



June 2023

Safe Streets for All

Transportation Safety Action Plan

City of Saint Paul



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Letter from Mayor Melvin Carter

Saint Paul is a capital city with vibrant neighborhoods, award-winning parks, and a diverse population with roots from around the world. Our history and cultural richness create a community where you can live, work, play, and raise a family. We take pride in our strengths and seek opportunities to improve as we endeavor to make a city that works for all of us.



As part of our Community-First Public Safety framework, we have completed the Safe Streets for All: Transportation Safety Action Plan – a comprehensive, data-driven effort to re-think how we understand public safety and work to create safer outcomes across our city. We know that traffic crashes resulting in death and serious injury are a major public safety issue that threaten the safety of Saint Paul streets.

Since 2018, we've had more than 16,000 crashes on surface streets—with 60 deaths and 264 serious injuries. We do not forget that these numbers represent real people; they are our friends, family members, neighbors, and co-workers. Their lives and those of their families are forever changed by these tragedies. Vulnerable users, such as people walking and bicycling, as well as people living in neighborhoods with lower average household incomes, are disproportionately impacted by crashes. Inequity comes in many forms, and these greater impacts to our lower income neighbors—who are more likely to walk and use public transportation—are unacceptable.

The City of Saint Paul is making a pledge to our residents to do better because even one more death on our streets is one more too many. Along with the Saint Paul City Council, I am committing the city to a goal of zero traffic deaths and serious injuries on surface streets by 2045, with an interim goal of a 50-percent reduction in fatal and serious injury crashes within 10 years. This is an ambitious goal, but I believe it is attainable when we focus our attention and resources to understanding the problem and work closely across city departments and with our transportation agency and public safety partners, including Ramsey County, Minnesota Department of Transportation, Metro Transit, Saint Paul Police, Saint Paul Fire, Saint Paul Office of Neighborhood Safety, and Saint Paul Public Schools.

Safe Streets for All is a launching point for safety-focused decision-making across our public infrastructure investments and working with partner agencies to make changes on streets in Saint Paul. We will continue working with communities to gain from their expertise about what transportation safety problems need to be addressed in their neighborhoods.

Our commitment will be broad and enduring. Together we can prevent fatal and serious injury crashes on Saint Paul streets and work to meet the vision of a Saint Paul that works for all of us.

-Mayor Melvin Carter

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Introduction

Between 2018 and 2022, there were 60 crash-related fatalities and 264 serious injury crashes on Saint Paul streets¹. Each one of those people was a member of the Saint Paul community – someone’s parent, child, sibling, and friend. All of these injuries and deaths were preventable.

This Transportation Safety Action Plan (Plan or TSAP) is a recognition that the high toll of traffic crashes in our community is unacceptable. This Plan was created in response to Saint Paul’s commitment to eliminate all serious injury and fatal crashes on surface streets within the city. The Plan illustrates where and how Saint Paul can do better.

This Plan includes:

- An in-depth analysis of the factors that contribute to fatal and serious injury crashes throughout the Saint Paul;
- An understanding and acknowledgment of the communities most impacted by traffic crashes, and the needs of those communities;
- A description of projects that utilize data-driven strategies proven to reduce crash incidence and severity;
- Policy recommendations that change the way the city selects and design future projects;
- Recommendations for programs involving enforcement, education, and partnerships with other agencies;
- A focus on equity to ensure that projects are selected, funded, designed, and implemented in a way that aligns with the city’s goals; and
- A roadmap for implementing the strategies in this Plan, including detailed guidance for the next five years and ten years.

Eliminating traffic deaths will not be easy, and it will take time. Many of Saint Paul’s roads were designed to move large amounts of vehicles at high speeds, ignoring the impacts on bicyclists, pedestrians, and high crash risk to drivers. Saint Paul cannot redesign all its streets at once, nor can the city finance more than a handful of large-scale reconstruction projects in a decade. Additionally, many surface streets within Saint Paul are owned by Ramsey County and the Minnesota Department of Transportation (MnDOT), necessitating strong and enduring collaboration to make real progress on some of the city’s most challenging roads. Through this Plan, Saint Paul is committed to leading these efforts.

¹ Minnesota Crash Mapping Analysis Tool (MnDOT). Additional details available in the Crash Analysis appendix.

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Our Goal

In June of 2023, the Saint Paul City Council unanimously passed a resolution committing to the goal of eliminating traffic deaths and serious injuries on all surface streets in Saint Paul by 2045. To achieve this goal, the city has adopted the following benchmark goals:

- Reduce deaths from traffic crashes by 50% within 10 years
- Reduce serious injuries from traffic crashes by 50% within 10 years

Further, Saint Paul acknowledges that achieving these goals will require significant and ongoing coordination with partner agencies including MnDOT, Ramsey County, the Metropolitan Council, and Metro Transit. The city also understands that there is a significant staff and financial need required to meet the goal over a sustained period, and that prioritizing safety investments must be elevated in the planning of future projects and policies.

Safe System Approach

This Plan utilizes the “Safe System Approach” to traffic safety, a multi-faceted method of improving the transportation safety. The Safe System Approach, which has been officially endorsed by the United States Department of Transportation and MnDOT’s Toward Zero Deaths initiative, includes a major focus on speed management, improving safety for all roadway users, and designing roadways to prioritize safety. This plan will focus on these elements, which the City of Saint Paul can influence through roadway design, engineering, and education strategies. Saint Paul’s first responders are responsible for post-crash care, and the city’s police and fire departments have been key members of the technical advisory committee for this Plan.

Saint Paul has little influence locally over safer vehicle regulation, though the city remains committed to working with our partners at the state and federal levels to improve vehicle safety both inside and outside of motorized vehicles.

Why focus on surface streets?

Saint Paul’s commitment is focused on traffic crashes that occur on all surface streets (non-freeway) roads within the city. This may seem counterintuitive since a large number of traffic crashes within the city occur on the freeways, including interstates. However, the city has limited control over the design and function of these roads. The city will continue to work with MnDOT and the federal government and advocate strongly for strategies that improve interstate safety but cannot commit to changes on roadways it does not control. For this reason, the goal to eliminate traffic deaths will be measured based on all other transportation facilities.



Figure 1: Five elements of Safe System Approach. Source: USDOT

Focus on Vulnerable Road Users

This Plan places an emphasis on improving safety for *vulnerable road users*. A vulnerable road user (VRU) is anyone who is not protected by being inside a vehicle – including pedestrians, cyclists, people using wheelchairs or scooters, and people walking to and from transit. Unlike drivers, vulnerable road users also represent users from all ages and walks of life, from infants in strollers to the elderly.

VRUs are especially exposed to roadway crashes. Historically, roadway design has prioritized the needs of drivers to reach their destination quickly over the safety needs of other road users. VRUs crossing busy roads are at particular risk, and those hit at higher speeds are more likely to be killed than those hit by low-speed drivers. Data from this Plan show that, while only 1.2 percent of all crashes involving vehicles resulted in a person being killed or a serious injury, 16.8 percent of all crashes involving pedestrians and 5.5 percent of crashes involving bicyclists resulted in a fatality or serious injury. In fact, between 2018 and 2022, pedestrians involved in crashes in Saint Paul walked away without injury only 12 percent of the time, compared to over 82 percent of drivers. For this reason, the Plan focuses on methods to prevent all crashes involving VRUs, rather than just fatalities.

This Plan illustrates the acute dangers faced by vulnerable road users, and it represents not only an opportunity to understand their safety challenges, but also to intentionally move project selection criteria, design, and city policy in the direction of promoting lower traffic speeds and designs that promote and improve VRU safety and visibility on Saint Paul streets.

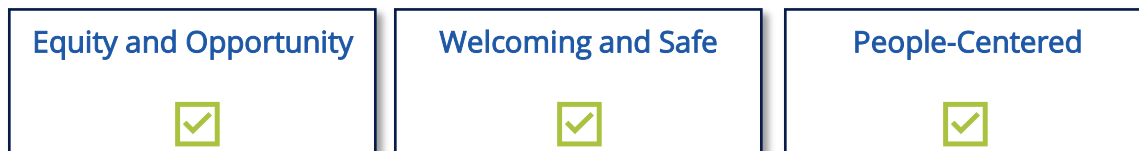


Figure 2: Pedestrians, including a person using a wheelchair, crossing a street in Downtown Saint Paul.



How Does This Plan Relate to Other City Goals?

Transportation safety is critical to addressing equity, quality of life, economic vibrancy, and sustainability throughout the community. The Safety Action Plan is supportive of many of the city's longstanding goals developed and adopted through other planning projects and is a critical piece of the city's Community First Public Safety Initiative. In particular, the Plan is supportive of several of the core values adopted through the Saint Paul for All 2040 Comprehensive Plan:



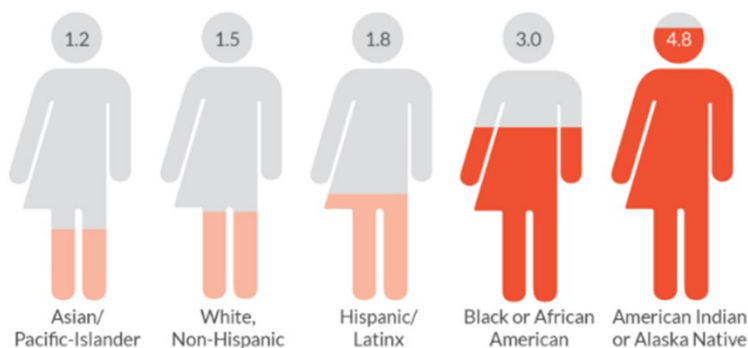
The Transportation Safety Action Plan also supports various city plans and initiatives. This Plan will advance the safety-driven goals and projects identified in the following plans:

- **Saint Paul Pedestrian Plan (2019):** “Make Walking Safe for Everyone.”
- **Saint Paul Speed Limit Evaluation (2020):**
 - “Support the City’s traffic safety goal of zero traffic deaths and severe injuries.”
 - “To improve safety and comfort for people of all abilities walking, bicycling and taking transit.”
- **Saint Paul Street Design Manual (2016):** “Ensure Safety for All Users.”
- **Saint Paul Climate Action and Resilience Plan (2019):**
 - “Increase safe and reliable access to city destinations without the use of a private automobile.”
 - “Mitigate the historical effects of discriminatory transportation decision-making and bring transportation equity to marginalized communities.”
- **Community First Public Safety:** “Designing Public Spaces for Safety.”

Prioritizing Equity

In Saint Paul and across the nation, traffic safety is an equity issue. While traffic safety affects all people, certain communities are disproportionately impacted by transportation-related injuries and fatalities. People who are Black and Indigenous are more likely to die while walking compared to people of other races and ethnicities, and people walking in low-income communities are more likely to be killed than people walking in wealthier areas.

People of color, particularly Native and Black Americans, are more likely to die while walking than any other race or ethnic group
Pedestrian deaths per 100,000 by race & ethnicity (2016-2020)



Dangerous by Design 2022 by Smart Growth America

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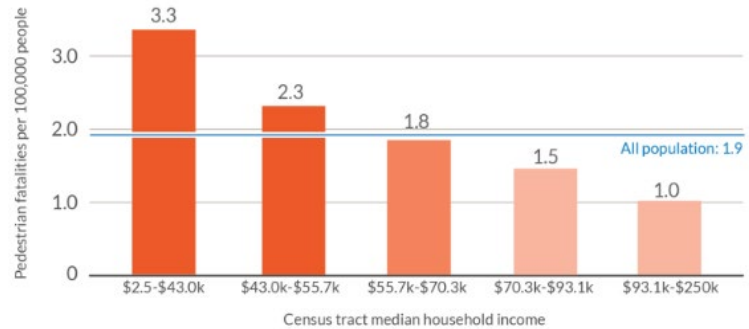


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These disparities are a result of a variety of historic and ongoing inequities, including disinvestment in walking and biking infrastructure in certain communities or transportation policies and practices that prioritize the needs of drivers over those of pedestrians and bicyclists. Addressing transportation safety as an equity issue involves ensuring that all communities have access to safe and reliable transportation options, and that transportation policies and practices prioritize the safety of all road users, regardless of their mode of transportation, race/ethnicity, or socioeconomic status.

People walking in lower-income areas are killed at far higher rates

Pedestrian fatalities per 100k people by census tract income



[Dangerous by Design 2022 by Smart Growth America](#)

The Transportation Safety Action Plan prioritizes equity in addressing traffic safety challenges by ensuring that the communities most burdened by traffic-related deaths and injuries are prioritized in the safety solutions. There are five ways equity is integrated throughout the Plan, including:

- 1**
Identify and apply existing City of Saint Paul equity frameworks, goals, and metrics to the planning process
- 2**
Use crash data and demographic mapping to understand crash trends and identify communities that are overburdened by traffic safety concerns
- 3**
Focus public and stakeholder engagement efforts in these communities, and use feedback to develop community-driven solutions
- 4**
Use feedback from engagement and data from the equity analysis to inform criteria used in the project prioritization
- 5**
Recommend and integrate strategies to advance equity and safety in the implementation plan

This Plan supports other City of Saint Paul equity goals, including:

- **2040 Comprehensive Plan (2019):**
 - "Prioritize safety and equity benefits in transportation project selection."
 - "Prioritize equitable public investments relative to areas of concentrated poverty."
 - "Improve the stability and health of communities of concentrated disadvantage by implementing place-based investments, such as public infrastructure, improvements and maintenance."
- **Racial Equity Metrics (2021):** "We work toward the vision of being a city where race does not predetermine opportunities in education, employment, housing, health, and safety."

- **Saint Paul's Racial Equity Toolkit (2023):**
 - "Racial equity in services, policies: No person or group will be disadvantaged in city services or through our policies because of their race."
 - "Racial equity in community engagement: We listen to and value all voices in our community."

Crash Trends

The citywide Crash Analysis is central to the Transportation Safety Action Plan. It includes an evaluation of national and statewide crash trends, five-year crash trends in Saint Paul, an equity analysis of crashes in Saint Paul, a High Injury Network for all modes, and a High Crash Network for vulnerable roadway users.

This analysis is based on all crashes within the City of Saint Paul from January 1, 2018, through December 31, 2022. During this period, there were 23,145 crashes in Saint Paul, 31 percent of which were on limited access highways. Since limited access highways are not a focus of this plan and the city has no control over their design or management, these roadways were filtered out of the dataset for the analysis. Limited access highway crashes include all crashes that occurred on Interstate 35E, Interstate 94, U.S. Highway 52, Trunk Highway 280, and all ramps.² The remaining 16,070 crashes that occurred on surface streets within the City of Saint Paul (including county- and state-owned roadways) are the focus of this analysis.

The crash analysis identifies significant trends over the five-year analysis period. The takeaways identified below are detailed in the full Crash Analysis document, available in the appendix.

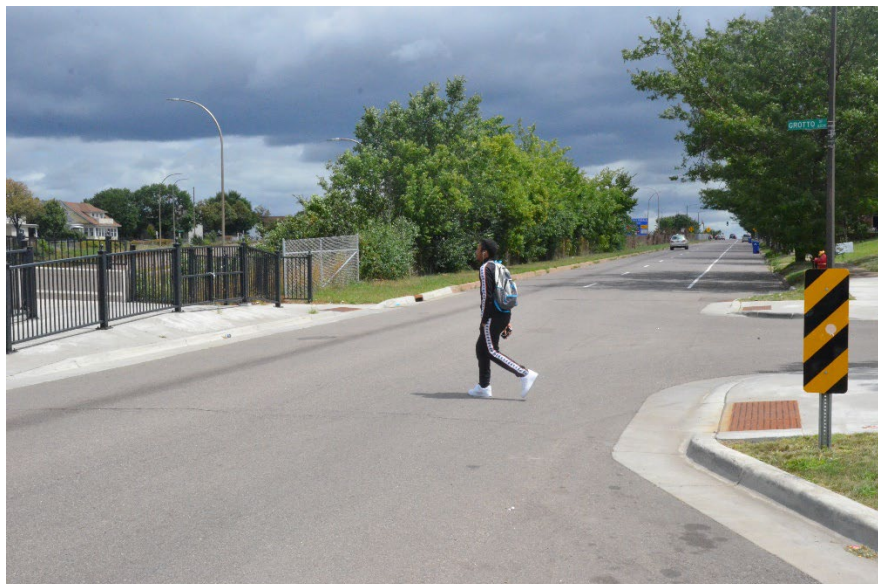


Figure 3: Pedestrian crossing an unmarked crosswalk in the Summit-University neighborhood.

² Crashes that occurred at the intersections of Saint Paul streets and freeway on- and off-ramps are included in the analysis.

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Spatial Patterns of Fatal and Serious Crashes

Figure 2 shows the spatial patterns of fatal and serious injury crashes throughout the city. These crashes follow the same general pattern of all crashes, with more fatal and serious crashes on the eastern and northern sides of the city, concentrations along major streets, and throughout downtown. There are high concentrations of fatal and serious injury crashes along University Avenue, Rice Street, Maryland Avenue, East and West 7th Street, and White Bear Avenue.

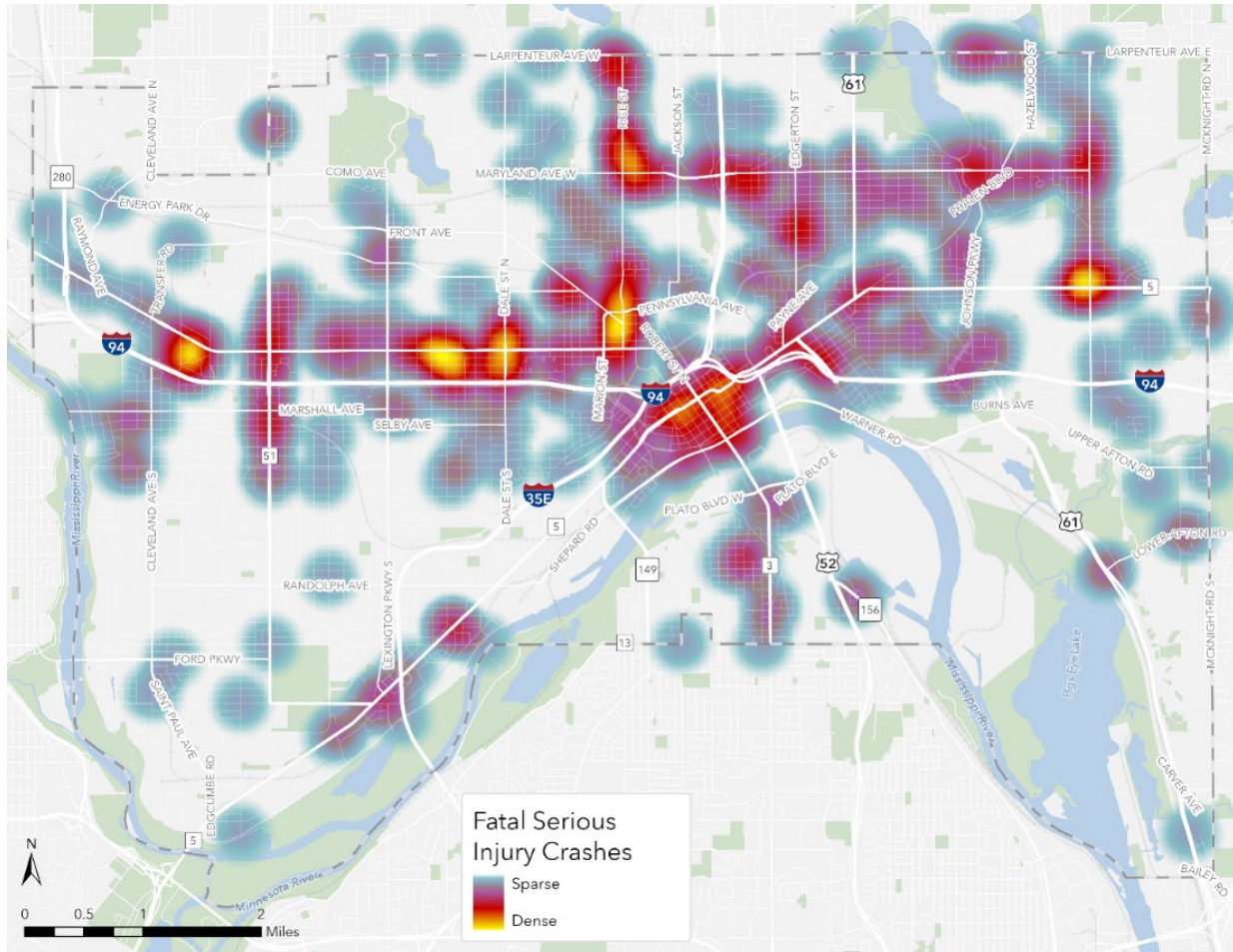


Figure 4: Fatal and Serious Injury crashes in Saint Paul, 2018-2022.



Vulnerable Road Users

Vulnerable Road Users, including pedestrians and bicyclists, are at a higher risk of being involved in more serious crashes, especially when comparing the severity of crashes involving each mode with the percentage of total trips involving that mode. **This indicates all vulnerable road users, and particularly pedestrians, are at higher risk of injury or death while using the city's transportation system, and future investments should prioritize improving safety for these users.**

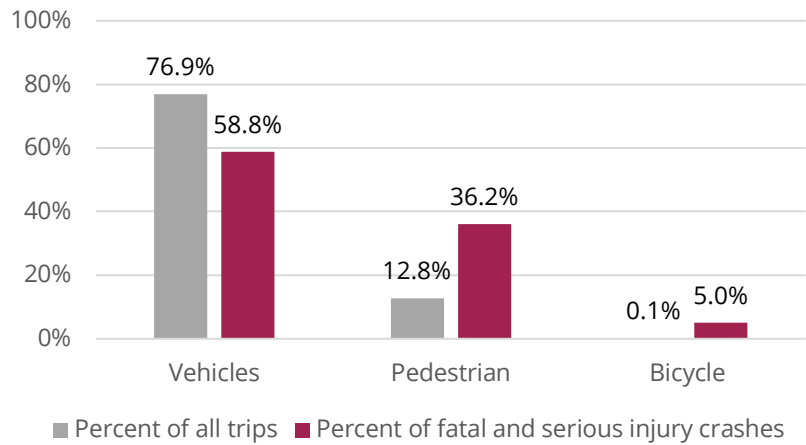


Figure 5: Crash Severity Compared to Travel Patterns, Source: MnCMAT2 and Met Council 2019 Household Travel Survey

Crashes by Roadway Ownership and Functional Class

Crashes on Ramsey County and MnDOT-owned streets are overrepresented compared to the total lane miles in each system. While only 19 percent of the city's lane miles are on the county or state system, 47 percent of all fatal and serious injury crashes occurred on those streets. **Targeting safety interventions along these roads, in partnership with Ramsey County and MnDOT, should be a priority strategy for decreasing fatal and serious injury crashes.**

Minor Arterial is a classification for roads that supplement the main highway system – they connect throughout Saint Paul and into neighboring cities. These are the roads that residents and frequent visitors to the city would recognize as “busy streets.” While Minor Arterials only account for 21 percent of all lane miles in Saint Paul, 39 percent of all crashes occurred on Minor Arterials between 2018 and 2022 and 47 percent of all fatal and serious injury crashes took place on Minor Arterials during this period (Figure 4). **Targeting safety**

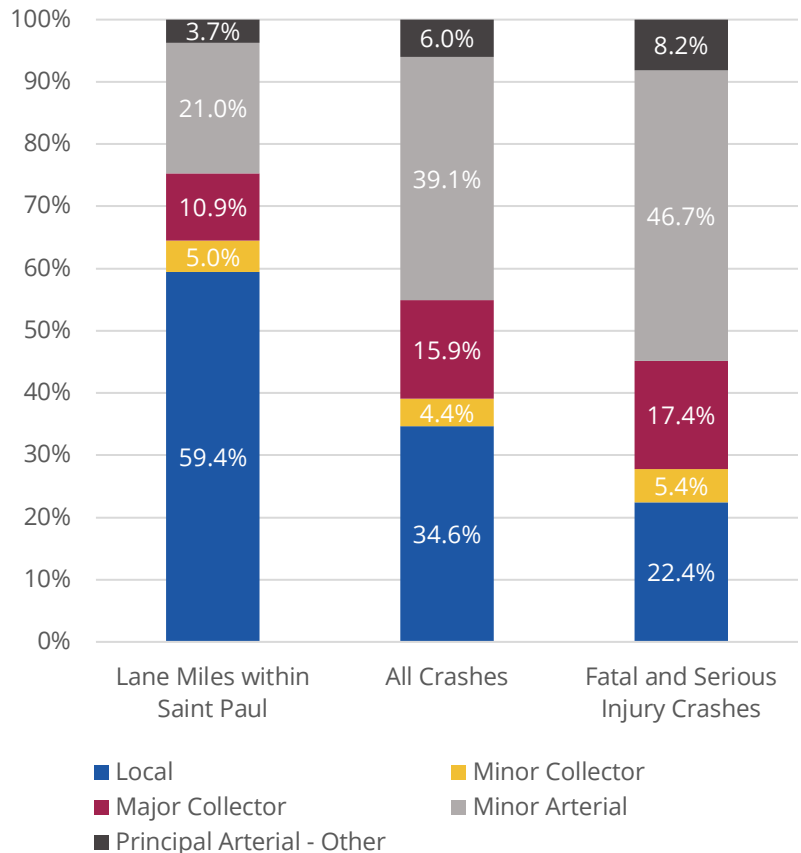


Figure 6: Crashes by Functional Classification, 2018-2022. Source: MnCMAT2 and City of Saint Paul



interventions along Minor Arterials should be a priority strategy for decreasing fatal and serious injury crashes.

Intersection Crash Trends

About 56 percent of all crashes and 67 percent of fatal and serious injury crashes occur at an intersection. Approximately half of all crashes that occurred at an intersection were at intersections with a traffic control signal (51.5 percent), with a slightly higher proportion of fatal and serious injury crashes occurring at these intersections (55.5 percent). **Targeting intersection safety improvements at signalized intersections is likely to have a high impact on crash reduction.**

Crossing Roads Dangerous for Vulnerable Road Users

A high proportion of both pedestrians and cyclists are hit when they are crossing traffic (especially at intersections with a marked crosswalk). Turning vehicle movements are much more likely to result in a pedestrian or bicycle crashes, compared with all crashes. **These trends indicate that intersection projects that improve safety for cyclists and pedestrians, especially those that reduce conflicts and speed of turning vehicles will improve safety for vulnerable road users.**

Behavioral Factors

The proportion of all crashes caused by speeding, running off the road, and reckless driving increased significantly over the past five years. Particularly, the proportion of all crashes caused by speeding increased 184 percent over the 5-year period. Crashes involving speeding, reckless or careless driving, and failure to yield are also more likely to cause serious injuries or death than other crash types. **This plan should identify design-based methods to reduce driver speeds, as well as possible behavioral strategies to reduce reckless or careless driving through partnerships with other agencies.**

Equity Analysis

Traffic safety is an equity issue. Nationally, People of Color and low-income communities bear a disproportionate burden of traffic-related injuries and fatalities. When crash data was overlaid on the project Equity Priority Areas in Saint Paul,³ as shown in Figure 5, **the Equity Priority Areas bear a disproportionate burden of traffic-related serious injuries and fatalities.** Additionally, crashes that occurred in Equity Priority Areas were more likely to be serious or fatal compared to the other parts of the city. **This analysis indicates that the population within these areas are disproportionately affected by traffic crashes, and the Plan should prioritize improvements in these areas to mitigate these disparities.**

³ "Equity Priority Areas" are census tracts in which over 50 percent of residents identified as BIPOC and/or Hispanic, based on 2019 Census data, and are a Historically Disadvantaged Community, as defined by USDOT's Equitable Transportation Community Explorer tool.

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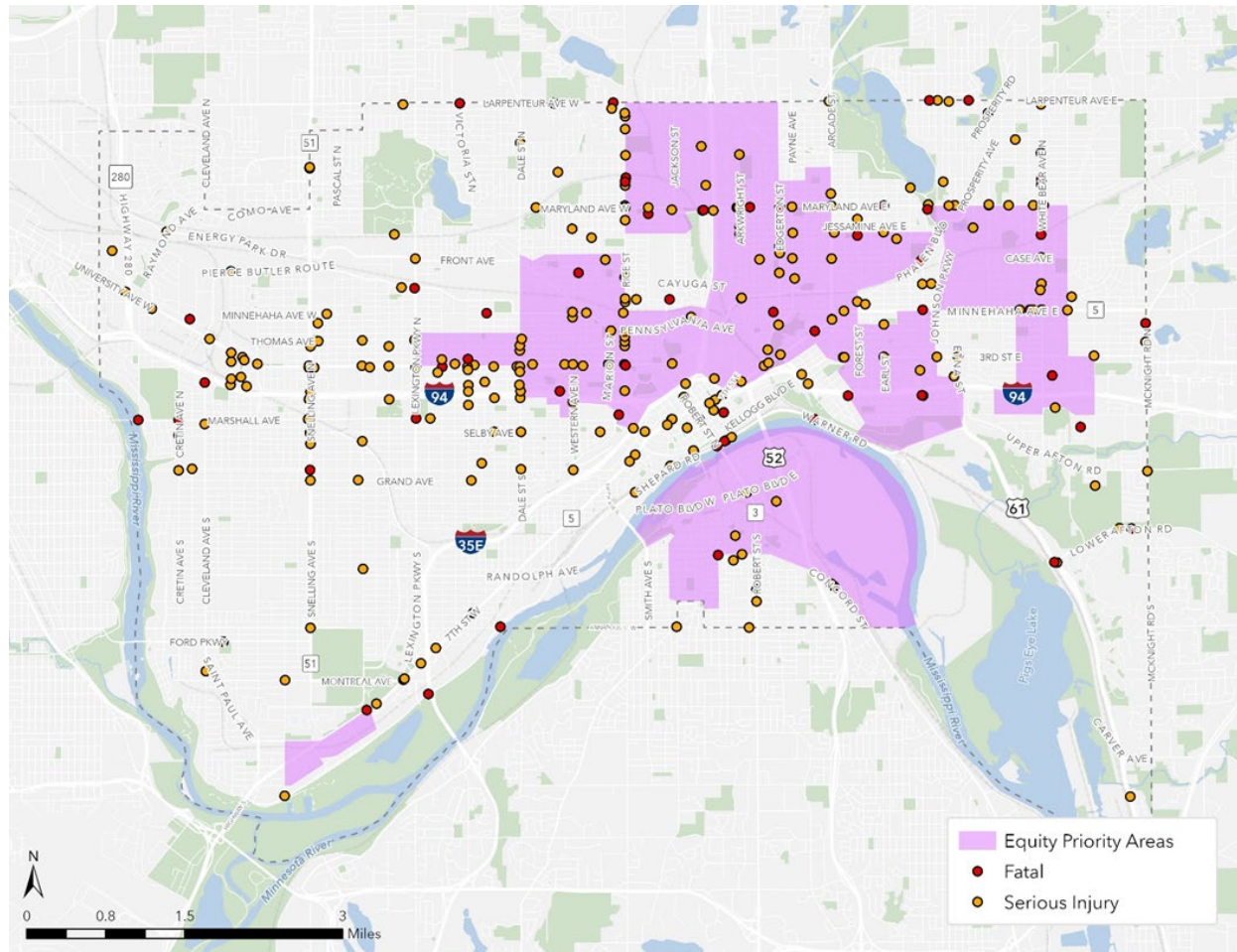


Figure 7: Fatal and Serious Injury Crashes with Equity Priority Areas

High Injury Network and High Crash Network

The High Injury Network (HIN), a series of streets where more severe crashes occur, captures about 56 percent of all fatal and injury crashes in Saint Paul between 2018 and 2022, and represents about 17 percent of the city's roadway miles. The High Vulnerable Road Users Crash Network (HCN) is a series of road segments with the highest number of bicycle and pedestrian crashes per mile, or segments with a high number of total bicycle and pedestrian crashes. **Concentrating investments along the identified streets that have both high fatality/injury rates and high rates of vulnerable road user crashes have the potential to significantly improve traffic safety.**

There is significant overlap between the HIN and HCN. **The figure on the following page highlights the HIN and the HCN within the City, including the many roadways where the two networks overlap (indicating roadways that are especially dangerous for all modes).** This includes segments of University Avenue, Rice Street, Maryland Avenue, East and West 7th Street, White Bear Avenue, and several streets in Downtown Saint Paul.

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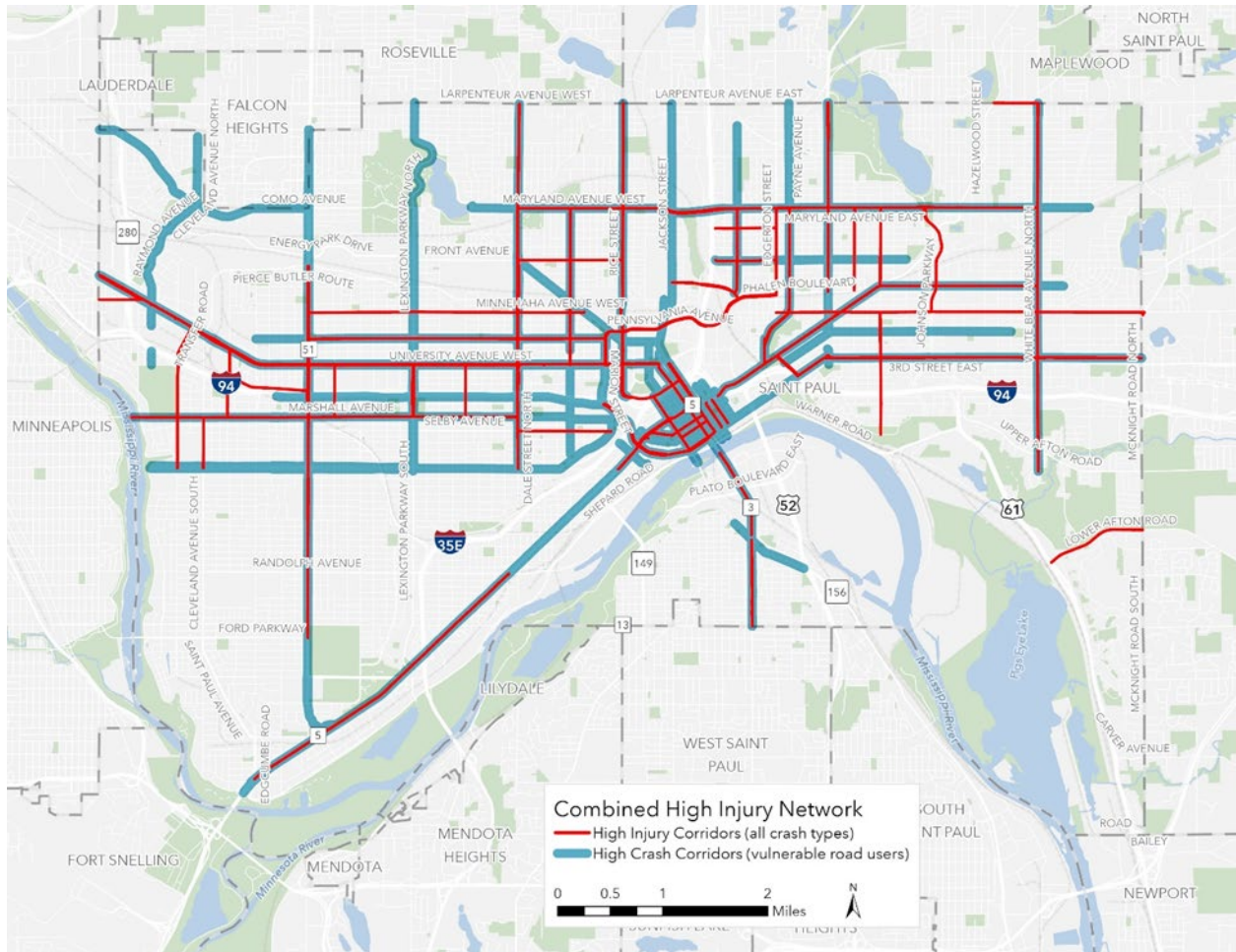


Figure 8: Combined High Injury Network and High Crash Network

Community Engagement

From February to April 2023, the city conducted community engagement to better understand transportation safety challenges that people using Saint Paul streets experience. Engagement efforts prioritized historically disadvantaged, low-income, and BIPOC communities highly impacted by vehicle, pedestrian, and bike crashes, and that have been under-engaged in recent years. These areas are referred to as “Tier 1” or “priority areas” for engagement

Previous Engagement Summary

The city compiled a previous engagement summary to understand transportation safety themes from previous engagement efforts led by the city and key partners, including MnDOT, Ramsey County, and Metro Transit. Key themes from this review include:

- Safer and improved crossings, especially for pedestrians and bicyclists
- Traffic calming to address high-speed traffic areas
- Improved sidewalks and better sidewalk connections
- Drivers speeding, running stop signs, and not yielding to pedestrians
- More and improved pedestrian lighting
- More left turn lanes on certain corridors such as Rice Street

Engagement Strategies

Engagement for this Plan included an online survey and comment map, two pop-up events, and direct outreach to organizations in the priority areas. The city used social media, email, a project webpage, emails to the Saint Paul District Councils and a presentation at their transportation committee meeting to promote the survey and comment map.

The online survey and comment map were open from March 1 to April 14, 2023. The survey received 1,238 responses which were separated into two groups for analysis: citywide data and Tier 1/priority areas. The comment map received 893 responses, 501 of which were from the Tier 1 zip codes. The focus of analysis on both the survey and map were the priority areas.

Additionally, the city hosted two pop-up engagement events in Tier 1 areas. The first was at Eastern Heights Elementary School (near the intersection of White Bear Ave and Minnehaha Ave), the second was at HmongTown Marketplace (near the intersection of Rice St, Pennsylvania Ave, and Como Ave).

Beyond these strategies, the city also conducted direct outreach to 121 businesses, apartment buildings, community centers, nonprofits, and other organizations near the Tier 1 areas and heard feedback from at least 20 of those organizations.

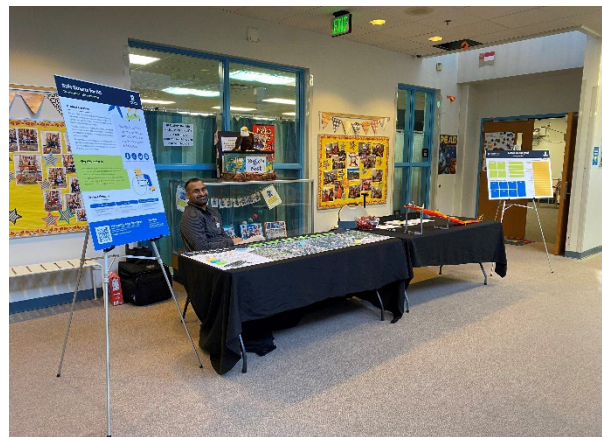


Figure 9: The engagement team at Eastern Heights Elementary



Technical Advisory Committee

In addition to public-facing engagement, the development process for the TSAP included engagement with a Technical Advisory Committee (TAC), which included a variety of stakeholders and decision-makers who are involved in implementing transportation projects in Saint Paul. The TAC met monthly throughout the plan development process and provided feedback on plan materials, insight into policy and project priorities, and helped define the overall project direction. The TAC will continue to meet regularly into the project implementation phase to finalize project prioritization and policy recommendations, as well as to facilitate communications with partner agencies.

Agencies and organizations represented on the TAC include:

- Saint Paul Transportation Planning
- Saint Paul Traffic Engineering
- Saint Paul Street Engineering and Construction
- Saint Paul Public Works Operations and Maintenance
- Saint Paul Public Works Communications
- Saint Paul Planning and Economic Development
- Saint Paul Parks Department
- Saint Paul Public Schools
- Saint Paul Police Department
- Saint Paul Fire Department
- Saint Paul Office of Neighborhood Safety
- Ramsey County
- Minnesota Department of Transportation
- Metropolitan Council
- Metro Transit
- University of Minnesota Human First Lab

What We Heard

Based on these strategies, the city learned about key transportation safety concerns and ideas for improvement. The takeaways identified below are expanded upon in more detail in the Engagement Summary, available in the appendix.

Driver behavior stood out as a primary safety concern for people using all forms of transportation. Speeding and reckless driving concerns were mentioned in nearly every engagement interaction. Engagement participants also noted drivers failing to yield and drivers running red lights and stop signs as a safety concern.

Safer pedestrian crossings were mentioned repeatedly both citywide and in the priority areas. This ties in with driver behavior, as the project team often heard reports of drivers not stopping at designated crosswalks.

Bicycle infrastructure came up repeatedly, primarily through the survey and comment map. Engagement participants would like to see more bike lanes, protected bike lanes, and better maintenance of existing bike infrastructure.



While there were dozens of problem locations shared by respondents across the city, **Snelling Avenue, University Avenue, White Bear Avenue, Rice Street, and Pennsylvania Avenue** came up repeatedly throughout engagement as dangerous roads in Tier 1 areas. Engagement participants noted concerns such as speeding, busy roads, cars not yielding to pedestrians, lack of safe bicycle and pedestrian infrastructure, wheelchair and mobility device user difficulties, and difficulty crossing. Poor road conditions, especially potholes, also came up frequently in engagement. This was likely top of mind for people as the engagement period took place in late winter.

Plan, Policy, and Best Practice Review

In addition to physical projects that address safety and improve on-the-ground infrastructure, policies are important for improving safety because they shift the way that the city does business and prioritize projects. Improving road safety while maintaining the status quo is difficult. Changing road safety policies that address topics such as speed, street design, project selection and evaluation is important to get closer to reaching zero road deaths and serious injuries.

A thorough plan and policy review was conducted of existing Saint Paul documents to identify policies and strategies that have previously been identified as needs or opportunities to improve traffic safety in the city and assess the existing policies that impact traffic safety. This was coupled with a review of Vision Zero and safety action plans and practices from peer jurisdictions through plan reviews and stakeholder interviews. Interviews were conducted with leadership within those jurisdictions to learn from their successes and challenges in implementing Vision Zero. In addition to the peer jurisdiction review, a high-level review of international approaches to Vision Zero and safety was also completed. Findings from these reviews were used as a lens to assess Saint Paul's existing policies and identify opportunities that will help the city design, build, and maintain safe streets for everyone on a routine basis.

Review of Existing Policy Documents

Various Saint Paul plans were reviewed for policy content including, including the Saint Paul Policy and Procedure Manual (2019), the Complete Streets Action Plan (2016), Saint Paul Street Design Manual (2016), the City of Saint Paul Roadway Safety Plan (2016), the Saint Paul Bicycle Plan (2017), the Saint Paul Pedestrian Plan (2019), the Saint Paul for All: 2040 Comprehensive Plan (2020), the Ramsey County Comprehensive Plan (2019), the Minnesota Strategic Highway Safety Plan (2020), and the Minnesota Highway Safety Plan (2022).

Several plans, including the 2040 Comprehensive Plan, the Complete Streets Action Plan, and the Saint Paul Climate Action & Resilience Plan include broad strategies related to safety, generally recommending the implementation of existing bicycle and pedestrian plans, as well as the adoption and implementation of Vision Zero, which the city has initiated through the development of this plan and its June 2023 Vision Zero commitment from City Council. Several safety-related themes were prominent throughout many of the planning documents, including:

- **Street design:** Plans such as the 2040 Comprehensive Plan, the Complete Streets Action Plan, the Saint Paul Climate Action & Resilience Plan, and the Saint Paul Bicycle Plan highlight strategies related to bikeway design, pedestrian crossings, and sidewalks to create better multimodal networks.



- **Funding and implementation:** Several plans called out the need for increased and consistent funding for safety improvements and expansions of the bicycle and pedestrian networks. Some plans included strategies on how funding could be allocated to improve safety, as well as potential resources for additional funding to reduce crashes. Recommendations were also found throughout the documents to streamline implementation and incorporate private development as opportunities to implement projects.
- **Project prioritization:** Several plans provide guidance about elevating safety in the project prioritization process, noting that limited resources are always a factor and prioritization is necessary.
- **Agency coordination and project development:** Through several prior plans, Saint Paul has emphasized the importance of coordination across a range of partners, linking Public Works Department with staff in the Police Department, Public Schools, and other local agencies, as well as corresponding county, regional, and state agencies in advancing its safety goals. Strategies on how coordination could be increased and improved through the project development process were included.
- **Engagement and education:** Some past plans included specific recommendations on ways to engage the public on traffic safety issues, in addition to a theme of needing to raise awareness among the public about traffic safety initiatives and issues.
- **Evaluation:** Strategies focused on collecting and evaluating data to ensure that safety efforts are having the desired impact on the local community.
- **Vehicle Speed:** While many recommendations across the above categories influence speed, it is worth noting speed as a separate category. Speeds both influences the likelihood of crashes, as well as crash severity. Recent plans, such as the 2040 Comprehensive Plan and Saint Paul Pedestrian Plan identify strategies for reducing speeds in Saint Paul. The city recently implemented a citywide speed limit reduction on city-owned streets, establishing a speed limit of 20 mph (20 mph for local residential streets and 25 mph for larger, arterial and collector roads), as one measure to deal with excessive speeding.
- **Enforcement:** Enforcement was noted in several plans as a way to raise awareness of critical traffic safety issues, such as specific behaviors like red light running.

Peer City and Best Practice Review

Staff from peer jurisdictions that have developed and started to implement Vision Zero and safety action plans were interviewed to learn from their successes and challenges. Peer jurisdictions included Ann Arbor, MI; Denver, CO; Jersey City, NJ; and Madison, WI. A high-level review of international practices supplemented the peer jurisdiction review. Key takeaways from the peer city and best practice review highlighted the importance of:

- Project prioritization that puts safety at the forefront above other metrics and incorporates equity into the process. (Ann Arbor, Denver, International)
- Project development processes that incorporate safety in all projects early in the process and systematize interventions. (Ann Arbor, Denver, Jersey City, International)
- Aligning funding streams with the city's goals on safety and equity. (Denver, Madison)
- Streamlining construction contracts to facilitate implementation. (Jersey City)



- Design and operations policies that standardize the design and implementation criteria of safety countermeasures, with safety prioritized over other metrics, such as traffic delay. (Ann Arbor, Denver)
- Importance of high-quality data, including crash data and project metrics, in identifying the right solutions. (Denver)
- Consistent and continual public engagement to keep Vision Zero and specific messages on traffic safety in the spotlight. (Ann Arbor, Jersey City, Madison)
- Strong leadership from the highest level of government on Vision Zero and safety issues. (Jersey City, International)
- Emphasis on speed management and a safe systems approach. (International)

The lessons learned from peer cities, as well as national best practice guidance, can be used to inform how Saint Paul moves forward in implementing this plan.

Key Policy Opportunities

Based on this review, Saint Paul has several key opportunities to institutionalize practices and policies that will lead to better safety outcomes within the transportation system, including:

1. Review existing design policies, assessing whether safety is prioritized within the guidance. Saint Paul's Street Design Manual as well as federal best practices should be used to inform policy adjustments.
2. Review existing practices that are not documented in a policy to determine whether the existing practices align with safety priorities; document the appropriate practice, either in its existing form or incorporating changes where necessary.
3. Revise the Capital Improvement Program process to incorporate safety as a prominent criterion in project selection.
4. Review the project development process and evaluate if the relevant city departments and agencies have input at the appropriate point of the process.
5. Develop standards and/or guidelines for traffic safety measures to be incorporated into project development processes.
6. Evaluate existing funding streams and levels in comparison to desired capital improvement targets.

As Saint Paul implements its Safety Action Plan, the city has the opportunity to build upon safety strategies listed in the existing plans outlined in this review, as well as precedents from other cities and national and international guidance to create a safer, more comfortable, and more multimodal city.

Project Identification and Prioritization

Potential Project Identification

In addition to developing the HIN and HCN, the Crash Analysis also identified the top high-crash roadway segments and intersections throughout the city, based on a combination of three factors: total crash rate, total number of crashes, total crash cost (based on standard crash values provided by MnDOT).



The Top 10 roadway segments and intersections (shown below) should be considered as priority locations for review and potential project development and implementation. The prioritization framework described below will be utilized to further determine implementation priority based on funding availability.

Table 1: Top 10 High Crash Road Segments

Overall Rank	Segment	Segment Crash Rate (crashes/MVM)	Total Number of Crashes	Total Crash Cost
1	Edgerton St from Maryland Ave to Case Ave	25.91	107	\$20,453,000
2	Saint Anthony Ave from Lexington Pkwy to Dale St	29.27	150	\$9,143,000
3	Rice St from Pennsylvania Ave to University Ave	15.82	132	\$24,466,000
4	Forest St from Maryland Ave to Case Ave	23.10	63	\$17,298,000
5	Saint Anthony Ave from Dale St to Western Ave	23.49	57	\$16,251,000
6	Concordia Ave from Lexington Pkwy to Dale St	17.57	111	\$7,126,000
7	Dale St from University Ave to Concordia Ave	15.04	160	\$10,949,000
8	Saint Anthony Ave from Snelling Ave to Hamline Ave	16.59	114	\$6,871,000
9	Concordia Ave from Hamline Ave to Lexington Pkwy	19.51	86	\$4,985,000
10	Minnehaha Ave from Earl St to Johnson Pkwy	13.09	81	\$17,553,000

Table 2: Top 10 High Crash Intersections

Overall Ranking	Intersection	Intersection Crash Rate (crashes/MEV)	Total Number of Crashes	Total Crash Cost
1	Snelling Ave and Saint Anthony Ave	1.80	66	\$4,300,000
2	Maryland Ave and Edgerton St	1.19	35	\$14,907,000
3	Dale St and University Ave	1.05	64	\$4,271,000
4	Rice St and Maryland Ave	1.03	54	\$3,383,000
5	Case Ave and White Bear Ave	1.65	33	\$2,349,000
6	Mounds Blvd and Kellogg Blvd	0.97	47	\$5,958,000
7	Arcade St and Maryland Ave	0.91	52	\$3,898,000
8	Saint Anthony Ave and Dale St	2.98	30	\$1,989,000



Overall Ranking	Intersection	Intersection Crash Rate (crashes/MEV)	Total Number of Crashes	Total Crash Cost
9	7th St and White Bear Ave	1.26	31	\$2,326,000
10	Rice St and Pennsylvania Ave	0.89	48	\$3,064,000

In addition to the highest crash locations, a number of corridors have been identified where the HIN and HCN overlap with the Equity Priority Areas (this list includes many corridors included on the top crash locations above). These locations should be considered as priority locations for review and potential project development and implementation. The prioritization framework described below will be utilized to further determine implementation priority based on funding availability. These areas are shown in Figure 8, and include:

- 3rd Street E from TH61 to east city limit
- 6th Street E from TH61 to Kennard St
- 7th Street E from Wall St to White Bear Ave
- Arcade Street from Phalen Blvd to Larpenteur Ave
- Arkwright Street from Cayuga St to end
- Case Ave from Mississippi St to Duluth Street
- Cayuga Street from Jackson St to Phalen Blvd
- Cedar Street from Como Ave to Kellogg Blvd
- Cesar Chavez Street from Humboldt Ave to State St
- Como Ave from Dale Street to Rice Street
- Concordia Ave from Snelling Ave to Marion Street
- Dale Street from Summit Ave to Larpenteur Ave
- Earl Street from Phalen Blvd to Maryland Ave
- Earl Street from Minnehaha Ave E to Mounds Blvd
- Edgerton Street from Pennsylvania Ave to Maryland Ave
- Forest Street from Phalen Blvd to Maryland Ave
- Front Ave from Dale Street to Rice Street
- Jackson Street from University Ave to Kellogg Blvd
- Jackson Street from University Ave to Larpenteur Ave
- Johnson Parkway from Maryland Ave to Minnehaha Ave E
- Marion Street from I-94 to Rice Street
- Maryland Ave from Dale Street to White Bear Ave
- Minnehaha Ave E from Payne Ave to East City limit
- Pennsylvania Ave/Phalen Blvd from Rice Street to Edgerton Street
- Robert Street S from Mississippi River to Annapolis St
- Thomas Ave from Fairview Ave to Marion Street
- University Avenue from West City limit to Jackson Street
- Western Ave from Summit Ave to Maryland Ave

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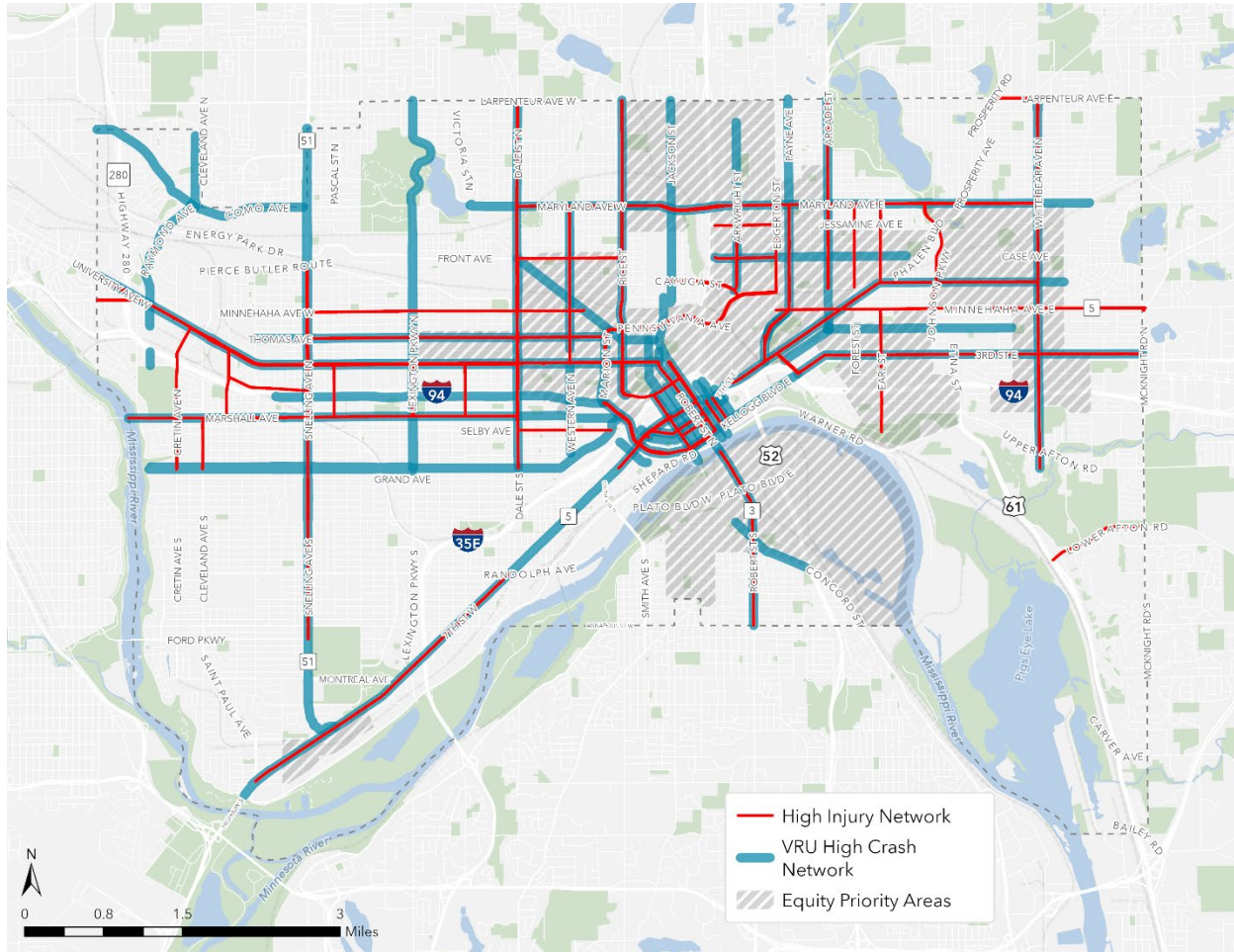


Figure 10: HIN and HCN with Equity Priority Areas

Prioritization Framework

This Project Prioritization framework establishes a methodology for how project locations identified through the Plan are prioritized for future funding and implementation. Separately from this plan, the city's Public Works Department is undertaking an exercise to modernize its capital planning process by developing a data-driven prioritization process. This framework is intended to inform that citywide process, by developing a methodology to identify high-priority safety projects. Top priority locations identified through this plan should be incorporated into the capital planning process as either a near-term priority for investment or should be targeted for a more in-depth review to ensure future investments are improving safety. The overall citywide capital planning process should also incorporate safety related criteria prominently into its project selection methodology to ensure that positive safety outcomes become a regular part of the capital planning process.

This framework is data driven, reflecting the federal priority placed on data-driven planning. Having a data-driven prioritization framework will support efforts to secure federal funding for roadway safety projects, including funding through the Safe Streets and Roads for All discretionary funding program. However, the process utilizes other community data in addition to safety to reflect the understanding



that safety investments also have impacts on other city priorities, such as quality of life, sustainability, and equity. High scoring project locations should be considered high priority candidates to move into funding and implementation by advancing into the project development process.

Following the technical prioritization, other factors should be reviewed and considered in the project development process, including the presence of known sidewalk gaps, planned bikeways from the City's latest Bicycle Plan, and the presence of planned or funded capital improvement projects that may impact the location. These considerations may impact whether a project moves forward into project development or may impact the ultimate scope of the final project.

Table 3 summarizes the prioritization factors and how they should be applied based on the framework established in this Plan. The scoring framework shown is an example of how the scoring will be applied, and the exact scoring and weighting technique will be finalized as the city implements this Plan.

Table 3: Prioritization Factors

Factor	Application
Crash Risk Prioritization Factors	
High Injury Network	Segment or intersection is on the High Injury Network
High Crash Network for Vulnerable Road Users	Segment or intersection is on the High Crash Network
High Crash Location	Segment or intersection is on the Top 20 segment or intersection crash list
Critical Crash Index	Critical Crash Index for the proposed location (intersection or segment) calculated with MnDOT's tool.
Community Prioritization Factors	
Equity Priority Area	Segment or intersection is within an Equity Priority Area
Proximity to Activity Generators	Segment or intersection is directly adjacent to at least one activity generator.
High Speed Corridors	Corridors with a prevailing speed higher than the posted speed limit
High Volume Corridors	Corridors with an average traffic volume above a certain threshold



Crash Mitigation Strategies

The City of Saint Paul has identified proven strategies to create safer streets and to promote safe driving, walking, and bicycling outcomes and behaviors. The crash mitigation strategies identified by the city are informed by the high-risk behaviors and locations identified in the Crash Analysis and Evaluation. Data-driven and proven strategies that address these high-risk behaviors and locations were then identified, and a set of prioritization criteria for the strategies was developed. As the city implements this Plan, these criteria can be used to organize a toolbox of strategies that identify when and where each strategy should be implemented. The findings from each step of this process are summarized in the following sections.

Target High-Risk Behaviors & Locations

High-Risk Behaviors

The Crash Analysis and Evaluation identified speeding and reckless / careless driving as among the top high-risk behaviors. Targeted safety improvements focused on speed management and reducing reckless / careless driving are likely to have a high impact on crash reduction.

Speeding

Speeding was cited as a primary cause of 2 percent of all crashes and 6 percent of all fatal and serious injury crashes between 2018 and 2022. However, it is important to note that speeding is likely a contributing factor in many more crashes in Saint Paul, as over 50 percent of all crashes do not have a contributing factor listed in the MnCMAT2 database.

Reckless / Careless Driving

Reckless / careless driving is a high-risk behavior identified through the crash analysis. Reckless / careless driving was cited as the primary cause of 12 percent of all crashes and 17 percent of fatal and serious injury crashes.

High-Risk Locations

The Crash Analysis and Evaluation identified minor arterials and collectors, signalized intersections, and intersection crossings for pedestrians and bicyclists as among the top high-risk locations. Targeted safety improvements to reduce conflicts at these locations are likely to have a high impact on crash reduction.

Minor Arterials and Collectors

Minor Arterial roadways are generally higher volume roadways with a greater mix of land uses. While Minor Arterials only account for 21 percent of all lane miles in Saint Paul, 39 percent of all crashes and 47 percent of all fatal and serious injury crashes occurred along them. Nationally, 60 percent of pedestrian fatalities took place on arterial roadways.

Signalized Intersections

The crash analysis identified that signalized intersections should be a priority target of future safety improvements. Over half of all fatal and serious injury crashes occurred at signalized intersections. This is consistent with the fact that traffic signals are typically located on roads with higher traffic volumes.



Intersection Crossings for Pedestrians and Bicyclists

Vulnerable Road Users, including pedestrians and bicyclists, are at a higher risk of being involved in more serious crashes, especially when comparing the severity of crashes involving each mode with the percentage of total trips involving that mode. A high proportion of both pedestrians and cyclists are hit when crossing traffic (especially at intersections with a marked crosswalk).

Data-Driven and Proven Strategies

The city identified data-driven and proven strategies to address these two high-risk behaviors and three high-risk locations identified through the crash analysis. These strategies are guided by federal, state, city, and industry best practices to eliminate fatalities and serious injuries.

Saint Paul already integrates FHWA Proven Safety Countermeasures into its capital projects. The city's guidelines for uncontrolled crossings are based on the FHWA STEP Guide for Improving Pedestrian Safety at Uncontrolled Intersections. Additionally, the city's 2018 Street Design Manual defines design guidance for many of the proven strategies identified in the state and federal proven countermeasure sources.

Proven Countermeasure Sources

- Federal Highway Administration (FHWA) Proven Safety Countermeasures
- FHWA STEP Guide for Improving Pedestrian Safety at Uncontrolled Intersections
- Crash Modification Factor Clearinghouse
- MnDOT Best Practices for Bicycle/Pedestrian Safety
- National Highway Traffic Safety Administration

Strategy Overview

Table 2 lists the data-driven and proven strategies to address the target high-risk behaviors and locations. Strategies are organized into categories that primarily reflect the location where the strategy should be targeted for implementation (e.g., roadway vs. intersection strategies). Each strategy addresses at least one of the target high-risk behaviors and locations. These strategies are highly context-sensitive and factors such as physical constraints, operating conditions, and implementation and maintenance costs impact where each strategy could or should be implemented. As an action item of this plan, the city should review, update, or develop policies to guide the implementation of these strategies that will provide the best overall safety impact in an equitable and sustainable fashion given the wide range of variables that must be considered for each type of treatment.

Many of these strategies are already widely used in Saint Paul and are described in existing city plans, like the Saint Paul Pedestrian Plan and the Saint Paul Street Design Manual.

Table 4: Data-Driven and Proven Strategies to Address High-Risk Behaviors and Locations

	Speed Management	Reduce Reckless / careless driving	Minor Arterials	Signalized intersections	Pedestrian / bike safety crossing intersections
Roadway					
Road diets / lane width reduction	X	X	X	X	X

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	Speed Management	Reduce Reckless / careless driving	Minor Arterials	Signalized intersections	Pedestrian / bike safety crossing intersections
Raised medians	X	X	X		X
Speed humps, tables, and cushions	X	X	X		
Protected bike lanes - Raised	X	X	X		
Access management			X		
Protected bike lanes	X	X	X		
Speed feedback signs	X	X	X		
School speed zone	X		X		X
Standard and buffered bike lanes	X				
Landscaping / plantings	X				
Intersection (General)					
Roundabout				X	X
Protected intersections				X	X
Daylighting intersections				X	X
Dedicated left turn lanes			X	X	
Slip lane redesign / removal				X	X
Corner radius reduction	X	X	X	X	X
Hardened centerline and slow turn wedges				X	X
High visibility crosswalks				X	X
Bike boxes				X	X
Bike crossings				X	X
Roadway lighting			X	X	X
Pedestrian lighting			X	X	X
Curb extension	X	X	X	X	X
Median island			X	X	X
Signalized Intersection					
Leading pedestrian interval (LPI) and Leading Bicycle Interval (LBI)			X	X	X
Permissive / Protected signal phasing			X	X	X
No turn on red			X	X	X
Uncontrolled Crossing					



	Speed Management	Reduce Reckless / careless driving	Minor Arterials	Signalized intersections	Pedestrian / bike safety crossing intersections
Rectangular Rapid Flash Beacons			X		X
Raised crosswalks and raised intersections			X	X	X
In-street stop for pedestrian sign			X		X
Advanced stop bar			X	X	X
Unsignalized Intersection					
Neighborhood traffic circle	X	X			
Enforcement					
Speed safety cameras	X	X	X		
Red light cameras		X		X	
High-visibility enforcement		X			
Parking enforcement				X	X

Implementation

Tracking and Measurement

Regular data collection, evaluation, and reporting are essential for accountability as the city implements the Transportation Safety Action Plan. The city will issue annual updates on the progress toward the overall goal of eliminating all traffic deaths and serious injuries and track key metrics and safety improvements since the initial implementation of this plan, as included in the City Council's June 2023 resolution. The Public Works Department will be primarily responsible for tracking progress on the Transportation Safety Action Plan.

Tracking will include a brief annual report evaluating the number of fatalities, injuries and crashes, as well as an update on capital improvements, policies, and projects that are contributing to improving traffic safety overall.

Additional metrics may be identified as the Plan moves through implementation, subject to identifying a reliable data source, measurement process, and staff resources.

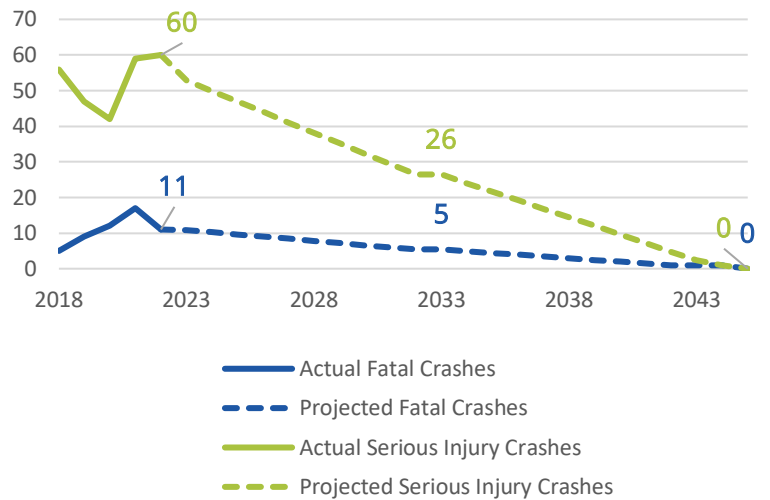


Figure 11: Projected trend of fatal and serious injury crashes from 2023 to 2045, as committed in Saint Paul's June 2023 Vision Zero Resolution.



Table 5: Annual performance metrics

Metric
Change in total number of traffic fatalities, serious injuries, and minor injuries
Change in crashes involving pedestrians and bicyclists
Number of capital improvements on the HIN and HCN
Annual mileage of new pedestrian and bicycle infrastructure
Non-capital improvements (policies, projects, or processes) completed annually that contribute to improving traffic safety

Funding and Operations Needs

Two major funding needs are required to implement the projects, policies and strategies identified in this plan: capital funding, and ongoing operations and maintenance resources. Capital funding, as with all transportation projects in the city, will be identified through a combination of federal, state and local or regional sources.

Operations and maintenance resources (including staffing) are a major ongoing challenge for the City and will be an impediment to achieving the overall safety goal. The city's operations funding and staffing levels are currently inadequate to maintain the existing transportation network in an acceptable state of good repair and recommended additional projects and transportation facilities will only increase the gap. The City is aware of these current funding and resource challenges and is actively working to identify ways to overcome them. As part of the implementation of this plan, the City should develop and support an overall funding strategy that delivers ways to sustainably increase operations and maintenance funding and dedicate the resources required to make meaningful progress.

Timing

As there is no dedicated funding stream for the projects identified in this plan, it is difficult to attach a timeline to their implementation. However, the prioritized list of projects should be reviewed regularly to identify upcoming opportunities for implementation. For example, pavement rehabilitation projects should be reviewed to determine whether they overlap priority safety need areas, and if so, the city should continue its existing practice of identifying work to augment the project scope to include additional safety improvements. The city should also regularly review the list of priority projects against discretionary grant opportunities on a rolling basis to seek additional funding to advance the implementation timeline.

As noted in the policy recommendations, revamping the CIP prioritization process to include safety as a major criterion will have the benefit of advancing priority safety projects that can be implemented within the city's existing budget.



It is not expected that all projects and locations identified within this document will be implemented within the 2045 horizon of the goal, but the city should continue to identify opportunities to incrementally advance priority projects.

Equitable Implementation

Equity must be integrated into the Plan's implementation to ensure that the safety needs and concerns of all community members are centered in decision-making, particularly roadway users and communities that data shows are most vulnerable to transportation safety issues. Some areas to be particularly attentive to integrate equity in the plan's implementation:

- **Project prioritization:** Include equity in the project prioritization framework by using the equity priority areas as a criterion to rank or score the projects. The crash data equity analysis found that Saint Paul neighborhoods that are low income and predominantly Black, Indigenous, and People of Color (BIPOC) residents are disproportionately impacted by serious injury and fatal car crashes. Using the equity priority areas in the project prioritization will help target safety resources and interventions in neighborhoods most likely to be affected by transportation safety issues.
- **Data collection and monitoring:** Integrate equity into crash data collection and monitoring procedures to identify disparities in the distribution of crashes and their impacts on different communities over time.
- **Community engagement:** Identify opportunities for communities to inform decision-making as transportation safety actions are implemented. The process-oriented actions may have more opportunities for community engagement to influence decisions than the more technical design-oriented actions.
- **Community partnerships:** As the opportunity arises, foster relationships and partnerships with community organizations that serve people in equity priority areas. Community organizations often have deep-rooted connections and trust within the communities they serve. By collaborating with these organizations, Saint Paul can learn from their knowledge, expertise, and understanding of local needs and dynamics. These organizations may also be able to reach people and communities that are distrustful of government and have been historically excluded from government decision-making. Building positive and trusting relationships with community organizations will help enhance the reach and effectiveness of the Plan.
- **Documentation:** Continue to document how equity is integrated into Saint Paul's transportation safety actions and projects. Documenting the equity considerations, strategies, and actions taken during the project supports transparency and accountability by providing a record of the steps taken, creating a reference point for future projects, and providing an opportunity for evaluation and learning. Documenting strategies now will help future project teams assess the effectiveness of equity measures and learn from best practices and lessons learned to improve future transportation projects and refine strategies for achieving equitable outcomes. Saint Paul's [Racial Equity Toolkit](#) provides a framework to document how equity is integrated into a policy, process, or project.



Future Studies

To provide additional guidance on specific priority areas identified in this plan, Saint Paul should conduct the following further studies to build upon this plan:

- **Downtown Crash Study:** Downtown Saint Paul is a crash hot spot for all modes, likely due to high traffic volumes as well as high pedestrian and cyclist traffic. A future analysis of downtown crash trends would be necessary to identify a specific set of improvements aimed at improving safety in the downtown area.
- **Comprehensive Review of Minor Arterials and Collector Roadways:** These roadways account for approximately 70 percent of all fatal and serious injury crashes in the city. However, this analysis did not review these roadways individually to identify the specific factors leading to high crash rates. A comprehensive review of these roadways, including city, county- and state-owned streets, would be necessary to identify the factors leading to the high injury rates, as well as identify potential future improvements.
- **Comprehensive Review of High Crash Intersections:** Similarly, while this analysis identified the top high crash intersections within in Saint Paul, it did not review the intersections in detail to identify the specific risk factors or mitigating improvements. A future review of high-crash intersections would more specifically provide improvement recommendations at those locations.
- **Future Crash Equity Analysis:** This Plan's analysis included a racial equity focused crash analysis. The city should share the findings of this analysis with community members, leaders, and partners to discuss and interpret it. These conversations could provide valuable context and future directions for equity work (for example, engaging community members and others to understand whether the Equity Priority Areas are the appropriate geographic units). Areas for future crash equity analysis could include the following:
 - o Undertaking additional demographic analysis using crash data from the Saint Paul Police Department or more recent FARS data as it becomes available.
 - o Undertaking additional geographic analysis with statistical analysis to control for population density and other factors, and to understand the degree to which fatal and serious injury crashes are concentrated in Equity Priority Areas.
 - o Examining traffic safety benefits as well as burdens. Transportation equity considers the fair distribution of both burdens and benefits. This analysis examined transportation safety burdens in terms of serious injuries and deaths; future analyses could explore the distribution of benefits and the role of the City of Saint Paul and other public agencies in them. For example, the city could do a look-back to see where transportation safety improvements have been made, and how many were within the Equity Priority Areas. This could inform future project criteria and prioritization.

Action Plan

Saint Paul will take the following actions to implement the recommendations made in this Transportation Safety Action Plan. These policy and process improvements will facilitate implementation of the Plan and advance the city's goal to eliminate all road deaths and serious injuries on surface streets within the city by 2045, with a fifty percent reduction within ten years.

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These actions are organized into basic categories and prioritized based on timing. Short-term actions should be undertaken within the next year and all actions included in this table should be implemented within 10 years to achieve the city's ambitious goal. The Saint Paul Public Works Department is the lead agency and department for most of these actions, but it will need to work closely with other city departments, as well as Ramsey County and MnDOT.

Table 6: Action Plan

Action	Timing
Research and apply for capital funding to implement infrastructure improvements in areas identified as priorities in this plan	Short-Term
Evaluate and update prioritized traffic and street design policies and practices based on the opportunities identified in this Plan	Short-Term
Continue community engagement to ensure local priorities are adequately addressed in plan implementation	Short-Term, Ongoing
Coordinate with the ongoing Public Works process to evaluate the City's CIP prioritization process to ensure safety needs are adequately addressed in that project selection framework	Short-Term
Review project delivery processes and evaluate if the relevant departments and agencies have input at the appropriate point of the process	Short-Term
Complete a Comprehensive Review of High Crash Intersections to provide improvement recommendations at the identified locations.	Short-Term
Expand the current annual monitoring process to more comprehensively track progress against the fatality and serious injury reduction/elimination goal, including a set of extended metrics that track progress on traffic safety equity, establishing a procedure for how often crash data is evaluated, and identifying the appropriate resources.	Medium-Term
Complete a dedicated Downtown Crash Study to identify a specific set of improvements aimed at improving safety in the downtown area.	Medium-Term
Complete a Comprehensive Review of Minor Arterials and Collector Roadways to identify the factors leading to the high injury rates, as well as identify potential future improvements.	Medium-Term
Develop an overall funding and operations strategy that identifies the resources necessary to construct, maintain, and operate the projects and strategies included in this plan.	Medium-Term

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Action	Timing
Identify an interagency safety working group, including members from the City, Ramsey County, and MnDOT to continually evaluate opportunities for safety improvements.	Medium-Term
Develop a prioritized strategy toolbox to provide context-sensitive guidance on the implementation of safety strategies identified in this plan	Medium Term
Review procedures for how transportation safety projects are currently evaluated after implementation and how that information is used; develop a policy to guide what metrics projects should be evaluated by, based on the type and scale of the project.	Long-Term
Using the prioritization criteria outlined in this plan, continue to develop and maintain the top corridors, intersections, and locations to direct safety funding toward as funding opportunities arise.	Ongoing
Continue coordinating with Ramsey County and MnDOT to identify and make safety improvements on county- and state-owned streets in Saint Paul.	Ongoing
Conduct ongoing crash equity analysis and engagement to share the findings of this analysis with community members, leaders, and partners and identify direction for future equity work related to traffic safety	Ongoing



Appendix A: Crash Analysis and Evaluation

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June 2023



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MINNESOTA



Crash Analysis and Evaluation

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Introduction

The City of Saint Paul is developing a Transportation Safety Action Plan (TSAP) to identify and eliminate fatal and serious injury crashes for all road users, including people who walk, bike, roll, take transit, and drive in Saint Paul. With community input, this plan will prioritize roadway and infrastructure projects that address safety challenges for residents of Saint Paul and support future funding opportunities for safety projects. This purpose of this Crash Analysis and Evaluation report is to summarize citywide crash trends, which will inform the recommendations throughout the plan by providing a detailed assessment of existing conditions and historical trends of crashes in Saint Paul.

This analysis includes the evaluation of national and statewide crash trends, five-year crash trends in Saint Paul, an equity analysis of crashes in Saint Paul, a proposed High Injury Network for all modes, and a High Crash Network for vulnerable roadway users. The term vulnerable road users (VRU) is typically used to refer to people walking, people bicycling, and anyone else not traveling inside a motor vehicle (such as people using mobility devices and people riding scooters). Vulnerable road users are of special interest when developing safety strategies because they are especially vulnerable to injuries or death when involved in crashes.

Crash Data

The analysis of crash trends in Saint Paul is based on data from the Minnesota Department of Transportation (MnDOT) Minnesota Crash Mapping Analysis Tool (MnCMAT2) database. This crash data comes from statewide police reports that MnDOT aggregates and publishes as a rolling 10-year dataset through the MnCMAT2 database.¹ This database does not include data on near misses, light rail crashes with pedestrians and bicycles, any crashes that were not reported to the police, or any crashes that were not reported by the police to the Minnesota Department of Public Safety. While it provides an incomplete picture of traffic safety in Saint Paul, it is the most comprehensive dataset available for analysis.

This analysis is based on all crashes within the City of Saint Paul from January 1, 2018, through December 31, 2022. During this period, there were 23,145 crashes in Saint Paul, 31 percent of which were on limited access highways. Since limited access highways are not a focus of this plan and these roads are all solely under the jurisdiction of MnDOT, these roadways were filtered out of the dataset for the analysis. These limited access highway crashes include all crashes that occurred on Interstate 35E, Interstate 94, U.S. Highway 52, Trunk Highway 280, and all ramps.² The remaining 16,070 crashes that occurred on surface streets within the City of Saint Paul (including county- and state-owned roadways) are the focus of this analysis.

¹ Minnesota Department of Transportation. "Minnesota Crash Mapping Analysis Tool (MnDMAT2)." Minnesota Department of Transportation. May 15, 2023.

<https://www.dot.state.mn.us/stateaid/mncmat2.html>

² Crashes that occurred at the intersections of Saint Paul streets and freeway on- and off-ramps are included in the analysis.



Crash Trends – State and National

Over the past decade, there has been a rise in the fatality rate of crashes in Saint Paul, mirroring a troubling state and national trend. Total traffic fatalities across the nation reached a 16-year high in 2021 (the latest year for which national data is available), with over 42,000 people killed.³ Fatality rates have also risen in Minnesota, including in urban areas.⁴ Figure 1 compares the fatality rates in Saint Paul to fatality rates in urban areas of Minnesota and nationally from 2011-2020.⁵ Over that 10-year period, Saint Paul's fatality rate typically was higher than the state average for urban areas, but lower than the national average. Minneapolis' fatality rate was more varied over the period, and Saint Paul had a lower or equal fatality rate than Minneapolis for 8 of the 10-year span shown on the chart.

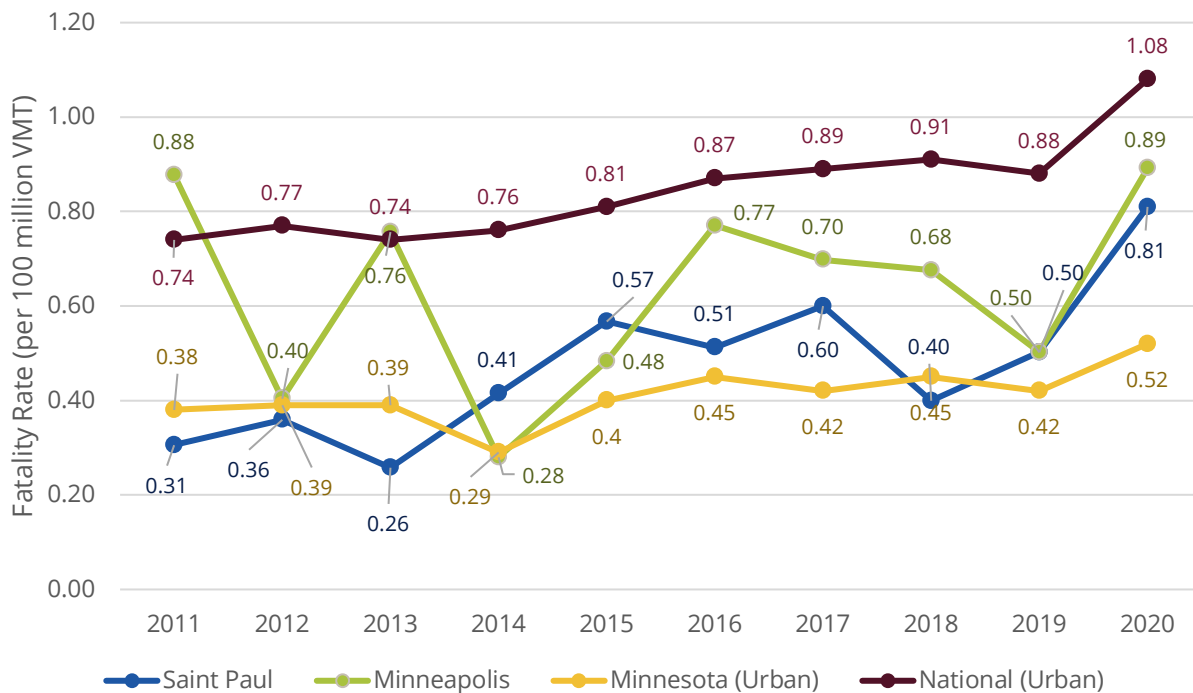


Figure 1: Fatality rates per 100 million Vehicle Miles Traveled, 2011-2020.

Source: FARS and MnDOT. Note: The 2015 rates for Saint Paul and Minneapolis are estimated due to lack of VMT information available.

Nationally, pedestrian fatalities have also increased. Total pedestrian fatalities increased 54 percent from 2010 to 2020, compared to a 13 percent increase for all other traffic deaths. As of 2020 Minnesota has one of the lowest pedestrian fatality rates in the country, higher than only Idaho, Massachusetts and Maine, meaning that Minnesota's streets are safer for pedestrians than the national average.⁶ The pedestrian fatality rate (calculated as pedestrian deaths per 100,000

³ <https://www.nhtsa.gov/press-releases/early-estimate-2021-traffic-fatalities>

⁴ The U.S. Census Bureau defines urban areas as a densely developed areas that either have at least 2,000 housing units or a have a population of at least 5,000.

⁵ 2020 is the latest year for which full data is available for all sources.

⁶ <https://www-fars.nhtsa.dot.gov/states/statespedestrians.aspx>

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population) in Saint Paul can vary significantly based on the relatively small number of pedestrian deaths per year (Figure 2).⁷ However, as with the total fatality rate, the pedestrian fatality rate in Saint Paul between 2011 and 2020 was typically higher than the statewide average, but lower than the national average. The pedestrian fatality rate in Minneapolis also is highly variable, and Saint Paul had a lower or equal fatality rate than Minneapolis for 5 of the 10-year span shown on the chart.

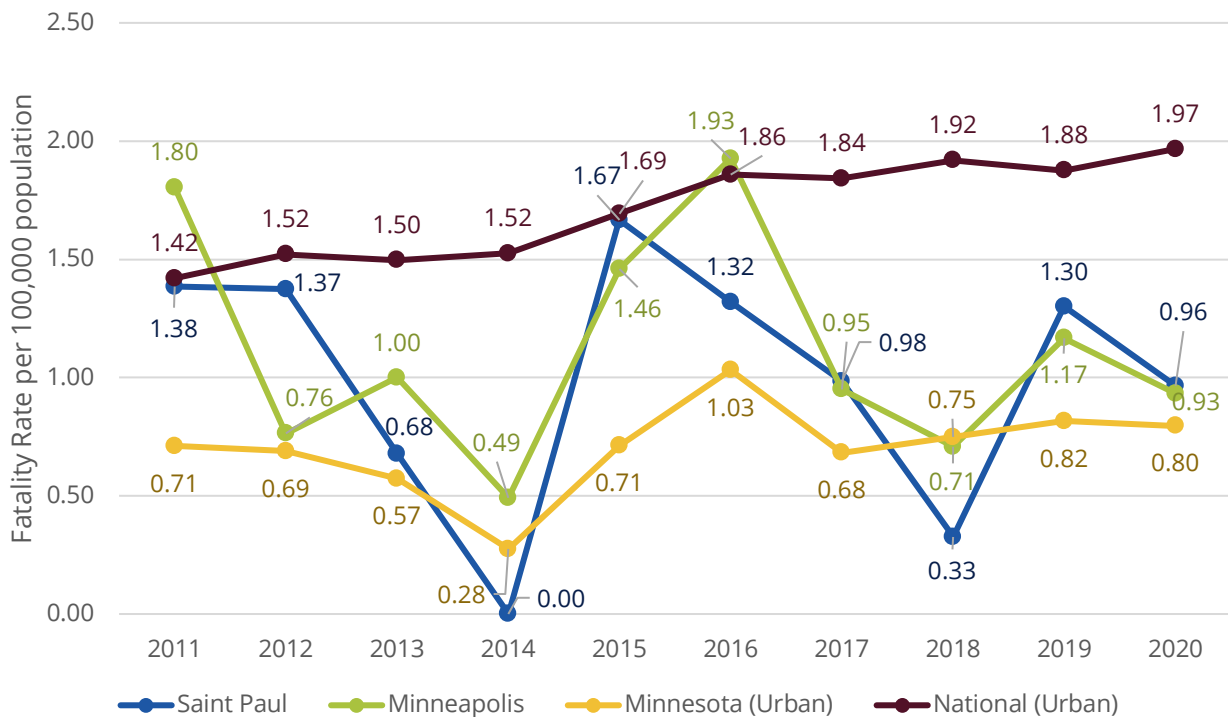


Figure 2: Pedestrian Fatality Rates per 100,000 population, 2011-2020. Source: FARS and Census.

A wide variety of factors influence national and regional crash trends. Some of the factors identified as contributing to a national increase in fatality rates include speeding, dangerous street design, alcohol impairment, and larger vehicle sizes:

- **Speeding:** Nationally, speed-related fatalities increased 17 percent from 2019 to 2020, and another 5 percent from 2020 to 2021.⁸ This mirrors anecdotal evidence that decreased congestion and less traffic enforcement during the pandemic led to an increase in reckless driving, as empty roadways turned into speedways.⁹
- **Street Design:** Several street design factors influence fatality rates. Two-thirds of pedestrian fatalities nationally occurred on streets with no sidewalk, and 60 percent took

⁷ Reporting pedestrian fatality rates as pedestrian deaths per 100,000 population is a standard used by the National Highway Traffic Safety Administration.

⁸ <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813298>

⁹ <https://www.mprnews.org/episode/2022/06/30/dangerous-driving-habits-still-linger-after-lockdown-affecting-safety-on-minnesota-roads>



place on arterial roadways.¹⁰ Arterials are commonly designed to carry large volumes of traffic at high speeds and tend to have multiple lanes of traffic in each direction, proving especially dangerous to all users. Examples of arterials in Saint Paul include Snelling Avenue, Maryland Avenue, and Cretin Avenue.

- **Alcohol Impairment:** It is common for both drivers and pedestrians involved in fatal crashes to have a blood alcohol concentration (BAC) over the legal limit.¹¹ In 2020, 31 percent of pedestrians 16 and older who were killed in a crash were impaired, and 16 percent of pedestrian fatalities involved an impaired driver.
- **Larger Vehicle Sizes:** With more vans, sport utility vehicles (SUVs), and trucks on the roads, the average vehicle size and weight has increased across the country in recent years.¹² Larger vehicles not only inflict greater injury on pedestrians and bicyclist due to the mass of the vehicle and location on the body where people are struck by the vehicle, but recent data shows drivers of large vehicles are also more likely to strike pedestrians due to reduced visibility.¹³ The City of Saint Paul is not able to influence vehicle sizes on the roads, but this finding does point to the importance of improving pedestrian safety through other measures to offset this trend, and working with state and federal partners on improving the safety of the vehicle fleet.

¹⁰ <https://www.ghsa.org/resources/Pedestrians22>

¹¹ Pedestrian Traffic Fatalities by State, 2021 preliminary data: Governor's Highway Safety Association

¹² <https://www.motor1.com/news/587230/suvs-still-rule-us-market/>

¹³ <https://www.iihs.org/news/detail/suvs-other-large-vehicles-often-hit-pedestrians-while-turning>



Crash Trends – Saint Paul

Between 2018 and 2022, there were 16,070 crashes in Saint Paul on the streets and intersections included in the dataset, with an average of 3,214 crashes per year. In 2018 and 2019, there were a higher volume of crashes at around 3,500 crashes per year. With the beginning of the COVID-19 pandemic in 2020, crashes decreased by 20.3 percent. This decrease in crashes mirrored the 19 percent decrease in vehicle miles traveled (VMT) within Saint Paul between 2019 and 2020. Both VMT and crashes increased between 2020 and 2021; VMT increased by 8.7 percent and crashes increased by 10.3 percent. The total number of crashes in Saint Paul was consistent between 2021 and 2022 (Figure 3).

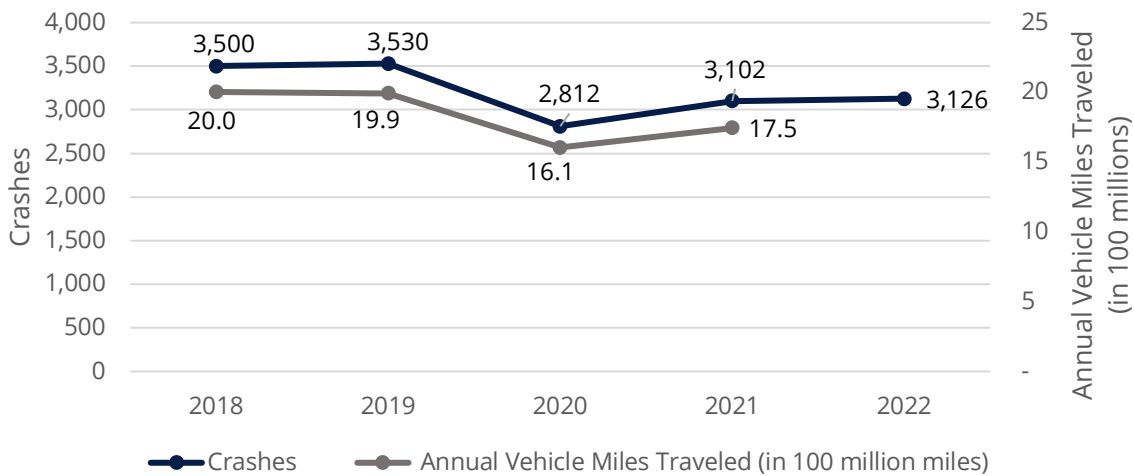


Figure 3: Crashes and Annual Vehicle Miles Traveled in Saint Paul, 2018-2022.

Source: MnCMAT2, MnDOT LRS and Roadway Characteristics Database. VMT data not yet available for 2022.

However, while the total crash rate remained consistent, the rate of fatal and serious injury crashes has increased since 2019, as shown in Figure 4. Crash rates for all crash types decreased with the start of the COVID-19 pandemic, but fatality rates continued to increase for the first two years of the pandemic.

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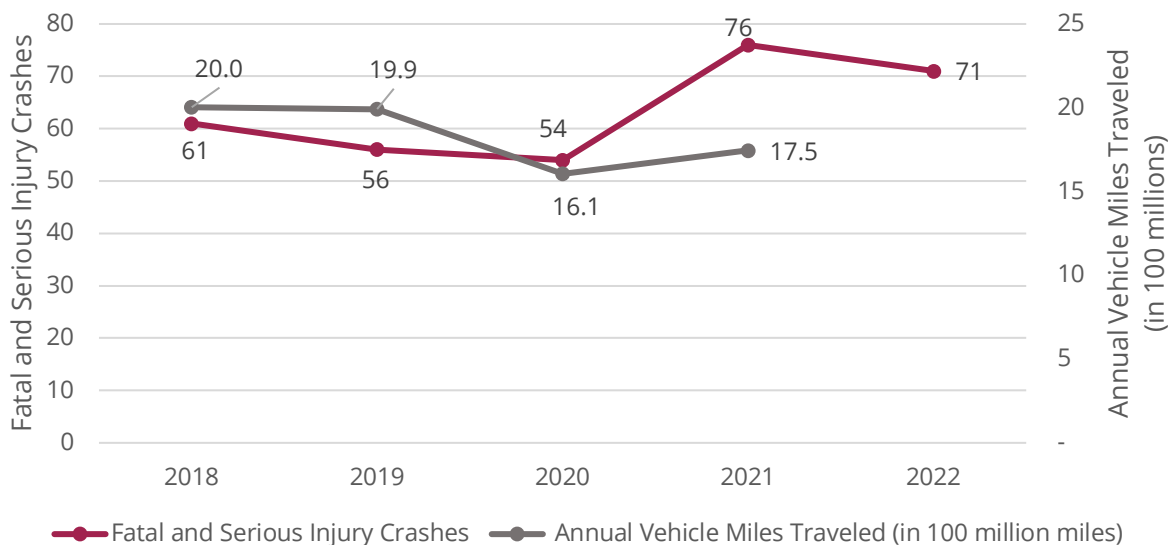


Figure 4: Fatal and Serious Injury Crashes and Annual Vehicle Miles Traveled in Saint Paul, 2018-2022.

Source: MnCMAT2, MnDOT LRS and Roadway Characteristics Database. VMT data not yet available for 2022.

The map in Figure 5 shows areas of the city where there were higher concentrations of crashes between 2018 and 2022. There was a large concentration of crashes in downtown Saint Paul and along the Interstate 94 corridor, particularly at locations where on and off ramps intersect major streets like Snelling Avenue, Lexington Parkway, University Ave, and Dale Street. Many other major arterial streets on the northern and eastern areas of the city also had high concentrations of crashes, including Maryland Avenue, Rice Street, White Bear Avenue, and East 7th Street.

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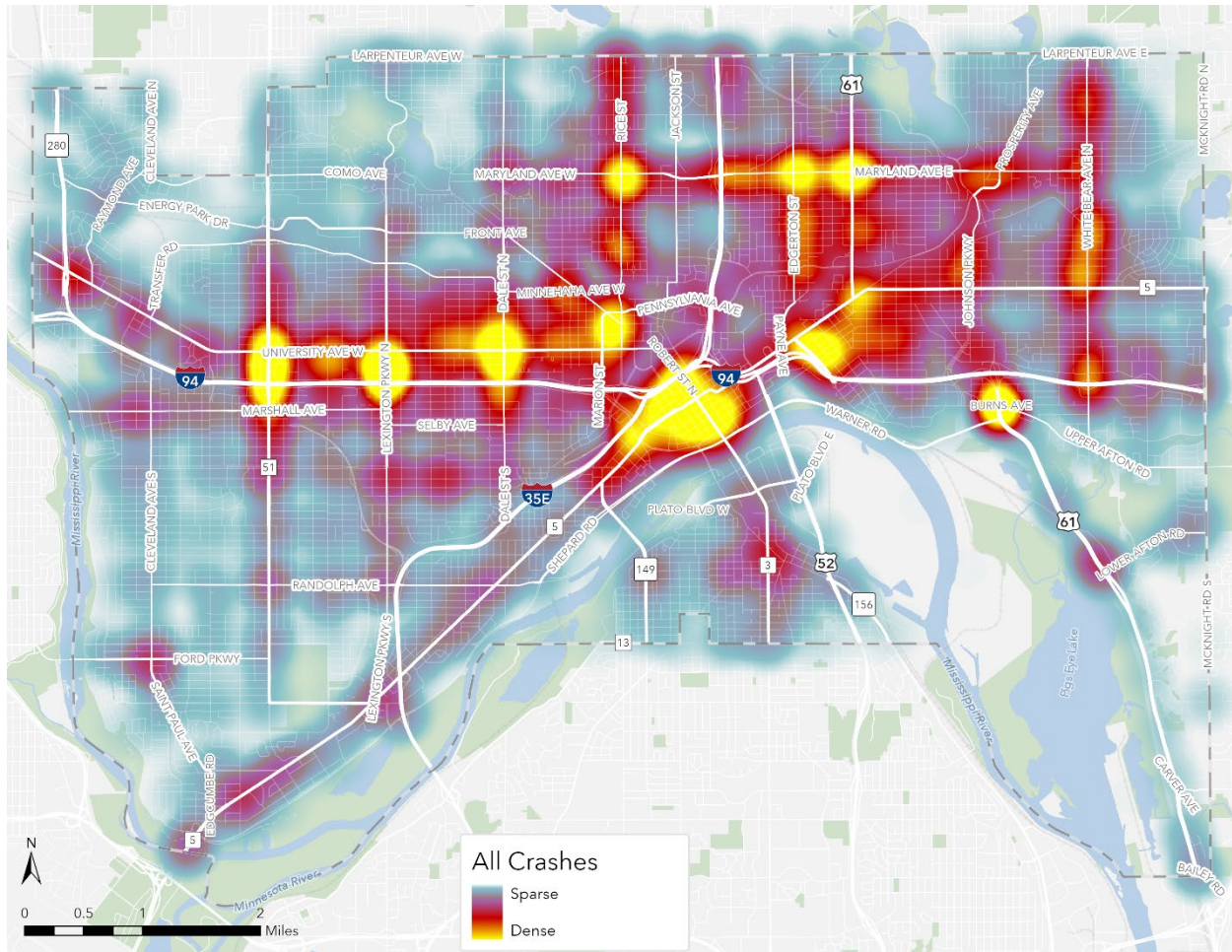


Figure 5: Map of all Crashes in Saint Paul, 2018-2022. Source: MnCMAT2.



Crash Trends by Mode

Evaluating crash trends by mode highlights trends in crashes for vehicles compared to vulnerable road users (defined as all road users not inside vehicles, mainly people walking, rolling, or biking). Between 2018 and 2022, an average of 4.3 percent of crashes involved pedestrians, 1.8 percent involved bicyclists, and the remaining 93.9 percent involved vehicles only.

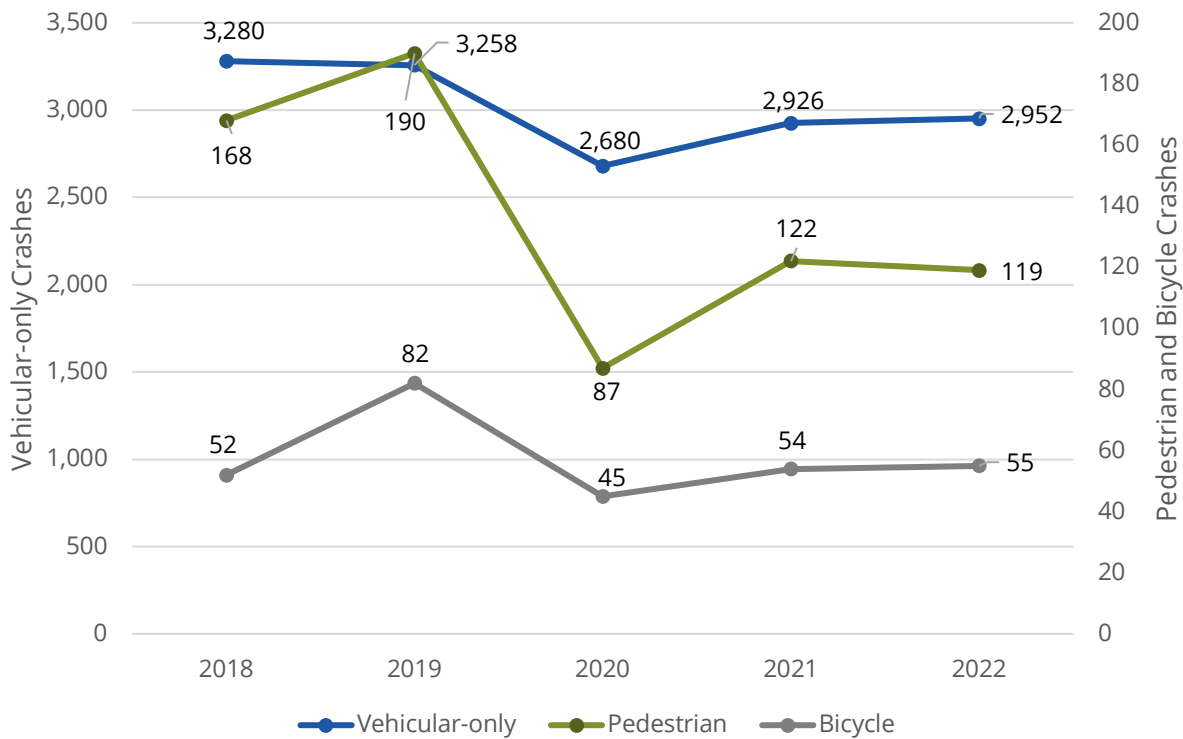


Figure 6: Crash Trends by Mode, 2018-2022. Source: MnCMAT2.

Crashes for all modes decreased substantially in 2020 with the start of the COVID-19 pandemic (Figure 6). However, it is worth noting that 2019 represented a high in both pedestrian and bicycle crashes in the ten-year period for which MnCMAT2 data are reported. In 2021, crashes for all modes increased, largely driven by a return to normal travel activities following the COVID-19 shutdowns. Pedestrian crashes both decreased more markedly with the beginning of the COVID-19 pandemic and rebounded at a higher rate than the other modes in 2021 as the initial pandemic impacts on travel patterns changed. Overall, between 2018 and 2022, vehicle-only crashes decreased by 10 percent, pedestrian crashes decreased by 29 percent, and bicycle crashes increased by about 5 percent (though with high variability over the past five years).

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The maps in Figure 7 and Figure 8 show where higher concentrations of pedestrian and bicycle crashes occurred from 2018 to 2022. The same general areas of the city appear as high pedestrian crash areas and in the heat map of all crashes in Figure 4. Some notable differences include a concentration of crashes along University Avenue, whereas the intersections near Interstate 94 had higher concentrations of all crashes. Downtown appears to have the largest concentration of pedestrian and bicycle crashes. One difference between bicycling and walking is that pedestrian crashes downtown are more highly concentrated west of Robert Street, while bicycle crashes are concentrated east of Robert Street.

When examining the crash patterns compared to the city's current bicycle infrastructure (Figure 8) it is clear that some crash hot spots line up with dedicated facilities, but the pattern is not consistent. High bicycle crash areas appear more correlated with high-traffic roadways and intersections than existing bike routes currently.

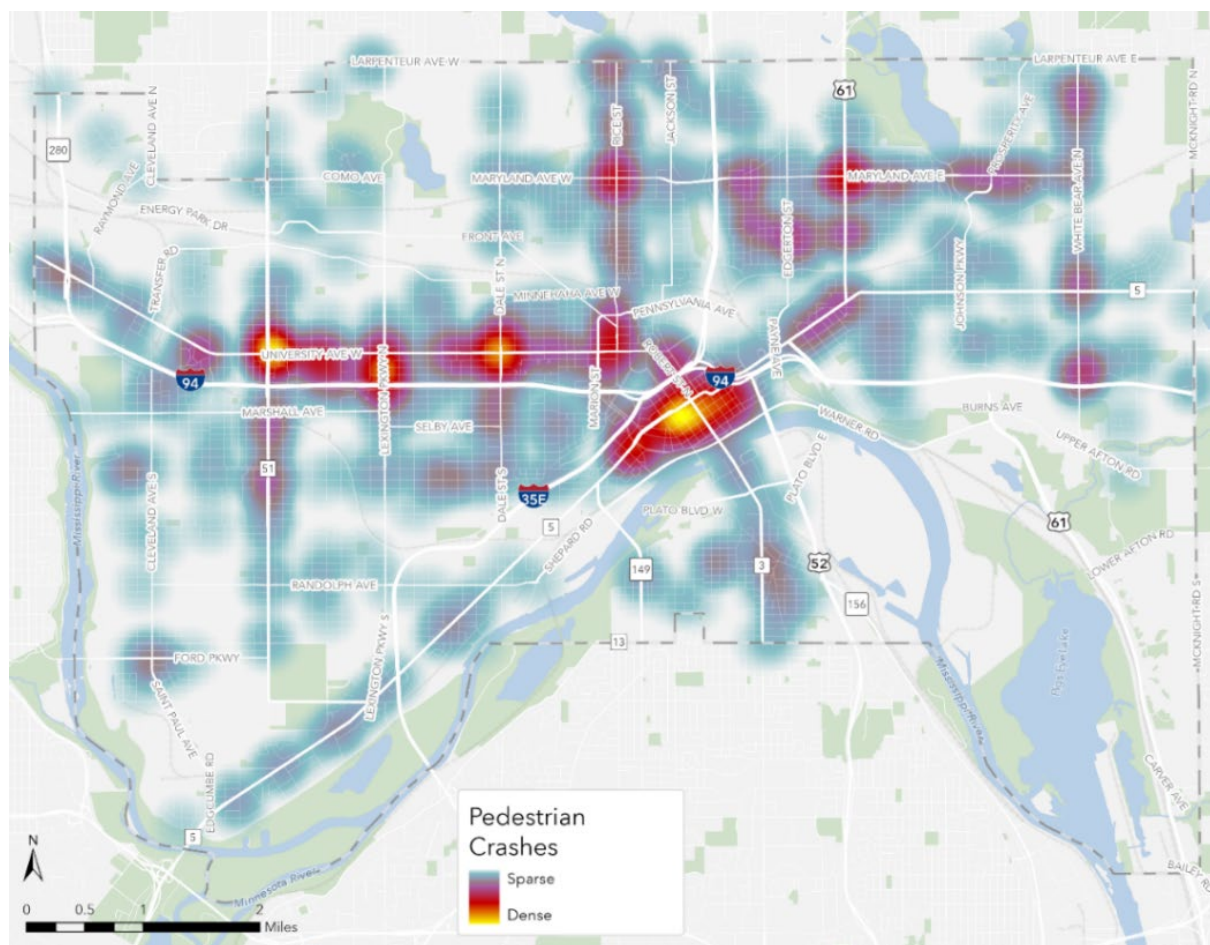


Figure 7: Heat Map of Pedestrian Crashes, 2018-2022. Source: MnCMAT2.

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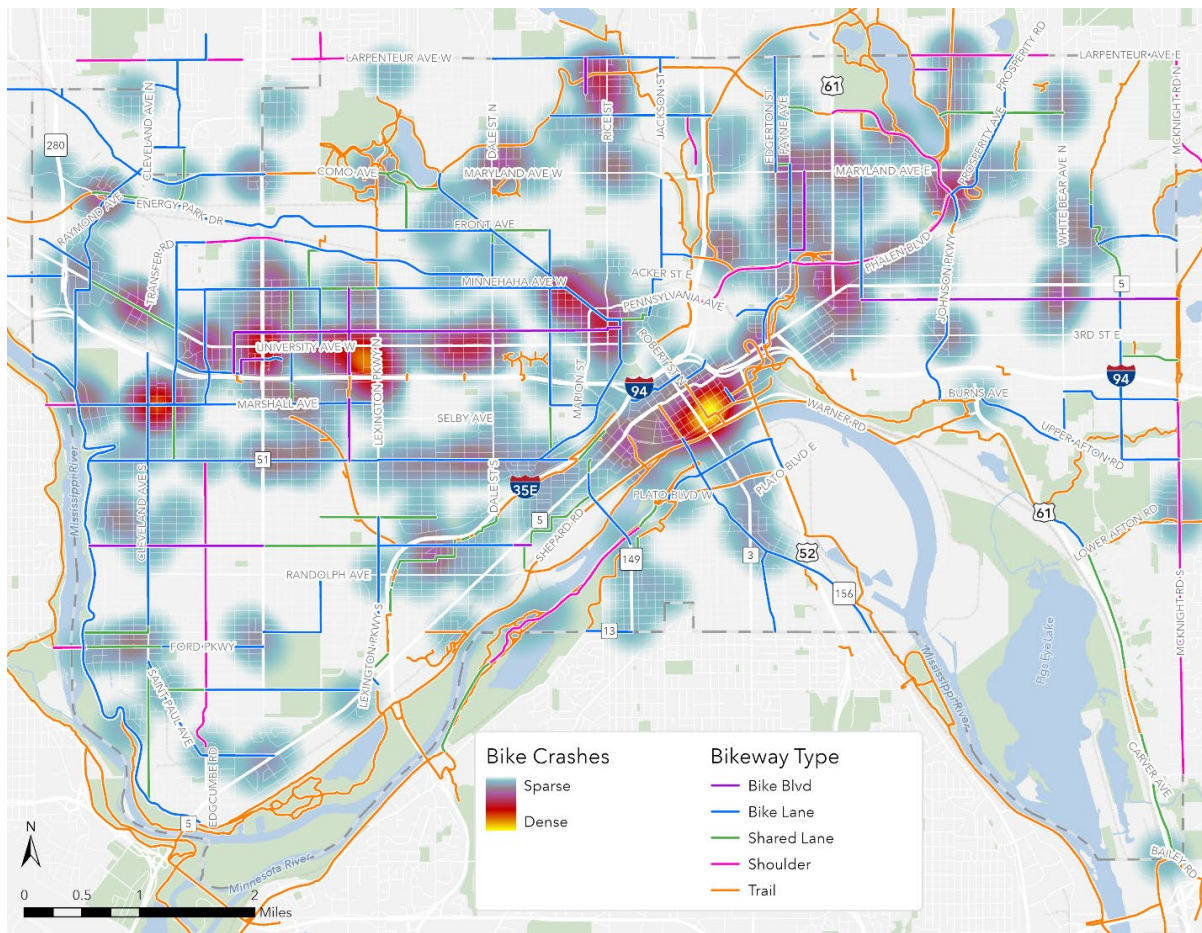


Figure 8: Heat Map of Bicycle Crashes and Existing Bikeways, 2018-2022. Source: MnCMAT2, City of Saint Paul Bikeways dataset.

Light Rail Crashes

Metro Transit operates the at-grade Green Line light rail service on the University Avenue corridor and through Downtown Saint Paul. Crashes involving light rail vehicles striking vehicles, pedestrians or bicyclists regularly occur along this corridor, as shown below (2015-2019 data available). While the City of Saint Paul has limited control over transit operations, most crashes involving pedestrians occur in the street or at pedestrian crossings (rather than at stations) and may indicate a need for continual coordination with Metro Transit to improve safety at these locations.

Table 1: Light Rail Crashes in Saint Paul, 2015-2019

	Total Crashes	Fatal	Injury-causing
Vehicle	96	1	28
Pedestrian	33	6	20
Total	129	7	48

Source: Metro Transit



Crash Severity Trends

Understanding trends in fatal and serious injury crashes is an important step toward the overall goal to reduce fatalities and serious injuries. The MnCMAT2 database defines crash severity in five categories: Fatal, Serious Injury, Minor Injury, Possible Injury, and Property Damage Only.¹⁴

In the study period, there were 54 fatal crashes and 264 serious injury crashes. In the 54 fatal crashes, 60 people were killed, according to MnCMAT2 crash data.¹⁵ This varies slightly from fatalities data reported to the Fatality Analysis Reporting System (FARS) database, which aggregates crash statistics on a national level. According to FARS, between 2018 and 2021, 54 people were killed in crashes in Saint Paul (including crashes on freeways) and 47 people were killed in crashes that occurred on surface streets within the City of Saint Paul (including county- and state-owned roadways) that are the focus of this analysis.¹⁶ Figure 9 shows the differences in data on fatalities on surface streets by data source, showing slight differences between the data. It is not clear as to why these datasets differ, but it is likely because FARS data also can include data from other sources beyond police reports or due to differences in data cleaning.¹⁷ Throughout this analysis, MnCMAT2 data will be used for fatal crashes because it is a more comprehensive crash dataset.

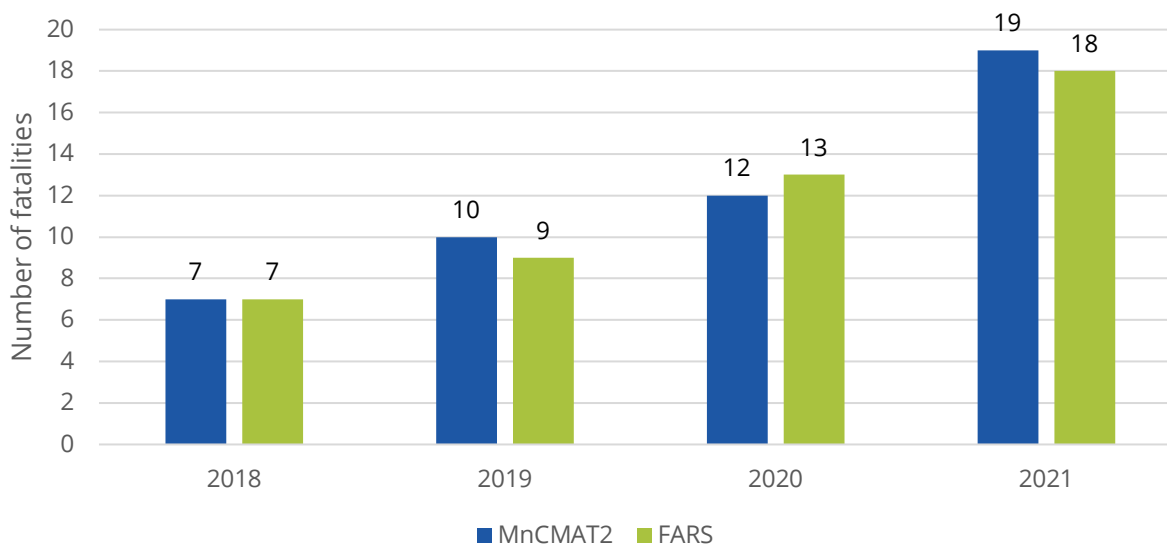


Figure 9: Fatalities on Surface Streets by Data Source, 2018-2021. Source: MnCMAT2 and FARS.

¹⁴ Crashes in the MnCMAT2 database are classified as Fatal if a fatality occurs within 30 days of the crash.

¹⁵ 58 of these fatalities were in crashes classified as Fatal and 2 were in crashes classified as Serious Injury in the MnCMAT2 database.

¹⁶ FARS crash fatality data for 2022 are not yet available.

¹⁷ FARS data can include police reports, state vehicle registration files, state driver licensing files, state highway department data, vital records department data, death certificates, coroner/medical examiner reports, or emergency medical service reports.



Based on MnCMAT2 data, fatal crashes make up 0.34 percent and serious injury crashes make up 1.6 percent of all crashes in Saint Paul. Figure 10 shows the five-year crash trend for fatal and serious injury crashes. Like other crash types, serious injury crashes decreased in 2020 and increased again in 2021. Unlike other crash types, fatal crashes did not decrease during the pandemic. Similarly, the rate of fatal and serious injury crashes per 100 million vehicle miles traveled in Saint Paul (rather than just the absolute number) rose in 2020 and continued to rise in 2021, illustrating that crashes in those years were much more likely to be severe (Figure 11).

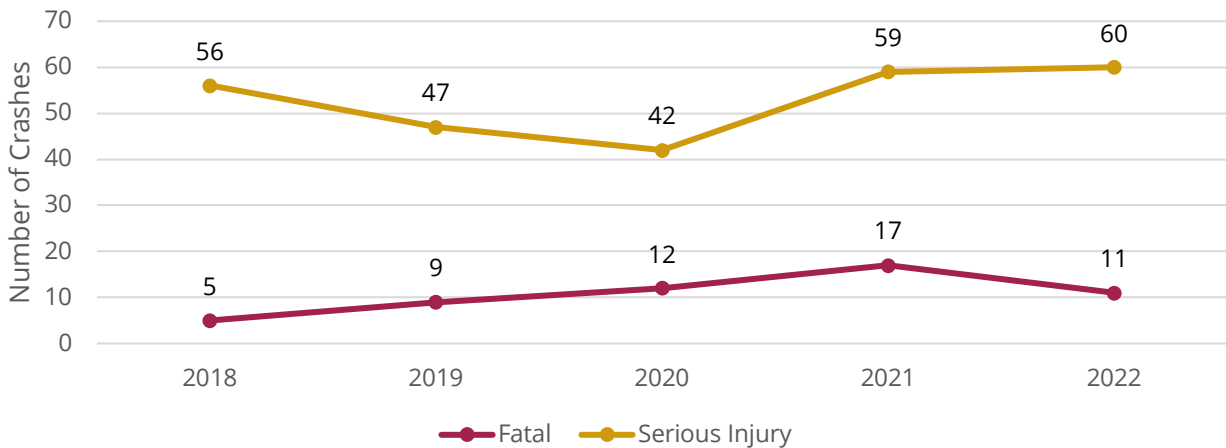


Figure 10: Fatal and Serious Injury Crash Trend, 2018-2022. Source: MnCMAT2.

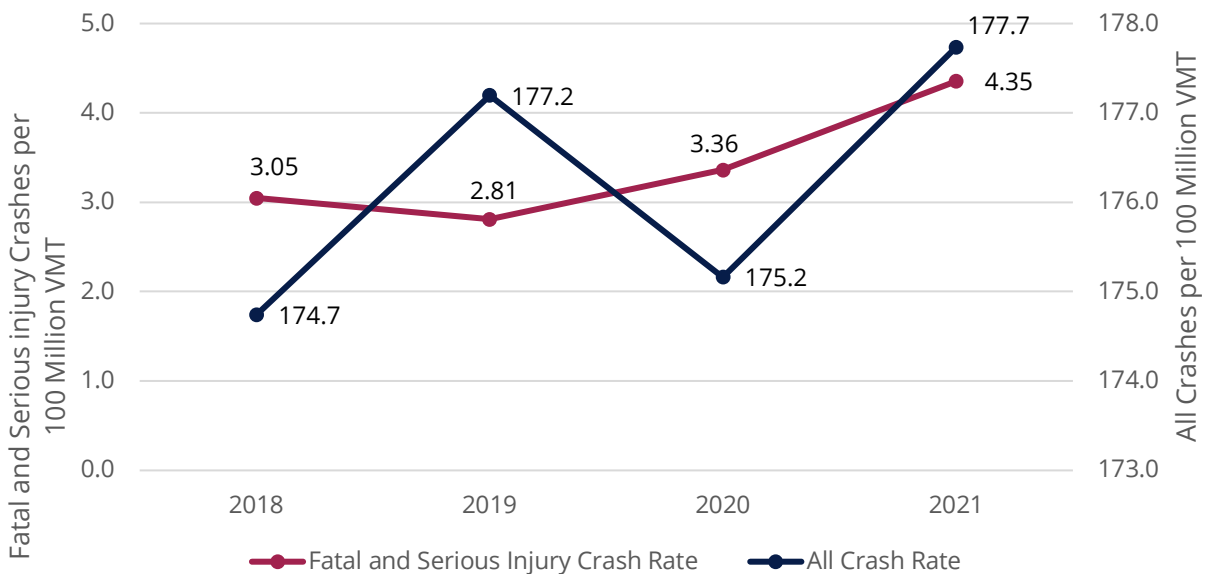


Figure 11: Crash Rate Trends, Fatal and Serious Injury Crashes 2018-2022. Source: MnCMAT2, MnDOT LRS and Roadway Characteristics Database. VMT data not yet available for 2022.

The maps in Figure 12 and Figure 13 show the spatial patterns of fatal and serious injury crashes throughout Saint Paul during the study period. **These crashes follow the same general pattern of all**

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crashes, with more fatal and serious crashes on the eastern and northern sides of the city, concentrations along arterial streets, and downtown. There are high concentrations of fatal and serious injury crashes along University Avenue, Rice Street, Maryland Avenue, East and West 7th Street, and White Bear Avenue.

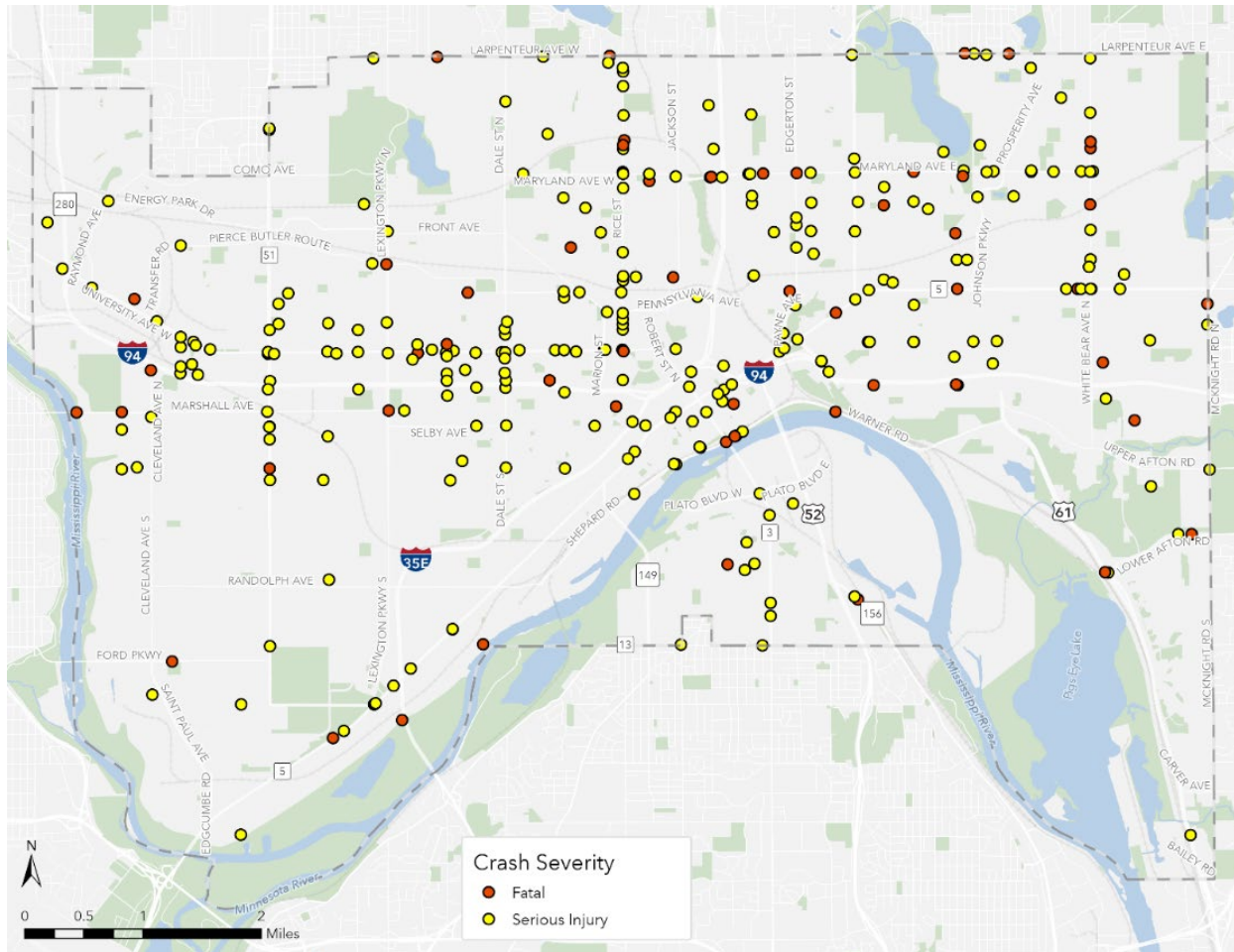


Figure 12 Map of Fatal and Serious Injury Crashes, 2018-2022. Source: MnCMAT2.

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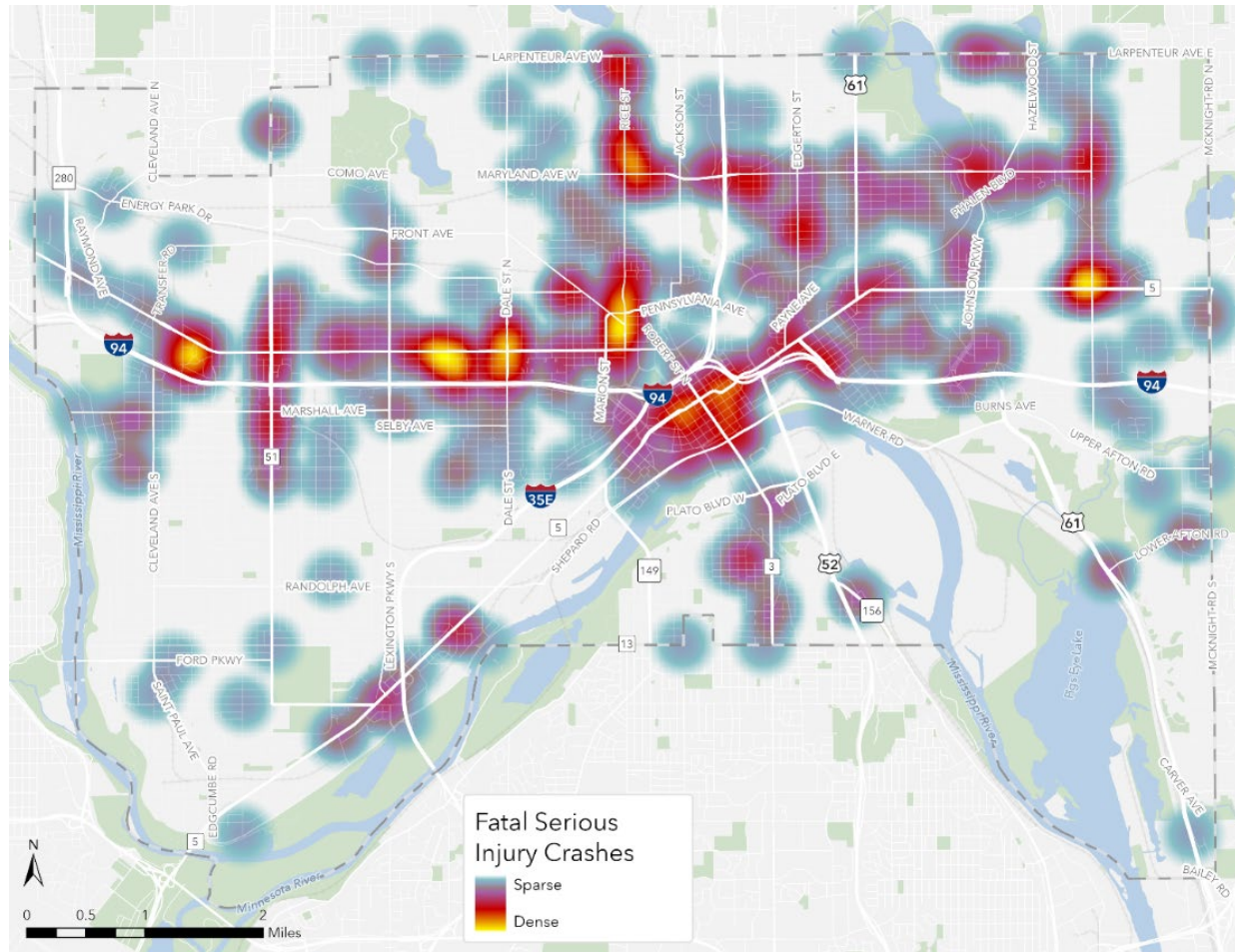


Figure 13: Heat Map of Fatal and Serious Injury Crashes, 2018-2022. Source: MnCMAT2.



Crash Severity by Mode

Vulnerable road users, including pedestrians and bicyclists, are at a higher risk of being involved in injury crashes. In Saint Paul, only 1.2 percent of vehicle-only crashes involved fatalities or serious injuries, compared to 5.5 percent of all crashes involving bicyclists, and 16.8 percent of all crashes involving pedestrians. Only 11.8 percent of all crashes involving pedestrians and 17.7 percent of crashes involving bicyclists did not result in any injuries, while 82.5 percent of vehicle-only crashes did not result in any injuries (Figure 14). Injury or fatality is common in almost all crashes involving vulnerable road users.

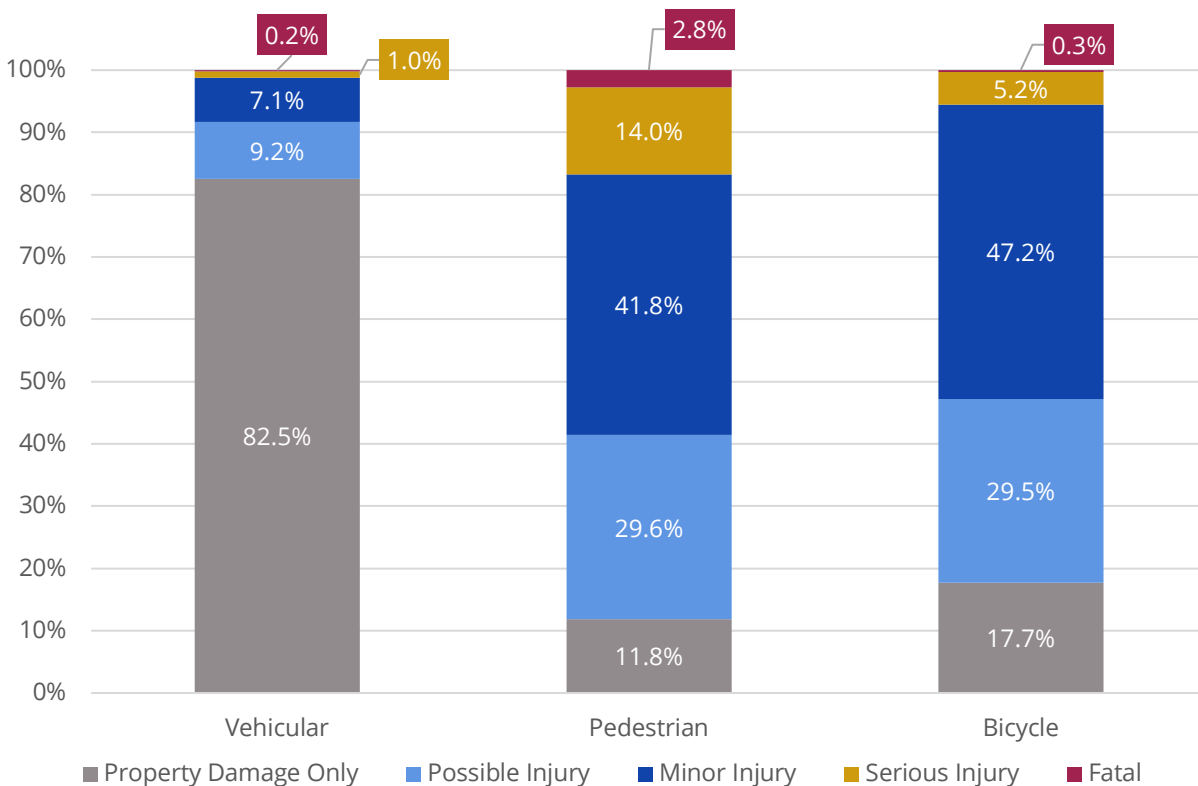


Figure 14: Crash Severity by Mode, 2018-2022. Source: MnCMAT2.



People walking, rolling, and biking are significantly over-represented in fatal and serious injury crashes. Pedestrians accounted for 36.2 percent of all fatalities and serious injuries from 2018 to 2022, even though walking only accounts for 12.8 percent of all trips taken by Saint Paul residents according to the Metropolitan Council's 2019 Household Travel Survey.¹⁸ Bicyclists account for 5 percent of all serious crashes, despite only 0.1 percent of all trips being made by bicycle (Figure 15). The remaining approximately 10 percent of all trips are taken via transit (6.6 percent) or simply categorized as "other."

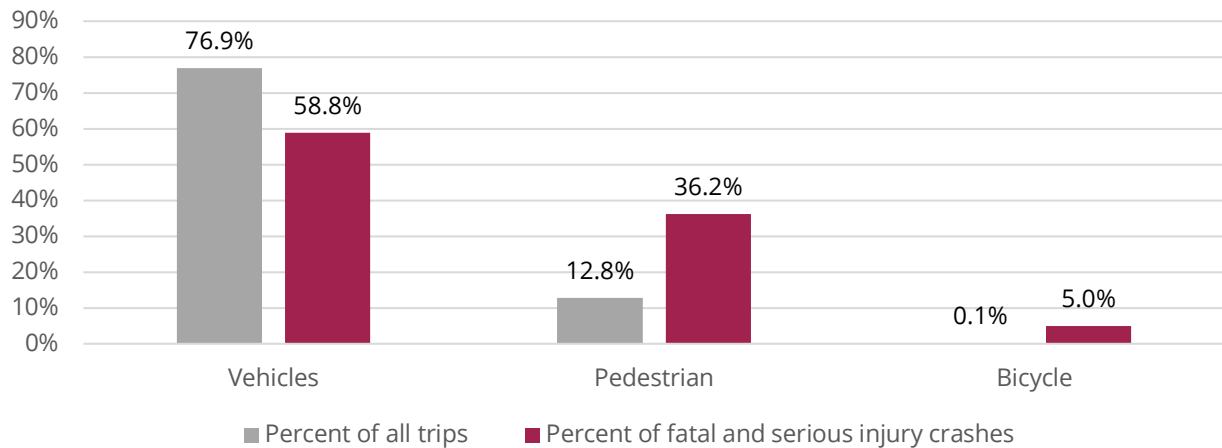


Figure 15: Crash Severity Compared to Travel Patterns, Source: MnCMAT2 and Met Council 2019 Household Travel Survey.

¹⁸ Metropolitan Council 2019 Household Travel Survey: <https://metrotransitm.n.shinyapps.io/travel-survey-explorer/>



In the study period, there were 187 fatal and serious injury crashes involving vehicles only, 115 fatal and serious crashes involving pedestrians, and 16 fatal or serious injury crashes involving a bicyclist. The largest number of fatal and serious injury crashes occurred in 2021 (Figure 16).

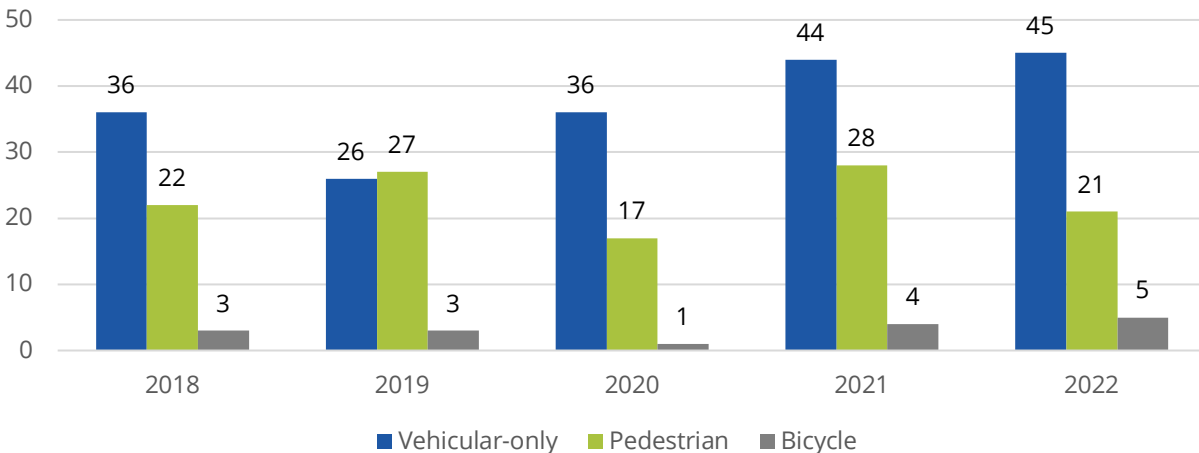


Figure 16: Fatal and Serious Injury Crashes by Year and Mode, 2018-2022. Source: MnCMAT2.

The proportion of pedestrian crashes that involved fatalities or serious injuries increased between 2018 and 2021, with a high of 23 percent of all pedestrian crashes involving fatalities or serious injuries in 2021 (Figure 17). The proportion of fatal or serious injury crashes involving pedestrians increased markedly with the beginning of the COVID-19 pandemic, and while the proportion has declined it has not returned to their pre-pandemic baseline as of 2022.

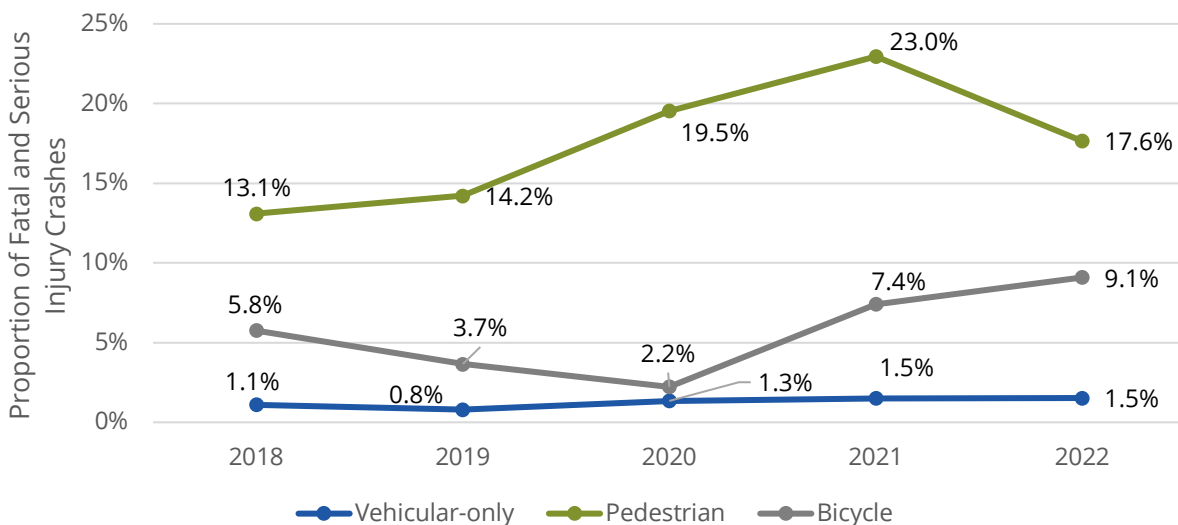


Figure 17: Fatal and Serious Injury Crashes as a Proportion of all Crashes by Mode, 2018-2022. Source: MnCMAT2.



These trends indicate that vulnerable road users, including pedestrians and bicyclists, are at a higher risk of being involved in more serious crashes, especially when comparing the severity of crashes involving each mode with the percentage of total trips involving that mode. **All vulnerable road users, and particularly pedestrians, are at higher risk of injury or death while using the city's transportation system.**

High Crash Locations

Methodology

High crash locations were identified based on three factors: crash volumes, crash rates, and crash costs. The following sections describe the methodology used for each of the three factors and how the three were combined to create a composite ranking of high crash road segments and high crash intersections.

This analysis only includes streets for which Annual Average Daily Traffic (AADT) data is available and is published in MnDOT's AADT dataset, since traffic volume is a component of calculating crash rates.¹⁹ This MnDOT dataset includes most major streets in Saint Paul but does not include traffic volumes for local, neighborhood streets which is a limitation of this analysis. Streets that did not have traffic volume data in MnDOT's dataset were excluded from this analysis of high crash locations. However, since most fatal and serious injury crashes do not occur on neighborhood streets, this analysis captures the majority of all fatal and serious injury crashes.

Crash Volumes Methodology

Crash volumes were calculated for intersections and segments for which AADT data are available. Intersection-related crashes within a 150-foot radius of an intersection were joined to intersection points in GIS and summed as intersection crashes.²⁰ All non-intersection related crashes within a 150-foot radius of street segments were joined to street segments and summed as segment crashes.

Crash Rate Methodology

Crash rates provide a way to calculate crashes as a function of exposure, which allows for direct comparison of intersections and street segments that have different traffic volumes. The most current available AADT data were used for this analysis.²¹

This analysis uses crash rate methodology from the Federal Highway Administration's (FHWA) Local and Rural Road Safety Program.²² Crash rates were calculated for intersections and street segments using the following formulas.

¹⁹ <https://gisdata.mn.gov/dataset/trans-aadt-traffic-segments>

²⁰ Intersection-related crashes included crashes that were classified in the MnCMAT2 dataset's RELATIONTOINTERSECTION attribute as the following: Intersection Related, Four-Way Intersection, T-Intersection, Y-Intersection, Five-Way Intersection or More, or Roundabout.

²¹ <https://gisdata.mn.gov/dataset/trans-aadt-traffic-segments>

²² https://safety.fhwa.dot.gov/local_rural/training/fhwasa14072/sec4.cfm



Intersection Crash Rates

Intersection crash rates per million vehicle entering vehicles (MEV) were calculated with the following formula. Total Entering Volume was calculated by summing the AADT for all legs of an intersection and dividing the total by two:

$$\text{Intersection Crash Rate} = \frac{\text{Number of crashes from 2018 to 2022} \times 1,000,000}{\text{Total Entering Volume per day} \times 365 \frac{\text{days}}{\text{year}} \times 5 \text{ years}}$$

Segment Crash Rates

Segment crash rates per million vehicle miles (MVM) traveled were calculated using the following formula:

$$\text{MVM} = \frac{\text{AADT} \times \text{segment length in miles} \times 365 \times 5 \text{ years}}{1,000,000}$$
$$\text{Segment Crash Rate} = \frac{\text{Number of crashes from 2018 to 2022}}{\text{MVM}}$$

Crash Cost Methodology

Crash costs are an approach commonly used in benefit-cost analyses to understand the “societal cost” of crashes, including factors such as property damage, medical care, insurance payouts and missed work. Calculating the total economic value of a crash allows a comparison of between different types of intersections and street segments. The crash cost for each intersection and segment was calculated based on summing the total economic cost of each crash joined to that location using standard crash costs developed by MnDOT in 2022:²³

- Fatal Crash: \$13,600,000
- Serious Injury Crash: \$750,000
- Minor Injury Crash: \$230,000
- Possible Injury Crash: \$120,000
- No Injury/Property Damage Crash: \$13,000

Ranking Methodology

For each of these three crash evaluation factors (crash volume, crash rate, and crash cost), all intersections and segments were ranked from highest to lowest. These rankings were then combined into a composite ranking of high crash segments and high crash intersections.

²³ <http://www.dot.state.mn.us/planning/program/pdf/Table%20A.1%20SV%20L-ML-H%2031-Aug-2022.pdf>



High Crash Segments

The map in Figure 18 shows segment crash rankings for Saint Paul streets, symbolized based on the composite crash ranking. In this map, street segments are defined based on the segments defined in MnDOT's AADT dataset. Streets that did not have traffic volume data in MnDOT's dataset were excluded from this analysis. Areas with higher crash rates, or crashes per million vehicles miles (MVM), follow the same general pattern of areas in the city high crash concentrations. Table 2 summarizes the top twenty high crash segments, which were ranked according to crash rate and additional factors.²⁴

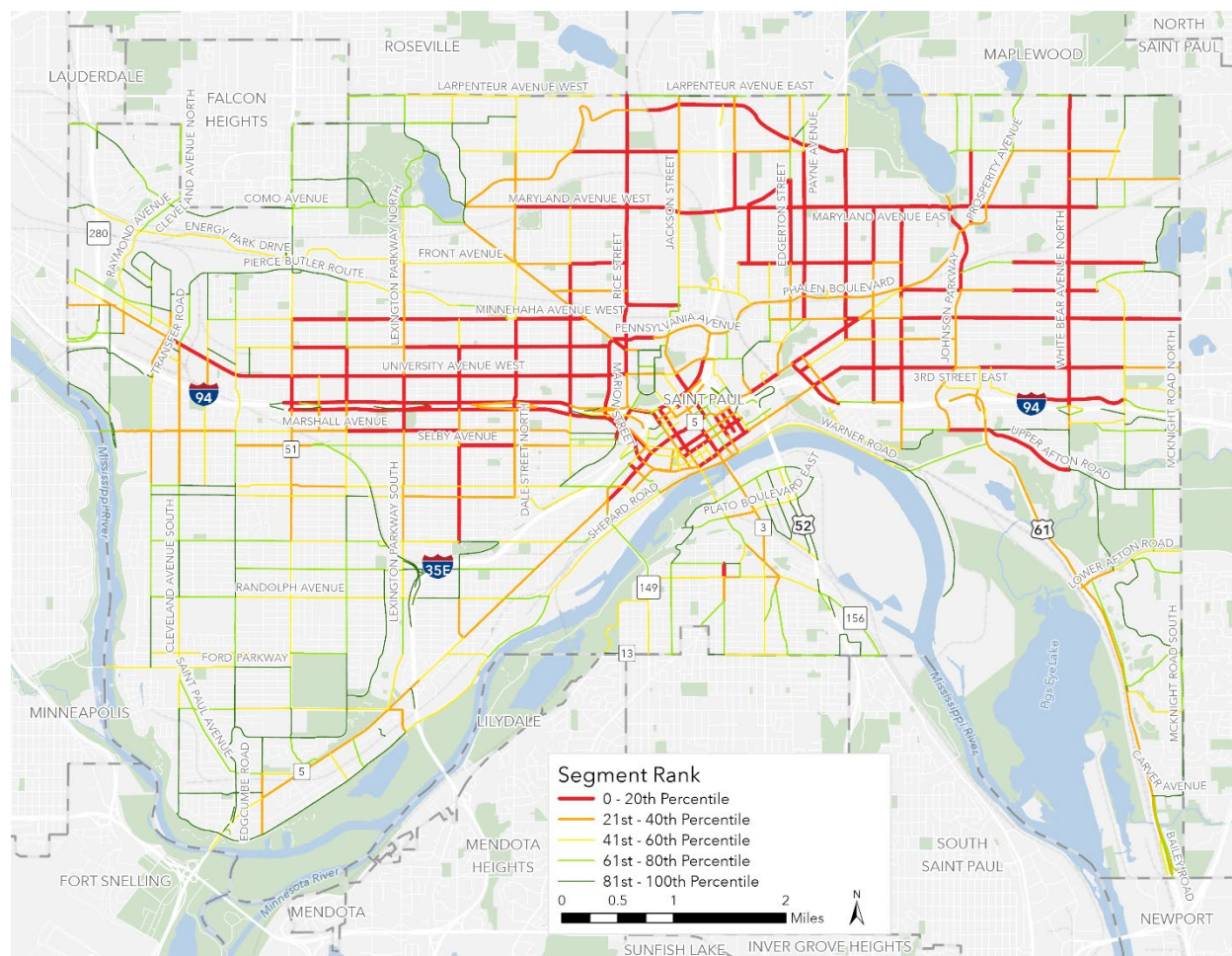


Figure 18: Composite Crash Ranking of Street Segments, 2018-2022. Source: MnCMAT2, MnDOT AADT dataset.

²⁴ This table ranks only segments that are at least 0.25 miles long and are within 150 feet of at least one fatal or serious injury crash.

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Table 2: Top 20 High Crash Street Segments

Overall Rank	Segment	Segment Crash Rate (crashes/MVM)	Total Number of Crashes	Total Crash Cost
1	N Edgerton St from Maryland Ave to Case Ave	25.91	107	\$20,453,000
2	W Saint Anthony Ave from Lexington Pkwy to Dale St	29.27	150	\$9,143,000
3	N Rice St from Pennsylvania Ave to University Ave	15.82	132	\$24,466,000
4	N Forest St from Maryland Ave to Case Ave	23.10	63	\$17,298,000
5	W Saint Anthony Ave from Dale St to Western Ave	23.49	57	\$16,251,000
6	W Concordia Ave from Lexington Pkwy to Dale St	17.57	111	\$7,126,000
7	N Dale St from University Ave to Concordia Ave	15.04	160	\$10,949,000
8	W Saint Anthony Ave from I-94 Ramp (Snelling) to Hamline Ave	16.59	114	\$6,871,000
9	W Concordia Ave from Hamline Ave to Lexington Pkwy	19.51	86	\$4,985,000
10	E Minnehaha Ave from Earl St to Johnson Pkwy	13.09	81	\$17,553,000
11	N Rice St from Arlington Ave to Maryland Ave	10.42	145	\$37,494,000
12	N Lexington Pkwy from University Ave to Saint Anthony Ave	12.95	178	\$11,044,000
13	W University Ave from Snelling Ave to Hamline Ave	12.25	151	\$11,932,000
14	N Snelling Ave from University Ave to Concordia Ave	11.21	205	\$14,908,000
15	N Rice St from Maryland Ave to Pennsylvania Ave	9.49	286	\$19,087,000
16	N Arcade St from Wheelock Pkwy to Maryland Ave	11.95	130	\$9,323,000
17	W University Ave from Lexington Pkwy to Dale St	8.81	243	\$30,513,000
18	E Maryland Ave from Hazelwood St to White Bear Ave	11.78	119	\$10,502,000
19	E 3 rd St from Maria Ave to Forest St	13.97	108	\$5,681,000
20	Johnson Pkwy from Maryland Ave to Phalen Blvd	12.99	57	\$18,171,000

Source: MnCMAT2, MnDOT AADT dataset.



High Crash Intersections

Figure 19 shows intersection crash rankings for Saint Paul intersections. Intersections that did not have traffic volume data in MnDOT's dataset for all intersecting streets were excluded from this analysis. High crash rate intersections largely follow the same spatial pattern as high crash rate street segments. Table 3 summarizes the top 20 high crash signalized intersections in Saint Paul between 2018 and 2022 and Table 4 summarizes the six high crash unsignalized intersections.²⁵

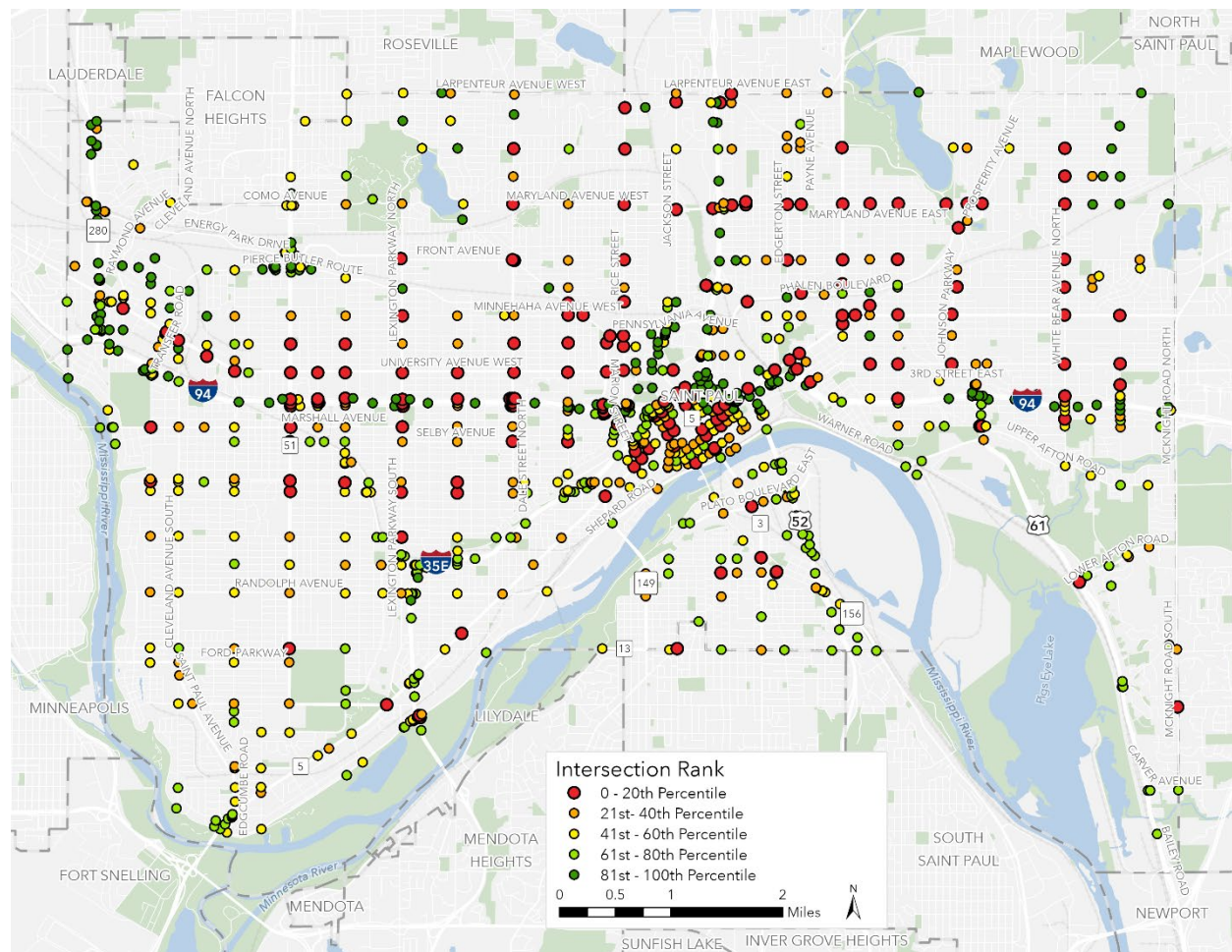


Figure 19 Composite Crash Ranking by Intersection, 2018-2022. Source: MnCMAT2, MnDOT AADT dataset.

²⁵ This table ranks only intersections that are within 150 feet of at least one fatal or serious injury crash.

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Table 3 Top 20 High Crash Signalized Intersections

Overall Ranking	Intersection	Intersection Crash Rate (crashes/MEV)	Total Number of Crashes	Total Crash Cost
1	N Snelling Ave and W Saint Anthony Ave	1.80	66	\$4,300,000
2	E Maryland Ave and N Edgerton St	1.19	35	\$14,907,000
3	N Dale St and W University Ave	1.05	64	\$4,271,000
4	N Rice St and W Maryland Ave	1.03	54	\$3,383,000
5	E Case Ave and White Bear Ave N	1.65	33	\$2,349,000
6	Mounds Blvd and E Kellogg Blvd	0.97	47	\$5,958,000
7	N Arcade St and E Maryland Ave	0.91	52	\$3,898,000
8	W Saint Anthony Ave and N Dale St	2.98	30	\$1,989,000
9	E 7th St and N White Bear Ave	1.26	31	\$2,326,000
10	N Rice St and W Lafond Ave	0.89	48	\$3,064,000
11	W Minnehaha Ave and Western Ave N	1.30	25	\$2,444,000
12	W Concordia Ave and N Dale St	2.37	23	\$1,898,000
13	N Lexington Ave and W University Ave	0.84	47	\$2,751,000
14	Johnson Pkwy and E Maryland Ave	0.96	30	\$2,093,000
15	N Hamline Ave and W University Ave	0.81	37	\$2,187,000
16	N Snelling Ave and W University Ave	0.62	51	\$5,056,000
17	N Western Ave and W University Ave	0.98	27	\$1,846,000
18	N Rice St and W Arlington Ave	0.79	28	\$2,394,000

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19	N Clarence St and E Maryland Ave	1.03	19	\$1,849,000
20	W 7th St and N Wabasha St	0.69	22	\$3,252,000

Source: MnCMAT2, MnDOT AADT dataset.

Table 4 Top High Crash Unsignalized Intersections

Overall Ranking	Intersection	Intersection Crash Rate (crashes/MEV)	Total Number of Crashes	Total Crash Cost
1	7th St and W Victoria Ave	0.52	12	\$2,905,000
2	N Victoria St and W Saint Anthony Ave	1.22	8	\$841,000
3	W Minnehaha Ave and W Como Ave	0.38	11	\$880,000
4	N Ruth St and E 3rd St	0.39	7	\$1,259,000
5	Charlton St and Dodd Rd	0.89	3	\$993,000
6	E Case Ave and N Burr St	0.94	2	\$763,000

Source: MnCMAT2, MnDOT AADT dataset.

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Figure 20 shows the top 20 high crash signalized intersections and segments among the intersections and segments for which MnDOT records AADT data. These high crash locations provide an understanding of where the safety needs are greatest in the city and where safety investments would provide the greatest benefit. Any future projects programmed for these streets or intersections should include a comprehensive review of the location's specific safety challenges, and improved safety should be a determining factor when developing the project design.

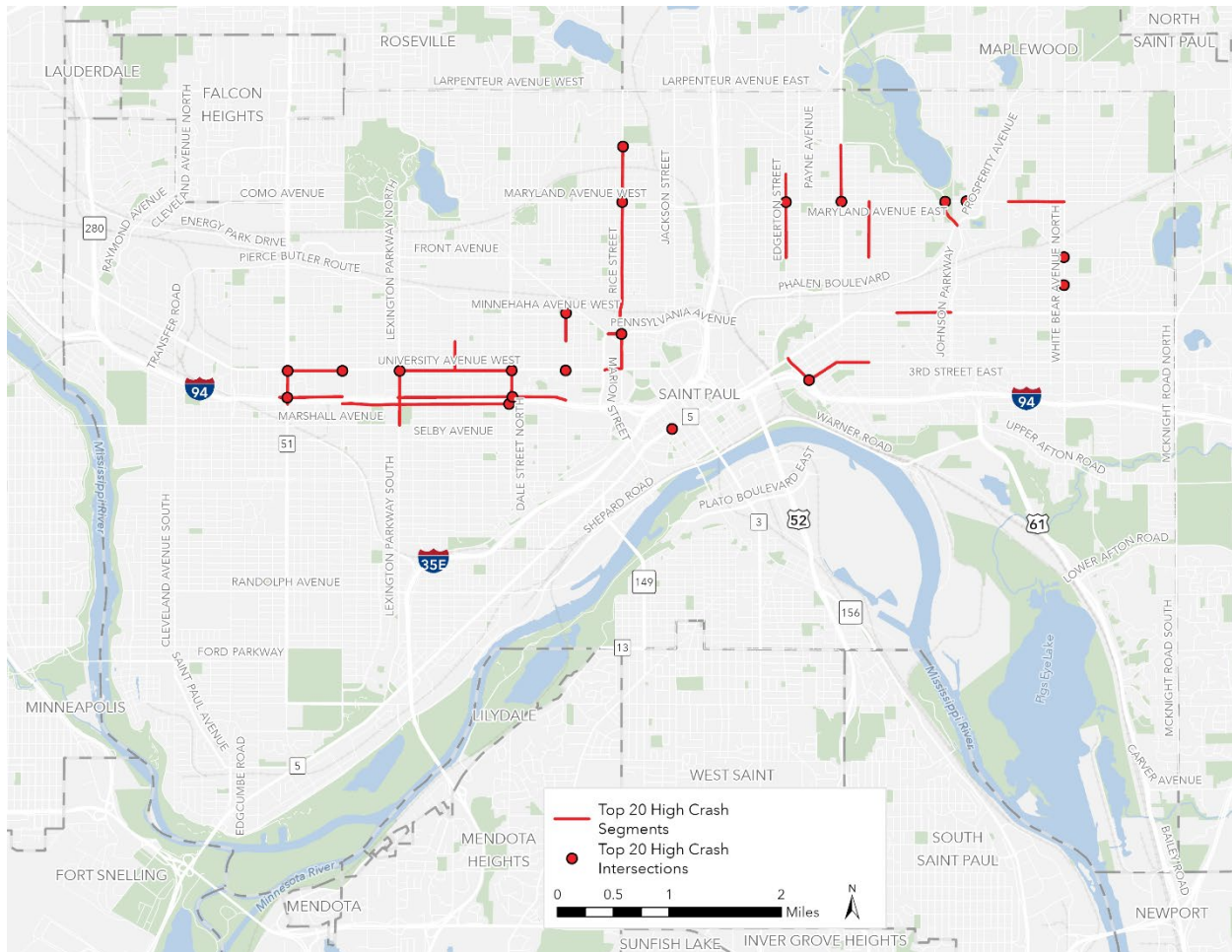


Figure 20: Top 20 High Crash Segments and Intersections. Source: MnCMAT2, MnDOT AADT dataset.



Crash Characteristics and Contributing Factors

The MnCMAT2 database includes data on many crash characteristics and contributing factors. Evaluating crash factors can highlight targeted areas for intervention. These crash characteristics are collected from initial police reports, meaning the data analysis can only be as complete as the officer's initial data collection. The analysis provided here is intended to provide baseline information about the types of crashes occurring within the city, but not all crash characteristics are correctable through safety interventions.

Crashes by Roadway Ownership and Functional Classification

Crashes occurring on Ramsey County-owned streets are overrepresented relative to the proportion of streets in Saint Paul that are county-owned. While county-owned streets make up only 13.3 percent of lane miles in the city, 23.5 percent of all crashes and 31.9 percent of all fatal and serious injury crashes occurred on those streets (Figure 21). This suggests that targeting safety interventions along county-owned roads should be a priority strategy for decreasing fatal and serious injury crashes. Except for a limited number of at-grade state trunk highways, most of the what would be considered the busiest streets in Saint Paul are owned and operated by the county.

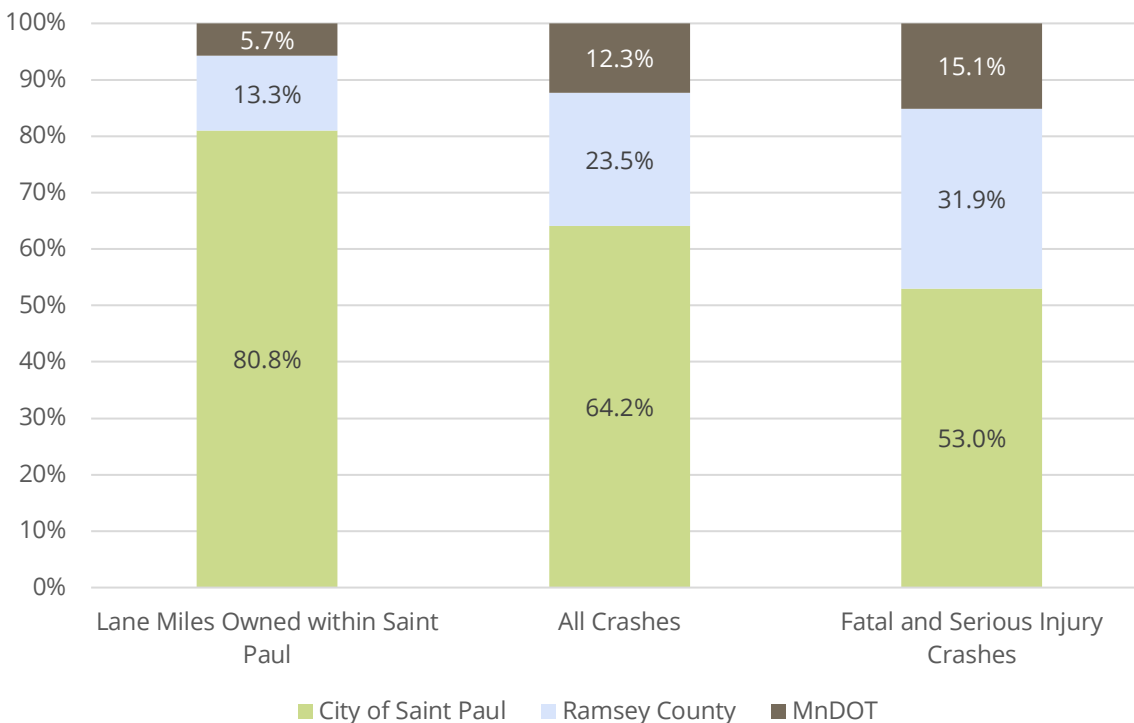


Figure 21: Crashes by Roadway Ownership, 2018-2022. Source: MnCMAT2, City of Saint Paul.²⁶

²⁶ Ownership by lane mileage is based on data from the City of Saint Paul's Street Centerline GIS dataset's OWNERSHIP attribute and excludes lane mileage on Interstate 94, Interstate 35E, U.S. Highway 52, Trunk Highway 280, and ramps.

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Functional classification is the Federal Highway Administration’s roadway classification system, which classifies streets based on their role within the transportation network. Figure 22 compares the amount of lane miles of each functional classification category and the number of crashes by the functional classification of the street on which the crash occurred.²⁷ While Minor Arterials only account for 21 percent of all lane miles in Saint Paul, 39.1 percent of all crashes occurred on Minor Arterials between 2018 and 2022, and 46.7 percent of all fatal and serious injury crashes took place on Minor Arterials during this period.²⁸ **This suggests that targeting safety interventions along Minor Arterials should be a priority strategy for decreasing fatal and serious injury crashes.**

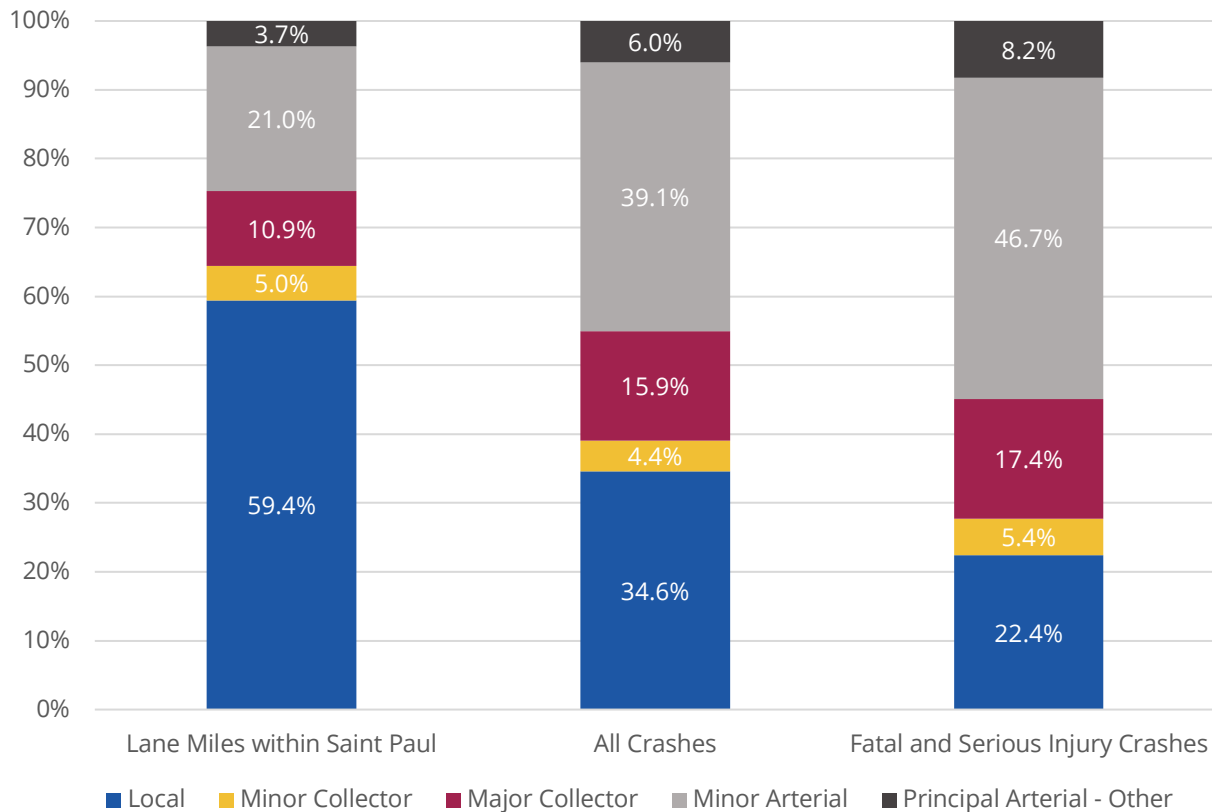


Figure 22: Crashes by Functional Classification, 2018-2022. Source: MnCMAT2 and City of Saint Paul.

²⁷ Lane miles by functional classification is based on the City of Saint Paul’s Street Centerline GIS dataset’s FUNCL_FED attribute and excludes lane mileage on Interstate 94, Interstate 35E, U.S. Highway 52, Trunk Highway 280, and ramps.

²⁸ Minor Arterials provide services for trips of moderate length, serve geographic areas that are smaller than their higher arterial counterparts, and offer connectivity to the higher arterial roadway system. These are important roads through the city, and they frequently include local bus routes. Examples in Saint Paul include Maryland Avenue, White Bear Avenue, Ford Parkway, East 3rd Street, and Selby Avenue.



Crashes by Time of Year

The volume of crashes per month is relatively stable throughout the year, decreasing slightly between February and April before increasing during the summer months. The months that see the most crashes overall are winter months. **Fatal and serious injury crashes increase sharply between April and May, remaining high during the summer months then dropping between October and December.** May, June, and July see the most fatal and serious injury crashes (Figure 23).

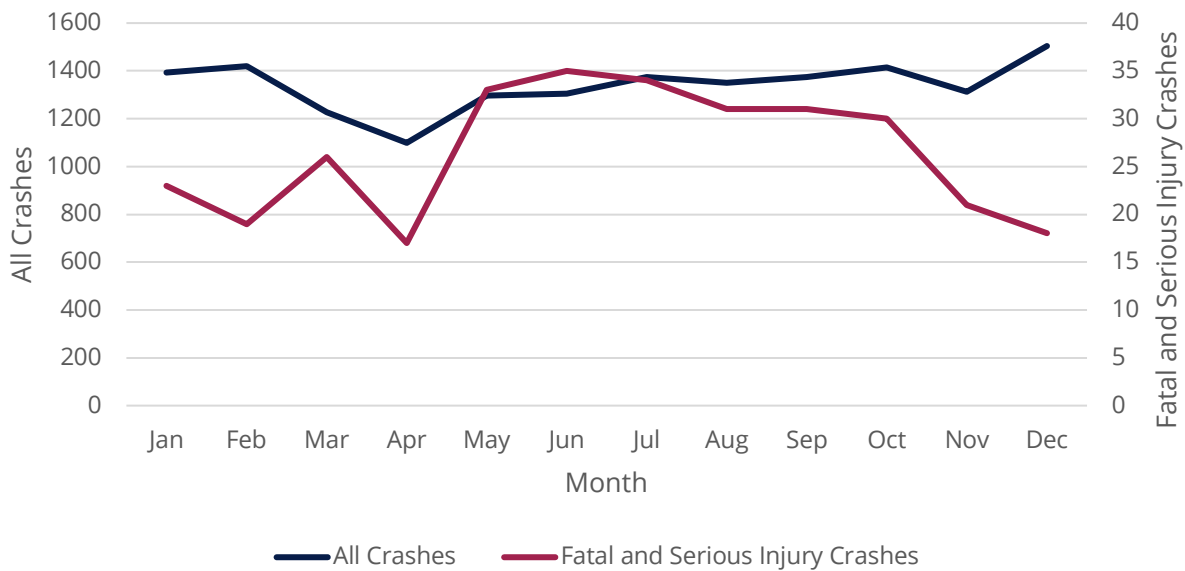


Figure 23: Average Crashes by Month, 2018-2022. Source: MnCMAT2.

Crashes by Time of Day

Crashes increase throughout the day, with a slight peak in the morning and the highest peak in the evening between 4:00 and 5:00pm, likely related to rush-hour commuting. Fatal and serious injury crashes followed a similar pattern, but peak at 6:00pm, a bit later than all crashes (Figure 24). Pedestrian and bicycle crashes also peaked around 5:00pm (Figure 25). **Another notable trend is that fatal and serious injury crashes are lower in daytime hours but higher in nighttime hours.**

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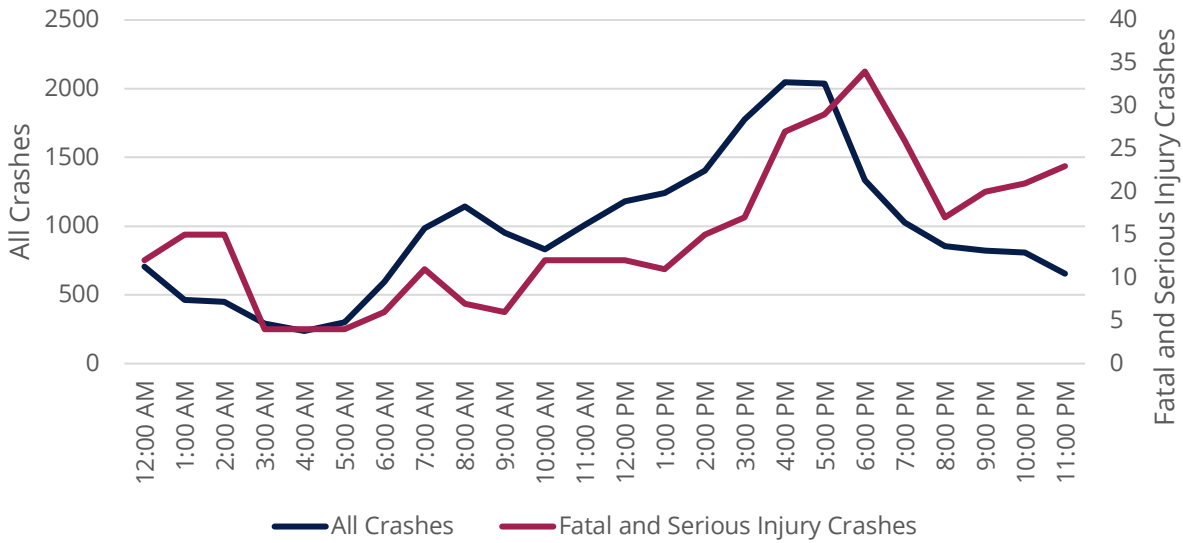


Figure 24: Crashes by Time of Day, 2018-2022. Source: MnCMAT2.

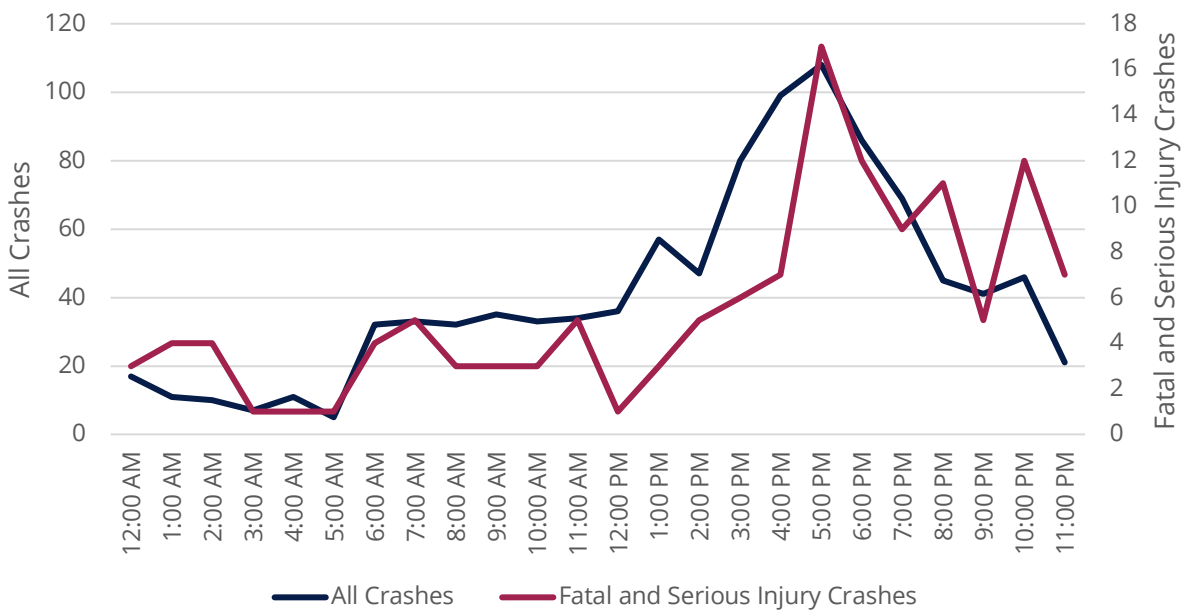


Figure 25: Pedestrian and Bicycle Crashes by Time of Day, 2018-2022. Source: MnCMAT2.



Crashes by Daylight Conditions

For all modes, most crashes occurred in daylight. However, a higher proportion of fatal and serious injury crashes occurred when it was dark outside. **Notably, a higher proportion of fatal and serious injury crashes involving pedestrians and bicyclists occurred when it was dark outside compared to fatal and serious injury crashes that only involved vehicles.** (Figure 26; Figure 27). For fatal and serious injury crashes that took place when it was dark, streetlights were present and on in 82 percent of crashes for all modes and in 78 percent of bike and pedestrian crashes. This indicates that the presence of streetlights likely has less influence than the time of day on the probability of a crash.

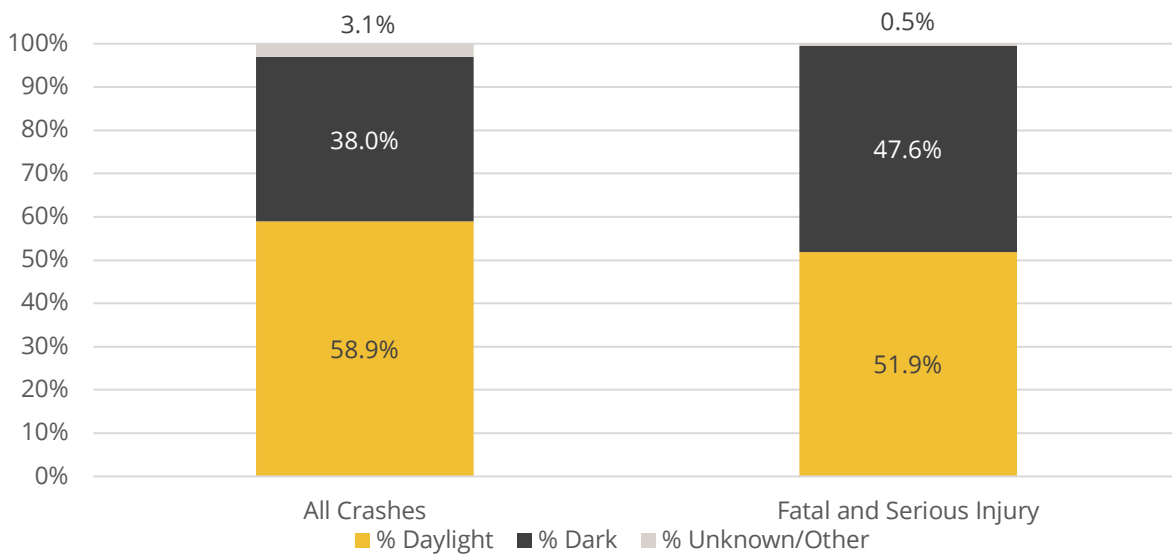


Figure 26: Daylight Conditions and Crash Severity for Vehicular-Only Crashes, 2018-2022. Source: MnCMAT2.

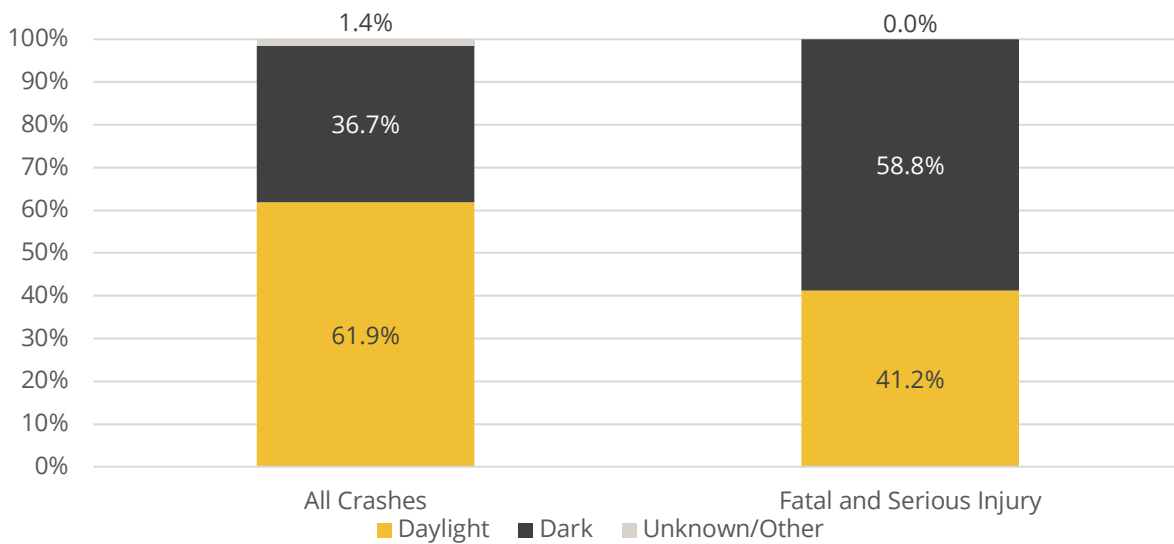


Figure 27: Daylight Conditions and Severity of Bike and Pedestrian Crashes, 2018-2022. Source: MnCMAT2.



Crashes by Weather

Most crashes occurred in clear weather conditions, consistent with the fact that days without precipitation events are more common than days with rain, snow, or sleet/hail (Figure 28). However, a higher proportion of fatal and serious injury crashes occurred in clear weather conditions. The increased proportion of property-damage only and minor injury crashes when it is raining or snowing may be due to slower vehicle speeds and more cautious driving behaviors under these weather conditions.

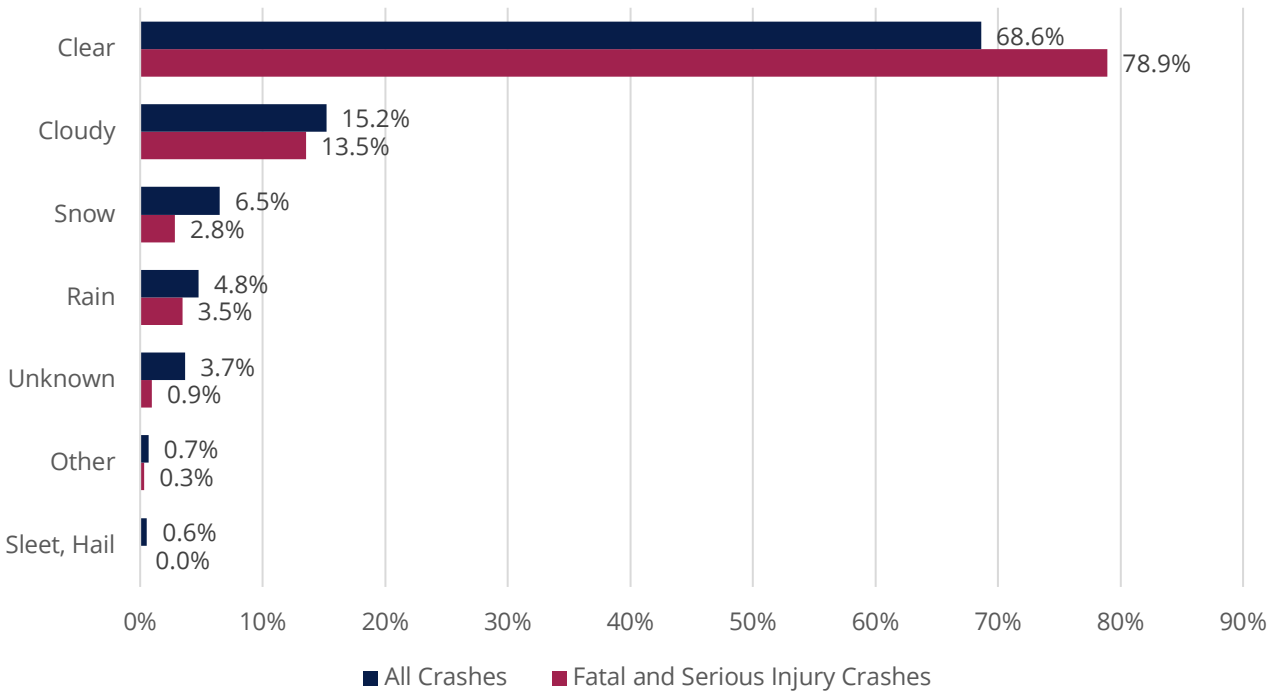


Figure 28: Crashes by Weather Conditions, 2018-2022.

Source: MnCMAT2. Note: Other crashes include Blowing Sand/Soil/Dirt/Snow, Severe Crosswinds, Fog/Smog/Smoke, and Other categories from the MnCMAT2 dataset.



Crashes by Roadway Conditions

Most crashes also take place in dry roadway conditions, consistent with the fact that days without precipitation events are more common than days with rain, snow, or sleet/hail. **Of all crashes, 65.7 percent occurred on dry roadways, and 78.9 percent of fatal and serious injury crashes occurred on dry roadways.** The proportion of all crashes occurring when roadways were wet or covered in ice/frost or snow is greater than the proportion of fatal and serious injury crashes occurring in those conditions (Figure 29).

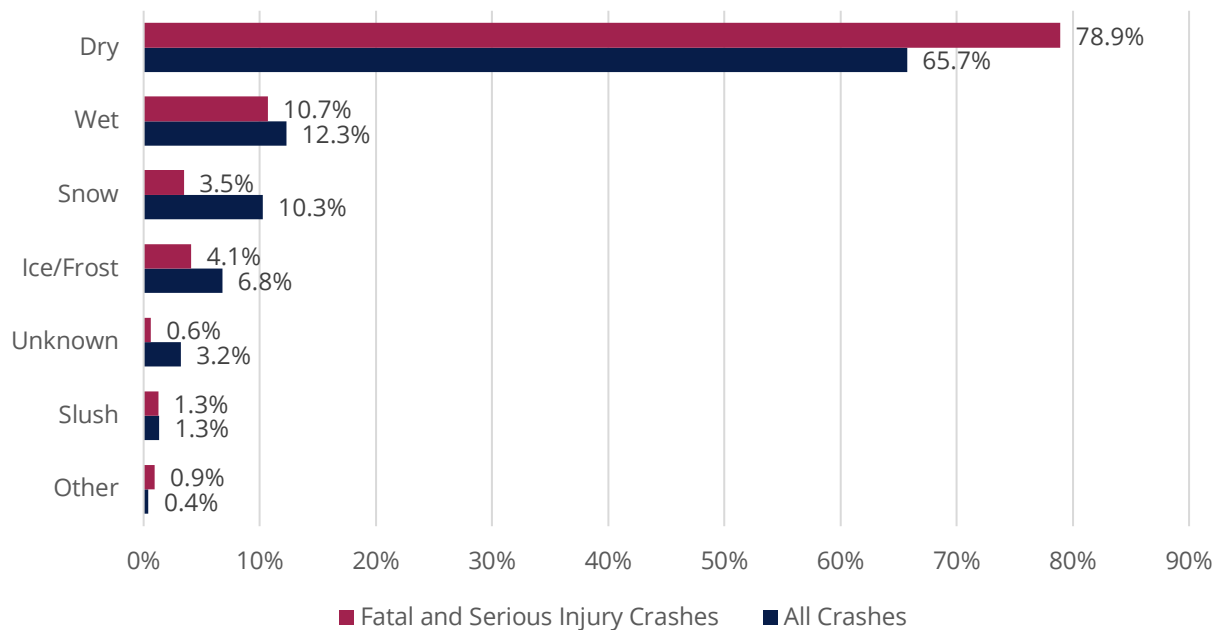


Figure 29: Crashes by Roadway Conditions, 2018-2022. Source: MnCMAT2. Note: Other includes Ruts/Holes/Bumps, Mud/Dirt/Gravel, and Other categories from the MnCMAT2 dataset.



Crashes by Roadway Design

Most crashes in Saint Paul occurred on streets that were Two-Way, Not Divided streets (Figure 30). This was consistent for all crash severity types and modes. The proportion of fatal and severe crashes on each roadway type is relatively consistent with the proportion of all crashes, with the exception of two-way divided roadways without a median barrier, on which fatal and serious injury crashes were over-represented. **The proportion of crashes occurring on two-way undivided streets is largely consistent with the proportion of Saint Paul streets that are two-way undivided.**²⁹

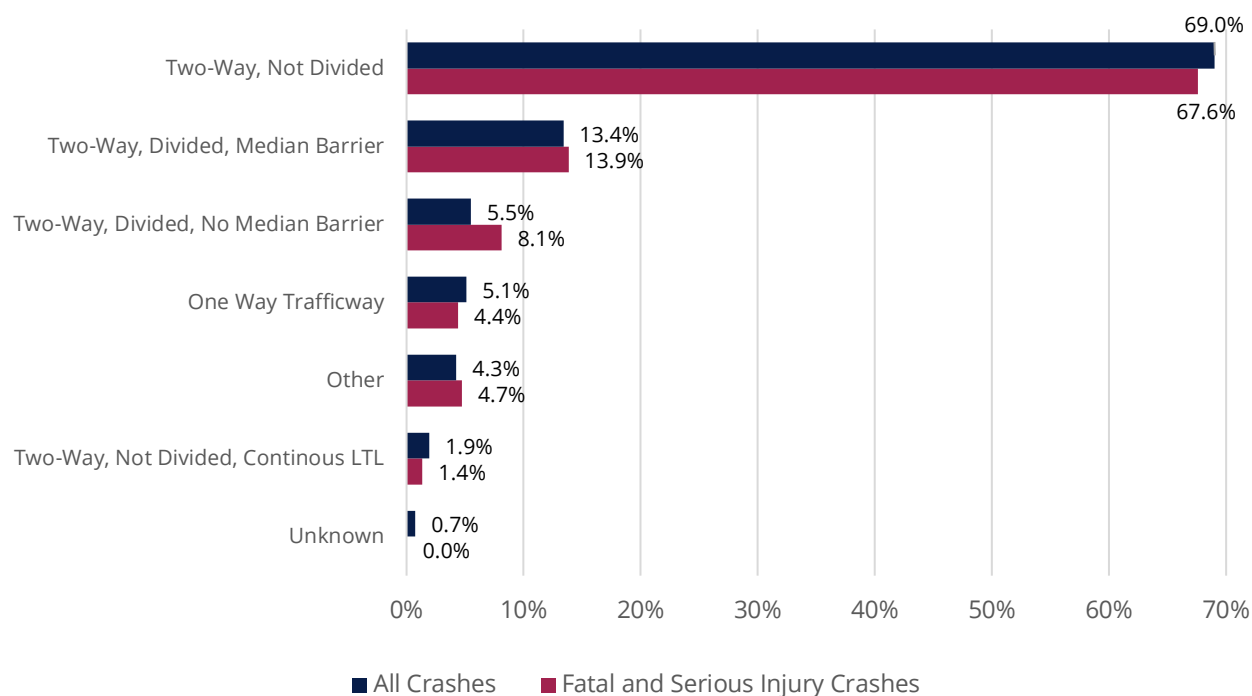


Figure 30: Crashes by Roadway Design, 2018-2022. Source: MnCMAT2.

²⁹ According to the City of Saint Paul's Street Centerline GIS file, 68 percent of Saint Paul's streets are two-way undivided streets.



Crashes by Relationship to Intersection and Traffic Control Device

About 56 percent of all crashes and 67 percent of fatal and serious injury crashes occur at an intersection. A high concentration of fatal and serious injury crashes occurred at four-way intersections (47 percent), and just under 10 percent occurred at T intersections (Figure 31).³⁰ While the data reveals that only about half of all crashes occur at an intersection, crashes at intersections or interchanges are more likely to involve fatalities and serious injury. To significantly improve traffic safety, intersections should be a priority target of future safety improvements.

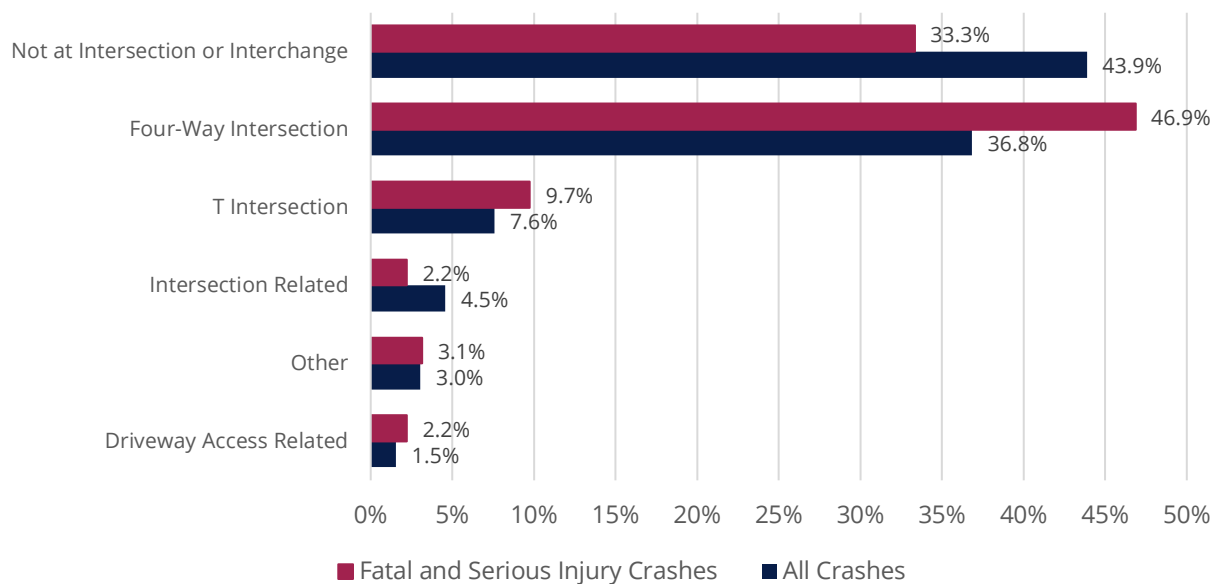


Figure 31: Crashes by Relationship to Intersection, 2018-2022. Source: MnCMAT2.

Approximately half of all crashes that occurred at an intersection were at intersections with a traffic control signal (51.5 percent), followed by 24.6 percent at intersections with stop signs and 19.3 percent at intersections with no controls. A slightly higher proportion of fatal and serious injury crashes occurred at intersections with traffic control signals (55.5 percent) (Figure 32). This is consistent with the fact that traffic signals are typically located on roads with higher traffic volumes, though it indicates that targeting intersection safety improvements at signalized intersections is likely to have a high impact on crash reduction.

³⁰ The following intersection types are not displayed in this figure because they represented less than 1 percent of all crashes: At School Crossing, Other Traffic Circle, Shared Use Path or Trail, Crossover Related, Railway Grade Crossing, Acceleration/Deceleration Lane, Roundabout, Interchange Other Areas, Interchange On Ramp, Interchange Off Ramp, Five-Way Intersection, Y Intersection, Entrance/Exit Ramp, and Unknown.

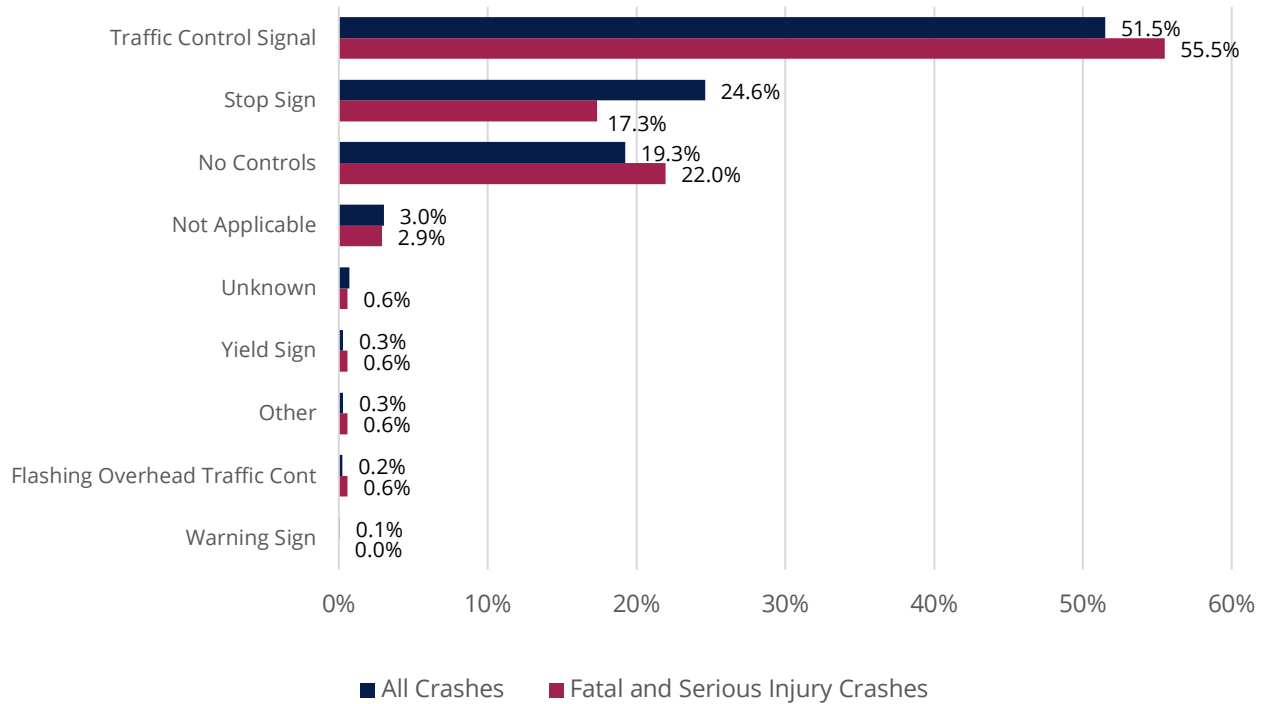


Figure 32: Intersection Crashes by Traffic Control Device, 2018-2022. Source: MnCMAT2.



Crashes by Speed Limit

Most crashes occurred on streets with a posted speed limit of 30 miles per hour at the time of the crash. This was consistent for fatal and serious injury crashes and reflects the fact that most streets in Saint Paul had a posted speed limit of 30 miles per hour before 2021 when the City implemented a citywide speed limit reduction. The proportion of fatal and serious injury crashes occurring on streets with 35 and 40 mph speed limits is slightly higher than for all crash types (Figure 33). Most bike and pedestrian crashes also occurred on streets with a posted speed limit of 30 mph at the time of the crash (68 percent of bicycle and pedestrian crashes).

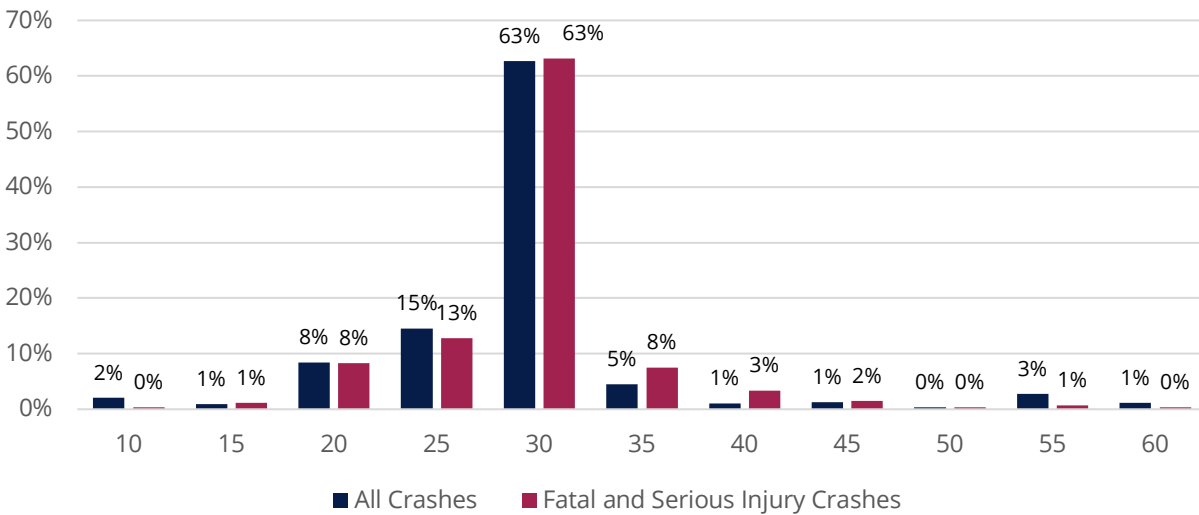


Figure 33: Crashes by Speed Limit, 2018-2022. Source: MnCMAT2. Note: Speed limit data is based on the posted speed limit at the time that the crash occurred.



The City of Saint Paul reduced speed limits on most city-owned streets in 2020. Following this change, the number of fatal and serious injury crashes on roadways with a speed limit of 30 mph or higher decreased, while the number of severe crashes on roadways with a speed limit of 20 to 25 mph increased (Figure 34). This reflects that a similar volume of crashes were occurring on the streets with lower speed limits that previously had higher speed limits prior to 2020.

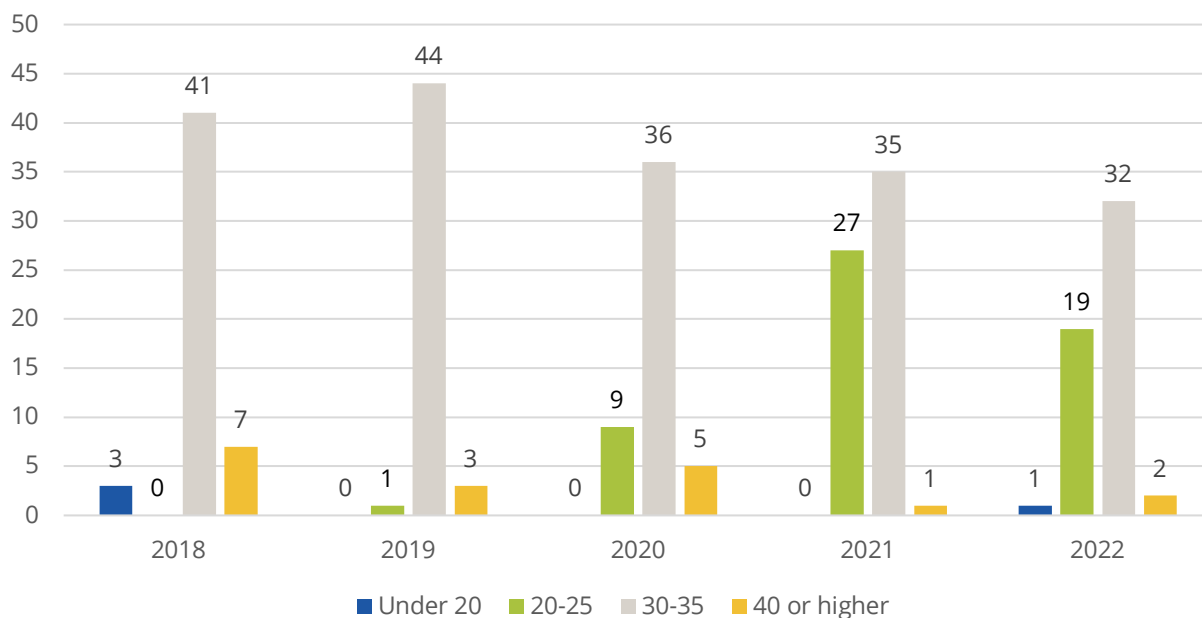


Figure 34: Fatal and serious injury crashes by speed limit by year. Source: MnCMAT2.



Vehicular-Only Crashes by Crash Type

Most crashes are classified as having an “Other” Basic Crash type in the MnCMAT2, limiting the utility of crash type analysis. For vehicular-only³¹ crashes of all severities, rear end crashes are the second most frequent crash type documented. For fatal and serious injury crashes, angle crashes are the most common crash type (Figure 35).

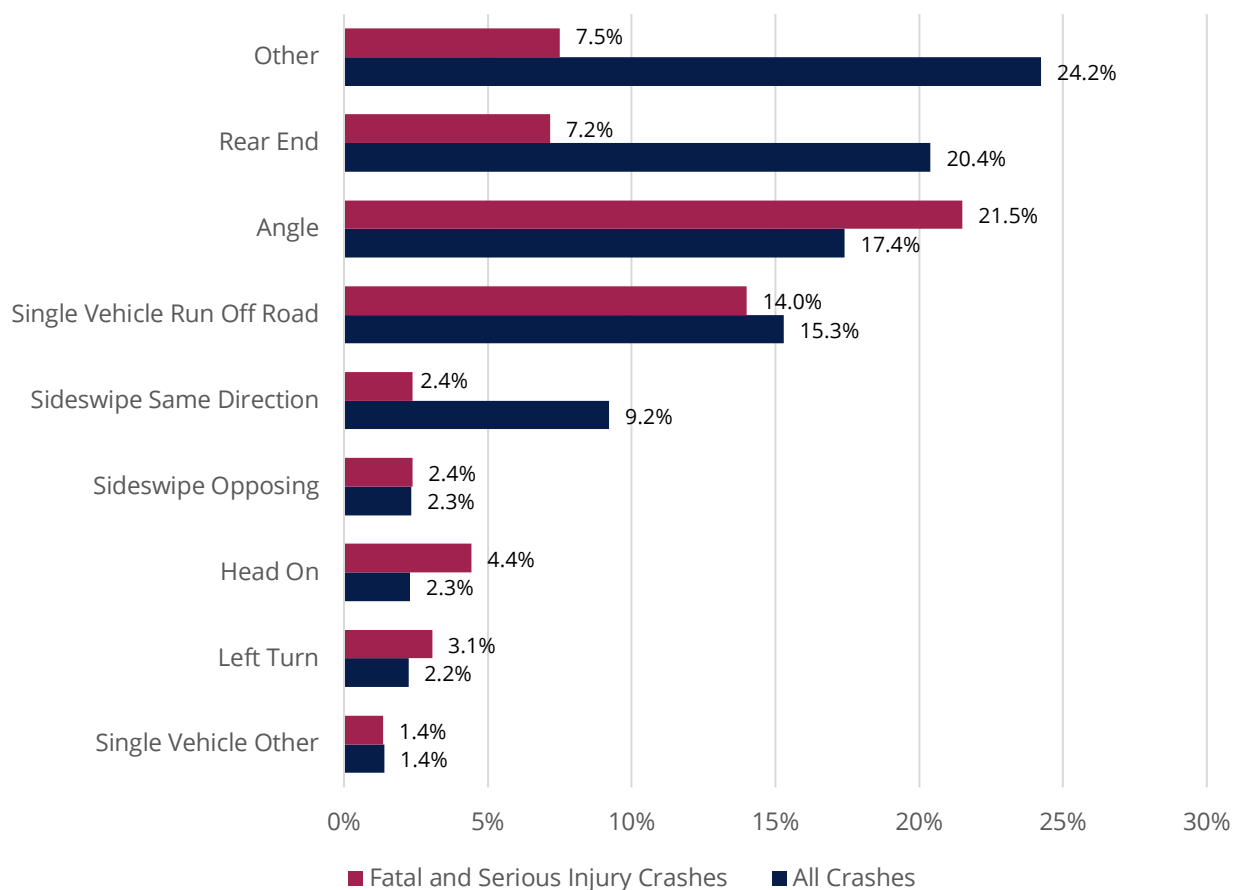


Figure 35: Basic Crash Type for Vehicular-only Crashes, 2018-2022. Source: MnCMAT2.

³¹ Vehicular crashes in this case excludes crashes involving pedestrians, bicycles and motorized bicycles, motorized foot scooters, and motorized wheelchairs and other mobility devices.



Crashes by Manner of Collision

Approximately 32 percent of all crashes during the study period were front-to-rear (rear end) collisions, followed closely by angle collisions at 30 percent. Over half of fatal and serious injury crashes were angle collisions, while only 17 percent and 13 percent were front-to-front and front-to-rear collisions, respectively (Figure 36). Angle collisions occur when a vehicle strikes another between 90 and 180 degrees and can occur in a variety of ways, including involving turning vehicles at intersections, or when someone runs a red light or stop/yield sign. The high amount of fatal and serious injury for this type of collision suggests that improvements specifically targeted to reducing angle crashes (such as safety improvements at intersections) would be beneficial in improving safety. This is consistent with the finding that intersections should be a priority target of future safety improvements.

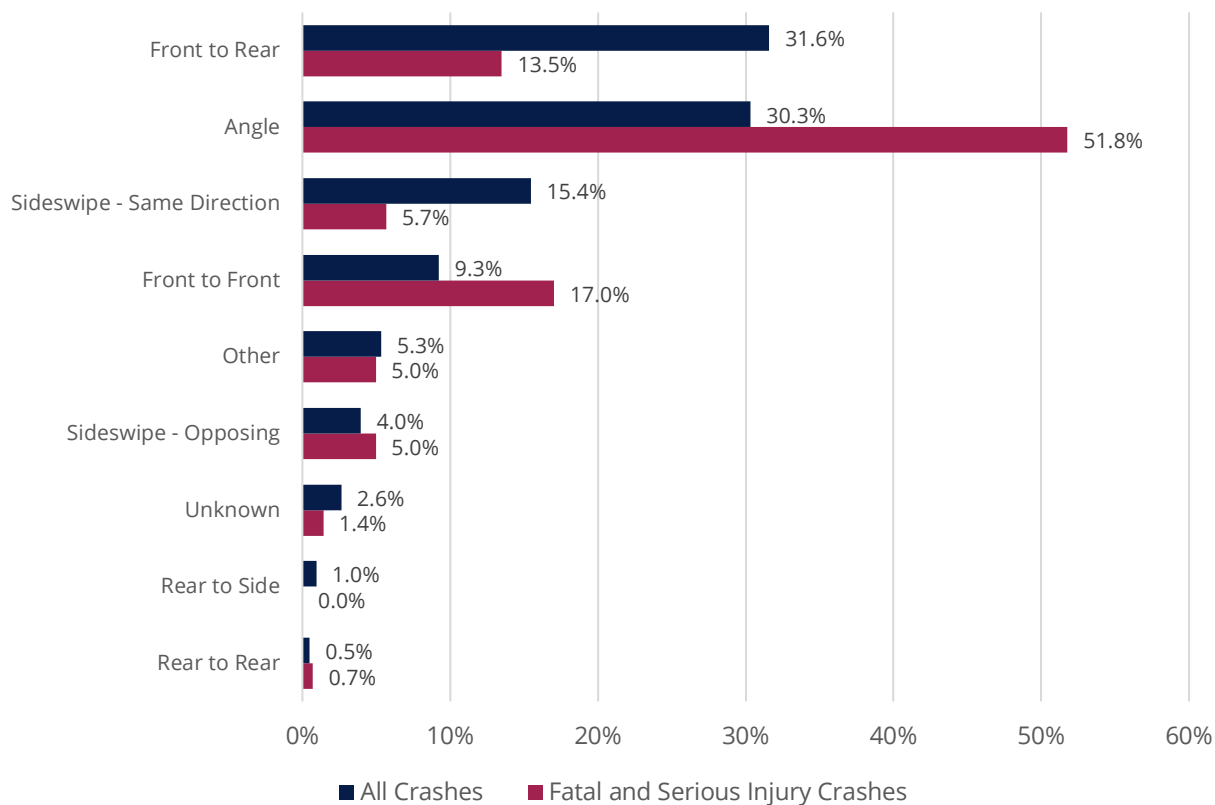


Figure 36: Crashes by Manner of Collision, 2018-2022. Source: MnCMAT2.



Vulnerable Road User Crashes by Location and Maneuver

The most common location for pedestrian and bicycle crashes was at an intersection with a marked crosswalk (Figure 37). **This data suggests that bicycle and pedestrian crossing improvements at existing crosswalks would have the greatest safety benefit.**

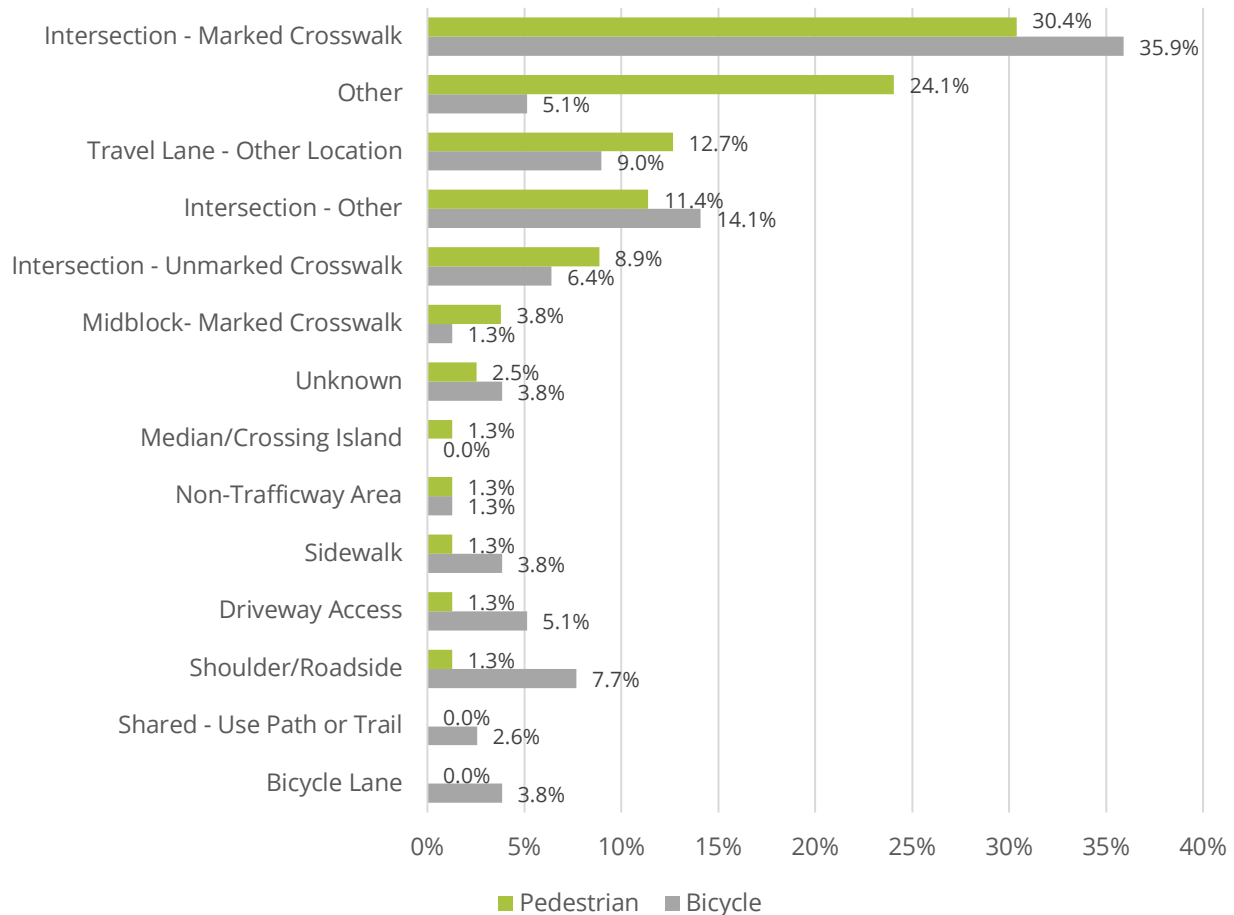


Figure 377: Pedestrian and Bicycle Crashes by Location, 2018-2022. Source: MnCMAT2.

Consistent with the most common crash location for pedestrians and bicyclists being at intersections, the most common pre-crash non-motorist maneuver in these crashes was Walk/Cycle Across Traffic (X-ing), meaning that the pedestrian or bicyclist was crossing traffic when they were struck. This was the pre-crash action/location for 54 percent of pedestrian crashes and 38 percent of bicycle crashes (Figure 38). **These trends indicate that crossing vehicle traffic is the most dangerous maneuver for**



pedestrians and bicyclists, further emphasizing the importance of improving roadway crossing safety for bicyclists and pedestrians.

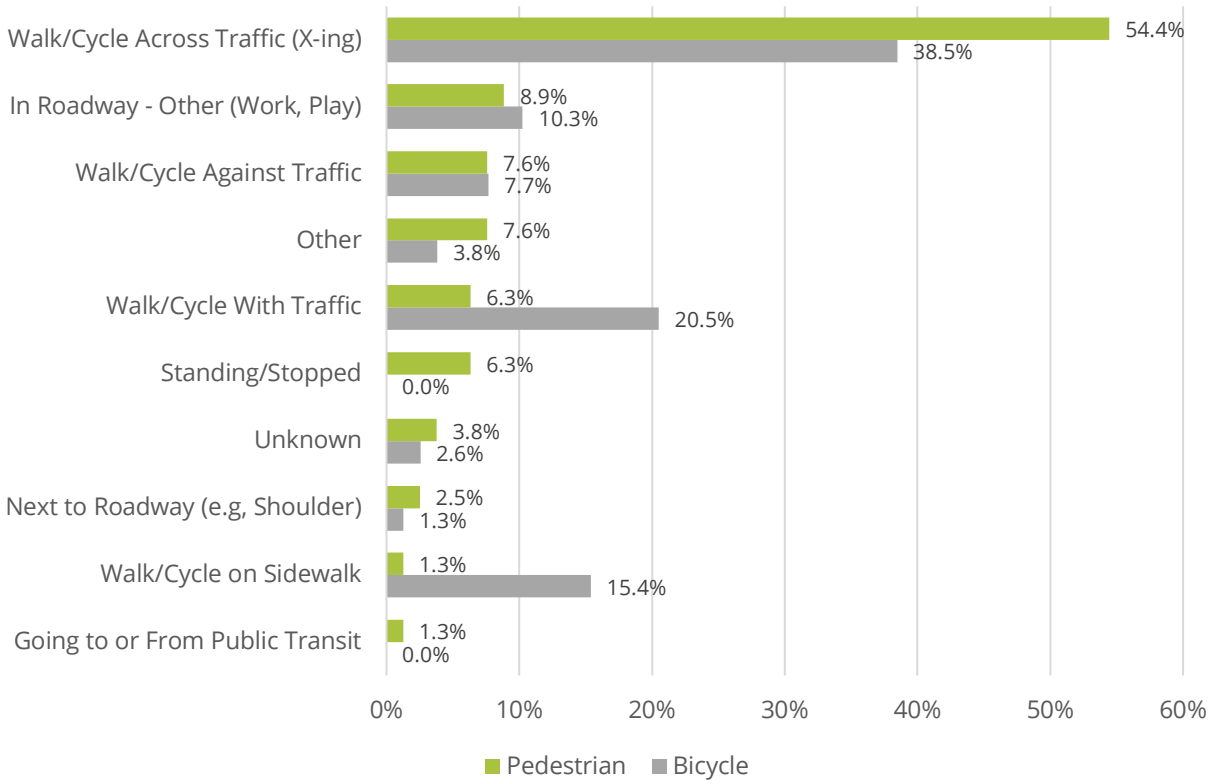


Figure 38: Pedestrian and Bicycle Crashes by Non-Motorist Maneuver, 2018-2022. Source: MnCMAT2.



Crashes by Vehicle Type

Over half of all crashes involved a Passenger Car vehicle. Sports Utility Vehicles were the second most common vehicle type involved in crashes (Figure 39). This was consistent across crash severity types and for pedestrian and bicycle crashes. A higher proportion of motorcycles are involved in fatal and serious injury crashes, which would be expected since the vehicle does not provide protection to the rider involved in a crash.

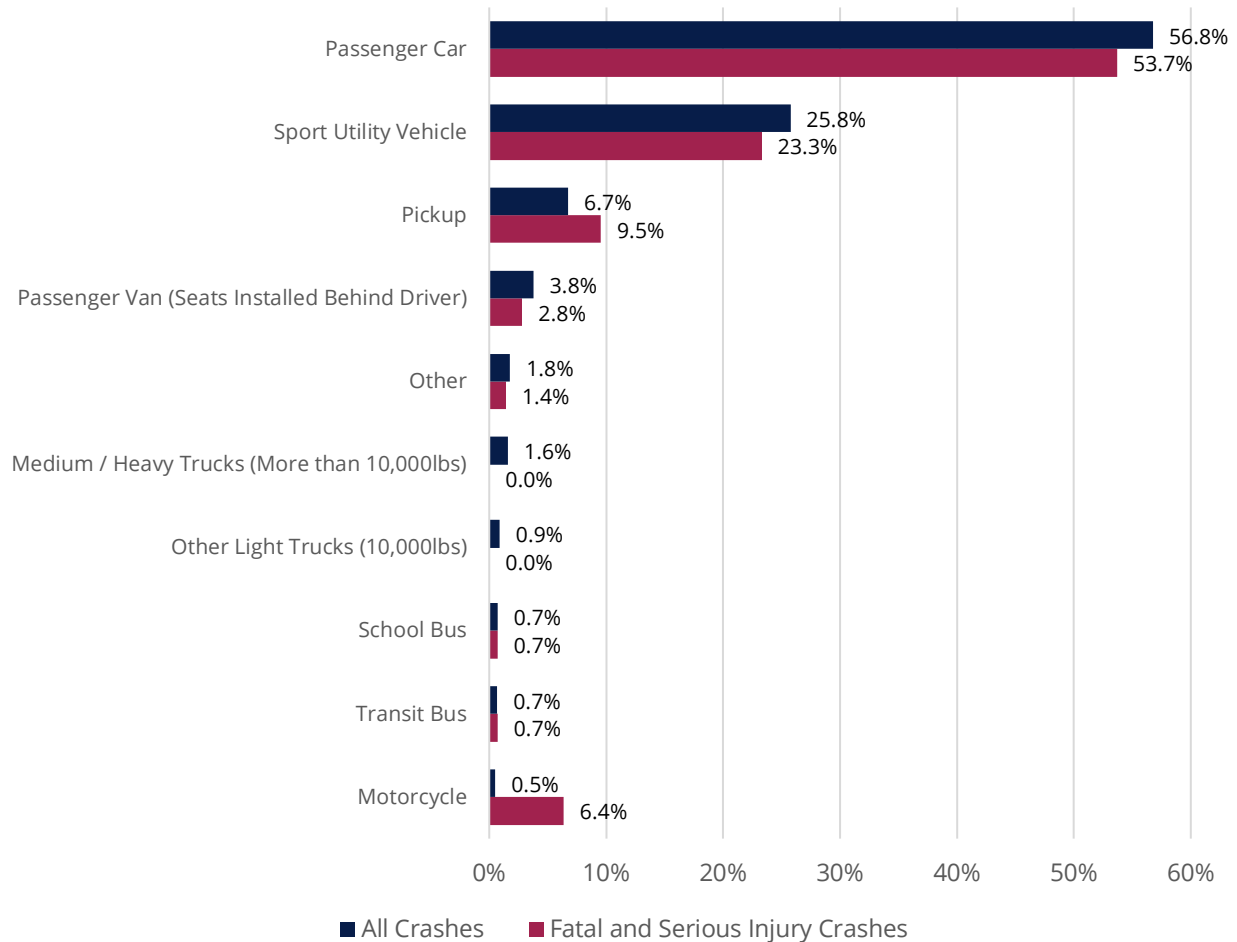


Figure 39: Crashes by Vehicle Type, 2018-2022. Source: MnCMAT2.



Crashes by Driver Behavioral Factors and Physical Conditions³²

MnCMAT2 documents many behavioral factors and conditions for motorists involved in crashes. This includes the physical condition of involved persons. For all crash types, the driver’s condition was documented as “Apparently Normal” for 75 percent of crashes. For fatal and serious injury crashes, 54 percent of motorists were described as being in “Apparently Normal” physical condition. For all crashes, 10.5 percent of motorists were under the influence of alcohol or illicit drugs. Fatal and serious injury crashes were more likely to be attributed to drivers under the influence of alcohol or illicit drugs, with 14.8 percent of serious crashes involving drivers under the influence (Figure 40).

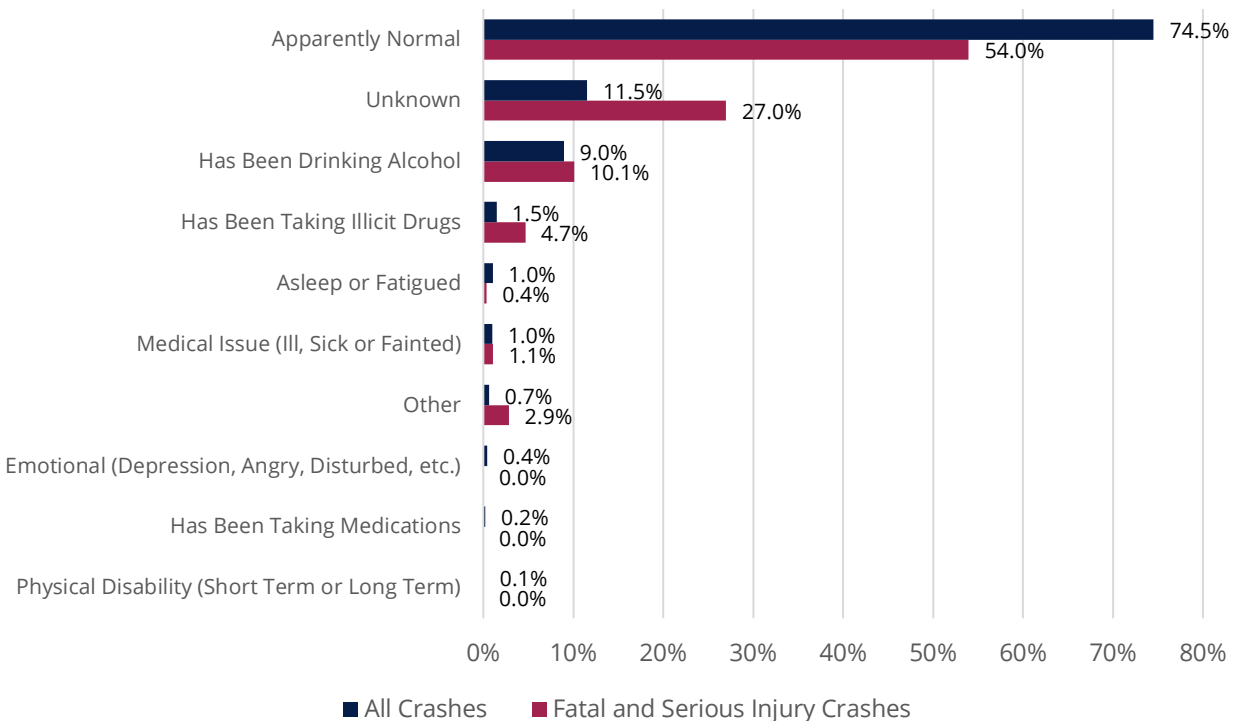


Figure 40: Crashes by Motorist Physical Condition, 2018-2022. Source: MnCMAT2.

While the MnCMAT2 database documents contributing factors for crashes, half of all crashes in Saint Paul were classified as Unknown or No Clear Contributing Factor. Contributing Factors are documented by responding officers at the scene of a crash, and factors such as conflicting witness statements, hit-and-runs, or a crash that was not witnessed by the officer make this data difficult to rely on. **Crashes involving careless or reckless driving, speeding, and failure to yield the right-of-way were more likely to cause fatalities or severe injuries (Figure 41).**

³² All data on driver behavioral factors and physical conditions are based on the roadway User 1 (U1) in the MnCMAT2 database, in this analysis this is assumed to be the driver at fault for the crash

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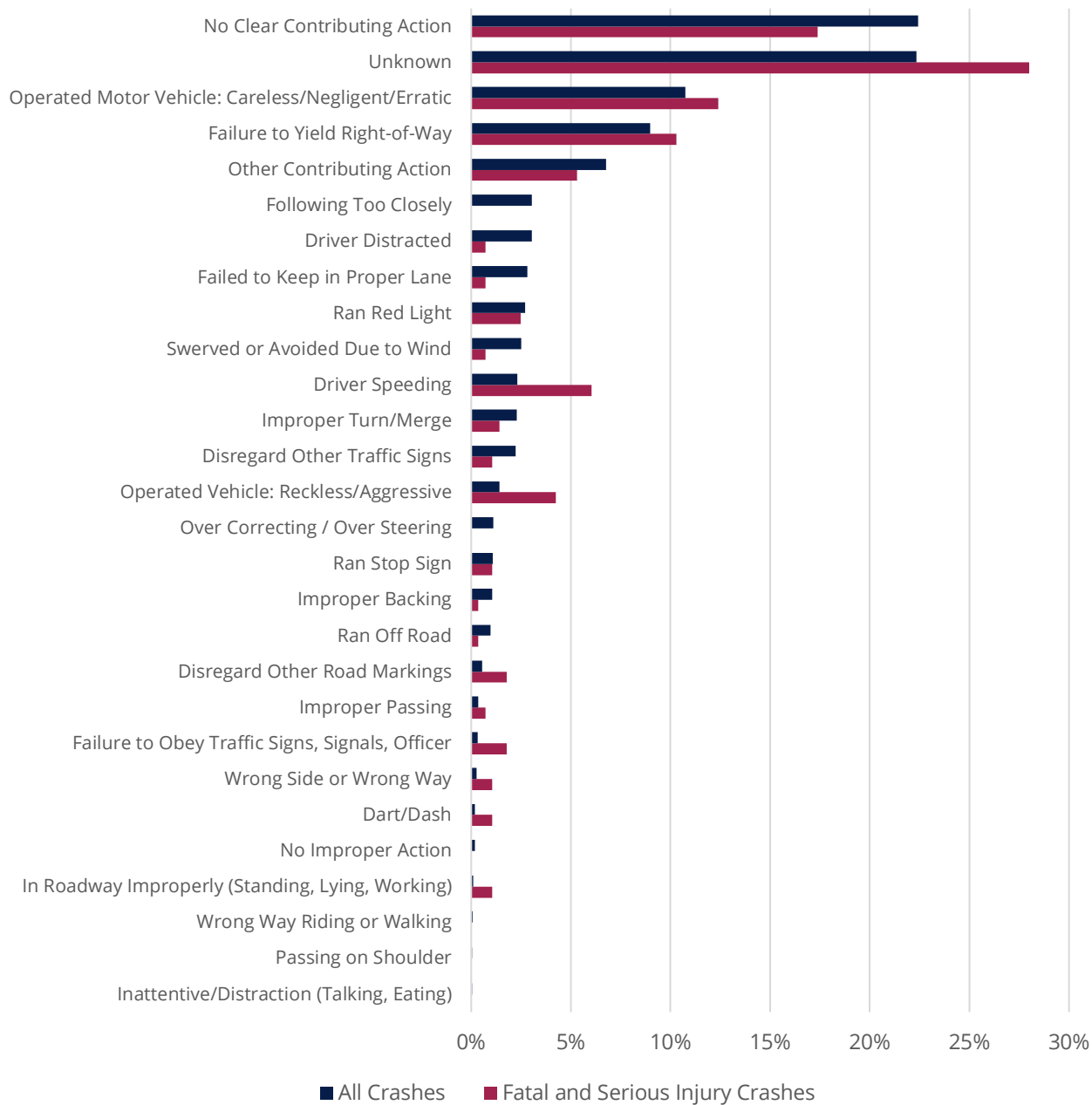


Figure 41 Crashes by Contributing Factor, 2018-2022. Source: MnCMAT2.

Finally, MnCMAT2 documents the driver’s pre-crash maneuver. For over 60 percent of all crashes, the driver was moving forward when the crash occurred. For bicycle and pedestrian crashes, the pre-crash motorist maneuvers of Turning Left or Turning Right were over-represented (Figure 42).

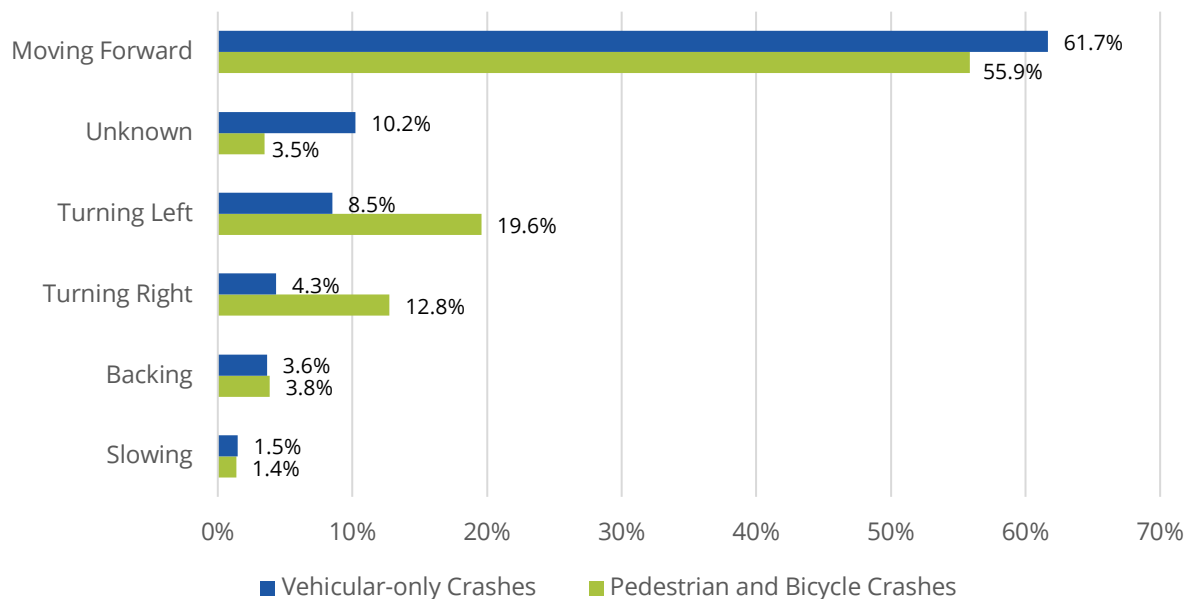


Figure 42 Driver Pre-Crash Maneuver, 2018-2022. Source: MnCMAT2.

Some anecdotal evidence and national and state-level data has examined the increase in reckless driving behaviors during and following the COVID-19 pandemic. Figure 43 examines the proportion of all crashes caused by certain behavior factors in 2022 vs 2018 to determine which, if any driving behaviors changed significantly over the analysis period (factors accounting for fewer than 2 percent of all crashes were excluded from the analysis, as well as crashes coded as “unknown” or “no contributing factor”). **This analysis found that the proportion of all crashes caused by speeding increased 184 percent over the 5-year period. Run-off-road type crashes increased 175 percent during this period, a crash type often associated with speeding or reckless driving. Other factors, such as “failure to keep in proper lane,” and “improper turn/merge” also increased, along with “ran red light” and “ran stop sign.”** Other factors, such as “in roadway improperly,” “reckless/aggressive driving,” and “passing on shoulder” also had significant increases, but these factors account for a very small proportion of overall crashes.

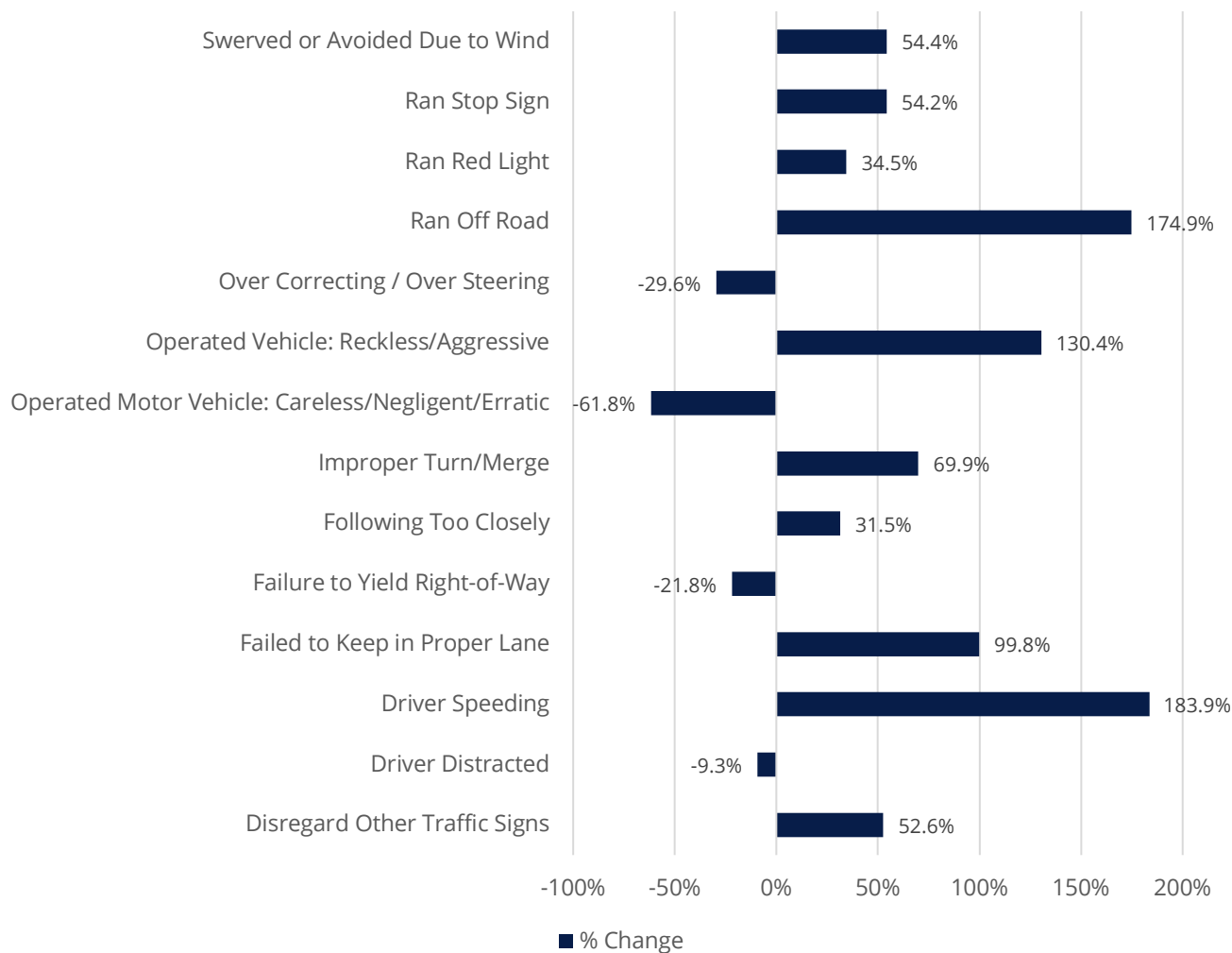


Figure 43: Change in Proportion of all Crashes Attributed to Behavioral Factors, 2022 vs 2018. Source: MnCMAT2



Crashes by Age of People Involved

Approximately 50 percent of all crashes and fatal and serious injury crashes involved motorists between the ages of 21 and 49 years old (Figure 44).³³ Less than ten percent of all crashes and fatal and serious injury crashes involved motorists under the age of 18. There is not a major takeaway from this information that Saint Paul can act on in this Transportation Safety Action Plan but provides baseline information.

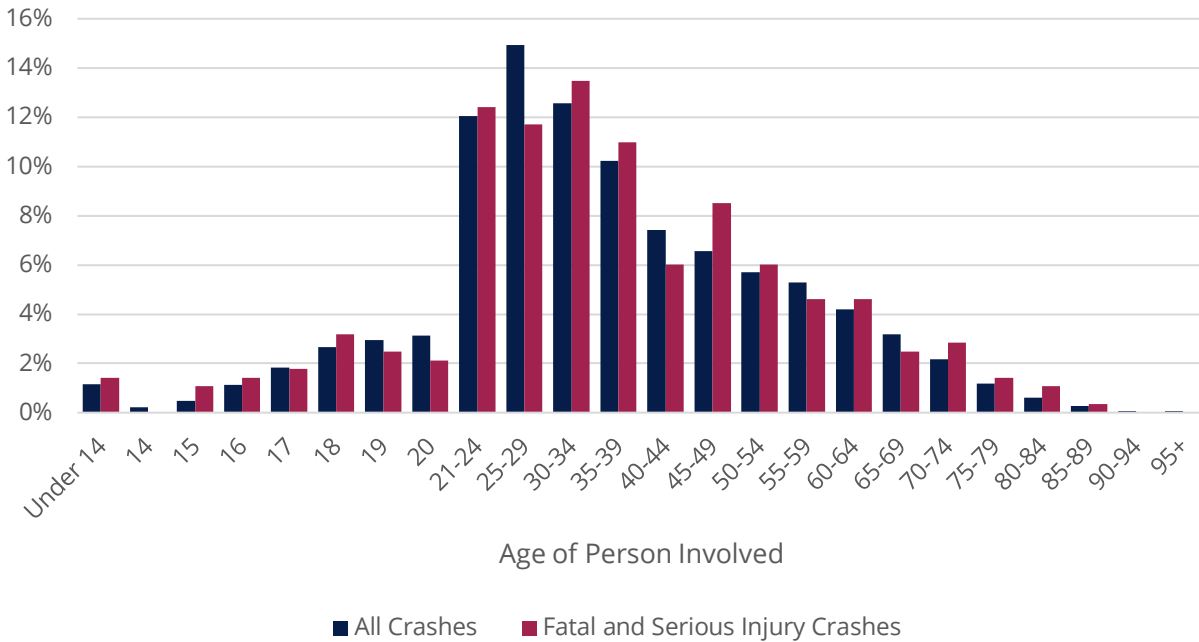


Figure 44 Crashes by Age of People Involved, 2018-2022. Source: MnCMAT2

³³ The data in this figure is based on the roadway User 1 (U1) in the MnCMAT2 database.



Crashes by Sex of People Involved

Most crashes in Saint Paul involved motorists who were identified as Male in the crash report. Male motorists were involved in 61 percent of all crashes in Saint Paul and in 66 percent of all fatal and serious injury crashes (Figure 45). There is not a major takeaway from this information that Saint Paul can act on in this Transportation Safety Action Plan but provides baseline information.

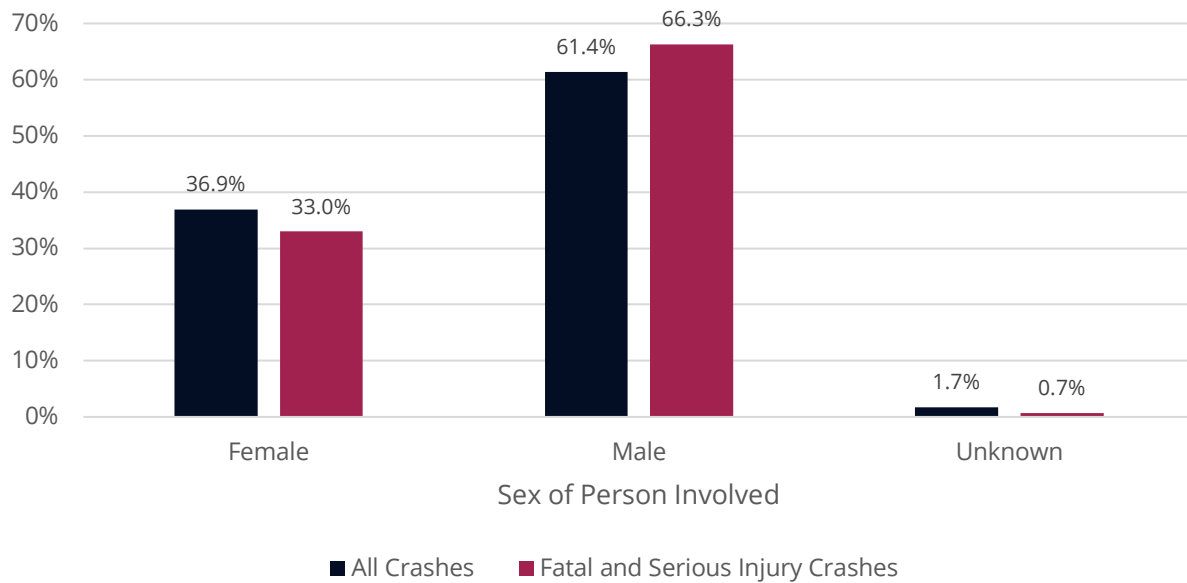


Figure 45 Crashes by Sex of People Involved, 2018-2022. Source: MnCMAT2



Crash Data Equity Analysis

Purpose

Traffic safety is an equity issue. Nationally, People of Color and low-income communities bear a disproportionate burden of traffic-related injuries and fatalities. Indigenous people and Black people are much more likely to be killed when walking than other racial and ethnic groups, and lower-income census tracts have significantly higher pedestrian fatality rates than affluent communities (Figure 46; Figure 47).

People of color, particularly Native and Black Americans, are more likely to die while walking than any other race or ethnic group

Pedestrian deaths per 100,000 by race & ethnicity (2016-2020)

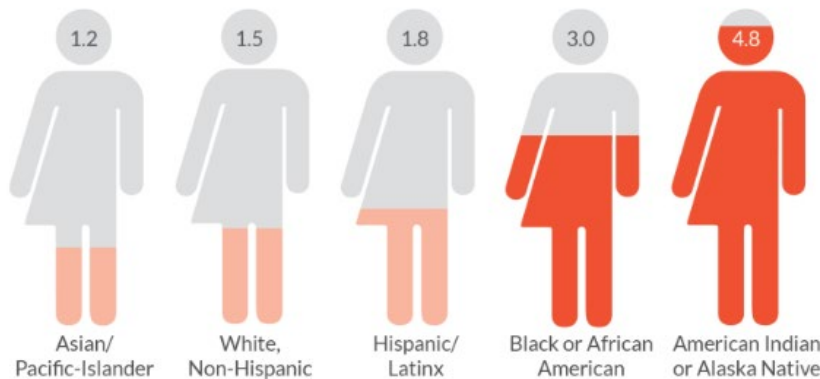


Figure 46: Traffic safety equity disparities. Source: Dangerous by Design.

People walking in lower-income areas are killed at far higher rates

Pedestrian fatalities per 100k people by census tract income

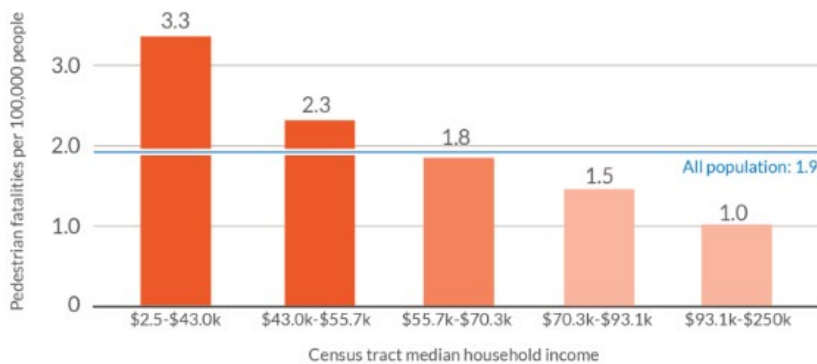


Figure 47: Traffic safety equity disparities. Source: Dangerous by Design.

Although decades of data demonstrate these patterns across the country, no racial equity analysis of crash data has been completed for the City of Saint Paul because demographic data is not available for the crashes. Therefore, this analysis seeks to better understand the relationships among race and



ethnicity, disadvantaged communities, and traffic-related injuries and deaths in Saint Paul. Key questions include:

1. Are there racial and ethnic inequities in traffic-related serious injuries and deaths in Saint Paul? If so, what are they?
2. Are there more traffic-related serious injuries and deaths in parts of the city that are both (1) majority Black, Indigenous, and/or People of Color (BIPOC), and (2) USDOT-designated Historically Disadvantaged Communities (HDC)?³⁴

Methodology

To answer these questions, the analysis took a two-pronged approach:

1. **Demographic Analysis.** To find out if there are racial disparities in serious traffic injuries and fatalities, data from the Fatality Analysis Reporting System (FARS) maintained by the USDOT's National Highway Traffic Safety Administration (NHTSA) was used.³⁵ FARS data from 2010 to 2019 was used, and the data includes the race and ethnicity of people who died in fatal traffic crashes. Race and ethnicity information was not available for 2020 and later years. The data was then disaggregated by race and ethnicity and compared to the city-wide average proportion of residents in each race and ethnic group.
2. **Geographic Analysis.** To understand if there are more traffic-related serious injuries and deaths in BIPOC and Historically Disadvantaged Communities, a GIS layer was created of "Equity Priority Areas" that are census tracts in which over 50 percent of residents identified as BIPOC and/or Hispanic, based on 2019 Census data, and are an HDC. The crash data was overlaid on the Equity Priority Areas to calculate the percentage of serious-injury and fatal crashes that occurred there, comparing it to the percentage of residents who live in the Equity Priority Areas, and the percentage of geographic area of Saint Paul. Additionally, the road segments and intersections with high crash rates (crashes per traffic volume) were overlaid on the Equity Priority Areas to observe patterns.

Demographic Analysis

The demographic analysis found that **Black, Indigenous, and People of Color in Saint Paul were over-represented in traffic-related fatalities between 2010 and 2019** (race and ethnicity data are not available for 2020). This is based on a simple analysis, not a statistical test. While BIPOC made up an average of 45.9 percent of the Saint Paul population, they comprised 50 percent of the traffic fatalities. White people averaged 54.1 percent of population and 50 percent of traffic fatalities.

The analysis also compared fatalities by race to the racial and ethnic composition of the city in 2015-2019 (Table 5). During this period, **people who are Black and American Indian were over-represented in traffic-related fatalities.** People who are White and Asian are significantly under-represented in traffic fatalities.

³⁴ <https://www.arcgis.com/apps/dashboards/99f9268777ff4218867ceedfabe58a3a>

³⁵ <https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars>



Table 5 Fatalities Compared to City Population, 2015-2019.

	% Traffic Fatalities	% Population
White (Non-Hispanic)	42.2%	57.0%
Black (Non-Hispanic)	20.0%	16.1%
Other (Non-Hispanic)	20.0%	0.2%
Hispanic or Latino (any race)	6.7%	9.2%
American Indian	4.4%	0.8%
Asian	4.4%	18.7%
Multiple Races (Non-Hispanic)	2.2%	4.0%

Source: FARS, Census Bureau

It's also important to note that 20 percent of traffic-related fatalities were listed as "Other Race (Non-Hispanic)", compared to only 0.2 percent of the population. Data quality and the use of racial and ethnic categories that are inconsistent with how the Census Bureau categorizes race is a major limitation of the FARS data.

Geographic Analysis

As described above in the methodology, for the geographic analysis the Equity Priority Areas were mapped based on a combination of census tracts that the USDOT has identified as Disadvantaged Areas and census tracts that have over 50 percent BIPOC. These criteria were selected based on input from the Technical Advisory Committee (TAC) for the Transportation Safety Action Plan as well as other research and discussion. The benefits of using these datasets include:

- The HDC index includes a multitude of relevant data including transportation, health, environmental, economic, resilience, and equity-related disadvantages;
- The USDOT uses the HDC index to evaluate Safe Streets for All grant applications; and
- By only including the HDC tracts that have 50 percent or more BIPOC, Saint Paul is able to apply a racial equity lens to the analysis (the HDC map does not include race or ethnicity as a variable).

The map in Figure 48 shows an overlay of HDCs (crosshatched with bold outline) and more than 50 percent BIPOC population (in purple).

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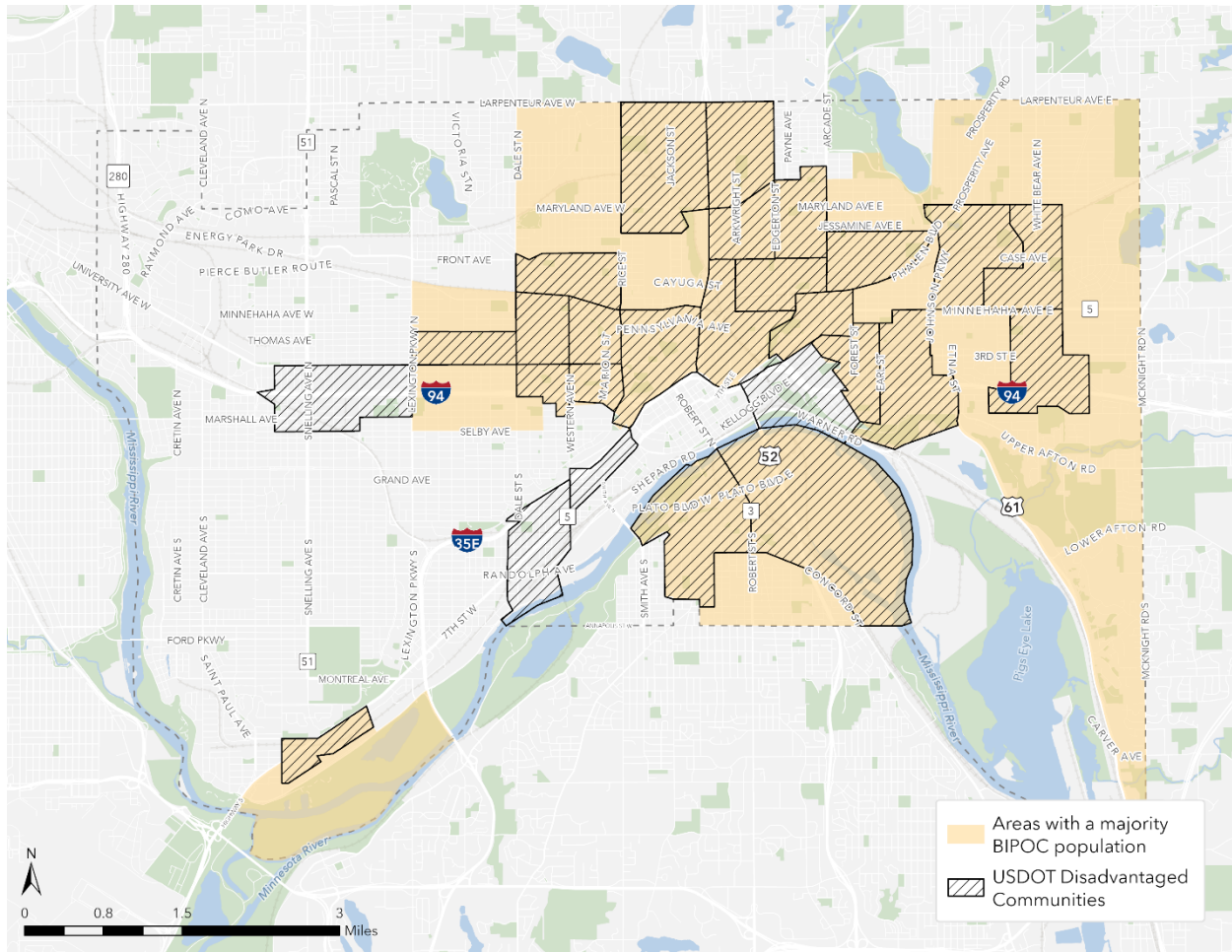


Figure 48: USDOT Historically Disadvantaged Communities and Areas with Majority BIPOC Population

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The map in Figure 49 shows the resulting Equity Priority areas in blue. Three HDC tracts had less than 50 percent BIPOC and were therefore removed.

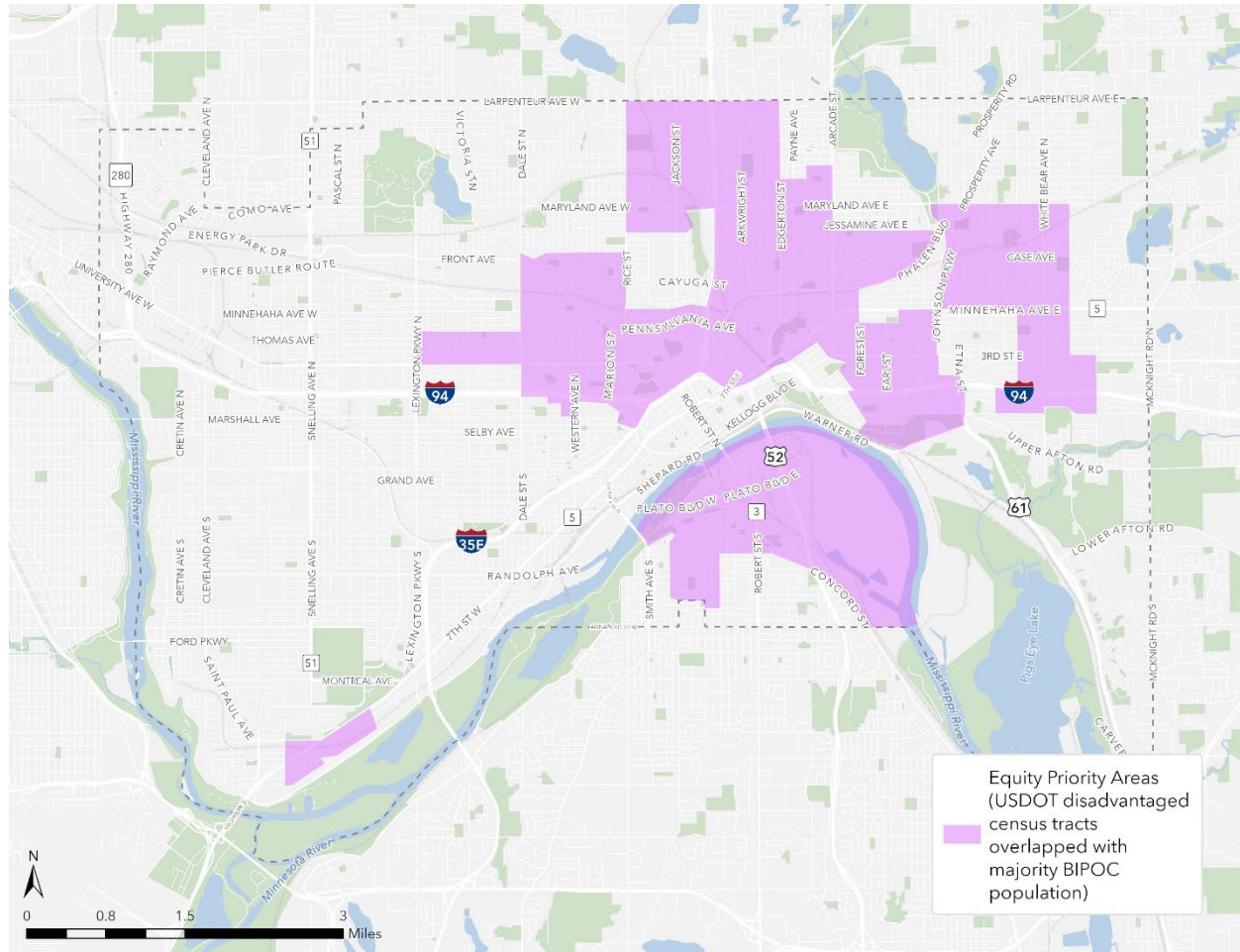


Figure 49: Saint Paul Equity Priority Areas.

When crashes data was overlaid on these areas as shown on the map on the following page, the Equity Priority Areas bear a disproportionate burden of traffic-related serious injuries and fatalities.

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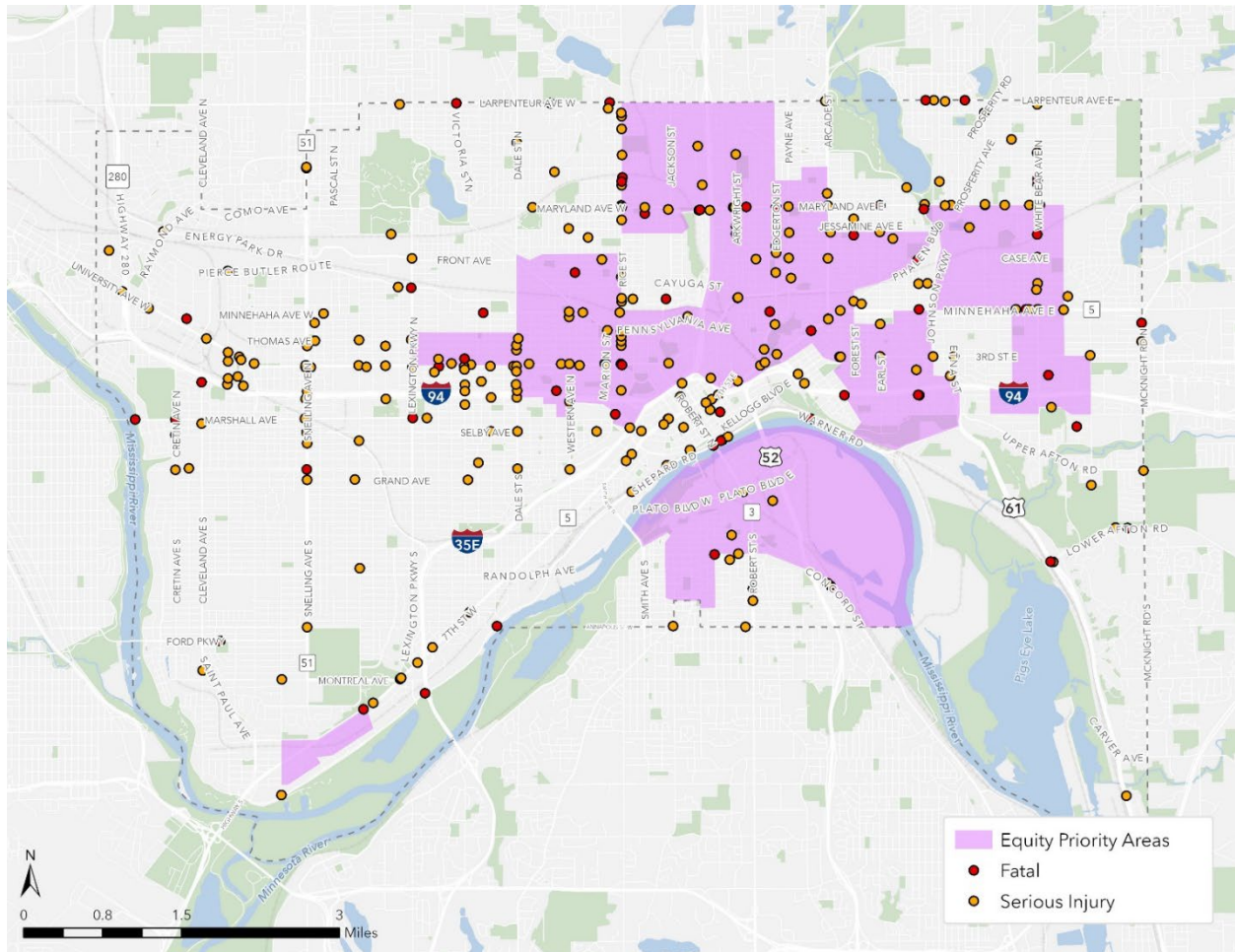


Figure 50: Fatal and serious injury crashes with the project equity priority areas. Source: MnCMAT2.

While these areas contain 28 percent of Saint Paul residents and 22 percent of the City's area, 48 percent of fatal accidents and 48 percent of serious injury crashes happened there (Table 6). Cells highlighted in green in the table below represent those where the percentage of crashes is below the expected value based on the total population in that area, while cells highlighted in red represent those values where crashes are above the expected value based on the population. The analysis shows that both the USDOT Disadvantaged Areas and the Plan's more focused equity priority areas represent a disproportionate number of all types of crashes.



Table 6: Crashes in Equity Priority Areas.

	USDOT Disadvantaged Areas	Equity Priority Area (USDOT Areas with BIPOC majority)	Non-Equity Priority Area	Saint Paul (all)
Population	92,106 (30%)	83,887 (28%)	220,660 (72%)	304,547
Area (square miles)	14.8 (26%)	12.6 (22%)	43.5 (78%)	56.1
Population density (people per square mile)	6,223.4	6,657.7	5072.6	5,428.6
Fatal Crashes ³⁶	28 (52%)	26 (48%)	28 (52%)	54
Serious Injury Crashes	147 (55%)	128 (48%)	136 (51%)	264
All Crashes	8,506 (53%)	7,048 (44%)	9,021 (56%)	16,070
Bicycle Crashes	136 (47%)	99 (34%)	189 (66%)	288
Pedestrian Crashes	360 (52%)	289 (42%)	397 (58%)	686

Source: Census Bureau, MnCMAT2.

Crashes that occurred in Equity Priority Areas were more likely to be serious or fatal compared to the other parts of the city. In this period, Equity Priority Areas had 2.06 fatal crashes per square mile, whereas Non-equity priority areas had only 0.64 fatal crashes per square mile. The gap between Equity Priority Areas and Non-Equity Priority Areas is even more pronounced for Serious Injury Crashes, with a rate of 10.16 and 3.13 per square mile, respectively.

Finally, the top 20 high crash road segments and intersections were overlaid on the Equity Priority Areas. Fourteen of the top 20 high crash intersections and 14 of the top 20 high crash segments are in an Equity Priority Area, despite these areas being only 17 percent of the city's land area.

³⁶ Fatal crash data refer to number of crashes, not number of fatalities in this table

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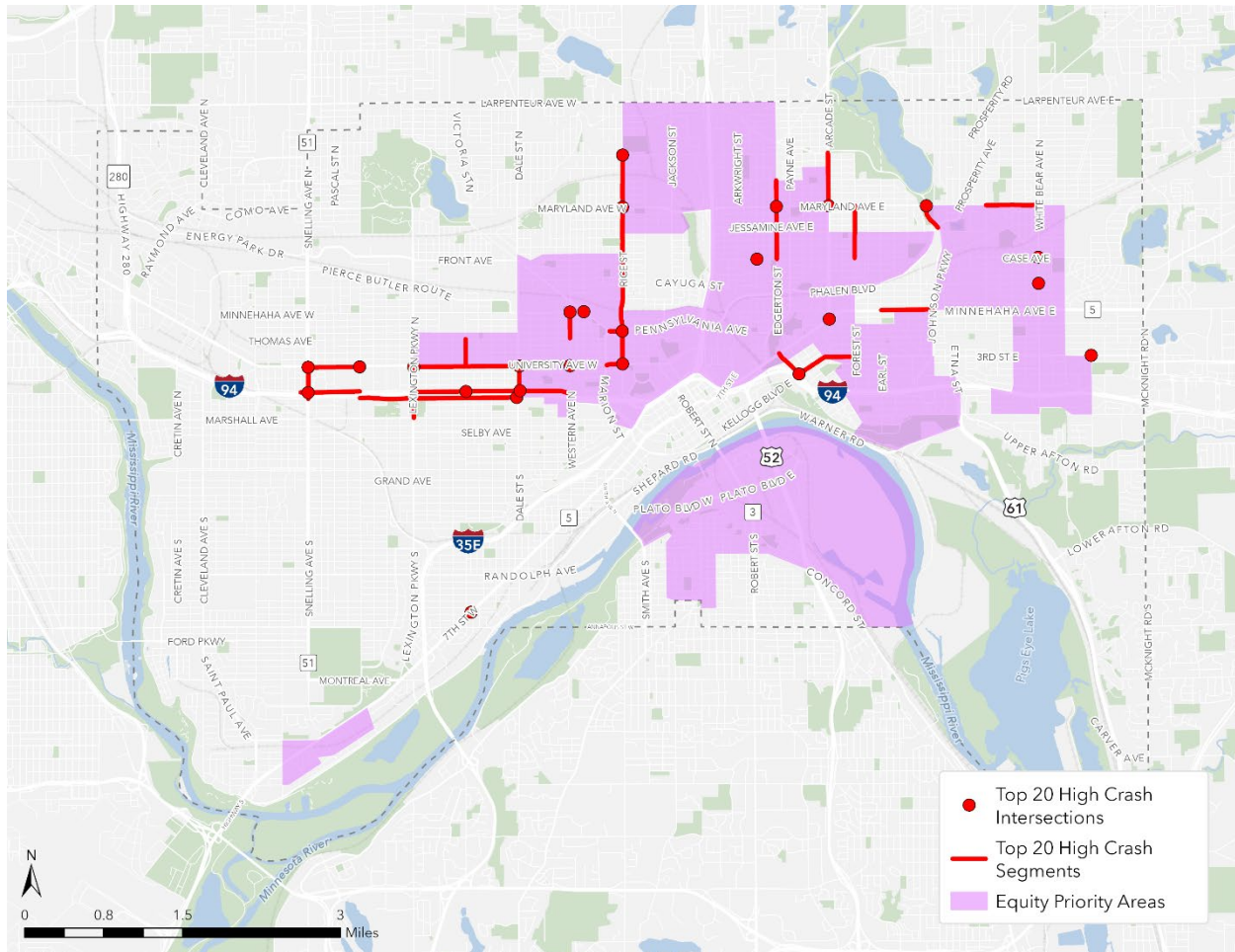


Figure 51 High Crash Intersections and Segments in Equity Priority Areas.



High Injury Network and High Crash Network

High Injury Network – All Modes

Methodology

A High Injury Network (HIN) is a network of streets where more severe crashes occur and where safety interventions should be targeted. Saint Paul's HIN is based on the 1,806 crashes that occurred between 2018 and 2022 that were classified as fatal, serious injury, or minor injury. These crash severity levels were weighted to assign a higher priority to fatal and serious injury crashes.

This HIN was developed in the following steps:

1. The City of Saint Paul's Street Centerline dataset was used to create longer corridor segments by merging individual block features that had the same street name and functional classification.
2. These longer corridor segments were broken up into smaller segments at major streets/arterials to create shorter segments so that patterns along and within a single corridor could be evaluated.
3. Fatal, serious injury, and minor injury crashes of all modes were joined to these corridor segments using a 50-foot buffer to join the crashes to the corresponding street.
4. Crashes were weighted to assign a higher weight to fatal and serious injury crashes than minor injury crashes. Fatal and serious injury crashes received a weight of 3 and minor injury crashes received a weight of 1.
5. Segments with only 1 crash and segments that were shorter than 0.25 miles were excluded from the sample because these segments would have a high crash rate calculated, but do not represent a safety issue.
6. The weighted crash score was normalized by segment length to get a value for crashes per mile.
7. The list of corridor segments was ranked from high-to-low weighted crashes per mile.
8. The top 20 percent of corridor segments based on the crash score per mile were mapped and visually checked to create an intuitive network. Some segments just outside the top 20 percent of crash scores were included in the network in this step for reasons such as a high number of total crashes linking of two higher-crash segments to create a continuous, intuitive network.

Traffic volume was not included as a factor in developing the HIN because AADT data were not available for all streets and the HIN was intended to reflect all streets. Additionally, the purpose of the HIN is to identify segments where a high volume of fatalities and serious injuries occur, regardless of traffic volumes and crash rates.

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High Injury Network

The map in Figure 52 shows Saint Paul's High Injury Network for all modes (vehicle, pedestrian, and bicycle crashes). Some of the major streets included in the High Injury Network are portions of White Bear Avenue, Maryland Avenue, East and West 7th Street, Snelling Avenue, Robert Street, Minnehaha Avenue, Rice Street, Dale Street, and University Avenue. The segments included in this HIN are those that have approximately the top 20 percent of weighted crash scores within Saint Paul. This High Injury Network captures about 56 percent of all fatal and injury crashes and represents about 17 percent of the surface street roadway miles in Saint Paul. The High Injury Network is a major product of the crash analysis and will be used to identify priority locations for future safety projects, since improvements on this network will have a high potential of reducing fatal and injury-causing crashes.

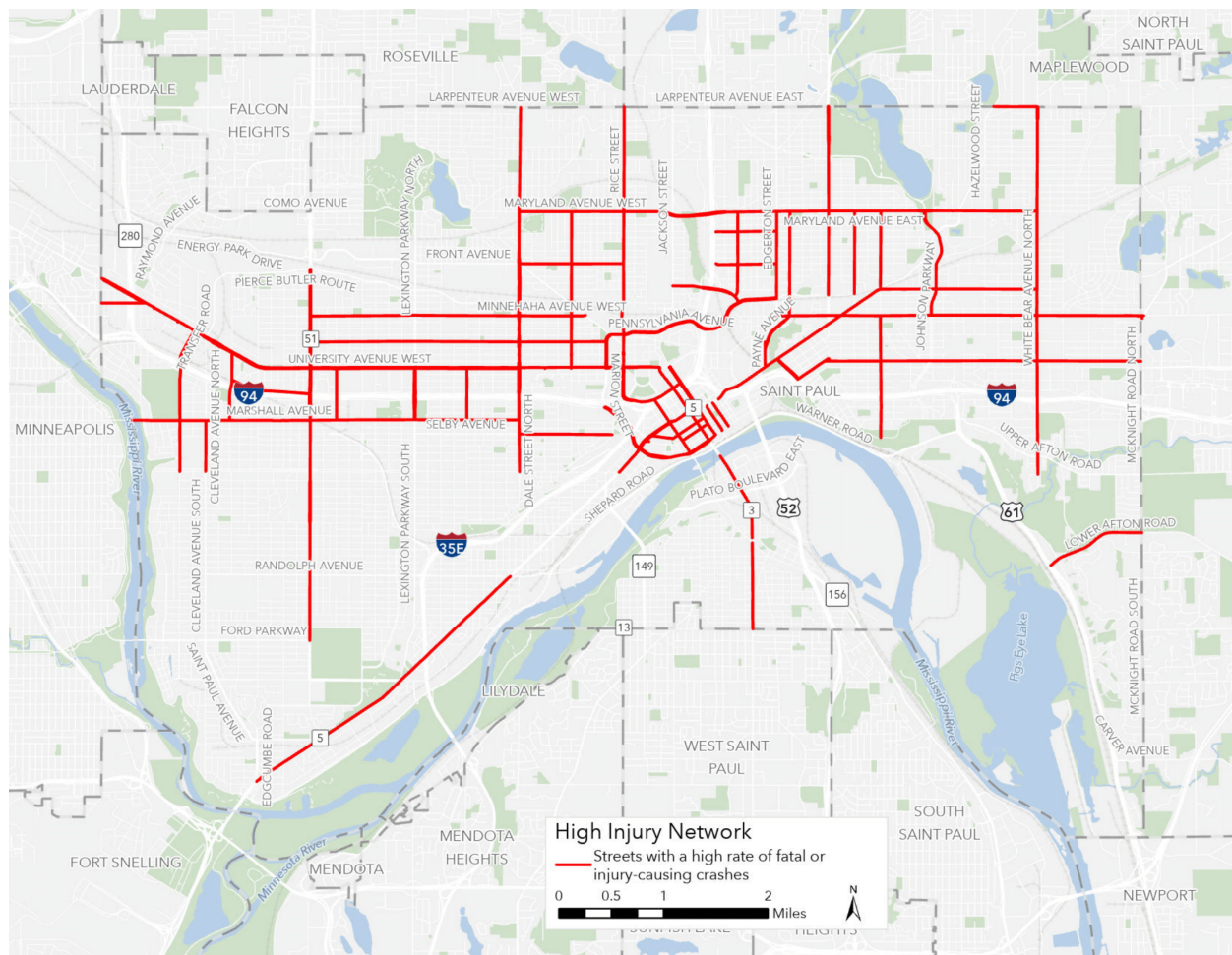


Figure 52 High Injury Network, 2018-2022.

High Crash Network – Vulnerable Road Users

Methodology

Like the HIN for all modes, a High Crash Network (HCN) was developed for vulnerable road users. A separate HCN was created for both bicyclists and pedestrians. These networks were created using a

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similar methodology as the HIN; however, for the HCN all crash severity levels were included. This is because there are fewer serious injury and fatal crashes involving pedestrians and bicyclists, meaning that it would be more difficult to identify spatial trends. In addition, any crash involving a vulnerable road user has the potential of being a serious injury or fatal crash. For these reasons, the network for vulnerable road users is a High Crash Network rather than a High Injury Network.

High Crash Network

The map in Figure 53 shows a simplified network of segments with the highest number of bicycle and pedestrian crashes per mile, or segments with a high number of total bicycle and pedestrian crashes. In this map, high crash segments are disaggregated for bicycle and pedestrian crashes. **The segments shown in purple are those that are top crash corridors for both pedestrian and bicycle crashes. This includes University Avenue, Snelling Avenue, Lexington Parkway, Rice Street, Arcade Street, and many streets in downtown Saint Paul.** The lines shown in blue are those that are only in the top crash corridors for pedestrian crashes, and those shown in red are only in the top crash corridors for bicycle crashes.

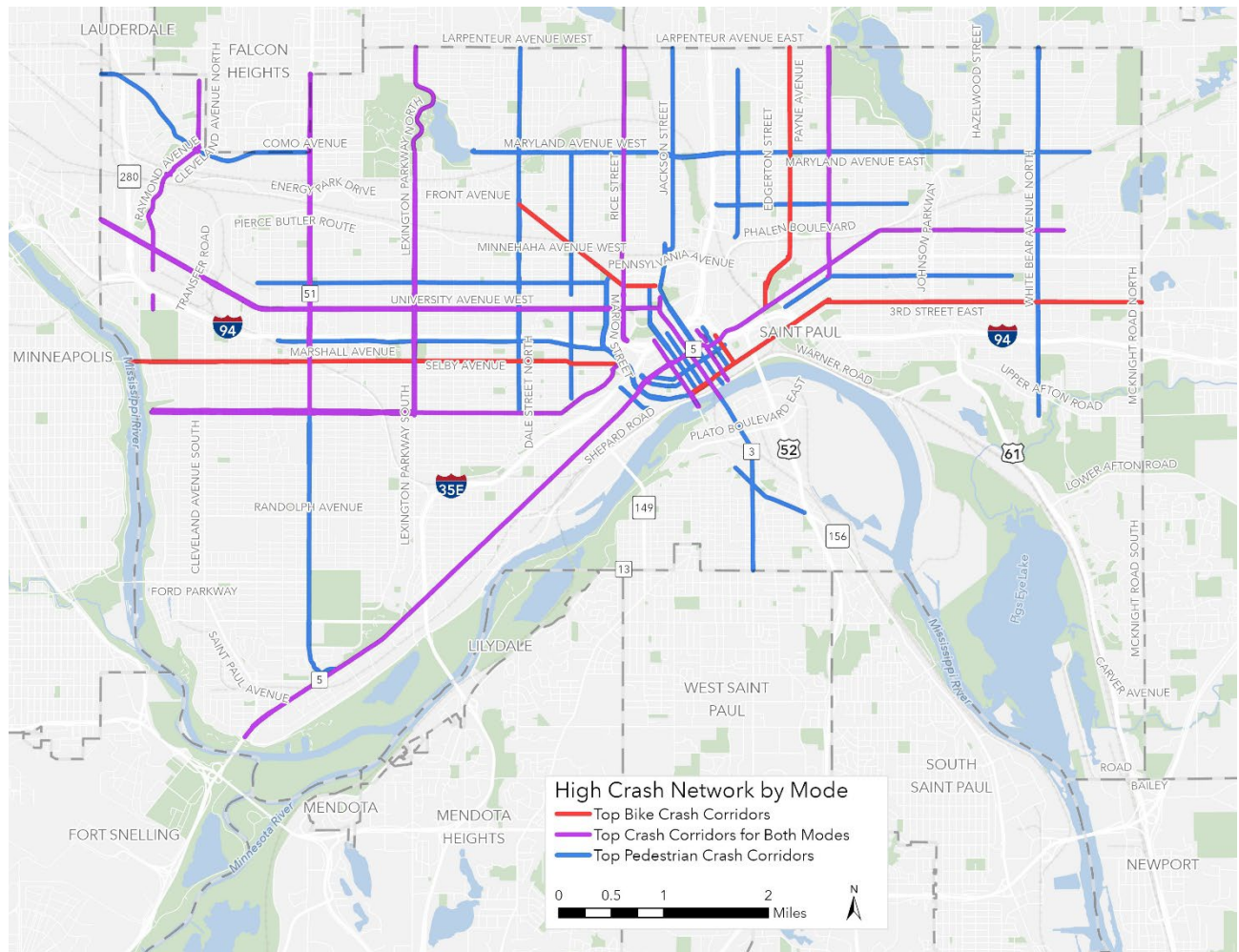


Figure 53: High Crash Network, 2018-2022.

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Combined High Injury Network and High Crash Network

The HIN and HCN were combined to identify areas of overlap, which indicate the corridors in the city that have both a high rate of bicycle and pedestrian crashes, as well as a high rate of fatal and injury-causing crashes. These segments, as shown below in the map and table, represent the top priority corridors of the city for future safety projects, since improvements to these corridors have the highest potential to reduce fatalities and injuries for all roadway users. Future improvements on these segments should include substantial investments in pedestrian and bicycle safety, as well as vehicle safety.

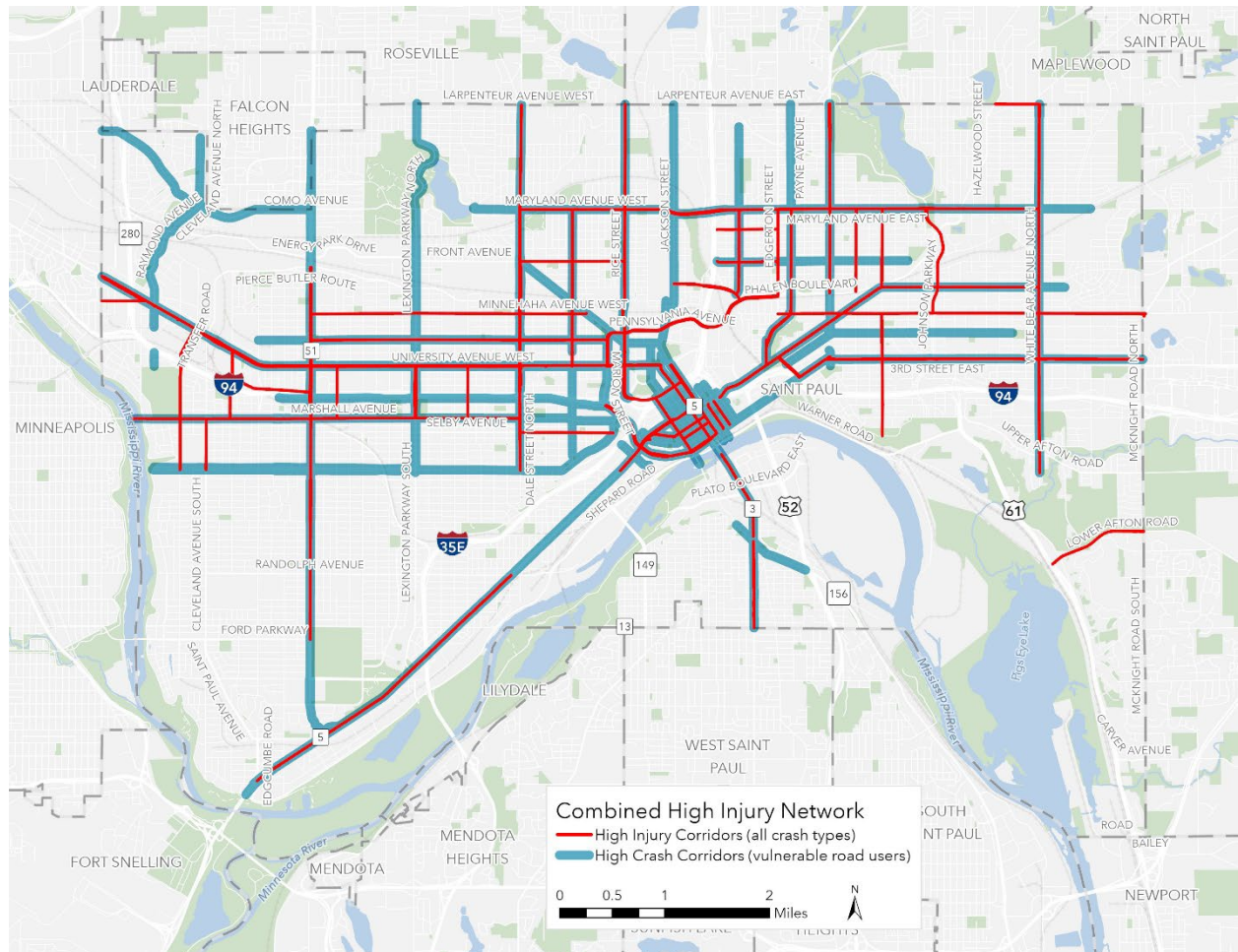


Figure 54: Combined High Injury Network and High Crash Network.



Key Findings and Next Steps

The crash analysis identifies a number of significant trends over the five-year analysis period. The takeaways identified below will guide the development of the Transportation Safety Action Plan's recommendations:

- Vulnerable Road Users, including pedestrians and bicyclists, are at a higher risk of being involved in more serious crashes, especially when comparing the severity of crashes involving each mode with the percentage of total trips involving that mode. **This indicates all vulnerable road users, and particularly pedestrians, are at higher risk of injury or death while using the city's transportation system, and future investments should prioritize improving safety for these users.**
- While only 23 percent of all crashes occurred on county-owned streets, 32 percent of all fatal and serious injury crashes occurred on those streets. **Targeting safety interventions along roads under County jurisdiction, in partnership with Ramsey County, should be a priority strategy for decreasing fatal and serious injury crashes.**
- While Minor Arterials only account for 21 percent of all lane miles in Saint Paul 39 percent of all crashes occurred on Minor Arterials between 2018 and 2022 and 47 percent of all fatal and serious injury crashes took place on Minor Arterials during this period. **Targeting safety interventions along Minor Arterials should be a priority strategy for decreasing fatal and serious injury crashes.**
- Approximately half of all crashes that occurred at an intersection were at intersections with a traffic control signal (51.5 percent), with a slightly higher proportion of fatal and serious injury crashes occurring at these intersections (55.5 percent). **Targeting intersection safety improvements at signalized intersections is likely to have a high impact on crash reduction.**
- A high proportion of both pedestrians and cyclists are hit when they are crossing traffic at an intersection (especially at intersections with a marked crosswalk). Turning vehicles are much more likely to result in a pedestrian or bicycle crashes, compared with all crashes. **These trends indicate that intersection projects that improve safety for cyclists and pedestrians, especially those that reduce conflicts and speed of turning vehicles will improve safety for vulnerable road users.**
- This High Injury Network captures about 56 percent of all fatal and injury crashes and represents about 17 percent of the city's roadway miles, and includes significant overlap with the High Crash Network, which identifies the corridors with the highest rates of pedestrian and bicycle crashes. **Concentrating investments along the identified streets that have both high fatality/injury rates and high rates of vulnerable road user crashes have the potential to significantly improve traffic safety.**
- The proportion of all crashes caused by speeding, running off the road, and reckless driving increased significantly over the past five years. Crashes involving speeding, reckless or careless driving, and failure to yield are also more likely to cause serious injuries or death than other crash types. **This plan should identify design-based methods to reduce driver speeds, as well as possible behavioral and enforcement strategies to reduce reckless or careless driving through partnerships with other agencies.**
- A disproportionate number of fatal and serious injury crashes occur in the city's defined Equity Priority Areas, and these areas also contain a disproportionate number of the city's highest



crash rate segments and intersections. While the equity priority areas only contain 19 percent of the City's population and 17 percent of the total land area, these areas account for 31 percent of all fatal crashes. Crashes that occurred in Equity Priority Areas were more likely to be serious or fatal compared to the other parts of the city; **This indicates that the population within these areas are disproportionately affected by traffic crashes, and the plan should prioritize improvements in these areas to mitigate these disparities.**

Future Work

While this document was focused on identifying city-wide crash trends that reveal potential action items for the Transportation Safety Action plan, several topics have been identified for possible future follow-up study:

- **Downtown Crash Study:** Downtown Saint Paul is a crash hot spot for all modes, likely due to high traffic volumes as well as high pedestrian and cyclist traffic. A future analysis of downtown crash trends would be necessary to identify a specific set of improvements aimed at improving safety in the downtown area.
- **Comprehensive Review of Minor Arterials and Collector Roadways:** These roadways account for approximately 70 percent of all fatal and serious injury crashes in the City. However, this analysis did not review these roadways individually to identify the specific factors leading to high crash rates. A comprehensive review of these roadways, including city, county- and state-owned streets, would be necessary to identify the factors leading to the high injury rates, as well as identify potential future improvements.
- **Comprehensive Review of High Crash Intersections:** Similarly, while this analysis identified the top high crash intersections within the City, it did not review the intersections individually to identify the specific risk factors or mitigating improvements. A future review of high-crash intersections would more specifically provide improvement recommendations at those locations.
- **Future Coordination with Ramsey County and MnDOT:** Many of the City's highest crash corridors are county- or state-owned. Future coordination with these agencies will be required to identify future improvements.
- **Future Crash Equity Analysis:** This analysis included a racial equity focused crash analysis that is the first of its kind in Saint Paul. The City should share the findings of this analysis with community members, leaders, and partners to discuss and interpret it. These conversations could provide valuable context and future directions for equity work (for example, engaging community members and others to understand whether the Equity Priority Areas are the appropriate geographic units). Areas for future crash equity analysis could include the following:
 - Undertaking additional demographic analysis using crash data from the Saint Paul Police Department or more recent FARS data as it becomes available.
 - Undertaking additional geographic analysis with statistical analysis to control for population density and other factors, and to understand the degree to which fatal and serious injury crashes are concentrated in Equity Priority Areas.



- Examining traffic safety benefits as well as burdens. Transportation equity considers the fair distribution of both burdens and benefits.³⁷ This analysis examined transportation safety burdens in terms of serious injuries and deaths; future analyses could explore the distribution of benefits and the role of the City of Saint Paul and other public agencies in them. For example, the City could do a look-back to see where transportation safety improvements have been made, and how many were within the Equity Priority Areas. This could inform future project criteria and prioritization.

³⁷ [Transportation equity](#) definition from MnDOT's Statewide Multimodal Transportation Plan



Appendix B: Engagement Summary

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Transportation Safety Action Plan

June 2023



SAINT PAUL
MINNESOTA



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Introduction

The City of Saint Paul is developing a Transportation Safety Action Plan to identify and eliminate fatalities and serious injuries from vehicle crashes for everyone (pedestrians, bicyclists, transit users, and drivers). With community input, this plan will prioritize roadway and infrastructure projects that address safety challenges for residents of Saint Paul and support future funding opportunities for safety projects.

The Transportation Safety Action Plan centers people and communities most affected by traffic-related injuries and fatalities—including pedestrians, bicyclists, and people in historically underserved communities—to improve safety for all users.

The engagement goal for this plan is to incorporate and reflect community voices in the planning process, transportation safety project design process and implementation, and the Safe Streets and Roads for All (SS4A) funding application. The plan prioritizes engagement with residents/communities who are most impacted by traffic crashes, especially low-income and Black, Indigenous, and People of Color (BIPOC).

Focus areas

The engagement team prioritized communication and engagement strategies that focused on reaching the following key stakeholder audiences.

- Low-income and BIPOC living in areas most impacted by vehicle, pedestrian, and bicycle crashes
- Community organizations established in these areas including neighborhood district councils, community-based organizations, libraries, community centers, and schools
- Residents of Saint Paul
- Partnering transportation agencies

The project team used the U.S. Department of Transportation (USDOT) Underserved Communities Census Tracts to determine geographical areas of disadvantaged populations in Saint Paul. Based on these locations and previous engagement on other transportation projects in the city, the project team created a tiered approach for engagement. See **Appendix A** for the breakdown of these three tiers.

Phase one focused primarily on Tier 1 areas, which represented historically disadvantaged, low-income and BIPOC communities highly impacted by vehicle, pedestrian, and bike crashes, and that have been under-engaged in recent years. In the following summary, Tier 1 areas will also be referred to as, “priority areas.” Tier 1 included the following areas:

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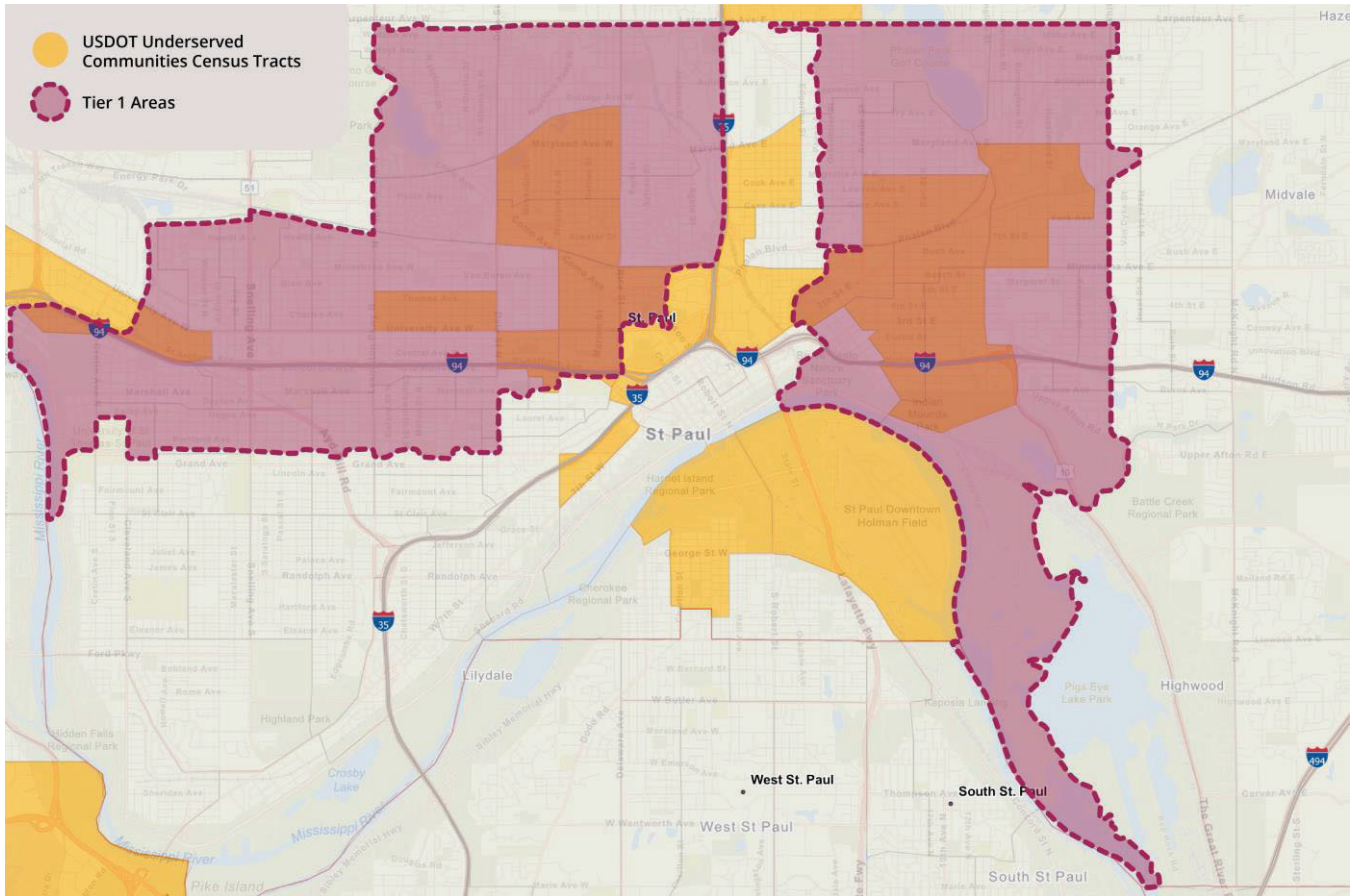


Figure 1: Map of USDOT Underserved Communities Census Tracts and Tier 1 zip codes

- Frogtown and East Midway
 - Rice Street/Pennsylvania Avenue Como Avenue/Marion Street
 - Intersection of University Avenue and Dale Street
 - Between Dale Street and Lexington Parkway on University Avenue
- North End
 - Rice Street and Maryland Avenue
- Greater East Side & Battle Creek-Conway-Eastview-Highland Hills
 - Intersection of White Bear Avenue and Minnehaha Avenue
- Union Park
 - On Snelling Avenue between I-94 and University Avenue, just west of Allianz Field



Engagement

Phase one of engagement took place from March 1 to April 14, 2023. This included an online survey and comment map, two pop-ups in priority areas, and direct outreach to priority areas via phone call, email, or stopping by in person. Materials were translated into Spanish, Hmong, Somali, Karen, and Oromo. The survey and comment map were promoted on the City of Saint Paul's social media, through GovDelivery emails, and on the project webpage. The engagement team also asked District Councils to share engagement opportunities with their constituents.

In total, the team engaged with about 2,200 people, including 1,238 survey responses, 893 map comments, and at least 50 in-person or phone call interactions.

Key takeaways

Based on this engagement, the following key themes emerged as priority issues from stakeholders, in general order of frequency:

- Addressing driver behavior, including speeding, reckless driving, drivers failing to yield, and drivers running red lights and stop signs, is a high priority.
- Safer pedestrian crossings are needed.
- Improved bicycle infrastructure, such as more bike lanes, protected bike lanes, and better maintenance of existing bike infrastructure, is needed.

Snelling Avenue, University Avenue, White Bear Avenue, Rice Street, and Pennsylvania Avenue were repeatedly identified throughout engagement as dangerous roads in the Tier 1 areas.

Poor road conditions, especially potholes, also came up frequently in engagement. This was likely top of mind for people as the engagement period took place in late winter.



Phase One

Previous engagement summary

Prior to beginning phase one of engagement, the project team compiled a previous engagement summary to understand transportation safety themes from previous engagement efforts led by the City and key partners, including the Minnesota Department of Transportation (MnDOT), Ramsey County, and Metro Transit. Understanding who was previously engaged and what was learned helped the team focus engagement efforts to include under-engaged groups and apply the learnings to the creation of the Transportation Safety Action Plan and the Safe Streets and Roads for All grant application.

See **Appendix B** for the list of plans and engagement efforts included in the previous engagement summary.

Based on these previous engagement efforts, several key themes emerged, listed from most common to least:

- Safer and improved crossings, especially for pedestrians and bicyclists
- Traffic calming to address high-speed traffic areas
- Improved sidewalks and better sidewalk connections
- Drivers speeding, running stop signs, and not yielding to pedestrians
- More and improved pedestrian lighting
- More left turn lanes on certain corridors such as Rice Street

Direct outreach in priority areas

Knowing that online surveys and comment maps are not accessible for everyone, the engagement team conducted additional direct outreach in the Tier 1 areas. The team reached out to 121 businesses, apartment buildings, community centers, nonprofits, and other organizations near the Tier 1 areas. Knowing how busy businesses and organizations are, the engagement team adapted their approach to contact people through phone calls, texts, emails, and by stopping by in person.

In total, staff heard feedback from at least 20 organizations. See **Appendix C** for these comments. Two apartment complexes shared the Transportation Safety Action Plan information with their residents, and the Oromo Community of Minnesota shared the information with their members.

Note that this outreach took place in late winter, so road conditions and maintenance were likely top of mind for many participants.

Key themes and takeaways

- **Poor road conditions**, including potholes and winter maintenance, came up repeatedly as a safety concern.
- **Driver behavior** was frequently mentioned as a safety concern, including speeding vehicles, reckless driving, and drivers failing to yield.

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- Much of this direct engagement happened along **University Avenue**. Multiple people reported witnessing crashes in this stretch **involving the Green Line light rail**: vehicles not yielding to trains, pedestrians not yielding to trains, and cars not yielding for pedestrians crossing the street from stations.
- Specific intersections of concern reported on **University Avenue** include Snelling Avenue, Dale Street, Grotto Street North, North Milton Street, Victoria Street, and Hamline Avenue North.

Communications

The engagement team used a variety of communications methods to inform the public about the project and promote the survey and comment map. These methods included social media (Twitter, Facebook, Nextdoor), GovDelivery emails, a project webpage, emails to the Saint Paul District Councils and a presentation at their transportation committee meeting. See **Appendix D** for the full list of communications.



Figure 2: Social media graphic to promote the online survey and comment map

Survey

The Transportation Safety Action Plan online survey was open from March 1 to April 14, 2023 and received 1,238 responses. Responses and analysis were separated into two groups: citywide data and Tier 1/priority areas. The priority areas were the focus of analysis.

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Citywide data

When asked to select all modes that people usually travel in Saint Paul, 87% of respondents said that they drive, 71% said they walk, 58% said they bike, and 36% said they take the bus and/or train. Sixteen respondents roll using a wheelchair or mobility device. 87% of respondents live in Saint Paul, and almost half work in Saint Paul.

White people were overrepresented, accounting for 79% of survey responses compared to the City's overall population which is 55% white. Women were represented slightly more than men. The largest age group of survey respondents was 35 to 50, accounting for about a third of responses. Ages 21 to 35, 51 to 64, and 65+ were represented almost equally. The three most represented zip codes were 55104, 55105, and 55116. See **Appendix E** for full demographic breakdown of survey respondents.

Citywide, the top three transportation safety concerns were poor road conditions, reckless/careless driving, and speeding vehicles (see Figure 2). 80% of respondents said that there were areas in Saint Paul they avoid due to transportation safety concerns, and nearly 70% of respondents reported having been or almost been in a crash in Saint Paul. Note that the survey was open during a period of significant interest in pavement condition following a near-record

Q2 What are your top transportation safety concerns in Saint Paul? Choose your top three.

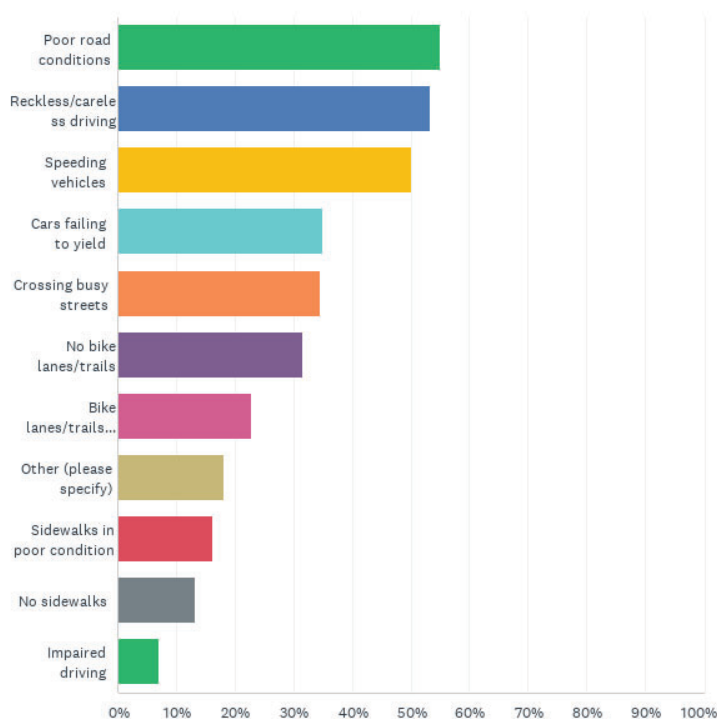


Figure 3: Graph of survey respondents' top safety concerns in Saint Paul

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winter snow and ice season; this undoubtedly contributed to the prevalence of road conditions as the top safety concern among respondents.

Priority areas

Tier 1 priority areas included responses from 55103, 55104, 55106, and 55117 ZIP codes to capture the areas of concern in the Frogtown, North End, Greater East Side, Battle Creek-Conway-Eastview-Highland Hills, and Union Park neighborhoods. The 55104 ZIP code is overrepresented in this data, accounting for 243 of the 414 responses from this priorities area sample. The 55104 ZIP code covers parts of the Summit-University, Frogtown, Hamline-Midway, and Union Park neighborhoods.

When asked to select all modes that people usually travel in Saint Paul, 86% of priority area respondents said that they drive, 74% said they walk, 64% said they bike, and 43% said they take the bus and/or train. One respondent rolls using a wheelchair or mobility device. 98% of respondents live in Saint Paul, and almost half work in Saint Paul.

81% of survey respondents were white, 12% preferred not to answer, and 3% selected "other." About 2% of respondents identified as Hispanic or Latino/a and 2% identified as Asian or Pacific Islander. Women were slightly more represented than men. The largest age group of survey respondents was 35 to 50, accounting for nearly 40% of responses. Ages 21 to 35 and 51 to 64 each accounted for about 20% of responses, and 65+ represented 16% of responses.

The top transportation safety concerns indicated by respondents from the priority areas were consistent with the citywide data, with the top three concerns being poor road conditions, reckless/careless driving, and speeding vehicles. When asked if they avoid certain areas of Saint Paul due to transportation safety concerns, 85% of respondents said yes. People repeatedly reported avoiding the following areas due to transportation safety concerns, listed in order of frequency:

- Snelling Avenue
- University Avenue
- Summit Avenue
- Marshall Avenue
- Lexington Avenue

In the Tier 1 ZIP codes, 74% of respondents reported having been in or almost been in a crash in Saint Paul. 50% of respondents reported witnessing a crash. Streets that came up most frequently involving crashes mirror the streets people said they avoid. They are listed below in order of frequency:

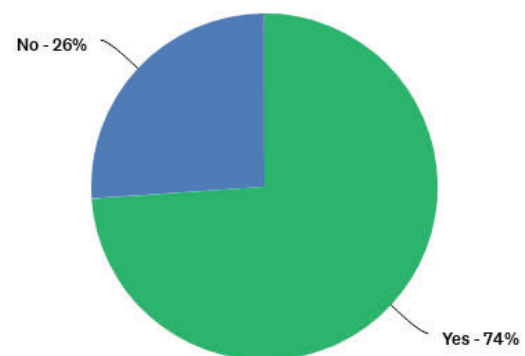


Figure 3: Survey answer to, "Have you been, or almost been, in a crash in Saint Paul?"

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- Snelling Avenue
- Lexington Avenue
- Summit Avenue
- University Avenue
- Marshall Avenue

Intersections on Snelling Avenue that came up repeatedly include Marshall Avenue, Minnehaha Avenue, Summit Avenue, and University Avenue. Survey respondents reported avoiding Snelling in these areas or altogether because of driver behavior, including speeding, running red lights, or not yielding to pedestrians or other vehicles.

Regarding Snelling Avenue, one survey respondent wrote, “This feels like the most dangerous street in Saint Paul, it is constructed like a highway.”

Tier 1 respondents shared ideas for improving transportation safety in Saint Paul.

- **Bicycle infrastructure:** Bicycles and bike lanes were mentioned 182 times in 376 responses. Some ideas included more bike lanes, protected bike lanes, and better maintenance of existing bike infrastructure.
- **Pedestrian improvements:** Improvements for pedestrians and pedestrian crossings were mentioned 100 times. Some ideas included more pedestrian crosswalks, pedestrian safety lights, and getting drivers to stop at pedestrian crossings.
- **Speeding:** Addressing speeding was mentioned 75 times. Some ideas included traffic calming, speed bumps, speed cameras, and better enforcement of the speed limit.

Note that all streets identified in priority areas were located in the 55104 ZIP code, which is consistent with that ZIP code being overrepresented in the survey responses.

Comment map

The Transportation Safety Action Plan online comment map was open from March 1 to April 14, 2023 and received 893 responses, 501 of which were from the Tier 1 zip codes. The focus of analysis is on the priority areas. See Figure 4 for a heat map of these comments based on the priority areas.

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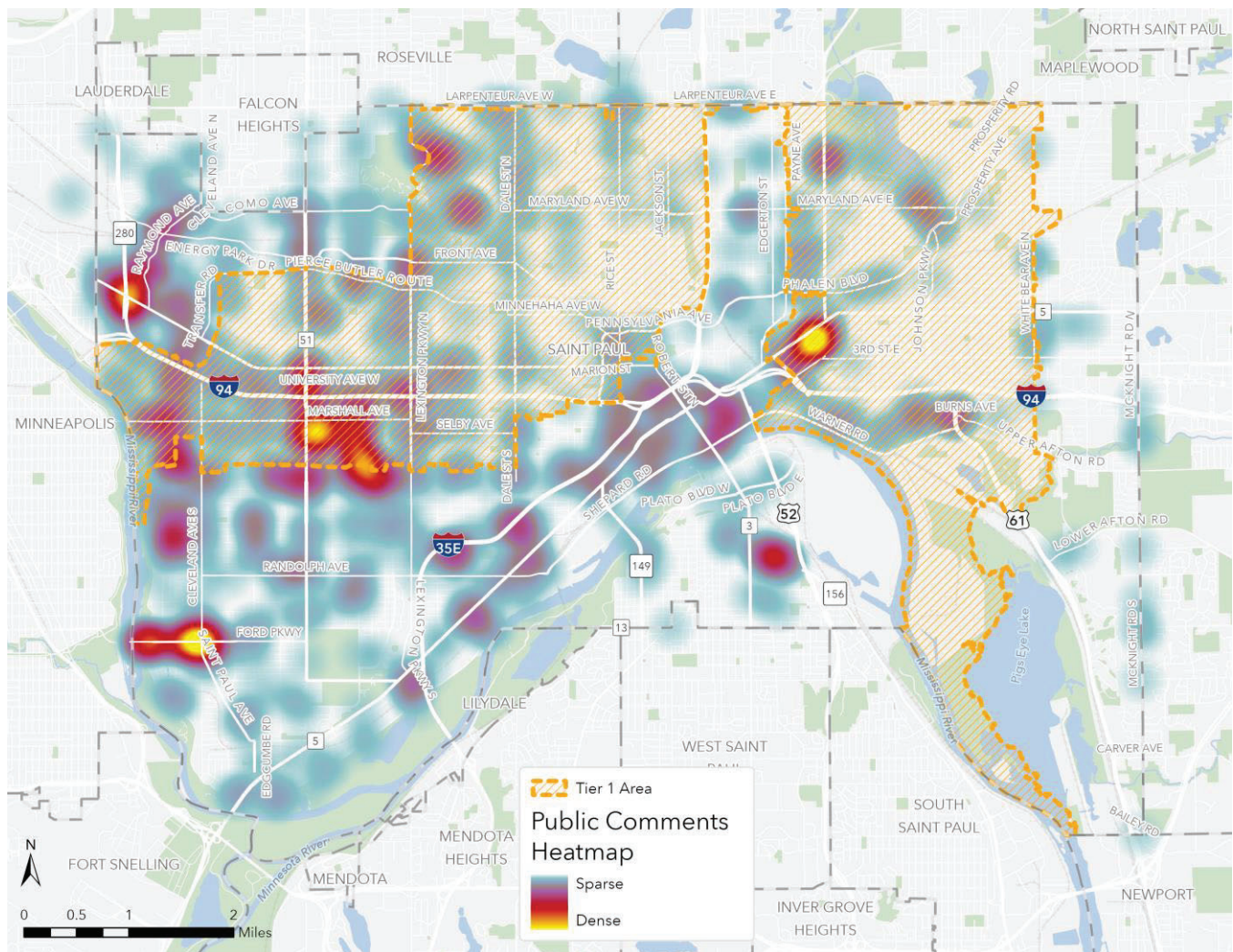


Figure 4: Heat map of PublicCoordinate comments and Tier 1 priority areas

Key themes and takeaways

From the priority areas, the comment map included 171 comments about bicycle safety improvements, 152 comments about pedestrian safety improvements, and 86 comments reporting a crash or near crash. 77 comments were about driver safety improvements, 11 comments about transit rider safety improvements, and 4 comments about wheelchair or mobility device user safety improvements.

- **Crash or near crash:**
 - 32 of the 86 comments pointed to reckless or careless driving, and 28 mentioned crossings or intersections.
- **Bicycle safety improvements:**
 - 138 of the comments mentioned a lack of bike lanes and trails or that bike lanes and trails are in poor condition.

- **Pedestrian safety improvements:**
 - 89 comments cited crossings or intersections. 41 comments mentioned a lack of sidewalks or sidewalks being in poor condition.
- **Driver safety improvements:**
 - 31 comments mentioned speeding vehicles and 23 comments mentioned crossing or intersections.
- **Transit rider safety improvements:**
 - 7 comments mentioned crossing or intersections.
- **Wheelchair or mobility device user safety improvements:**
 - 3 comments mentioned a lack of sidewalks or sidewalks being in poor condition.

See **Appendix F** for a full breakdown of the comments.

Pop-up #1: Eastern Heights Elementary School

The engagement team hosted two engagement events in Tier 1 areas, the first at Eastern Heights Elementary School at 2001 Margaret Street, about a half mile from the intersection of White Bear Avenue and Minnehaha Avenue. The project team set up engagement materials during school conferences. Engagement materials included a project overview board, demographic board, project overview one-pagers (in English, Spanish, Somali, Hmong, and Karen) a map of the area which people could comment on with post-its, and a car racing track to engage children.

The project team was not informed until the day of the event that the school offered hybrid conferences, so in-person attendance was expected to be low. Staff interacted with about a dozen people, primarily teachers and staff. Of those who disclosed their demographic information, four were women, four were between the ages of 51 and 64, three were white or European American, and two were Hmong. See **Appendix G** for the full demographic breakdown and comments.



Figure 5: The engagement team at Eastern Heights Elementary

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Key themes and takeaways

White Bear Avenue	<ul style="list-style-type: none"> Concerns with vehicles speeding on White Bear Ave. Difficult to turn onto White Bear because of the high traffic. White Bear Ave. and 3rd Street East was noted as an especially dangerous intersection – a pedestrian was killed there last year.
Lower Afton Road & Burlington Road	<ul style="list-style-type: none"> Two engagement participants mentioned Lower Afton Road & Burlington Road in the Battle Creek neighborhood as a difficult area with high speeds and no stopping points on Afton Rd. making it difficult and dangerous to enter from the side roads.
Driver behavior	<ul style="list-style-type: none"> Driver behavior (speeding, running red lights) came up repeatedly as a concern in this area.
Johnson Parkway	<ul style="list-style-type: none"> Participants brought up a few problematic intersections on Johnson Parkway, including Maryland Avenue East, Phalen Boulevard, and East Shore Drive.
Other noted problem areas	<ul style="list-style-type: none"> Lexington Parkway and I-94/Highway 12, and Como Avenue and Marion Street at the HmongTown Marketplace.

Pop-up #2: HmongTown Marketplace

The second engagement event in phase one was at HmongTown Marketplace located at 217 Como Avenue, near the intersection of Rice Street, Pennsylvania Avenue, and Como Avenue. The event was staffed by a Hmong staff member. Out of about 200 attendees, project staff interacted with about 15. Of those who shared their demographic information, all were men, most were Hmong, and there were a variety of ages. See **Appendix H** for the demographic breakdown and the summary of comments.

The project team learned that most neighborhoods surrounding HmongTown, such as Frogtown, are made up of mostly immigrant/refugee residents who either do not have a car or choose to walk. Many people who travel to HmongTown also use the Frogtown Community Center across the street. The area has a lot of young pedestrians crossing to and from the community center to the market and back. Vendors at the market utilize parking at the market and cross Como Avenue to go to the community center.

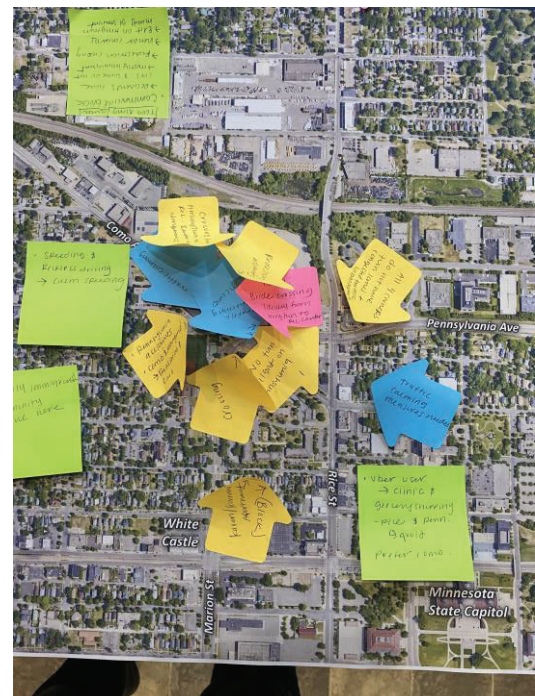


Figure 6: Engagement map activity

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Key themes and takeaways

Driver behavior	<ul style="list-style-type: none"> • People perceive speeding and irresponsible driving as the main causes of danger. • People perceive danger for pedestrians and drivers are about the same.
Areas of concern	<ul style="list-style-type: none"> • Many people are concerned about speeding on Como Avenue and Pennsylvania Avenue as well as on Western Avenue and Thomas Avenue. • Rice Street and Pennsylvania Avenue do not have turn signals causing congestion on Pennsylvania Avenue. That, and impatient drivers taking fast turns, cause dangerous conditions for vehicles and pedestrians. • The exit from HmongTown Marketplace onto Marion Street must be swift to make it across the street. This causes danger to pedestrians and cars having to cross through speeding traffic. • Some people avoid Pennsylvania Avenue and Rice Street when walking. Como Avenue was indicated as an alternate/preferred route to get to HmongTown Marketplace.
Ideas for improvement	<ul style="list-style-type: none"> • Two people mentioned speed bumps as ideas for traffic calming measures. • The owner of HmongTown, Toua Xiong, recommends the city build a bridge/crossing that is away from traffic to keep vendors and children in the area safe.

Emailed responses

The project team received six emails from the public with input on the plan.

Key themes and takeaways

University Avenue and Dale Street	<ul style="list-style-type: none"> • Near misses of pedestrians crossing Dale • Cars doing U-turns
Rice Street and Lawson Avenue W	<ul style="list-style-type: none"> • Cars not yielding for pedestrians, near misses
Wilson Avenue and Pederson Street	<ul style="list-style-type: none"> • Cars not yielding for pedestrians, near misses • Suggestion: Stop signs on Wilson to calm traffic down
Union Park District	<ul style="list-style-type: none"> • Excessive vehicle speeds and noise in neighborhood and Saint Paul as a whole – health issue • Suggestion: Automatic enforcement
Cretin Avenue	<ul style="list-style-type: none"> • Crossing Cretin as a pedestrian is treacherous, especially at Selby • Fast drivers, do not yield for pedestrians • Suggestion: “Stop for pedestrians” sign
Citywide	<ul style="list-style-type: none"> • Road conditions, winter maintenance



Conclusion

Based on previous engagement, direct outreach to priority areas, the project survey, comment map, and engagement events, the project team learned about key transportation safety concerns and ideas for improvement.

Driver behavior stood out as a primary safety concern for people using all forms of transportation. Speeding and reckless driving concerns were mentioned in nearly every engagement interaction. Engagement participants also noted drivers failing to yield and drivers running red lights and stop signs as a safety concern.

Safer pedestrian crossings were also mentioned repeatedly both citywide and in the priority areas. This ties in with driver behavior, as the project team often heard reports of drivers not stopping at designated crosswalks.

Bicycle infrastructure also came up repeatedly, primarily through the survey and comment map. Engagement participants would like to see more bike lanes, protected bike lanes, and better maintenance of existing bike infrastructure.

While there were dozens of problem locations shared by respondents across the city, Snelling Avenue, University Avenue, White Bear Avenue, Rice Street, and Pennsylvania Avenue came up repeatedly throughout engagement as dangerous roads in Tier 1 areas. Engagement participants noted concerns such as speeding, busy roads, cars not yielding to pedestrians, lack of safe bicycle and pedestrian infrastructure, and difficulty crossing.

Poor road conditions, especially potholes, also came up frequently in engagement. This was likely top of mind for people as the engagement period took place in late winter.



Appendix

Appendix A: Areas of focus

Tiered approach to community engagement:

Tier	Description	Neighborhoods	Level of engagement
Tier 1	Historically disadvantaged, low-income and BIPOC communities highly impacted by vehicle, ped, and bike crashes, and that have been under-engaged in recent years.	<p>Frogtown</p> <ul style="list-style-type: none"> Rice St./Pennsylvania Ave. Como Ave. /Marion St. Intersection of University Ave. and Dale St. Between Dale St. and Lexington Pkwy. on University Ave. (Also East Midway) <p>North End</p> <ul style="list-style-type: none"> Further north on Rice St. and Maryland Ave. <p>Greater East Side & Battle Creek-Conway-Eastview-Highland Hills:</p> <ul style="list-style-type: none"> Intersection of White Bear Ave. and Minnehaha Ave. <p>Union Park</p> <ul style="list-style-type: none"> On Snelling between I-94 and University Ave. - just west of Allianz Field 	<ul style="list-style-type: none"> Share project information Ask neighborhood councils most effective ways to engage their residents Focus community conversations and pop-ups here Invite input via survey and comment map Focus social media posts here
Tier 2	Communities that have been engaged in recent years but that have been highly impacted by vehicle, pedestrian, and bike crashed and prioritize historically disadvantaged, low-income and BIPOC communities.	<ul style="list-style-type: none"> Payne-Phalen West Side of Saint Paul Downtown Rondo/Summit-University 	<ul style="list-style-type: none"> Share project information Invite input via survey and comment map More focus in phase two: focused community conversations and pop-ups; ask neighborhood councils most effective way to engage
Tier 3	Other Saint Paul neighborhoods that have been impacted by severe/fatal crashes and city-wide Saint Paul residents.	<ul style="list-style-type: none"> Union Park St. Anthony Park All other Saint Paul neighborhoods/districts 	<ul style="list-style-type: none"> Share project information Invite input via survey and comment map

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Appendix B: Previous engagement summary

Plans and engagement efforts

Name of project	Agency	Area	Timeline	Estimated # of people engaged
<u>Saint Paul Pedestrian Plan</u>	City of Saint Paul	City-wide, most representation in Highland Park, Macalester-Groveland, and Summit-University neighborhoods	Summer 2017 – spring of 2018	4,000
<u>Saint Paul Bicycle Plan (update)</u>	City of Saint Paul	City-wide, most representation in 55104 and 55105 zip codes	Engagement for update took place in fall 2021	2,300 (for update)
<u>East Side: East 7th Street and Arcade Street Resurfacing</u>	MnDOT	Dayton’s Bluff, Payne-Phalen neighborhoods	February – June 2022	5,000
<u>Rethinking I-94 (phase one)</u>	MnDOT	Saint Paul and Minneapolis; Saint Paul areas: Rondo, Summit-University, Union Park District	2016 – mid-2018	5,000*
<u>West Side: Robert Street: River South</u>	MnDOT	West Side	August – October 2020	1,300
<u>Downtown Robert Street Reconstruction</u>	City of Saint Paul	Downtown	September – December 2022	450

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Appendix C: Direct outreach to priority areas

Stakeholders and comments

Stakeholder Name	Type	Area	Outreach	Date Contacted	Feedback
Homi Restaurant	Business	Between Dale St. and Lexington Pkwy. on University Ave	In person	3/14/2023	Bus/train rider; works in Saint Paul; top concerns: speeding vehicles, poor road conditions (potholes), crossing busy streets, violence (shootings, drugs), cars not stopping at light rail; cars have run into their restaurant, bus stop in front of restaurant but not maintained in the winter, so it's difficult for people to get off the bus
Milan's Motor Towing & Services	Business	Between Dale St. and Lexington Pkwy. on University Ave	In person	3/14/2023	Driver - biggest concern is potholes/road conditions, especially on University; Driver - Top concerns: speeding vehicles, reckless/careless driving, impaired driving, cars failing to yield, poor road conditions, no sidewalks (in the winter), sidewalks in poor condition; told story of a 4 ft pothole that was ruining cars
Thrifty Nifty	Business	Between Dale St. and Lexington Pkwy. on University Ave	In person	3/14/2023	Driver, sometimes walks; has witnessed multiple accidents in front of store on University Ave & Grotto St N, people will run the light and cause accidents with other vehicles or the light rail, she hears a lot of traffic noise with the accidents and honking, it's hard for people to get into her store with all of the traffic & minimal parking, she would like another stop on Avon St so people don't have to go all the way down to Victoria to get to the store; Idea: speed up the traffic lights on University (especially Grotto St) so that cars don't feel inclined to run them
Mawa T African Hair Braiding	Business	Between Dale St. and Lexington Pkwy. on University Ave	In person	3/14/2023	Driver; Top concern: speeding vehicles; Area: University Ave & Milton in front of their store, police not showing up in time when called
Latuff Brothers Auto Body	Business	Between Dale St. and Lexington Pkwy. on University Ave	In person	3/14/2023	Driver; top concerns: speeding vehicles, reckless/careless driving, poor road conditions; avoids Snelling/University, Snelling/Selby, and Snelling/Marshall because of safety concerns & high traffic
Meineke Car Care Center	Business	Between Dale St. and Lexington Pkwy. on University Ave	In person	3/14/2023	Driver; Top concerns: speeding vehicles, reckless/careless driving; Areas: University Ave & Victoria St, Lexington & I-94 bridge

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Shear Pleasure Salon of Beauty	Business	Between Dale St. and Lexington Pkwy. on University Ave	In person - closed, called - left message, called back - followed up w email	3/14/2023 & 3/15/2023, 3/27/2023	Two major accidents have recently happened outside of her store. Traffic is going too fast on University. When they put in the light rail, they made the lanes and traffic closer to the buildings, which she believes was the wrong move. The vibration from the light rail has caused cracks in her buildings. She would like to see more signs on University reminding people that the speed limit is 30 mph. Her side of the street is especially bad. She likes the idea of putting speed bumps on University, too, but is concerned about how that would affect emergency vehicles. She would also like to see more cameras to catch the license plates of people who are causing these accidents so they can get the right information to the police. She is also concerned about graffiti in the neighborhood, making it look like she and others don't care about their businesses when they really do. She has been on University Ave for 45 years.
Thong Auto General Repair Inc	Business	Between Dale St. and Lexington Pkwy. on University Ave	In person - unavailable, called	3/14/2023 & 3/15/2023	Walks; potholes are a big issue for them and for others, even as a pedestrian
Rice Street Do It Best Hardware	Business	Further north on Rice St. and Maryland Ave.	Called, sent follow up email with more info	3/10/2023	Concern about potholes on Rice Street in front of their store, so bad that they saw someone's wheel come off when they hit one. The City & Police have to drive over them too, but nobody reports it. It is dangerous because if you swerve around the potholes, you swerve into traffic, and on the other side of the road there are more potholes. They are located 3 blocks south of Maryland on Jessamine Ave W. He had indicated at a meeting that he thinks they should change the crosswalk from where it is (on Rice St & Jessamine) because people always try to cross directly across from their store, north of the sidewalk on Jessamine and are going back and forth all the time, which is dangerous. He'd like to see the crosswalk moved north in front of their store rather than where it is. It is very hard to get across Rice Street, so the crosswalk does help, but people don't always stop for it. He doesn't think they need bike lanes, trees, or turn lanes. Just a better quality road.
Oromo Community of Minnesota	Nonprofit	Intersection of University Ave. and Dale St.	Email	3/9/2023	Concerned about snow removal, road maintenance, potholes - Lexington, Jackson. Snow is not cleared on University, can't take left turns. Knows someone hit by light rail while crossing on University. Cars don't stop for people crossing from light rail, and people cross when they shouldn't.

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The Luscious Crab	Business	Intersection of University Ave. and Dale St.	In person	3/14/2023	Driver; top concern: speeding vehicles, cars failing to yield
7 miles sportwear (Hair Depot)	Business	Intersection of University Ave. and Dale St.	In person	3/14/2023	Driver; top concern: speeding vehicles; lives in Woodbury
Rondo Community Library	Community Center	Intersection of University Ave. and Dale St.	Email, in person	3/9/2023 & 3/14/2023	Light rail user - top concerns: reckless/careless driving, poor road conditions, no bike lanes/trails; witnessed a car collision at 7th and ?; Ideas: bike lanes, traffic lights, better snow removal on pedestrian walkways; lives & works in Saint Paul; zip 55104; Driver - top concerns: cars failing to yield, poor road conditions, no sidewalks; avoids: no sidewalk on Larpenteur Ave, cars turning into the farther lane from Marshall onto Cretin, Saint Paul end of Lake St Bridge flooding in heavy rain; has been/almost been in crash at Cretin & Marshall, vehicles sliding on ice at southbound stoplight on Cretin; witnessed crash on Snelling with vehicles and pedestrians, car yielding for pedestrians rear ended by semi; works and visits Saint Paul; zip 55406; age 36-50; pronouns he/him; white
Sun Foods	Business	Intersection of University Ave. and Dale St.	In person	3/14/2023	Supervisor, driver; top concerns: poor road conditions, crossing busy streets; area: near Double Dragon on Maryland and Rice
Earth's Beauty Supply	Business	Intersection of University Ave. and Dale St.	In person	3/14/2023	Top concerns: speeding vehicles, cars failing to yield, poor road conditions, crossing busy streets, potholes; Dale & University is problem area
Flava Coffee & Café	Business	Intersection of University Ave. and Dale St.	Email, in person	3/9/2023 & 3/14/2023	Walker - deep potholes on Concordia near the highway; has seen many car accidents on University from cars turning quickly, can't go for walks around the coffee shop anymore; idea: would like to see traffic slowed, worries about the kids coming out of the library
Jimmy's Food Market	Business	Intersection of White Bear Ave. and Minnehaha Ave.	Call	3/10/2023	White Bear & 3rd, so far so good, no issues around here
Midway Used & Rare Books	Business	On Snelling between I-94 and University Ave.	Call	3/15/2023	The light rail doesn't seem to be safe as pedestrians do not look both ways as light rail approaches. University & Snelling intersection is too fast paced. Lots of potholes on University
M Health Fairview Clinic	Healthcare	Rice St./Pennsylvania Ave. Como Ave. /Marion St.	Call	3/15/2023	Drivers speed through intersections on Hamline and University. People drive too fast in parking lot in front of clinic.

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North Point Collision & Auto Center	Business	Rice St./Pennsylvania Ave. Como Ave. /Marion St.	Email	3/15/2023	Intersection of Como/Marion is too fast. People don't always look both way. Have seen a few accidents on that intersection.
Fredy Auto Repair	Business	Rice St./Pennsylvania Ave. Como Ave. /Marion St.	Call	3/15/2023	Too many potholes around city (no other response)
Como Place Apartments111	Apartment	Rice St./Pennsylvania Ave. Como Ave. /Marion St.	Call	3/15/2023	Traffic moves too fast, concerns about resident safety. Sidewalks are not maintained by the city well with lots of snow left by snowplows

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Appendix D: Communications

Social media

Twitter: The comment map and survey were posted on Saint Paul's Public Works Twitter account (@stpaulpublicw) and retweeted by the City of Saint Paul account (@cityofsaintpaul). In total, Tweets received 62 likes and 66 retweets.

Post date	Likes	Retweets
3/6/23: first post, survey and map	30	25
3/29/23: survey and map	12	16
4/11/23: closing reminder	11	7
4/12/23 - closing reminder	9	18

Facebook: The comment map and survey were also posted on the City of Saint Paul's Facebook page. In total, posts reached 3,371 people, and 139 people engaged with the posts, including clicking on the link.

Post date	Reach	Engaged users, including link clicks
3/6/23: first post; survey and map	1,478	71
3/29/23: survey & map	1,203	54
4/11/23: closing reminder	690	14

Nextdoor: The City of Saint Paul shared the survey and comment map to its Nextdoor page, which has 79,966 members/subscribers.

Post date	Impressions
3/6/23: first post; survey and map	1,687
3/17/23: survey & map	838

GovDelivery

The City of Saint Paul sent GovDelivery emails to their bicycle list, pedestrian list, and new list created for the Transportation Safety Action Plan. The bicycle list has 4,896 subscribers, the pedestrian list has 2,980 subscribers, and the Transportation Safety Action Plan list has 99 subscribers, reaching almost 8,000 people and receiving 993 clicks.

Send date	Open rate	Survey clicks	Map clicks
3/20/23: survey and map	45%	509	131
4/12/23: closing reminder	39%	217	136

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District Councils

The engagement team reached out to each of the 17 District Councils in Saint Paul, encouraging them to share project information with their constituents. The email included an attached one-pager project overview, text and graphics for sharing on social media, and the link to the project website, survey, and comment map. The City of Saint Paul also presented to the District Council Transportation Committee on March 1.

Website

The [project webpage](#) went live in early March of 2023. As of mid-April 2023, the site had received 1,498 page views by 832 unique visitors, resulting in 289 clicks on the survey and 174 clicks on the comment map. Almost half of website visits were direct traffic and about a quarter were referred from social media. External referrers accounted for 16% of visits, and search engines accounted for 8% of visits.

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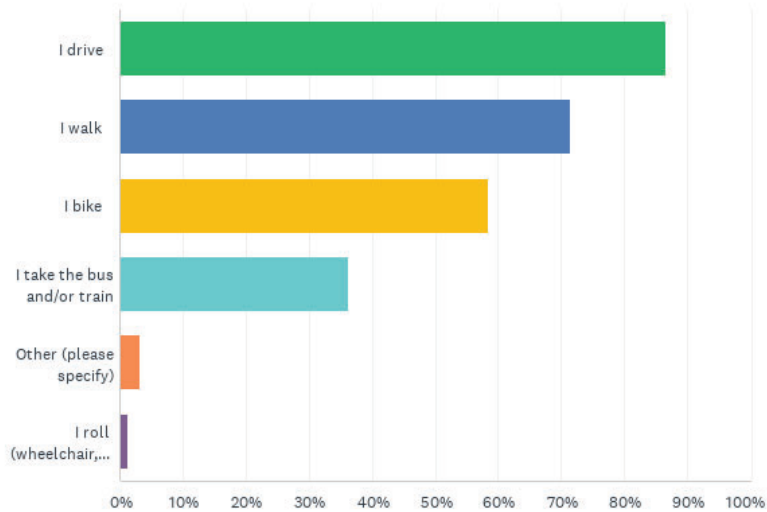


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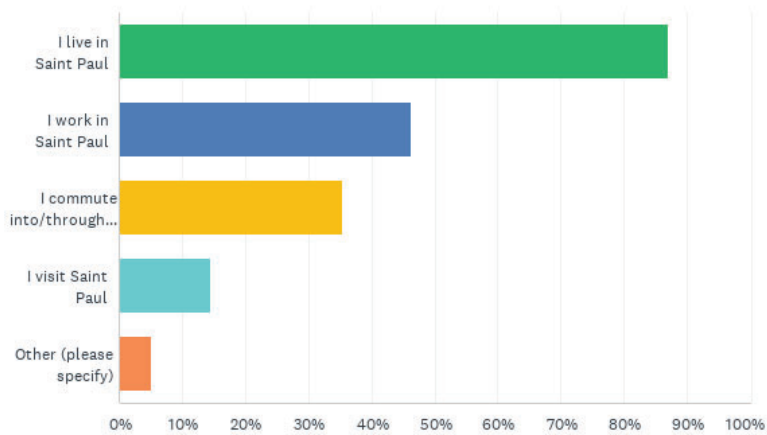
Appendix E: Survey

Citywide demographic data

Q1 How do you usually travel in Saint Paul? (Select all that apply)



Q15 What best describes you? (Select all that apply)



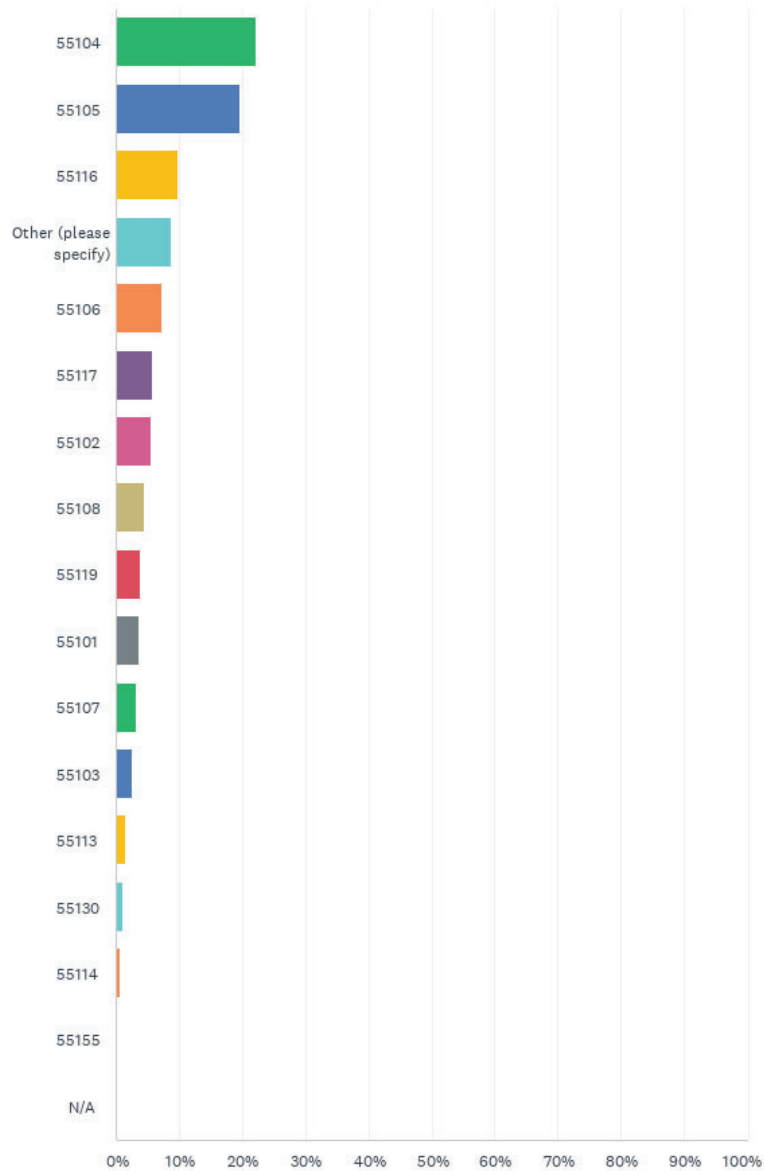
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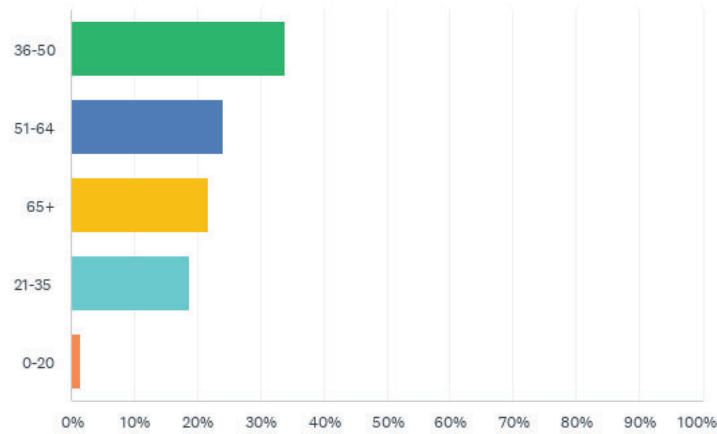
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Q16 What is your zip code?

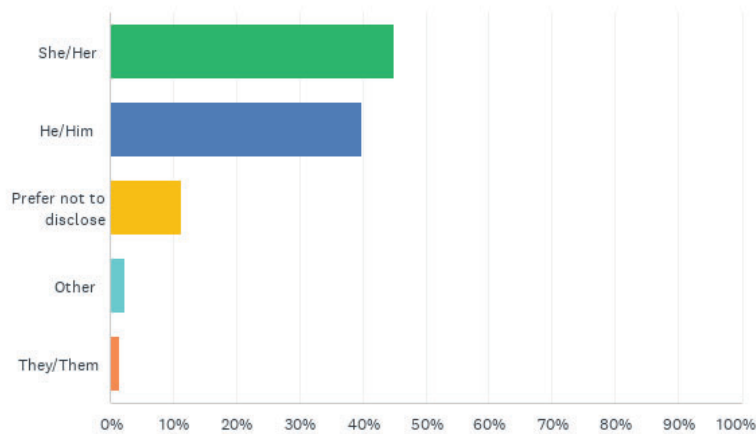




Q17 What is your age?



Q18 What are your pronouns?



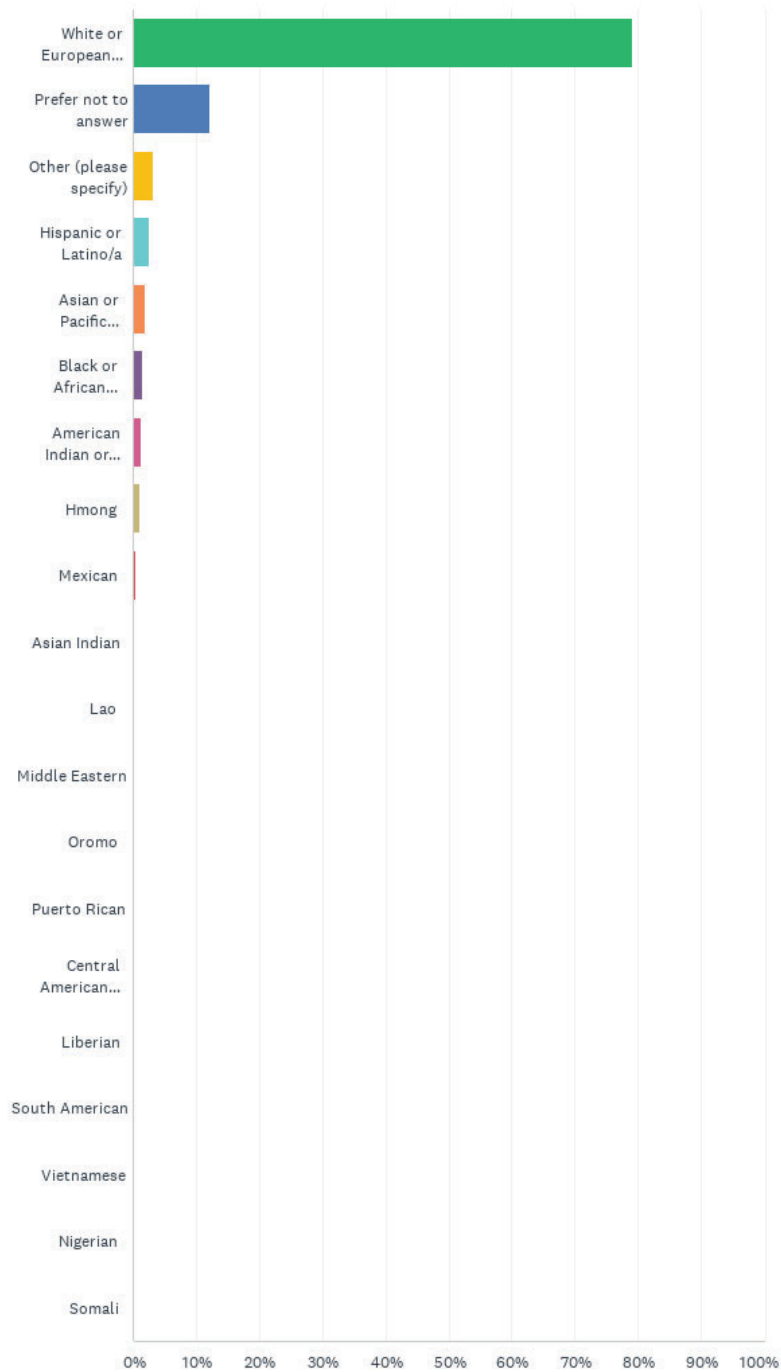
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Q19 Which race/ethnicity best describes you? (Select all that apply)





Appendix F: Comment map

Count of Tier 1 comments by PublicCoordinate Comment Category

Map Comment Category	Count of PublicCoordinate Comment Category: TIER 1 ZIP CODES
Crash or Near Crash	86
Safety improvement idea: Bicyclist	171
Safety improvement idea: Driver	77
Safety improvement idea: Pedestrian	152
Safety improvement idea: Transit rider	11
Safety improvement idea: Wheelchair or mobility device user	4
Grand Total	501

Count of Tier 1 comments by PublicCoordinate Comment Category + Coding Category

Map Comment Category	Crash or Near Crash	Safety improvement idea: Bicyclist	Safety improvement idea: Driver	Safety improvement idea: Pedestrian	Safety improvement idea: Transit rider	Safety improvement idea: Wheelchair or mobility device user	Grand total
Count of speeding vehicles	20	6	31	19			76
Count of reckless/careless driving	32	1	6	3			42
Count of impaired driving	4		3	3			10
Count of cars failing to yield	19	6	2	3			30
Count of poor road conditions		4	6	1			11
Count of crossing/intersections	28	33	23	89	7	1	181
Count of sidewalks		20	2	41		3	66
Count of bicycling	9	138	3	8			158
Count of other	3	10	21	16	7		57

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“Other” comment category/theme

Row Labels	Count of Other
Congestion	2
Crash, limited details	1
Crash, no details	3
Cut through traffic	1
Enforcement	2
Expanding bike & ped space	1
Lighting	5
Roadway design	26
Roundabout	3
Traffic signal	3
Transit	6
Winter maintenance	4
Grand Total	57

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Appendix G: Eastern Heights Elementary pop-up

Demographic information:

Pronouns	Age	Race/Ethnicity	Zip Code
She/her	21-35	White	55119
She/her	21-35	White	55119
She/her	51-64	White	Other
She/her	51-64	Hmong	Other
He/Him	51-64	Hmong	55105
	51-64	Asian/Pacific Islander	55117
		American Indian or Alaskan Native	

Eastern Heights Elementary pop up: Individual comments:

Location	Comment
Highway 52/I-94/E 7th St interchange	Drivers not paying attention & speeding
Johnson Pkwy & Maryland Ave E	Needs turn lights
Citywide	Fix potholes
Harding High School entrance on 3rd St E	Back ups at entrance to high school
3rd St E, between Germain St and Kennard St N	A hill causes cars to speed
3rd St E & White Bear Ave	Bad intersection, near many schools and businesses, scary to walk there
3rd St E & White Bear Ave	Pedestrian was killed here last year
White Bear Ave	Would like to see a 4 to 3 lane conversion, 1 lane each way with a turn lane as opposed to two lanes each way
White Bear Ave	It is had to turn onto White Bear Ave because it is very busy
White Bear Ave	A number of schools are near this corridor, so a safety project would impact a lot of children
White Bear Ave	Lots of speeding, would like to see more enforcement, cops
White Bear Ave	Concern about shootings
Margaret St	Speeding
Wilson Ave	Speeding

Safe Streets for All

Transportation Safety Action Plan



SAINT PAUL
PUBLIC WORKS

Ruth St N & Margaret St	Intersection has gotten better with pedestrian crossing lights
Margaret St between Hazel St N & Ruth St N	Backups because there is no school drop off zone
Around Eastern Heights Elementary, generally	Would like to see more greening
Conway St & Pedersen St	Will do walking field trips to the Conway Recreation Center
Como Ave & Marion St	Difficult to exit the HmongTown Marketplace parking lot
E Shore Dr & Johnson Pkwy	Blind spot to turn onto Johnson Pkwy from E Shore Dr, many close calls, no left turn light
Phalen Blvd & Johnson Pkwy	Lots of traffic, the lines are awkward, many accidents
Lexington Pkwy N & I-94/Hwy 12	Lights are not timed right, always crashes here
Lower Afton Rd & Burlington Rd, Winthrop St S	High speeds on Afton. There is a stop sign at Burlington, but nothing to stop traffic on Afton, so it is very difficult to get onto Afton - same issue turning from Winthrop
Londin Ln E & Burlington Rd/Totem Rd	Buses from Highland Hills Elementary School can't turn From Londin Ln E onto Todem
Lower Afton Rd & Burlington Rd	Hard to get onto Afton from Burlington, also difficult to access Battle Creek Bike Trail
Randolph Ave & S Cleveland Ave, Cretin Ave S	People run red lights at these intersections



Appendix H: HmongTown Marketplace pop-up

Demographic information:

Pronouns	Age	Race/Ethnicity	Zip Code
He/Him	21-35	Asian/Pacific Islander	55119
He/Him	21-35	White	Other
He/Him	21-35	White	Other
He/Him	21-35	White	55103
He/Him	36-50	Hmong	Other
He/Him	36-50	Hmong	Other
He/Him	51-64	Hmong	Other
He/Him	51-64	Hmong	Other
He/Him	51-64	Hmong	55103
He/Him	51-64	Other	Other

Summary of comments:

- Many people are concerned about speeding on Como Ave. and Pennsylvania Ave.
- Many people who travel to HmongTown also use the recreation center across the street
- Many people walk to HmongTown because they are residents of Frogtown
- Most neighborhoods surround HmongTown are immigrant/refugee residents who either do not have a car, or choose to walk
- Rice St. and Pennsylvania Ave. do not have turn signals causing congestion on Pennsylvania and impatient drivers causing fast turns and dangerous conditions for vehicles and pedestrians
- HmongTown exit to Marion St. has to be swift to make it across the street; causes danger to pedestrians and cars (having to cross through speeding traffic)
- 2 people mentioned speed bumps as a traffic calming measure
- Speeding on Western Ave. and Thomas Ave.
- Area has a lot of young pedestrians crossing to and from the rec. center to Market and back
- Vendors at HmongTown often utilize Market parking and cross over to Rec. center
- Some folks avoid Pennsylvania Ave. and Rice St. when walking; alternate/preferred route is Como Ave. to get to HmongTown Marketplace
- People perceive danger for pedestrians and drivers are about the same
- People perceive speeding and irresponsible driving as main causes of danger
- Owner of HmongTown, Toua Xiong, recommends the city build a bridge/crossing that is away from traffic to keep vendors and children in the area safe



Appendix C: Saint Paul City Council Vision Zero Resolution

Safe Streets for All

Transportation Safety Action Plan

June 2023



SAINT PAUL
MINNESOTA



City of Saint Paul

City Hall and Court
House
15 West Kellogg
Boulevard
Phone: 651-266-8560

Signature Copy

Resolution: RES 23-875

File Number: RES 23-875

Adopting the City of Saint Paul Vision Zero Transportation Safety commitment.

WHEREAS, even one death on the streets of Saint Paul is one too many; and
WHEREAS, people who live, work, visit, and play in Saint Paul deserve to be able to go about the city without fear of death or serious injury in their travels; and
WHEREAS, Mayor Carter's Administration and the Saint Paul City Council recognize that transportation safety is a key part of making Saint Paul a city that works for all; and
WHEREAS, traffic crashes in our city cause tremendous pain and suffering for crash victims, for their families, friends, and colleagues, and for the emergency services personnel who respond to crashes; and
WHEREAS, traffic crashes also carry massive economic and social impacts beyond the traumatic initial events; and
WHEREAS, crashes resulting in death or serious injury are not a foregone conclusion, and by understanding, how, why, where, and to whom they happen the city can make design and policy decisions that help drive down the numbers of these terrible events; and
WHEREAS, from 2018 through 2022 there were 16,070 recorded crashes on surface streets in Saint Paul, including 60 fatalities and 264 serious injury crashes; and
WHEREAS, vulnerable road users - pedestrians in particular - are at a higher risk of injury or death while using the city's transportation system; and
WHEREAS, Black, Indigenous, and People of Color in Saint Paul were over-represented in traffic-related fatalities between 2010 and 2019; and
WHEREAS, recent data has demonstrated that many of the most dangerous parts of Saint Paul's transportation networks are also in some of our most disadvantaged communities, where people bear a disproportionate burden of fatal and serious crashes; the city will use data and authentic community engagement to ensure that the benefits of safety investments are shared equitably throughout the city; and
WHEREAS, the City of Saint Paul and partner agencies in state and county government routinely make policy and project programming decisions that impact the surface transportation system and emergency response; and
WHEREAS, the Saint Paul Comprehensive Plan includes Goal 2: Safety and accessibility for all users, including Policy T-5: Adopt and implement a "Vision Zero" program with the long-term goal of achieving zero traffic fatalities and severe injuries; and
WHEREAS, the Saint Paul Comprehensive Plan notes that "Projects will prioritize the safety of people walking and biking, equity, and improved access to economic opportunity," and
WHEREAS, implementing a commitment to reducing and eventually eliminating traffic fatalities and serious injuries will require significant participation from and coordination with partner agencies and across city departments; and
WHEREAS, the City of Saint Paul is poised to implement Vision Zero safety-focused projects and strategies in a variety of ways and is committed to measuring the outcomes of Vision Zero on an annual basis.
WHEREAS, by making this commitment the City of Saint Paul is joining a nationwide and international group of forward-thinking cities that are also making a commitment to eliminate traffic deaths and serious injuries on their streets; now, therefore, be it

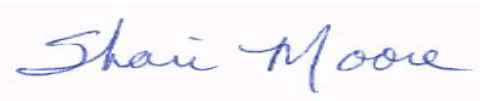
RESOLVED, that the Saint Paul City Council hereby commits to a goal of zero traffic deaths and serious injuries on all surface streets in Saint Paul by 2045, with an interim goal of 50 percent reduction in fatal and serious injury crashes within ten years; and be it further RESOLVED, that the City of Saint Paul understands that achieving this ambitious goal will require significant and ongoing coordination with partner agencies including the Minnesota Department of Transportation, Ramsey County, the Metropolitan Council, and Metro Transit; and be it further RESOLVED, that the City of Saint Paul acknowledges that achieving this Vision Zero commitment will require significant staff effort and financial resources over a sustained period, and that prioritizing safety investments will need to be elevated in the planning of future projects and policies.

At a meeting of the City Council on 6/14/2023, this Resolution was Passed.

Yea: 6 Councilmember Brendmoen, Councilmember Tolbert, Councilmember Noecker, Councilmember Prince, Councilmember Yang, and Councilmember Balenger

Nay: 0

Absent: 1 Councilmember Jalali

Vote Attested by 
Council Secretary Shari Moore

Date 6/14/2023

Approved by the Mayor 
Melvin Carter III

Date 6/15/2023