewed the data and gave the go-ahead to Safe Step to make 393 sawcut repairs. Several locations with more severe defects were recorded by Safe Step and added to the Village's sidewalk removal and replacement list. The sidewalk sawcutting work was completed in mid-July. The Village received positive feedback via email from a resident in the Surrey neighborhood who complimented the construction workers on their professionalism and neatness and thanked the Village for making repairs in the area.

Project	2025 Estimated VGE Cost*	Status
		 
2025 Utility Pavement Restoration	$74,557.33	This program allows Public Works to use one contractor to restore Village right-of-way following in-house utility repairs instead of relying on the availability and coordination of the Village's separate concrete and asphalt contractors. The program requires the contractor to make up to three mobilizations throughout the construction season. The contractor must be capable of doing full-depth concrete and asphalt pavement patches, and concrete sidewalk, driveway, and curb and gutter repairs. Bids were opened on February 26, 2025, with the low bid being provided by G.A. Paving, of Bellwood, IL, in the amount of $58,340, which was just under the 2025 budget of $60,000. G.A. Paving was awarded the contract at the March 10th Board Meeting. As of June 20th, approximately $74,000 worth of right-of-way restorations were needed so the Village Manager approved a change order increasing the amount of the contract by $16,500. The increased

Project	2025 Estimated VGE Cost*	Status
		number of water main breaks last winter, which was experienced by municipalities across the Chicagoland area, and numerous 50/50 sewer cost share projects and lead service investigations accounted for the need for more right-of-way restorations than were originally estimated. Last year, G.A. Paving completed eight restorations for the Village. In 2025, G.A. Paving made twenty-seven utility restorations by mid-July.
2025 Pavement Markings	$84,676	For the last fifteen years, the Village has utilized local purchasing cooperatives to obtain competitive pricing for pavement marking work. In 2024, the Village joined the Suburban Purchasing Cooperative's contract and entered an agreement with the low bidder, Superior Road Striping (SRS), to refresh pavement markings in Glen Ellyn. SRS was overwhelmed with work demands around the region and was unable to complete their work in Glen Ellyn before temperatures dropped too low to meet the specifications for pavement marking installation. SRS will hold their unit prices and complete the balance of the 2024 work this spring. After last year's experience with scheduling delays, staff decided to bid out this project locally in order to have more control over project completion dates and to be higher on the contractor's priority list. The bid opening was held on February 26th; Precision Pavement Marking was the lowest bidder out of four with a bid proposal of $101,908, which was slightly over the $100,000 budget. Precision Pavement Marking agreed to reduced quantities to allow the Village to stay under budget; however, the total price still came at a significant premium compared to historic cooperative pricing. DuPage County (DPC) awarded a contract to Precision on April 8th. Suburban Purchasing Cooperative (SPC) negotiated 2025 prices as part of a 2024 contract extension with Superior Road Striping and these unit prices provided the most value to the Village. On April 28th, the Board formally rejected all of the bids from the February 26th bid opening and awarded a contract to Superior Road Striping based on the Village's membership in the SPC. SRS began working on the 2025 contract on June 30th.  *Superior Road Striping refreshing the double yellow lines on Pershing Ave. between IL-53 and Roosevelt Rd.*
2024 Pavement Markings	$81,842*	The annual line striping contract was awarded to Superior Road Striping (SRS), the low bidder of both the DuPage County and Suburban Purchasing

Project	2025 Estimated VGE Cost*	Status
		Cooperative contracts, on April 22, 2024, in the not-to-exceed amount of $100,000. The Village utilized Suburban Purchasing Cooperative's contract unit prices, which provided the lowest total cost for the program. SRS began pavement marking on October 29th and completed one day of thermoplastic pavement marking installations, which represented approximately 25% of the planned scope; however, they were unable to complete the remaining work in the Village due to commitments elsewhere and weather delays. Superior Road Striping honored their commitment to Glen Ellyn to start work early in the 2025 construction season. They finished installing modified urethane pavement markings in early June and completed the 2024 thermoplastic work on June 30th. The Streets Division refreshed pavement markings using paint in various locations, including the handicap symbols in all of the Village-owned parking lots. The Streets Division's 2024 budget for paint materials was $5,000. **The Village paid Superior Road Striping $17,912.39 for work completed in 2024; the P.O. was carried over and Superior was paid an additional $63,929.16 for work completed in 2025.*
2025 Asphalt Surface Rejuvenation	$90,000	Candidate locations include streets that have been resurfaced one to three years prior. Staff is awaiting pricing from a municipal partnering initiative with single source vendor, Corrective Asphalt Materials, in the hopes that the pricing will be more advantageous for the Village. Construction is anticipated to be completed in late summer.
2025 Sanitary Sewer Lining and Repairs	$200,000	The 2025 program will provide for sanitary sewer lining and repairs throughout the Village including within the Street Improvements Project Areas. The proposed budget for this program is $200,000.

*All costs are rounded to nearest dollar.

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