MATANUSKA-SUSITNA BOROUGH

COMPREHENSIVE SAFETY ACTION PLAN

Public Review Draft

60th ANNIVERSARY
MATANUSKA SUSITNA
INCORPORATED 1964 ALASKA
BOROUGH SEAL
1964 -2024

DECEMBER 2024

Acknowledgments

Public Participants

Thank you to the 900+ people who participated in this planning process through the safety survey, the virtual public workshops, the interactive online data dashboard, the focus group meetings, the open houses in Wasilla, Palmer, and Houston, and those who reached out to the project team with questions and comments. Thank you also to the many individuals who assisted with engagement through social media and the local press, including Big Cabbage Radio.

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Executive Summary

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What is a Safety Plan?

Safety in transportation is an essential component of a healthy community. A safe transportation environment is one where people can meet their daily needs, using a mode of travel that is the easiest, most convenient, and affordable for them and their families. Recognizing this, the U.S. Department of Transportation created the Safe Streets and Roads for All (SS4A) program to provide funding for plans and projects that help prevent deaths and serious injuries on roadways across the country. The Comprehensive Safety Action Plan (CSAP) for the Matanuska-Susitna Borough (MSB) is a strategic component of the SS4A program. Once developed, the CSAP can be used to successfully apply for SS4A-related grants to fund implementation projects as well as supplemental planning activities and demonstration projects.

Key Components of an Eligible SS4A Comprehensive Safety Action Plan

To ensure that the MSB can use this CSAP to successfully apply for future SS4A grant funding to implement projects and conduct supplemental planning activities, this plan is organized to clearly align with the SS4A eligibility requirements for Safety Action Plans.[1] The eligibility requirements are outlined and included in the following plan chapters. These chapters also specifically support the SS4A Action Plan Components necessary to complete the SS4A Self-Certification Eligibility Worksheet when applying for future SS4A grant funding.

Chapter 1: Leadership Commitment & Goal Setting: This chapter outlines the guiding principles of the Safety Action Plan through the Safe System Approach, establishing a goal to reduce fatal and serious injury crashes by 3.5% per year.

Chapter 2: Planning Structure: To meet SS4A requirements, the MSB established a Safety Action Plan Team (SAPT) to oversee plan development. This chapter provides an overview of their process and involvement in shaping the plan.

Chapter 3: Safety Analysis (Existing Conditions Crash Data & Peer Review Summary): This chapter includes a crash data summary and key trends analysis within the MSB's Expanded Core Area boundary from 2018-2022, as well as a summary of national best practices and a peer city review comparison.

Chapter 4: Engagement & Collaboration: This chapter summarizes the robust public engagement process undertaken throughout plan development to gain valuable information from a multi-disciplinary group of MSB stakeholders, transportation agency professionals, and the public.

Chapter 5: Equity Considerations: This chapter documents the plan's comprehensive equity analysis to identify disadvantaged populations within the MSB Expanded Core Area and shows the correlation between demographics and safety risk. It provides an equity-specific lens that was used to help prioritize and recommend projects for implementation.

Chapter 6: Policy & Process Changes: This chapter provides an assessment of existing MSB transportation safety-related plans, policies, and programs. It identifies opportunities for improving planning and funding processes to help create a safe transportation network. Finally, this chapter outlines the Safety Toolkit which was developed as part of the MSB CSAP to serve as a guide for countermeasure selection to address specific safety issues in the study area.

Chapter 7: Strategy & Process for Project Selection: This chapter describes the risk profiles that correlate to crashes happening in the MSB, and the methodology used to determine priority locations and the projects recommended in the plan.

Chapter 8: Progress & Transparency: This chapter outlines a clear implementation strategy for the plan, including actionable steps outlined in the Implementation Matrix, use of the online Safe Streets MSB dashboard to track progress over time, performance measures and targets, and a process for updating the plan.

[1] If not viewing this document digitally, please see Appendix A for reference citations by chapter, in order of appearance, to see hyperlinked references.

Chapter 1:

Leadership Commitment & Goal Setting

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Overview

In 2022, the MSB applied for and was awarded a U.S. Department of Transportation SS4A grant to develop a CSAP for the MSB Expanded Core Area. The CSAP is a strategic roadmap to help the MSB move towards a safer transportation network to significantly reduce serious injuries and fatalities on the roadway. The map on the following page shows the MSB Expanded Core Area.

Vision for Safe Streets in the MSB

In the United States, the number of serious injuries and fatalities on the transportation network is on the rise. This represents a public health concern that merits a focused, comprehensive solution. In 2024, the National Highway Traffic Safety Administration estimated that 8,650 people died in traffic crashes nationally in the first three months of the year alone.

Within the MSB Expanded Core Area, more than 10,000 roadway crashes occurred between 2013 and 2022. These included 99 fatal crashes, 345 serious injury crashes, and 69 crashes involving bicycles and pedestrians, 93% of which resulted in injury or death. The vision for creating a safer transportation network in the MSB stems from the knowledge that all crashes are preventable and all people, regardless of age, ability, race, gender, and mode choice, should be able to get home safely every day.

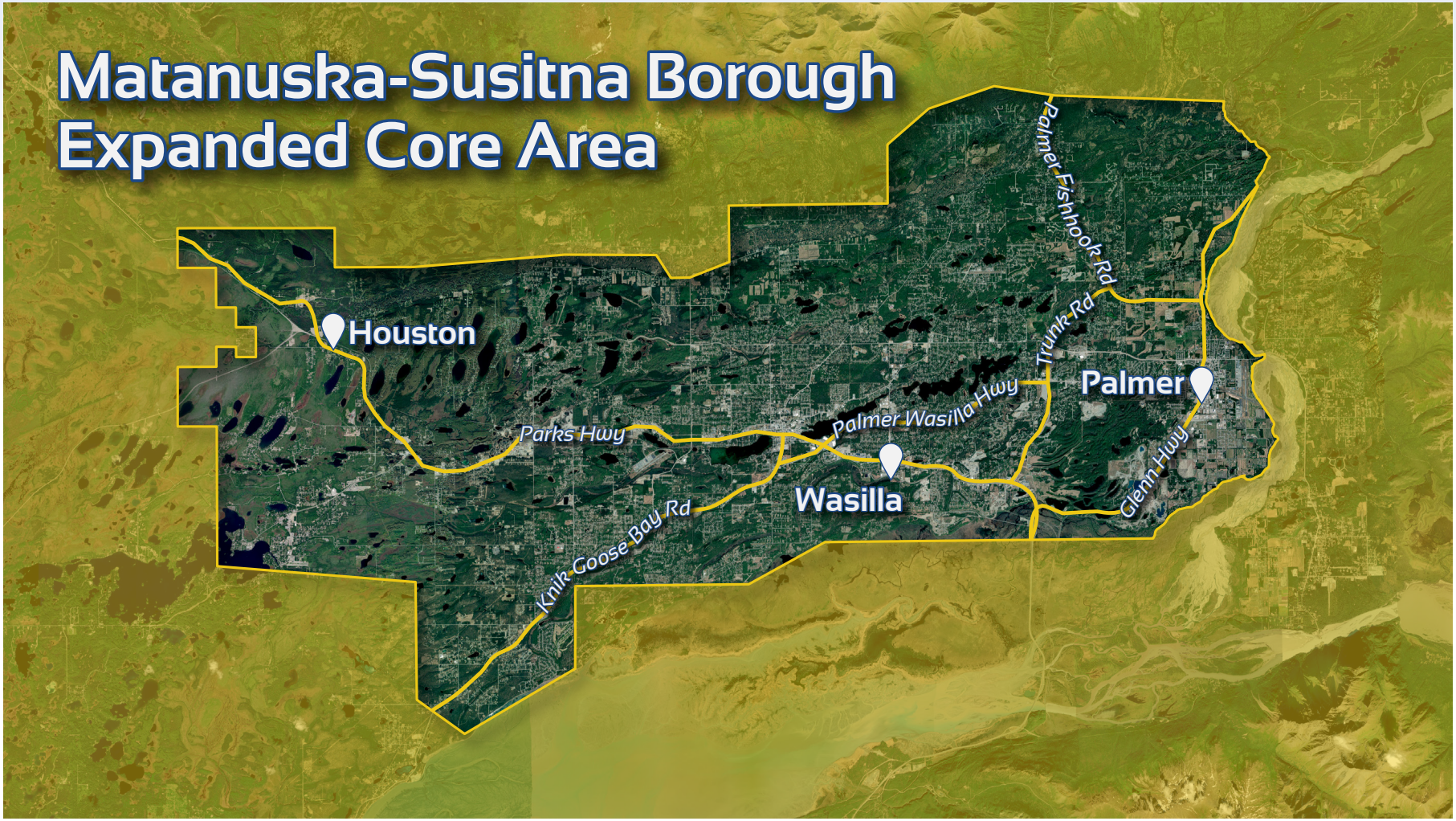

Figure 1. The MSB Expanded Core Area.

The Safe System Approach

The development of the MSB CSAP follows the Safe System Approach (SSA), a national roadway safety strategy developed by the U.S. Department of Transportation (USDOT). Every year, an average of 43 MSB residents are seriously injured or killed on the transportation network of the Expanded Core Area. The ripple effects of these serious crashes go far beyond the lives of the people involved. They reverberate through families, friends, neighborhoods, and the whole community. The SSA recognizes that crashes are preventable. By making changes to key elements of the transportation system, we can anticipate human mistakes and create layers of protection within the network that reduce fatalities and serious injuries.

Figure 2. The Safe System Approach. Credit: USDOT.

Guiding Principles

The SSA was developed as part of the Vision Zero initiative, which states that no person should be killed or seriously injured on the road system, and that even one death is unacceptable. This approach is founded on five core elements and six core principles that work together to form a safe system that protects all road users.

The following principles of the SSA work together to create safer people, safer vehicles, safer speeds, safer roads, and engage in post-crash care.

Deaths and serious injuries on the transportation network are unacceptable.

Humans make mistakes, and a safe system protects them better when they do.

Humans are vulnerable to the forces of a crash.

Responsibility to improve safety within the transportation network is shared between road users and transportation practitioners.

To be effective, safety must be proactive and systematic.

Redundancy is crucial to success.

This approach shifts the focus towards both human mistakes and human vulnerability to design a system with protections in place that help mitigate crash severity and occurrence. The six core SSA principles listed above guide the development of all MSB CSAP components, including the comprehensive crash data analysis, robust public outreach, focus on equity and vulnerable populations within the MSB Expanded Core Area, recommended project selection and prioritization, and suggested countermeasures and tools to help mitigate and prevent crashes.

Figure 3. Differences between the traditional and safe system approach

Setting a Goal for Reducing Deaths and Serious Injuries on the Roadway

Over the five-year period between 2018 and 2022, the number of serious crashes per year in the MSB Expanded Core Area decreased by two, with an overall declining trend. The SS4A program requires that an eligible CSAP make a clear commitment to an eventual goal of zero roadway fatalities and serious injuries by a specific date. This goal may be either:

- A target date to achieve zero roadway fatalities and serious injuries, or
- A target date for a substantial percent reduction in roadway fatalities and serious injuries, leading to an eventual elimination of all roadway fatalities and serious injuries.

MSB Expanded Core Area Fatal & Serious Injury Crashes Five Year Rolling Average Each Year

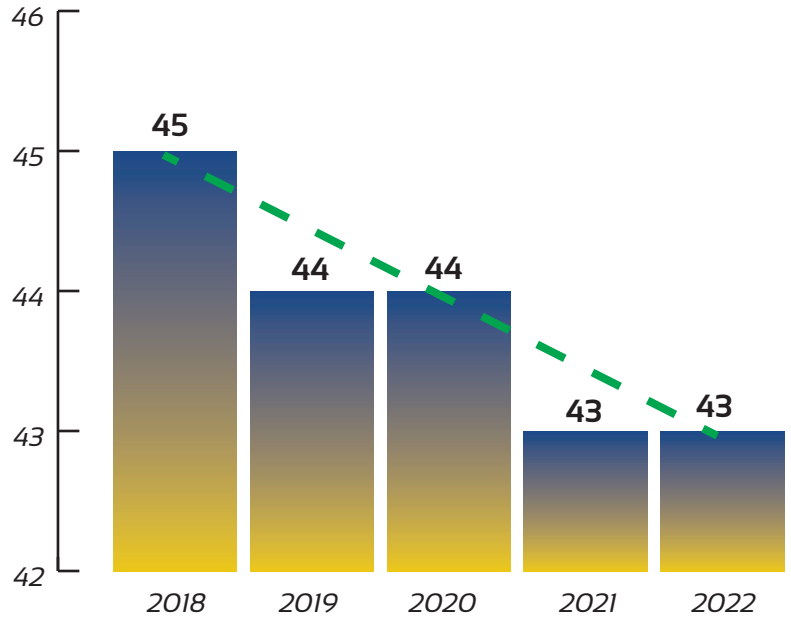

Figure 4. Current Five-Year Serious & Fatal Crash Trend

MSB Expanded Core Area Fatal & Serious Injury Crashes Five Year Rolling Average Each Year 3.5 % Annual Reduction Goal

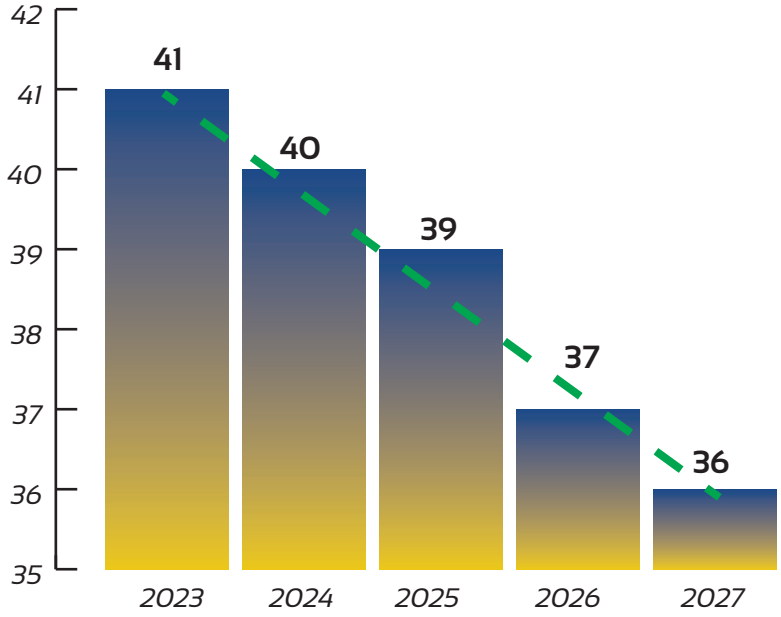

Figure 5. Future Five-Year Crash Trend, 3.5% Annual Reduction

Aligning with the Alaska Department of Transportation and Public Facilities (DOT&PF) Strategic Highway Safety Plan's performance measure goal for fatal and serious injury crash reduction, the CSAP steering committee, or Safety Action Plan Team (SAPT), **approved a 3.5%-annual-reduction goal over a five-year rolling average, with an eventual goal of eliminating all fatal and serious injury crashes.**

Chapter 2:

Planning Structure

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Safety Action Plan Team

The SAPT was formed early in the planning process. SAPT member invitations, information about the project, and regular project updates were sent to the following stakeholders. The stakeholder group they represent is inside parentheses.

- **DOT&PF** (State Transportation Agency)
- **Alaska State Troopers** (Enforcement)
- **Alaska Trucking Association** (Freight/Commercial Group)
- **Boys & Girls Club of Mat-Su** (Youth Services)
- **Chickaloon Native Village** (Tribal Entity)
- **City of Houston** (City Agency/Public Works)
- **City of Palmer** (City Agency/Public Works)
- **City of Wasilla** (City Agency/Public Works)
- **Coalition of Mat-Su Senior Centers** (Senior Population Representative)
- **Knik Tribal Council** (Tribal Entity)
- **Local Road Service Area Advisory Board** (Road Maintenance)
- **Mat-Su Health Services** (Health Services)
- **Mat-Su Parks and Trails** (Parks and Trails)
- **MSB Emergency Services** (Emergency Services)
- **MSB Planning** (Borough/Planning)
- **MSB Public Works** (Borough/Public Works)
- **MSB School District** (School District)
- **Valley Mountain Bikers & Hikers** (Pedestrian and Bicycle Advocacy Group)
- **Valley Transit** (Transit Services)

SAPT Meetings

The project team facilitated five meetings with the SAPT at key stages of plan development. These meetings included:

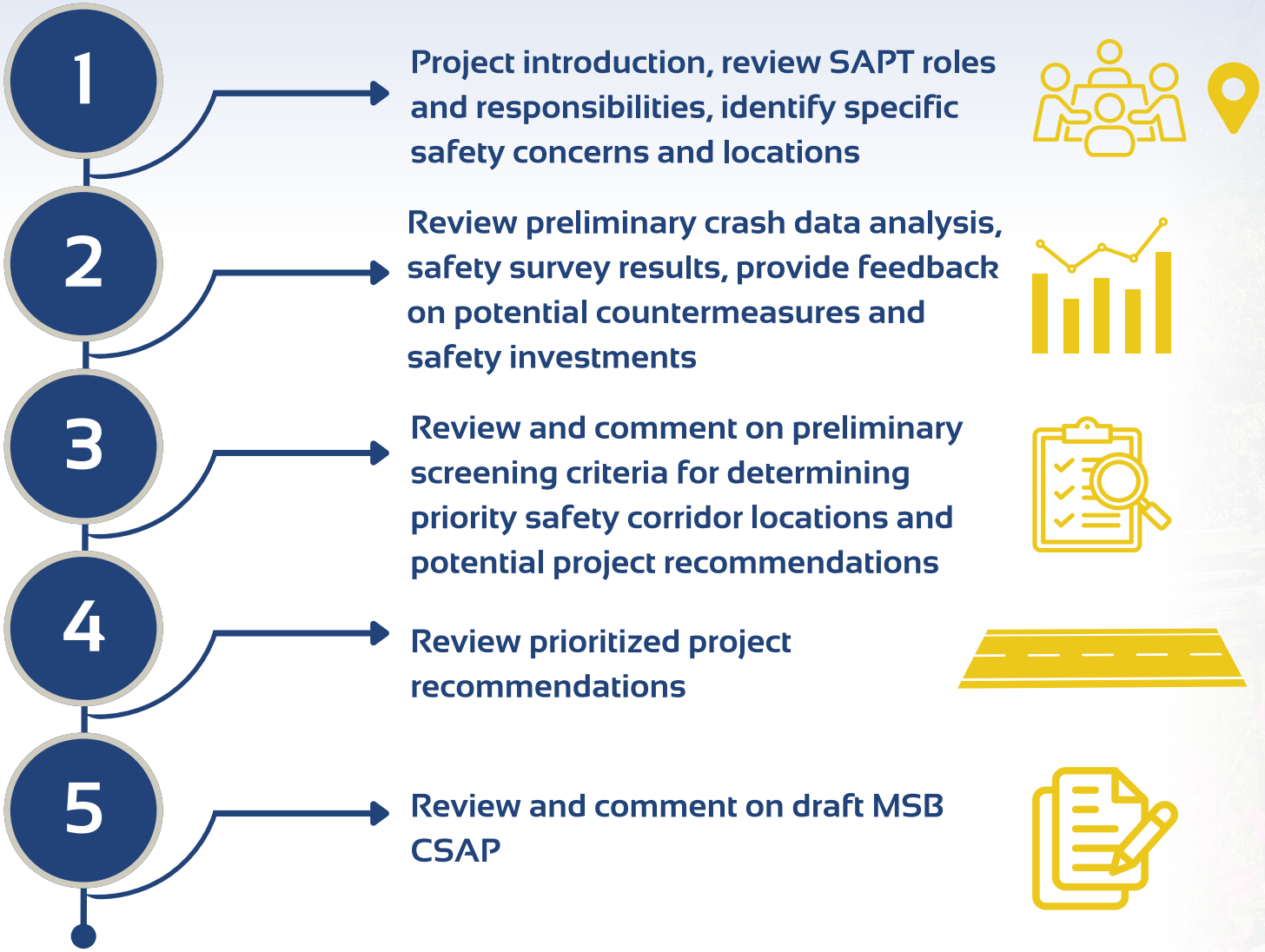

Figure 6: Overview of SAPT meetings.

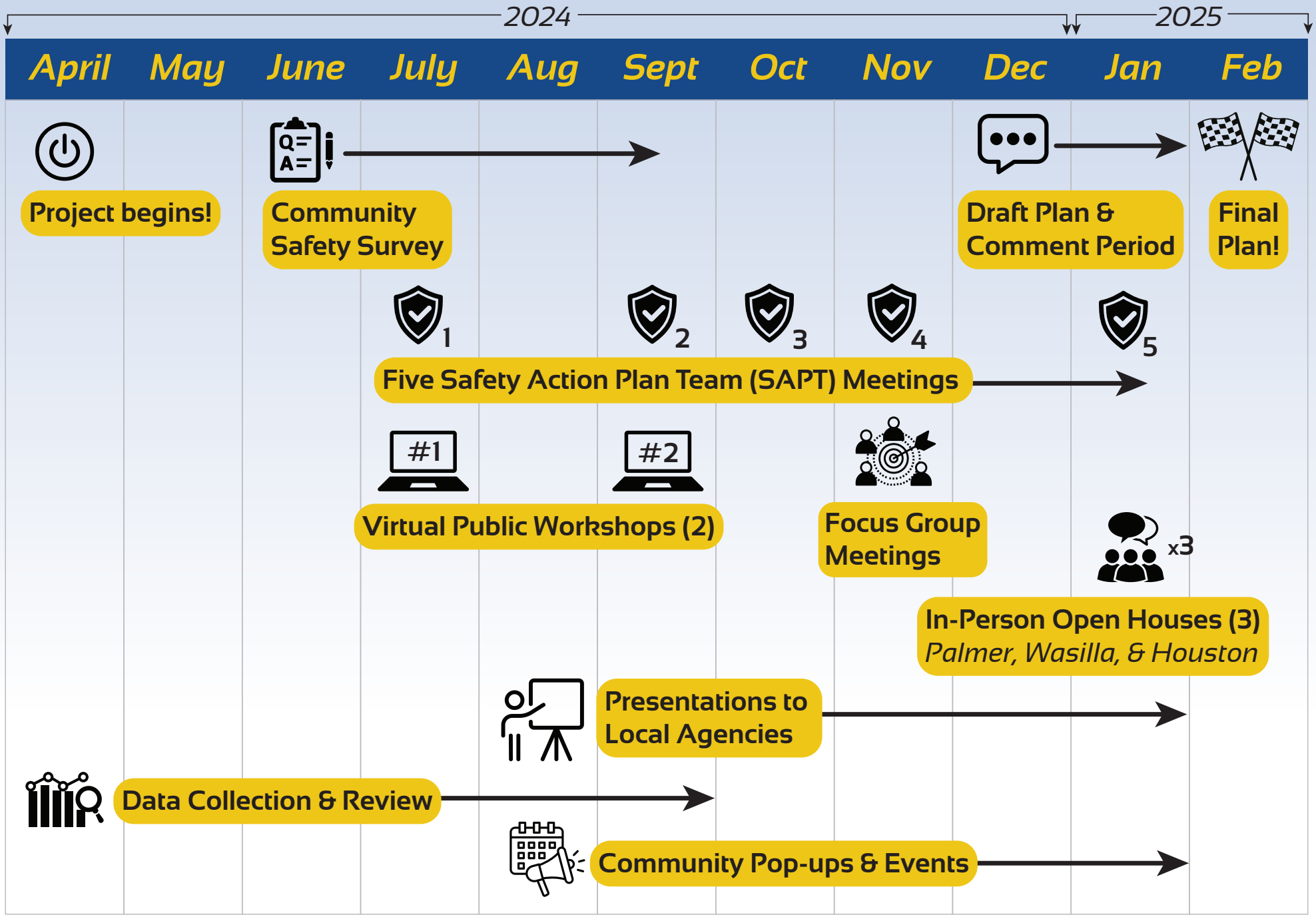

Figure 7. Planning process and timeline

Chapter 3:

Safety Analysis

Existing Transportation System Analysis

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Data Analysis & Crash History in the MSB

The Michael Baker International project team analyzed crash data within the MSB Expanded Core Area boundary from 2018-2022. On behalf of the borough, the project team obtained and analyzed data from a DOT&PF database that comprises reports submitted by local law enforcement agencies and self-reporting through the Alaska Division of Motor Vehicles.

Safety Trends in the Mat-Su Borough (2018-2022)

General Crash Trends

Within this five-year period, 4,802 total crashes were recorded. Of that total number of crashes, 216 were serious crashes: 57 resulted in a fatality, and 159 involved serious injuries (generally, medical treatment required at a hospital).

4,802 total crashes

216 serious crashes*

57 fatal crashes

159 serious injury crashes

*a serious crash is one where one or more people are seriously injured (generally needing medical treatment) or die

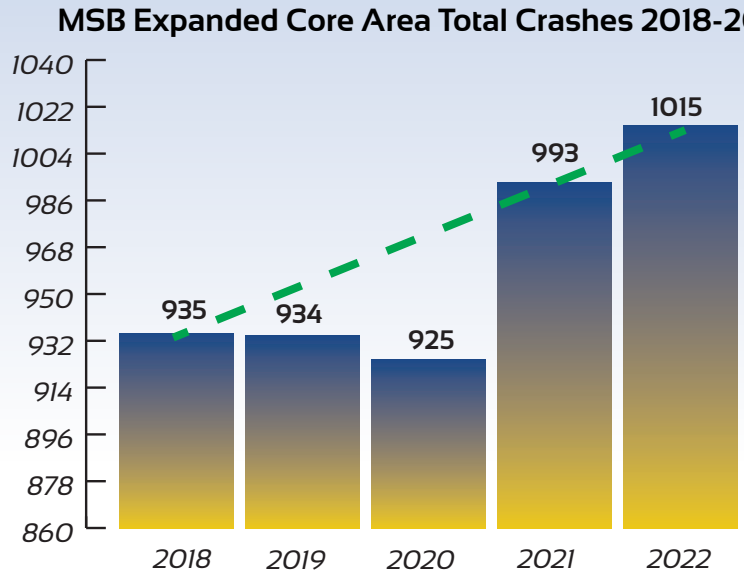


Figure 8. Total crashes by year and growth trend

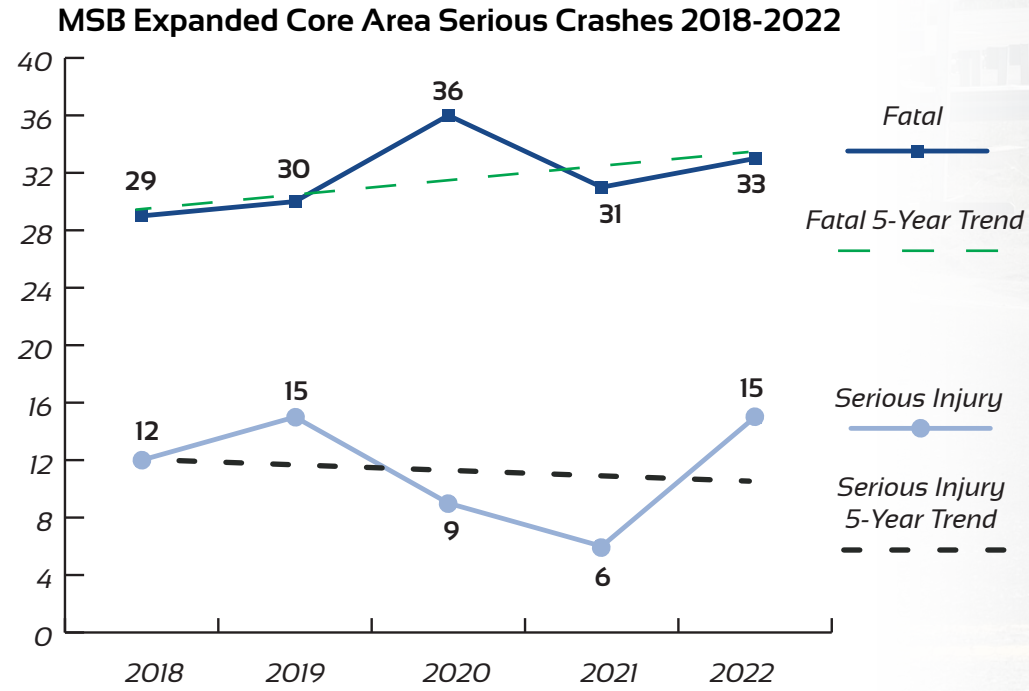


Figure 9. Fatal and serious injury crashes by year and growth trends

Most crashes are concentrated in Wasilla.

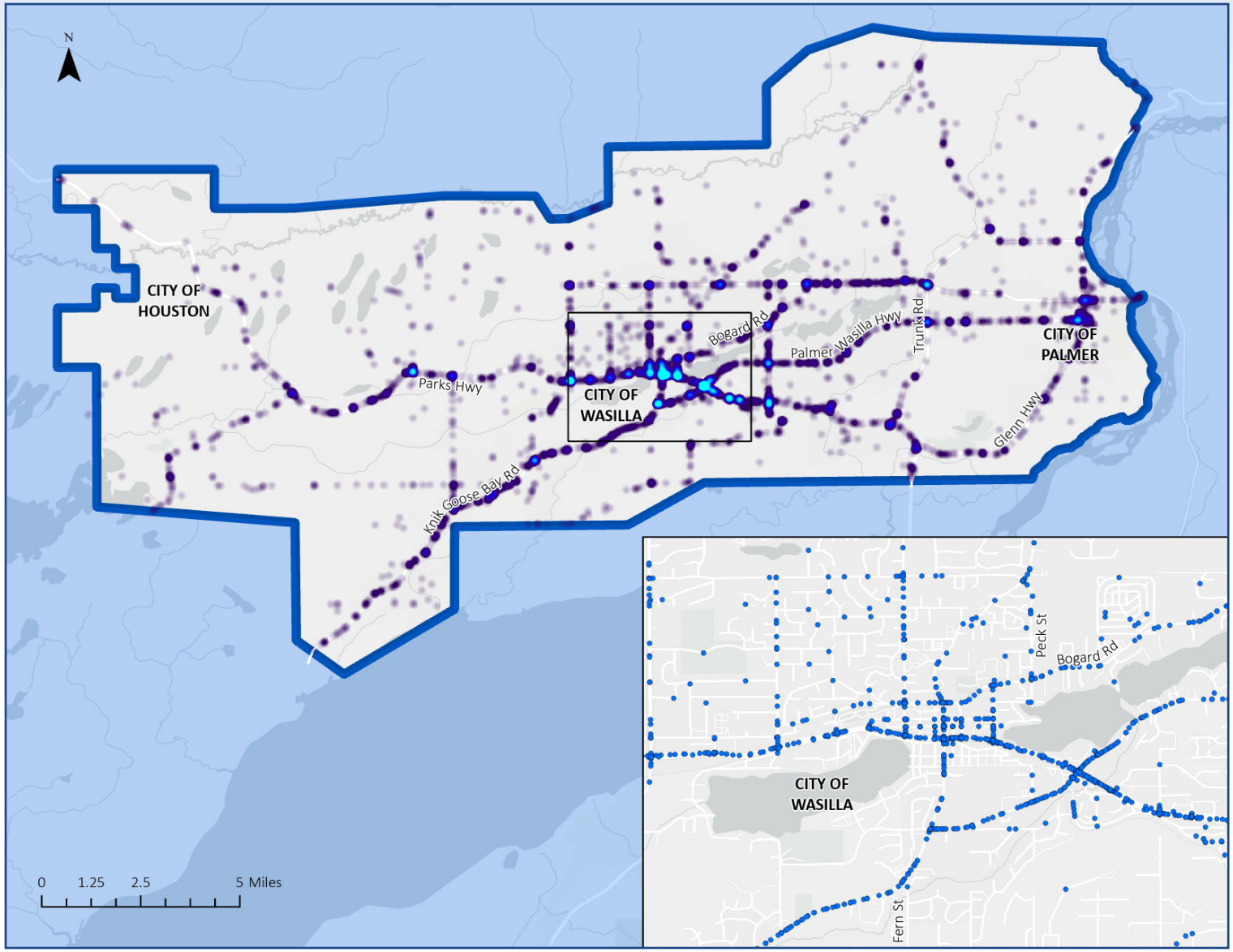


Figure 10. Locations of crashes in the MSB expanded core area.

Crashes are most concentrated around the:

- W Parks Highway
- S Knik-Goose Bay Road, E Bogard Road
- N Crusey Street
- N Lucille Street
- E Palmer-Wasilla Highway

Fatal and serious injury crashes (referred to in this document as "serious crashes") follow this trend, with the highest concentrations around the Parks Highway and E Palmer-Wasilla Highway.

Most crashes occur on high-speed, high volume roads.

40%
of **all crashes** and 40% of all serious crashes occurred on **major and minor arterials**

31%
of **all crashes** and 28% of all serious crashes occurred on **interstates**

Drugs and alcohol are a top contributing factor to serious crashes.

24%
of all serious crashes involved **drugs or alcohol**

Most serious crashes happen at intersections.

70%
of **all crashes** are intersection related

59%
of **serious crashes** are intersection related

There are more crashes in the winter, but fewer serious crashes.

71%
of **all crashes** occur in winter months (October to March)

ONLY 46%
of **serious crashes** occur during winter

Most crashes involved two or more vehicles.

79%
of all crashes **involved another vehicle** (the most common harmful event)

6.5%
of crashes involved hitting a **live animal** (second most common harmful event)

Hitting another vehicle was also the most common event for serious crashes (65%) and the second most common was vehicle rollover (6%).

Drivers aged 18 experienced the highest extent of crashes for any single age, but drivers aged 25 experienced the most serious crashes for any age.

17%
of **all** crashes involved a driver who was **25-34 years old**

22%
of **serious crashes** involved a driver who was **25-34 years old**

Driver Action at Time of Crash

The graph below shows the most common actions of the contributing unit at the time of a serious crash. Going straight, which may indicate speed as a contributing factor to the crash, and turning left are the primary actions involved in serious crashes.

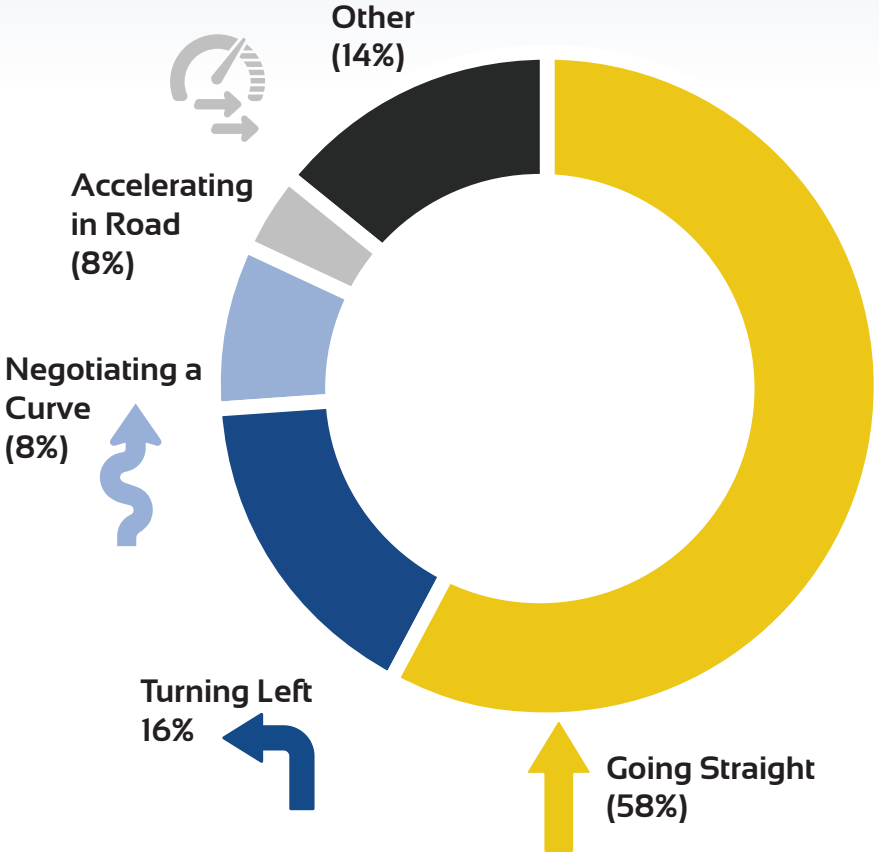


Figure 11. Contributing unit action at time of crash.

Trends by Mode

Most crashes (97.2%) were motor vehicle crashes, with motorcycles accounting for nearly 2% and the remainder involving bicycles and pedestrians (1% combined). For serious crashes, motorcycles make up a larger proportion by mode at 15%.

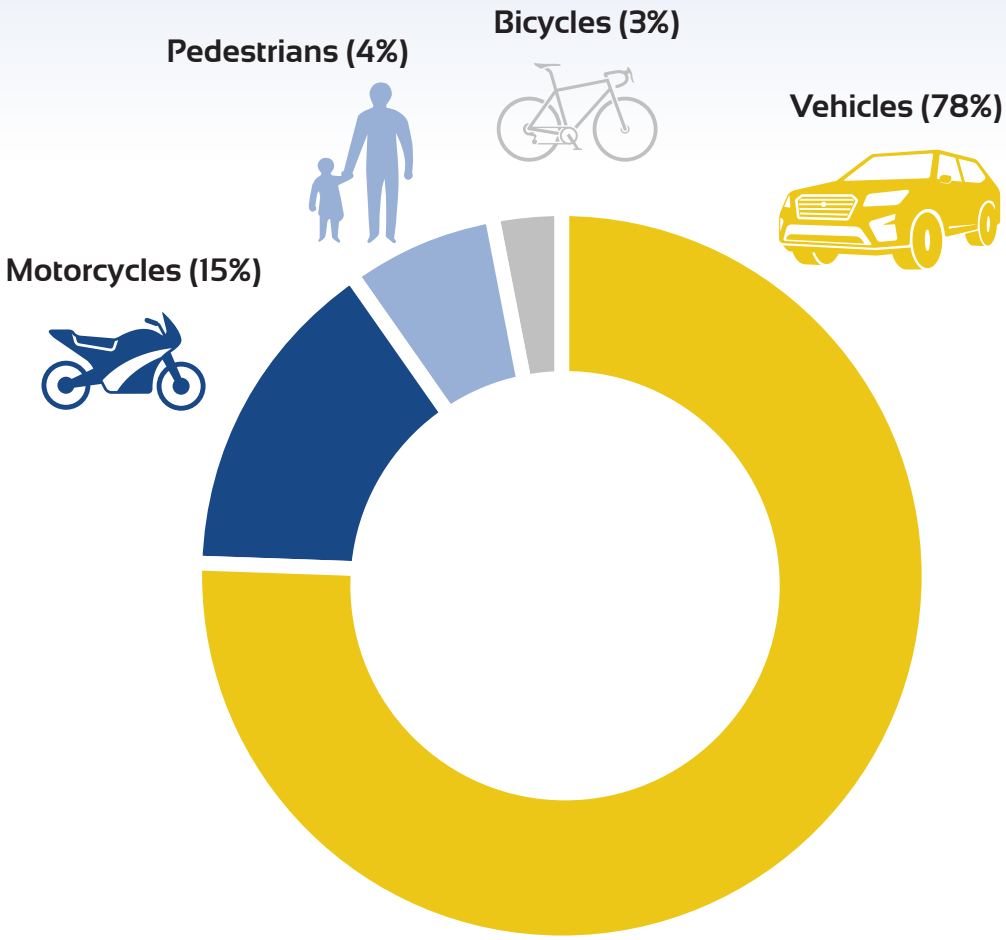


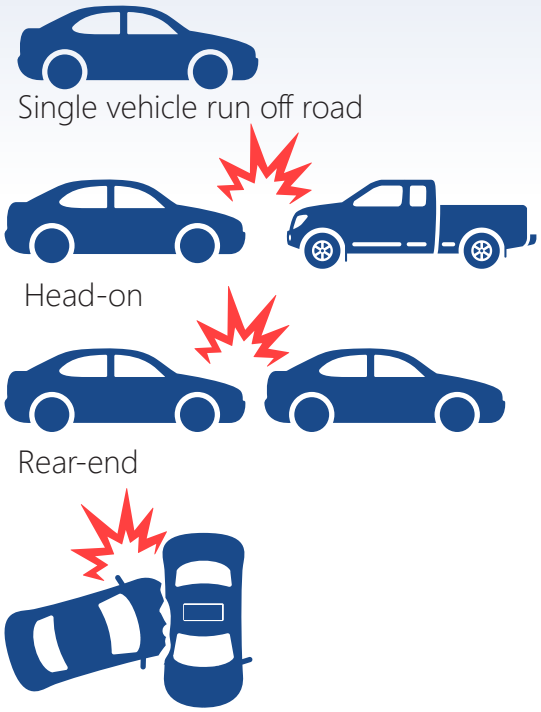
Figure 12. Serious crashes by mode

Motor Vehicle Trends

Big Picture

Vehicles were involved in 4,668 crashes, and 169 of these (3.6%) resulted in a death or serious injury.

Primary Crash Types



Single vehicle run off road

Head-on

Rear-end

Left turn (angle)

Primary Human Behaviors

The driver ran off the road, failed to yield, failed to stay in their lane, ran a stop sign or red light, or displayed inattentive, careless, erratic, or negligent behavior.

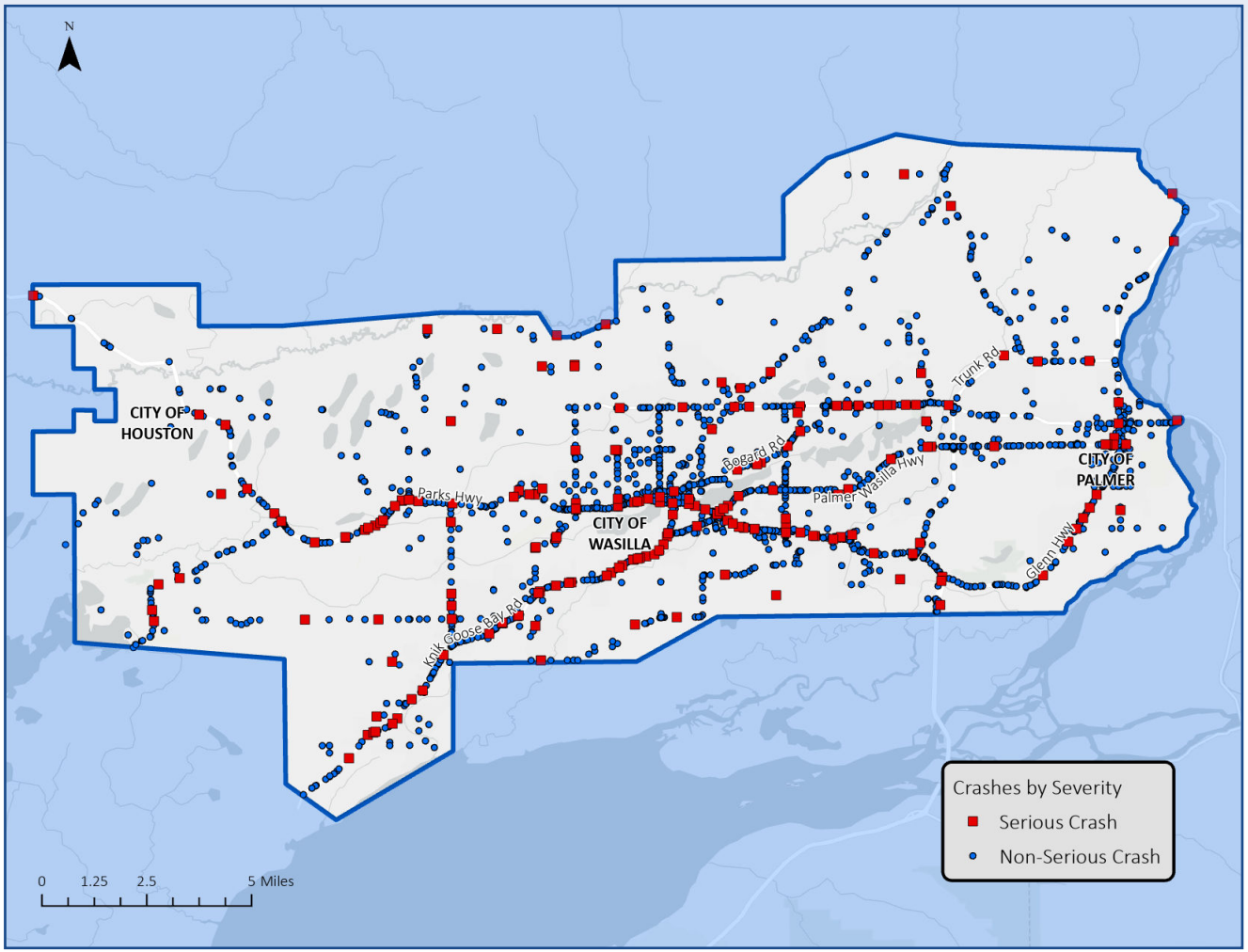


Figure 13. Locations of motor vehicle crashes.

Motorcycle Trends

Big Picture

Motorcycles were involved in 82 total crashes, and 32 of these (39%) resulted in a death or serious injury.

Primary Crash Types

Angle

Front to rear

Primary Human Behaviors

The vehicle driver failed to yield and struck a motorcyclist. The motorcyclist displayed inattentive, careless, erratic, or negligent behavior, or the ran off the roadway.

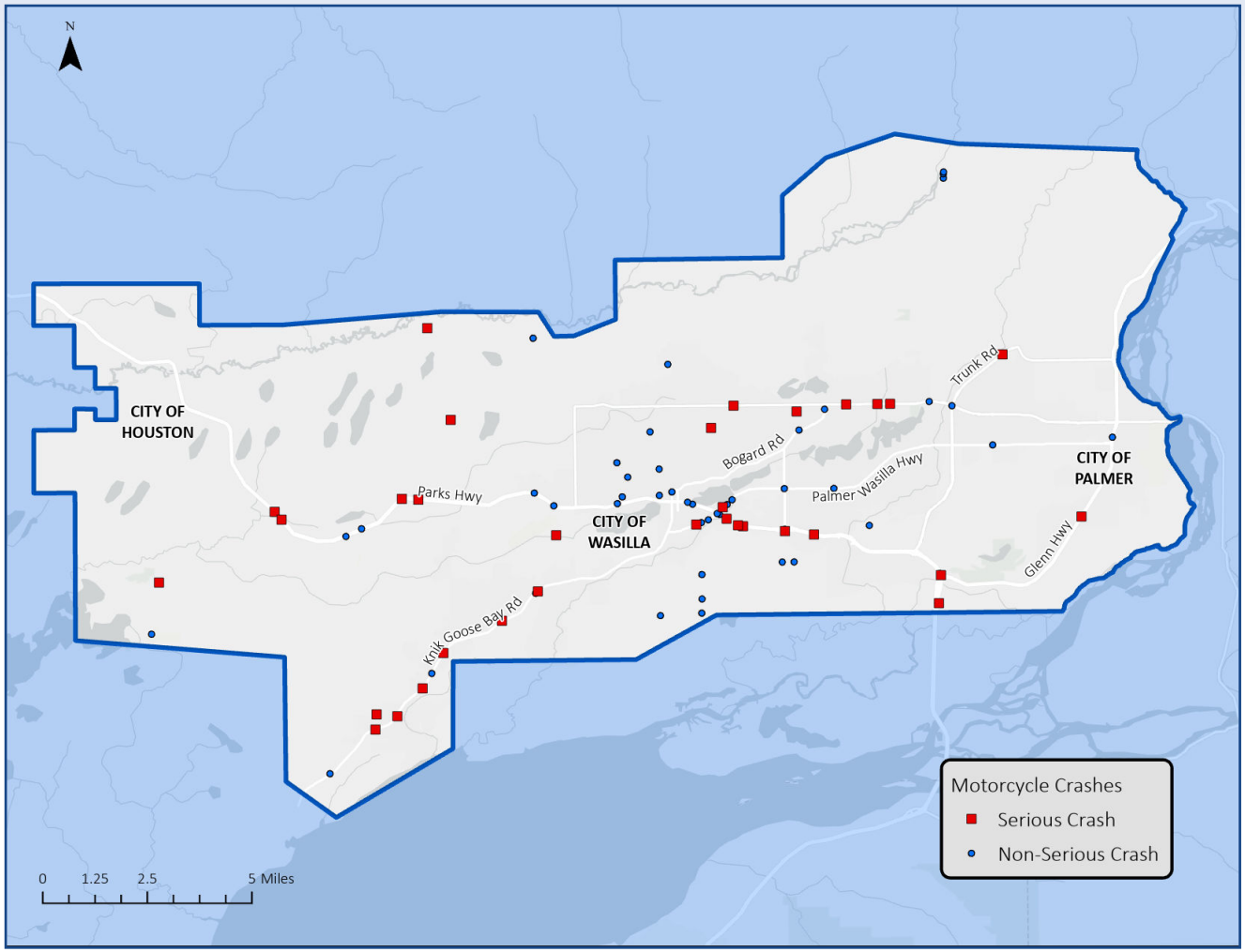


Figure 14. Locations of crashes involving motorcycles.

Bicycle Trends

Big Picture

Bicycles were involved in 22 total crashes. Six (27%) of these resulted in a death or serious injury. 82% of these crashes happened during daylight conditions.

Primary Crash Types

Turning right

Going straight

Primary Human Behavior

Motorist failed to yield.

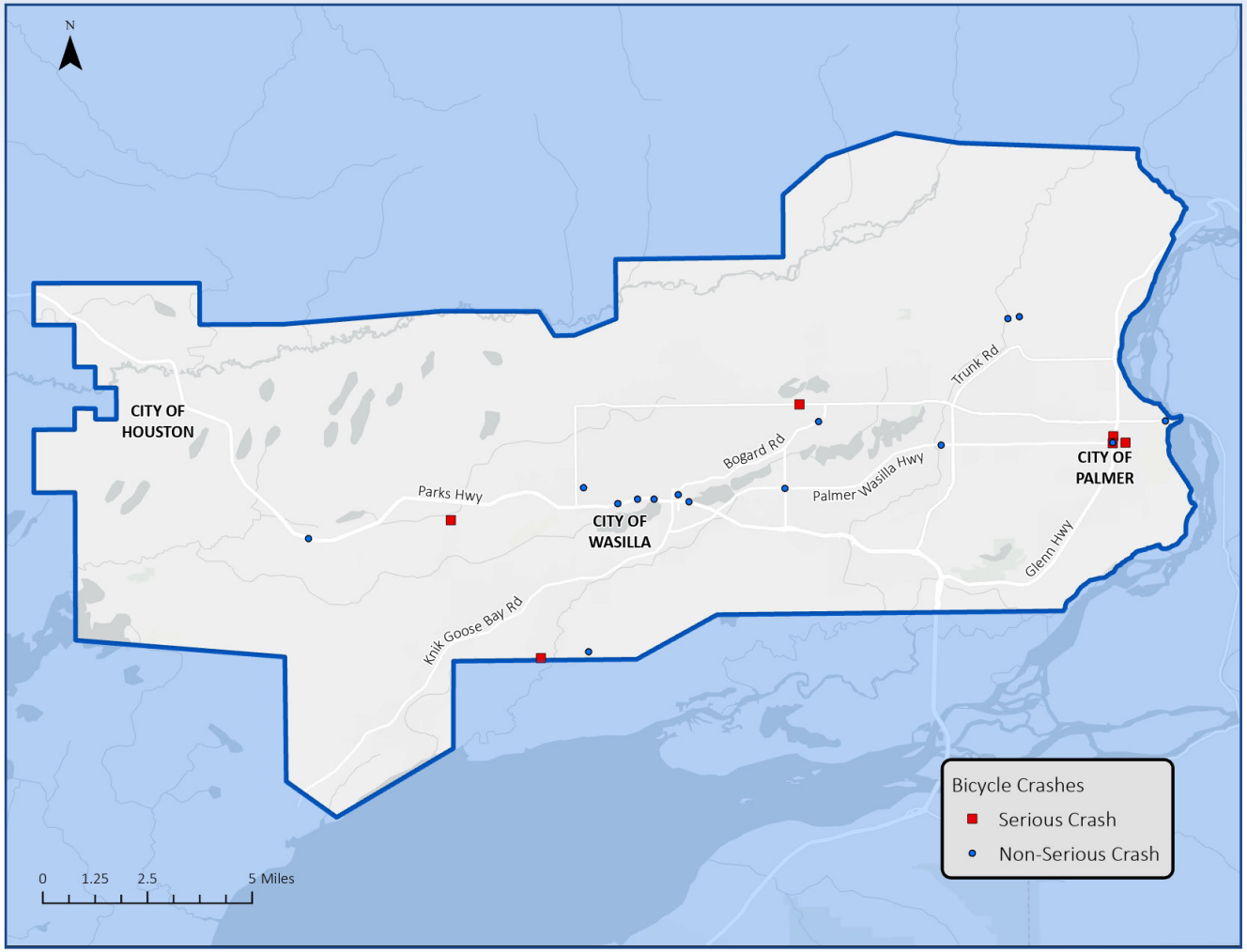


Figure 15. Locations of crashes involving bicycles.

Pedestrian Trends

Big Picture

Pedestrians were involved in 30 total crashes, and 9 (30%) of these resulted in a death or serious injury. Darkness was a factor in most of these crashes, with only 37% of these crashes occurring during daylight conditions.

Primary Crash Types

Turning right

Going straight

Primary Human Behaviors

The primary human behavior from crash reports was no contributing action or circumstance. Motorist failure to yield was the second most common circumstance.

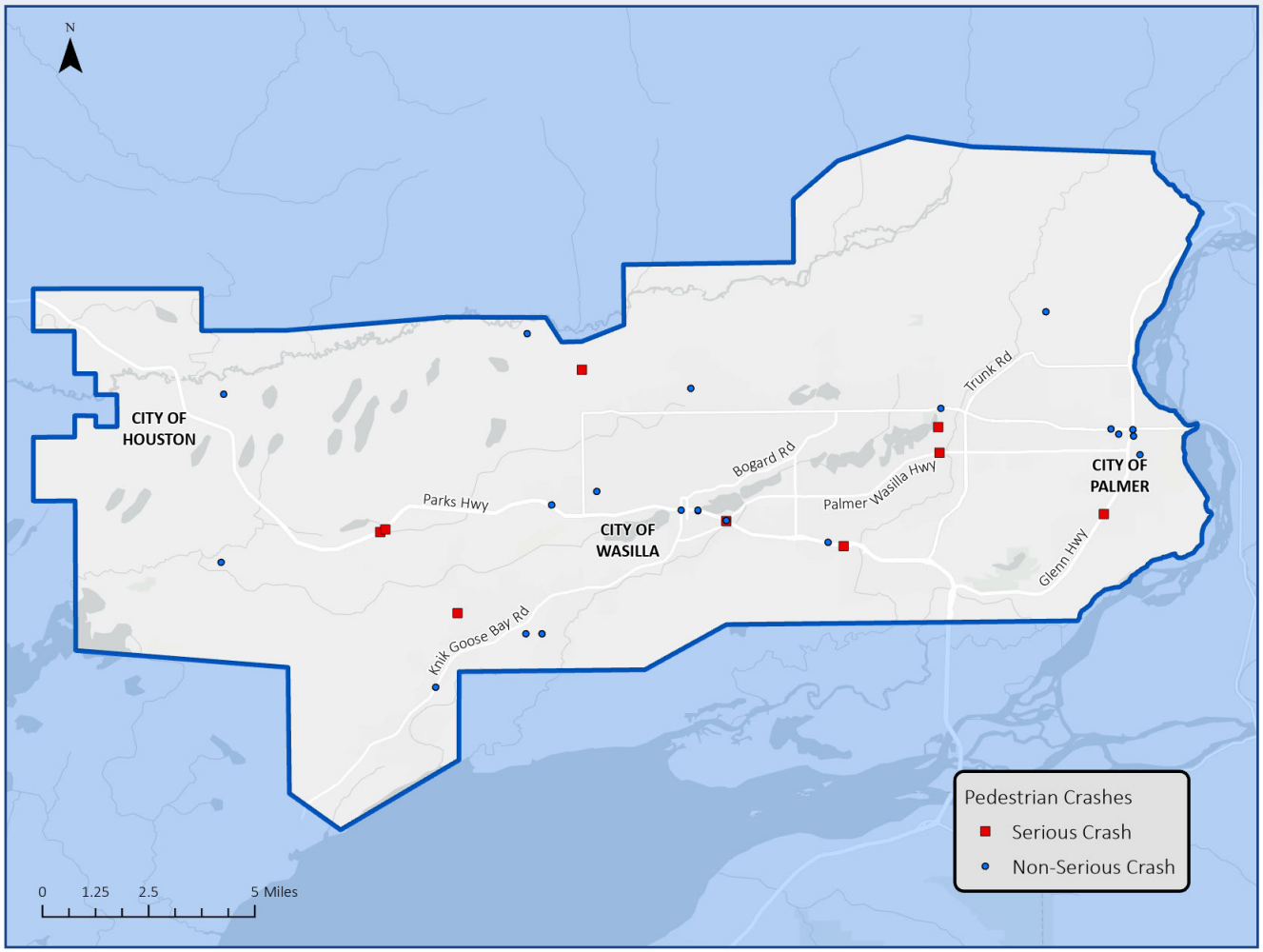
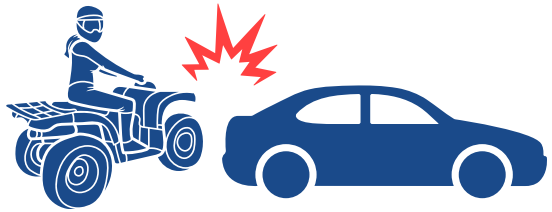


Figure 16. Locations of crashes involving pedestrians.

ATV Trends

Big Picture

ATVs were involved in nine recorded crashes. Five of these resulted in minor injuries, and one resulted in a fatality. Six (66%) of these crashes involved a motor vehicle, and three (33%) involved a driver aged 20 or younger.



66% of crashes involved a motor vehicle

33% of these crashes involved a driver aged 20 or younger

National Best Practices and Peer Review

As part of the MSB CSAP, the project team performed a peer review analysis to assess safety strategies that have proven to be successful in other communities around the United States. Eleven communities were selected, most of which have similar climates to the MSB. They included:

- Ada County, Idaho
- Anchorage, Alaska
- Austin, Texas
- Boulder, Colorado
- Denver Metro Council of Governments
- Canyon County, Idaho
- Fairbanks, Alaska
- Minneapolis, Minnesota
- State of Missouri
- State of Utah
- Walla Walla, Washington

SSA is an emerging concept for the nation and for communities, and many are embracing the Vision Zero goal through public commitments and the SS4A program. The table below includes safety strategies being planned or used in other communities, and some that are already being implemented in Alaska.

Table 1: Education Peer Review

Peer Community Strategy	Benefit	Communities Using it Successfully
Implement Vision Zero campaigns and maintain a regional Vision Zero webpage	• Promotes a culture of traffic safety. • Provides resources, support, and shared responsibility for safety.	Boulder, Denver, and Ada County
Combine countermeasure deployment with promotional activities (press releases, promotional signage, media interviews)	• Provides educational opportunities for safety treatments.	Boulder

Table 2: Enforcement Peer Review		
Strategy	**Benefit**	**Communities Using it Successfully**
Active monitoring for red light-running	• Helps prevent severe angle crashes. • Reduces crash severity, potentially reducing fatal crashes at signalized intersections by 21%.	Boulder
Explore a change in state law to reduce the legal blood alcohol content for impaired driving	• Utah saw a 20% reduction in its fatal crash rate (per 100M VMT) from 2016 to 2019 (law passed in 2017, took effect 2019).	State of Utah
Facilitate training sessions for law enforcement agencies on crash reporting and traffic safety	• Provides support on addressing key crash profiles and behaviors. • Increases consistency of crash reports for improved data quality.	Denver Metro Council of Governments

Table 3: Infrastructure Peer Review		
Strategy	**Benefit**	**Communities Using it Successfully**
Enhanced delineation for horizontal curves	• Low-cost improvements for areas with a high incidence of run-off-the-road crashes and/or curves. • For example, oversized chevron signs can reduce fatal and injury crashes by 15%.	Nationwide and Alaska
Roadside design improvements at curves	• Providing a clear zone of 30 feet from 16.7 feet has been shown to reduce all crashes by up to 44%.	Nationwide
Wider edge lines	• Can reduce non-fatal and injury-related crashes (not intersection related) on two-lane rural roadways by 37%. • Has a 25:1 benefit-cost ratio for fatal and serious injury crashes on two-lane rural roadways. • Roadway restriping can be a low-cost improvement.	Missouri and Idaho
Road diets	• Can reduce total crashes between 19% and 47%. • Relatively low cost. • Can add new facilities without introducing the need for new right-of-way.	Missouri and Idaho

Table 3: Infrastructure Peer Review		
Strategy	**Benefit**	**Communities Using it Successfully**
Flashing yellow arrows at signalized intersections	• Shown to reduce total crashes, especially angle crashes for the permissive left turn at a traffic signal. • Protected left turn phases (solid green arrow) remain safer but can reduce efficiency of intersection operations.	Nationwide including Alaska and the MSB
Leading pedestrian interval at intersections	• Has the potential to reduce pedestrian-vehicle crashes by up to 13% at intersections. • Very low cost to implement if only signal timing changes are required.	Walla Walla and Minneapolis
Retroreflective signal backplates	• Can provide a 15% reduction in total intersection crashes.	Fairbanks, Walla Walla, and Minneapolis
Crosswalk visibility enhancements	• Can reduce pedestrian crashes by up to 40%.	Nationwide and Walla Walla
Dedicated right- and left-turn lanes at intersections	• Right-turn lanes can reduce total crashes at an intersection by 14 to -26%, while left-turn lanes can provide a 28 to 48% reduction. • Can be considered pre-emptively or in response to intersection crash patterns.	Nationwide, Alaska, and the MSB
Dedicated bicycle lanes	• Can reduce total crashes up to 30% on urban two-lane collectors and local roads.	Walla Walla, Boulder, and Minneapolis
Implement rectangular rapid flashing beacons	• Can improve motorist yield compliance by 98% and reduce pedestrian crashes by up to 47%.	Alaska including Anchorage and Fairbanks, Boulder, and Minneapolis

Table 4: Policy Peer Review		
Strategy	**Benefit**	**Communities Using it Successfully**
Establish a regional Vision Zero working group	• Evaluate local safety issues, opportunities. • Maintain accountability to the regional Safety Plan.	Denver Regional Council of Governments
Corridor access management	• Can reduce fatal and serious injury crashes by 25 to 31%. • Can provide benefits to businesses with most businesses reporting the same or increased sales and the same or increased property values.	Nationwide and MSB
Review/implement speed management policies for setting speed limits	• The city of Seattle saw a 26% reduction in traffic fatalities after implementation of city-wide speed management strategies. • Can improve compliance with speed limits and may result in fewer serious and overall crashes.	Walla Walla, Minneapolis, Austin, and Boulder
Update street design guidelines, standards, and municipal codes to support Complete Streets policies and Safe System principles	• Assists planners and engineers with addressing safety-related aspects of street design, incorporating Vision Zero principles, applying countermeasures, and including further guidance for creating design components that create safe speeds.	Denver Regional Council of Governments
Implement a submittal checklist for developers and/or roadway design project reviews prior to project approval	• Strengthens local staff's knowledge of design code and standards, sets expectations for required elements, and provides additional quality review. • For developers, a checklist sets expectations for submittals and can help streamline reviews or delays associated with incomplete submittals.	Ada County
Establish roadway design standards that cite the most recent version of manuals (e.g., AASHTO, MUTCD, Highway Capacity Manual) in municipal code as applicable	• Adopting in code the most recent design manuals from established credible design sources incorporates the most recent research and trends without requiring frequent code review and updates. In turn, designers and developers apply the most modern design criteria. Agencies should consider the legal implications of automatically adopting a standard prior to agency department or assembly/council review.	Canyon County

The MSB Expanded Core Area crash data were compared to other communities with comparable demographics and climates as part of the Existing Conditions Memorandum dated November 26, 2024. Key takeaways related to serious crashes, and where available, vehicle miles traveled (VMT), compared to serious crashes are summarized in the following figures. This comparison showed that the MSB Expanded Core Area had a slightly lower rate of crashes per capita and per VMT and a lower rate of combined fatal and serious crashes per capita. However, in evaluating only fatal crashes, MSB Expanded Core Area exceeded all comparison communities in crashes per capita and crashes per VMT. In addition, MSB Expanded Core Area exceeds the statewide average rate of fatal and serious injury crashes combined per VMT.

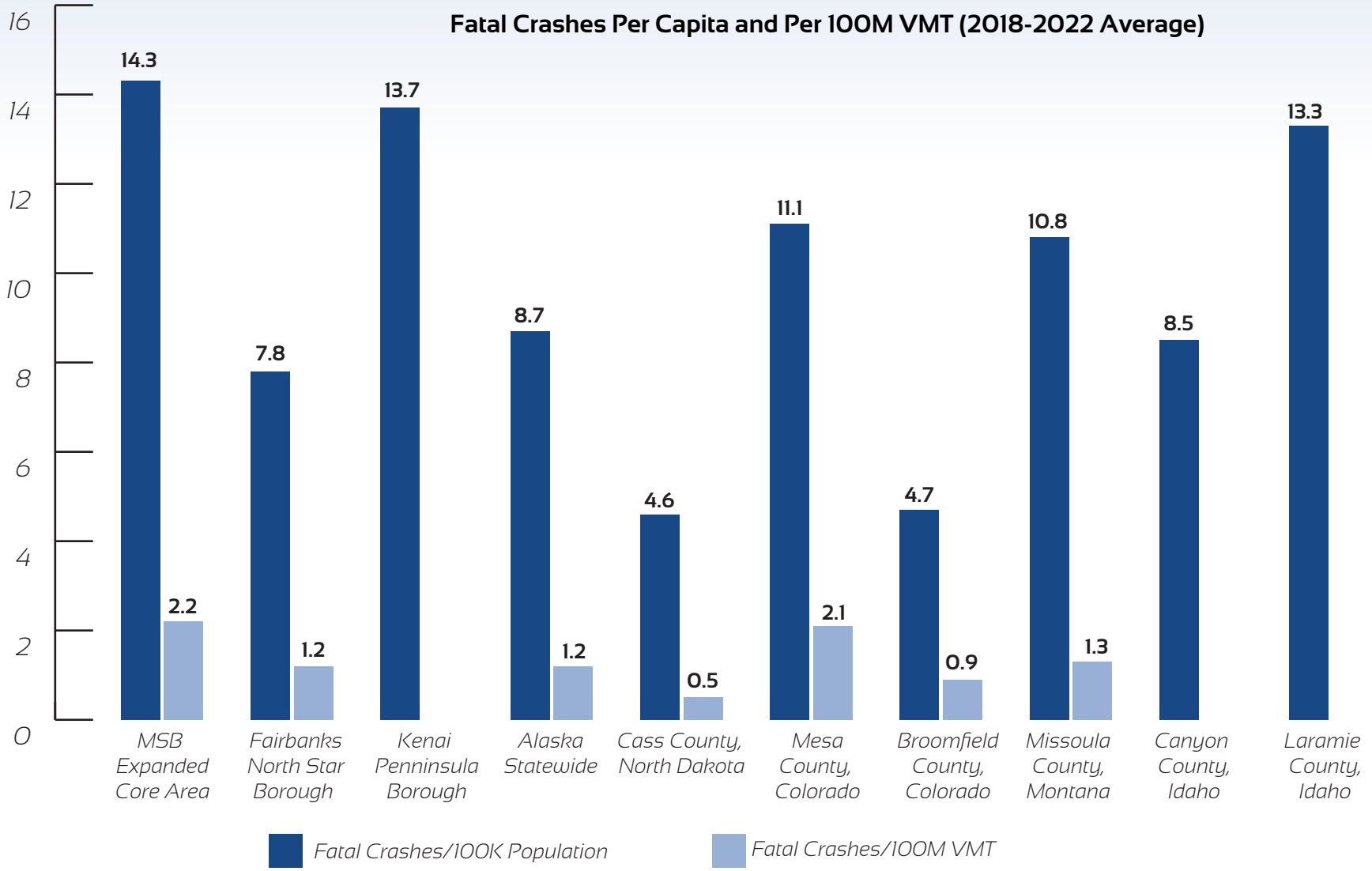


Figure 17. Fatal crashes per capita and VMT by comparison community

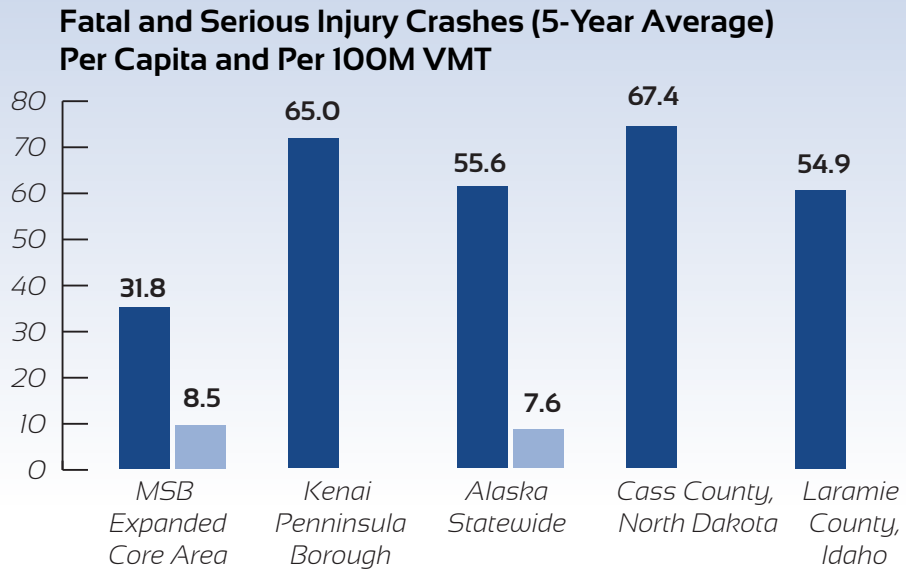


Figure 18. Serious crashes per capita and VMT by comparison community

On a statewide level, the MSB Expanded Core Area comprised approximately 10% of serious crashes in the state over the analysis period, and 18% of fatal crashes statewide.

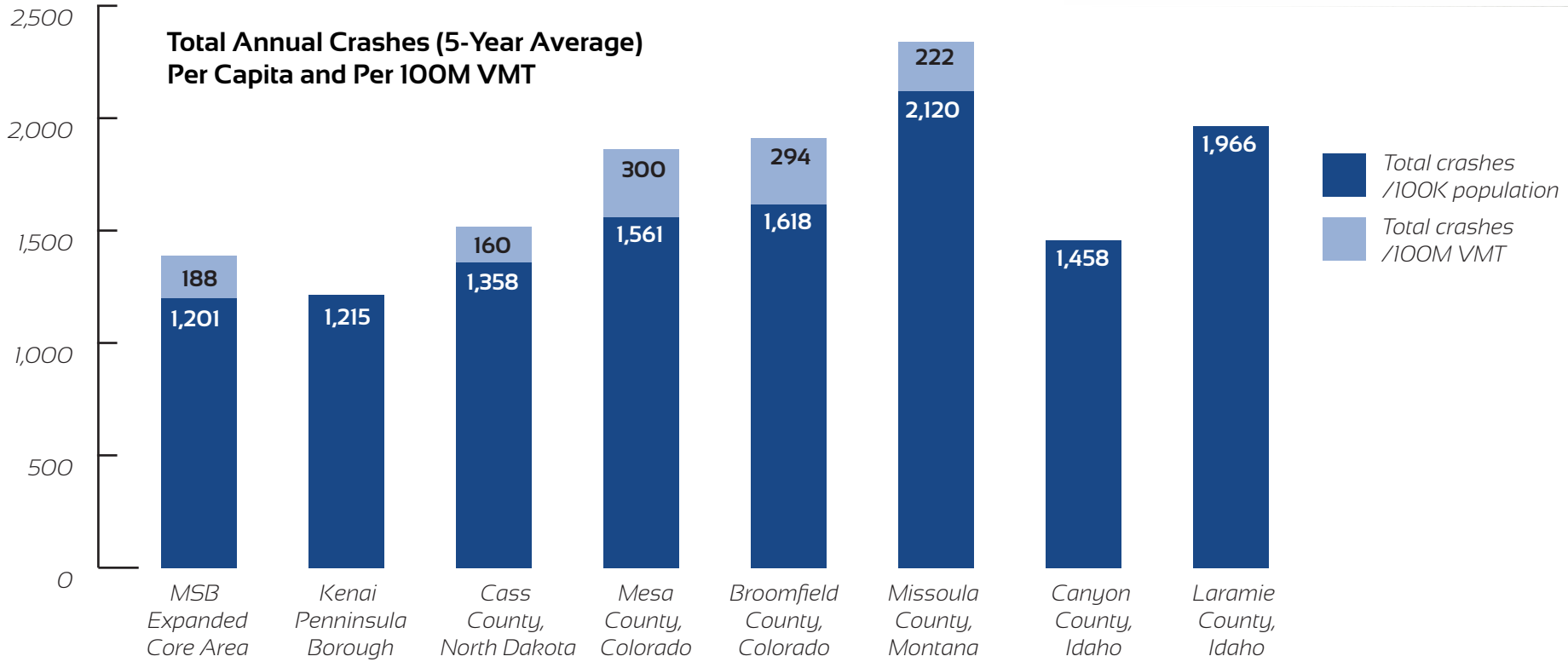


Figure 19. Total annual crashes by comparison community

Chapter 4:

Engagement & Collaboration

MAT-SU BOROUGH
SAFE STREETS FOR ALL

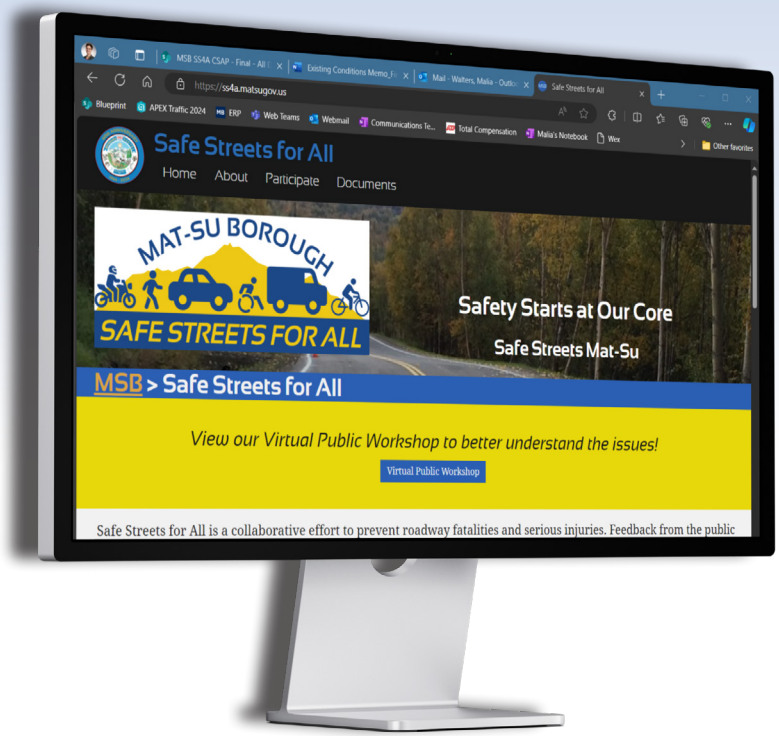
Connecting with the MSB Community on Safety

Comprehending the community's perception of transportation safety in the MSB was an integral part of assessing their safety needs and helped to shape the policy and program recommendations in this plan. Throughout the planning process, the project team utilized several engagement tactics to encourage public participation in the plan and gain valuable information from a multidisciplinary group of stakeholders, transportation agency professionals, and the public. These tactics included:

- A project website
- Development of the stakeholder/outreach list
- A safety survey
- Five SAPT meetings
- Three Focus Group meetings
- Two virtual public workshops
- A public-facing crash data dashboard
- Three in-person open house events
- Six pop-up events
- 15 MSB agency meeting presentations
- Social media and news publications
- Email notifications

The Project Website

This user-friendly, public-facing website included information about the plan, the SS4A program, a project timeline, a calendar of upcoming public events, plan documents, links to the safety survey and the public-facing crash data dashboard, and an online public workshop. The website featured a Google translate tool to assist those with limited English proficiency.



The Stakeholder/Outreach List

The project team developed a robust stakeholder/outreach list, which was used to notify the public about the project, upcoming participation events, and the project timeline. Stakeholders invited key representatives from the following groups:

- Local MSB Advocacy Groups
- Disability Services
- Family Services
- Recreation
- Senior Services
- MSB Government
- Housing
- Employment Services
- Youth Services
- Tribal Governments
- Health Care
- Business
- Emergency Services
- Education
- Transit
- Community Councils
- Local Road Service Areas

The Safety Survey

A comprehensive safety survey was launched on June 26, 2024, and was open to the public for approximately 11 weeks. During that time, it was available on the project website, while physical (hard copy) surveys were distributed and collected in Houston, Wasilla, and Palmer. The purpose of the survey was to gain valuable insight from the public on their perceptions of transportation safety within the MSB Expanded Core Area. The survey included a wide array of questions to understand where the community's biggest opportunities and challenges for transportation safety exist, as well as to identify specific barriers to walking and bicycling. Information gathered from this survey was used to prioritize broad community safety needs, prioritize safety recommendations, and assess core areas for future investment in the MSB Expanded Core Area. **The project team received 912 responses to the survey.**

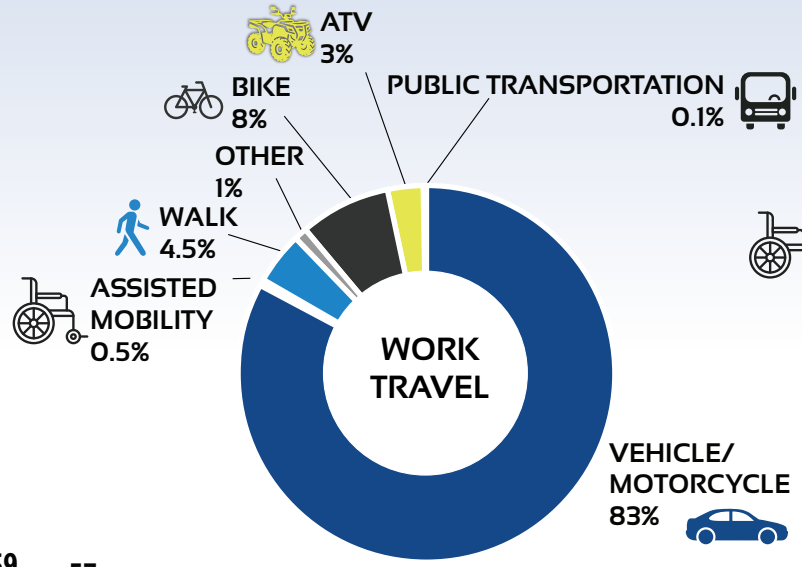


Figure 20. Travel mode for work related travel.

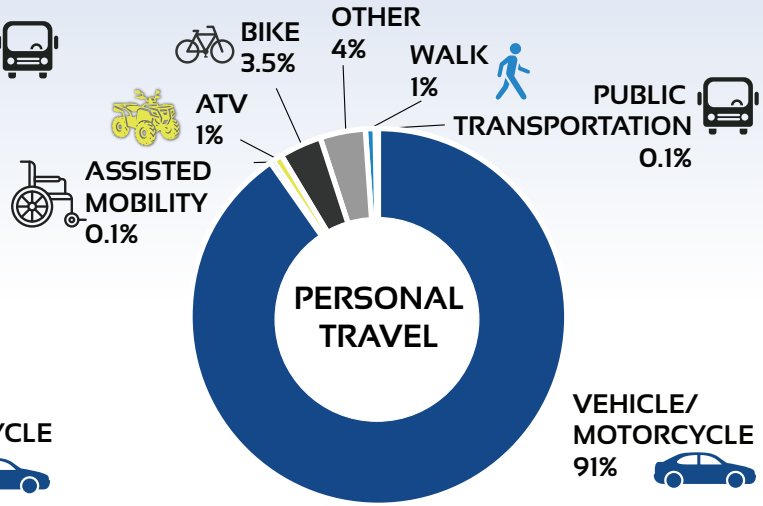


Figure 21. Travel mode for non-work related travel.

Where are you from?

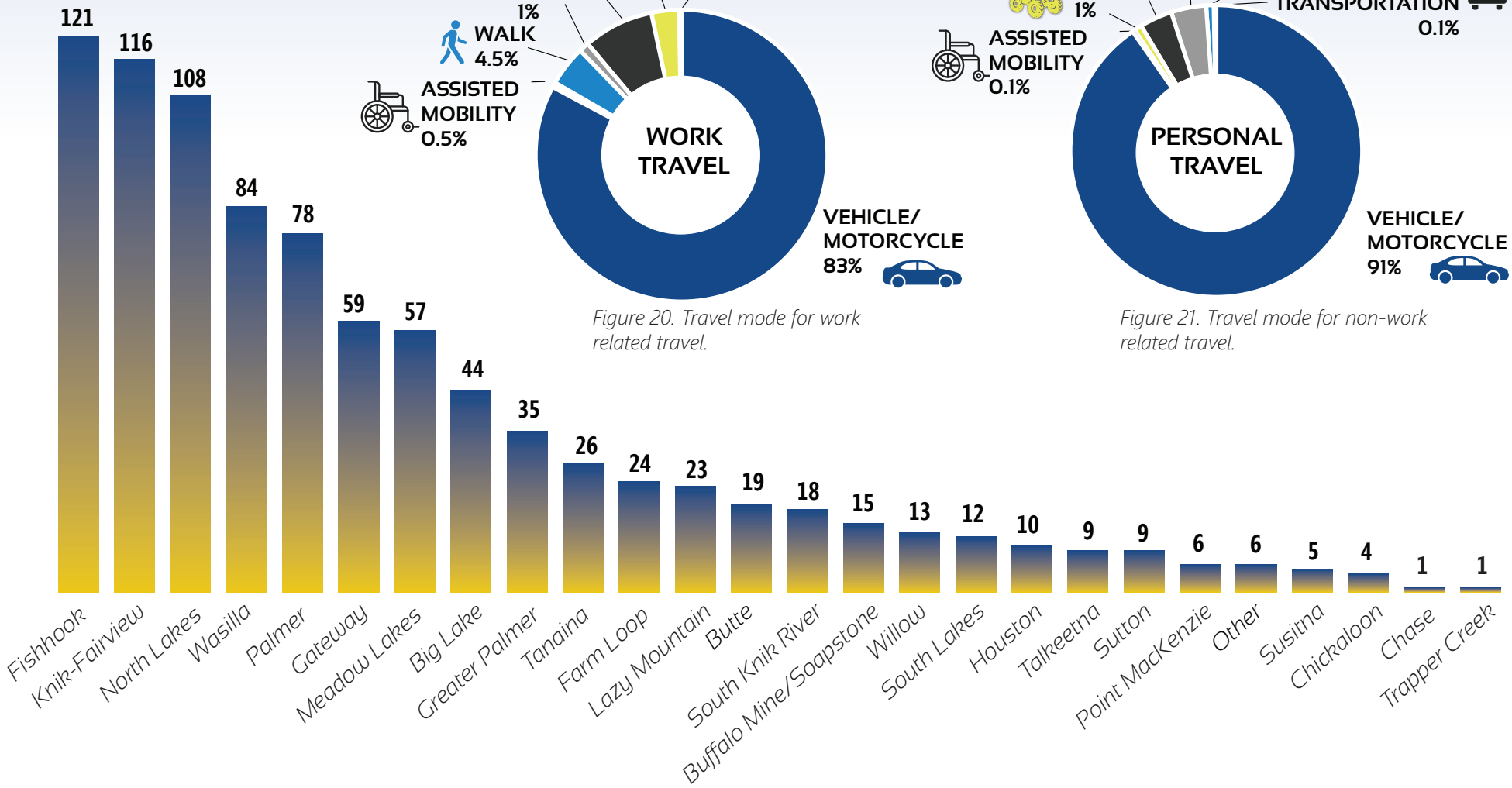


Figure 22. Number of survey respondents by location.

Only 54% of respondents feel safe walking during daylight conditions, while 44% feel that their neighborhood is a safe place to walk in general. 39% of respondents feel safe riding a bicycle during daylight hours and only 32% feel safe riding a bicycle in their neighborhood. 6% of respondents felt that they could easily access a form of public transportation (including a school bus) from their house.

54% feel **safe walking** during **daylight** hours

44% feel that their neighborhood is a safe place to **walk in general**

39% feel safe riding a **bicycle** during **daylight** hours

32% feel safe riding a **bicycle in general** in their neighborhood

6% feel like they could easily access **public transportation** (including school buses)

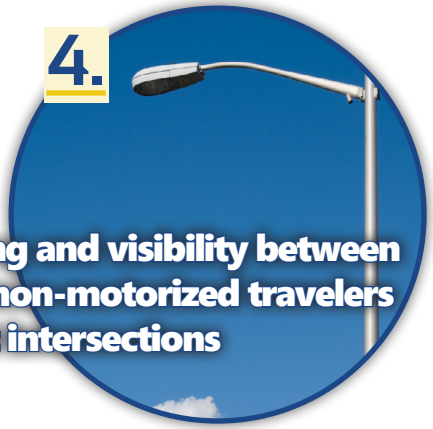
When asked what would make them feel safer and more likely to walk, bike, or use a public transportation option, the top five responses were as follows:

1. Sidewalks that are maintained well in all seasons

2. Off-street, multi-use paths maintained well in all seasons

3. Safe, conveniently located sidewalks

4. Better lighting and visibility between drivers and non-motorized travelers at intersections



5. More marked crosswalks and destinations within walking distance

What would make you feel safer?

We asked what would help encourage people to prioritize safety on community streets. Here are the top three categories:

78%

said that roads designed with more safety-focused elements like separated paths, crosswalks, and bike lanes would help

59%

said that stronger traffic enforcement, especially for impaired and distracted driving would help

30%

said that more public education on transportation safety like speeding, safe driving habits, the rules of the road, and distracted and impaired driving would help

Where should we invest in transportation safety?

We asked where investments should be made to improve safety in the MSB. Here are the top five responses:

1. Better winter maintenance of roads and sidewalks **(62%)**
2. Adding and maintaining sidewalks **(57%)**
3. Adding to and maintaining the trail network **(47%)**
4. Stronger traffic enforcement for speeding, impaired driving, and distracted driving **(47%)**
5. Redesigning and reconstructing roads to increase safety for everyone **(45%)**

Areas of Concern

To help identify specific areas of safety concern, survey respondents were asked to locate their five biggest safety concerns within the study area. Online survey responders were provided a map on which they could drop a pin to notate an area of concern. Paper survey respondents were asked to identify their area of concern using mile markers, intersections, landmarks, and establishments, such as schools or stores.

Common themes for safety isssues identified on the map included:

Unsafe intersection design

Unsafe road design

Inadequate facilities for walking & biking

Unsafe speeds on the roadway

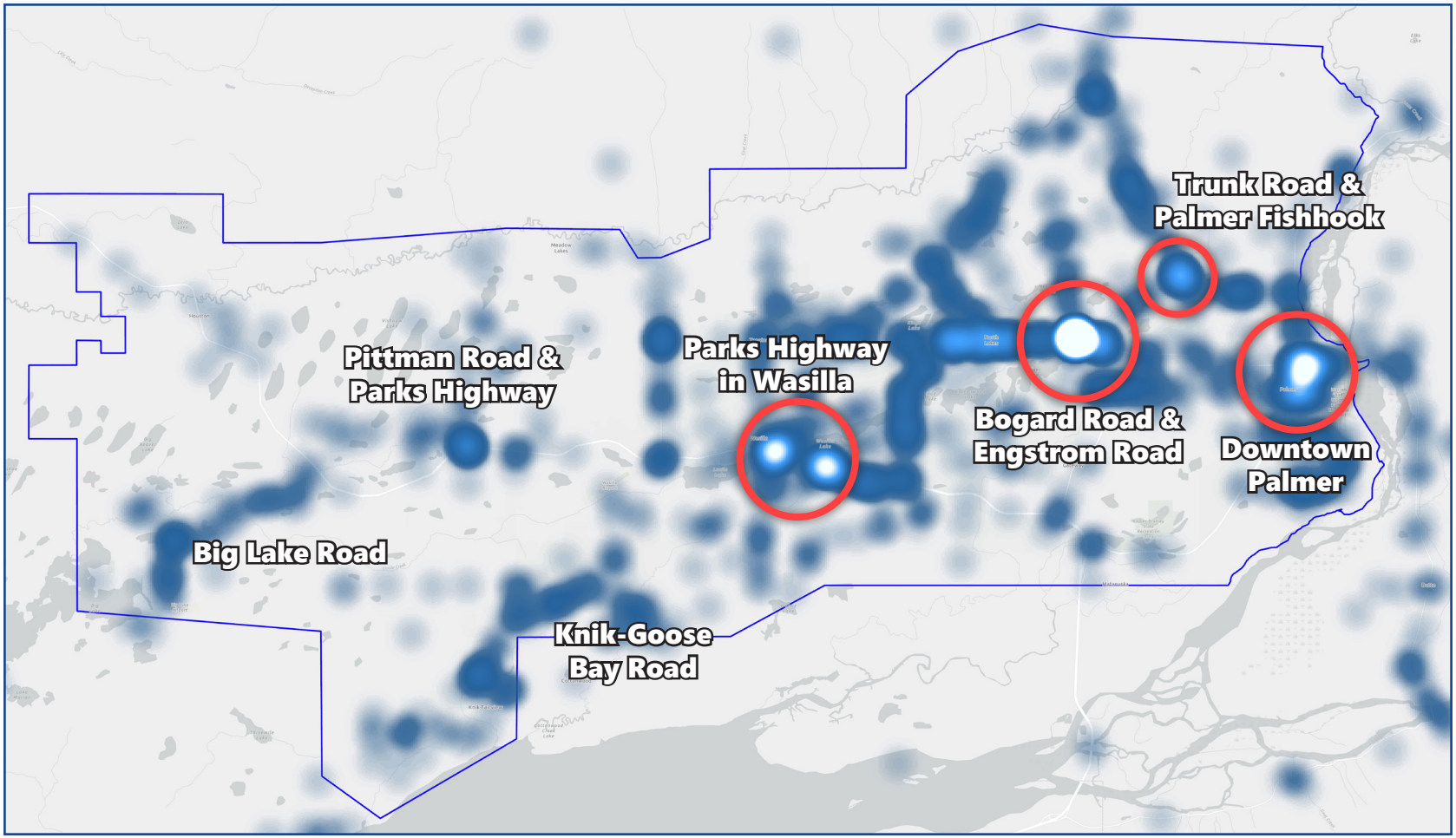
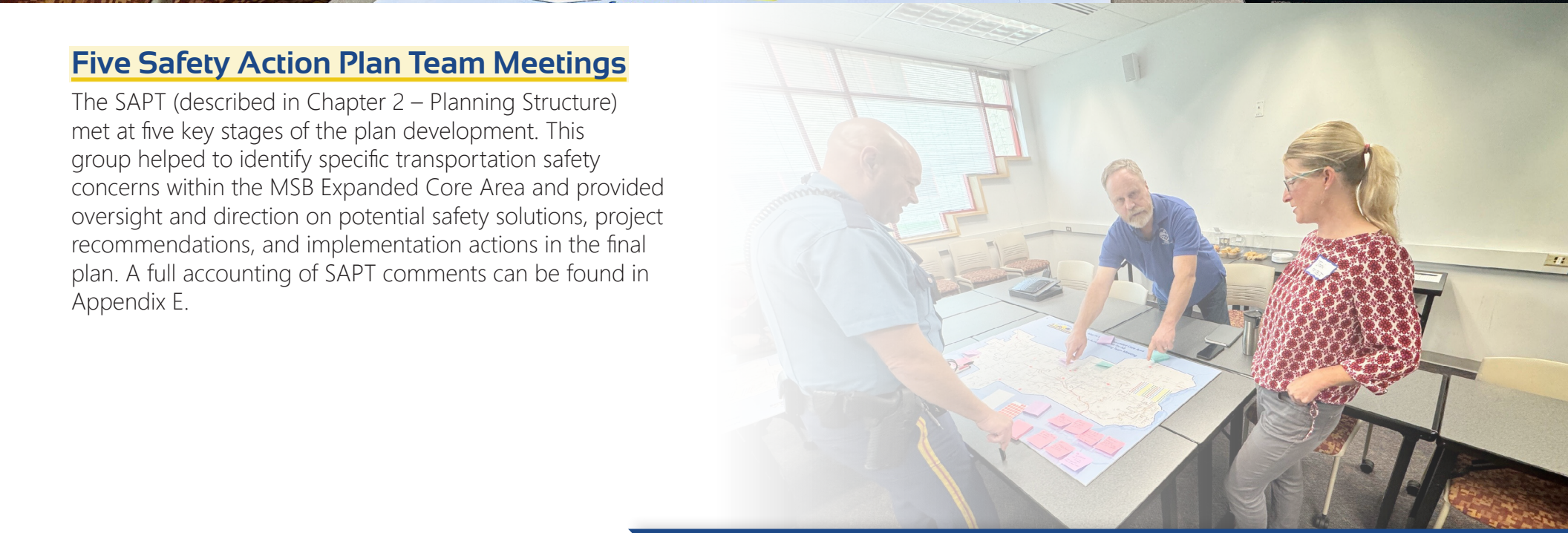


Figure 23. A heatmap of areas identified as safety concerns by survey respondents.

Five Safety Action Plan Team Meetings

The SAPT (described in Chapter 2 – Planning Structure) met at five key stages of the plan development. This group helped to identify specific transportation safety concerns within the MSB Expanded Core Area and provided oversight and direction on potential safety solutions, project recommendations, and implementation actions in the final plan. A full accounting of SAPT comments can be found in Appendix E.



When asked what is and is not working to improve transportation safety in the MSB this is what the SAPT had to say:

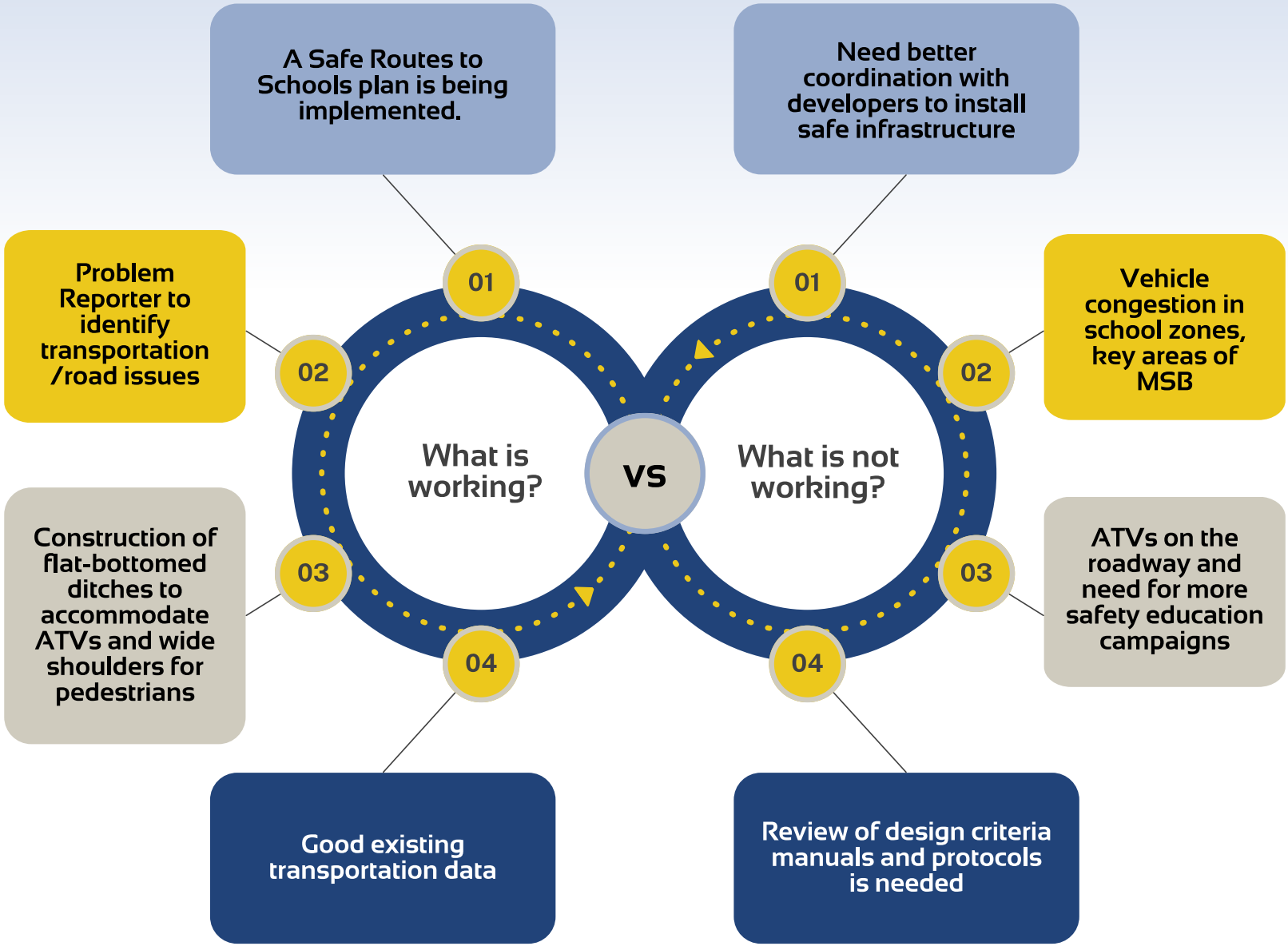


Figure 24. An infographic of what the SAPT said is and isn't working.

Three Focus Group Meetings

The project team facilitated three focus group meetings to explore three topic areas identified during the safety survey and stakeholder meetings. These areas included safety in school zones/safety campaigns, enforcement, and safety policies. Conclusions from discussions at these focus group meetings are presented below:

Safe Policies

- **Speed management** – self-enforcing speed limits on streets are needed. Road design plays an instrumental part. This could be part of the design recommendations from a future Complete Streets Plan.
- Need a policy **enforcing safe street design** for developers of new subdivisions.
- Need **development incentives**, tax reduction for adding walkable facilities, smaller lots, additional density, greenspace.
- Need funding policy to dedicate more **funding to maintenance.**
- Create a **Complete Streets Policy.**
- Explore **consolidation of Road Service Areas** for more efficient contract administration and potentially reduce operational costs. Create policy to allow community members to do their own maintenance, seek funding for equipment.
- Policy to **utilize impact fees** is needed.
- **Traffic calming policy** is needed.

Safety in School Zones and Safety Campaigns

- **Improved lighting** around schools and bus stops and more marked crossings are needed.
- **Separated pathways** around schools will help improve safety.
- Regular, **dependable maintenance** is necessary to encourage kids to use multi-use pathways.
- **Queuing** around school pick-up and drop-off areas is a **safety hazard.**
- School zones should be **consistent throughout the MSB**. The Alaska Traffic Manual does not allow for consistent signing at all schools.

Enforcement

- **Staffing is the biggest challenge** to conducting adequate enforcement.
- **ATV enforcement is difficult** with no legal license needed for off-road users.
- Traffic laws have been decriminalized and there is **no follow through in the court system** to enforce traffic violations.
- **Unsafe passing** is a safety concern tied to serious crashes.

Two Virtual Public Workshops

Virtual Public Workshop #1

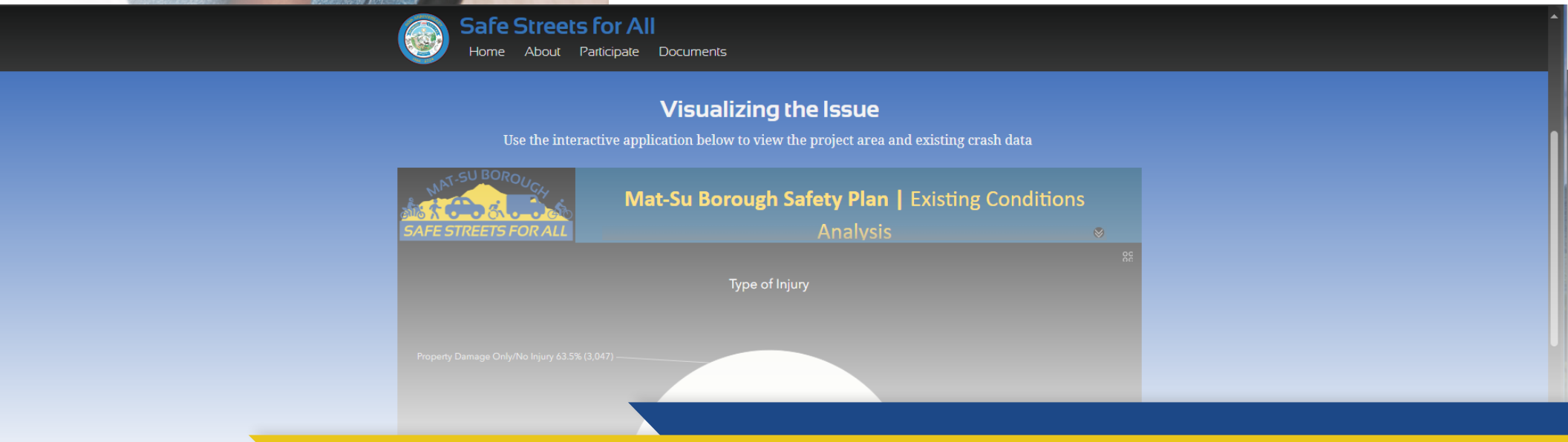
The project team facilitated a virtual public workshop on July 10, 2024. The purpose of this workshop was to introduce the MSB CSAP, highlight the planning process and key milestones, and inform the public about the SS4A program and the SSA.

Virtual Public Workshop #2

This asynchronous interactive online workshop detailed five years of crash data between 2018 and 2022 in the MSB Expanded Core Area and the results of the safety survey. This platform offered a self-guided exploration of the crash data, the SS4A program, specific locations of concern, travel modes, causes of crashes, potential solutions, and next steps. The workshop launched on October 1, 2024, and remained open throughout the duration of the project, garnering 727 views as of December 16, 2024.

A Public-Facing Crash Data Dashboard

An interactive public-facing dashboard was created to show crash data from 2018-2022 in the project area. Located on the home page of the project website, the dashboard allowed the viewer to filter crash data a number of different ways including injury type, crashes by year, crash type, lighting, weather, month, driver age, and alcohol suspected. This dashboard was viewed 660 times as of December 16, 2024.



Three In-Person Open House Events

Placeholder box

Join us for the Public Open Houses:
-January 15, 2025 in Houston
-January 16, 2025 in Palmer and Wasilla

More information will be added to this section after the open houses have been completed.

Pop-up Events

Pop-up events are an effective way to meet the community where they are and provide an opportunity for education and engagement during the plan process. The project team facilitated six pop-up events that collected valuable information from the public including specific safety concern locations and comments on existing and planned facilities. The project team also provided informational flyers, fact sheets, paper copies of the safety survey, and promotional project giveaways (reflective dog bandanas, reflective arm bands, blinking lights, and project stickers). We hosted the following pop-up events:

- Palmer Friday Fling
- Wasilla Farmer's Market
- Houston Founder's Day Celebration
- Alaska Municipal League Annual Conference
- American Society of Civil Engineers Presentation*
- Mat-Su Transportation Fair*
- Bleeding Heart Brewery*

*Planned for January 2025 during draft plan comment period, final plan will be adjusted as necessary

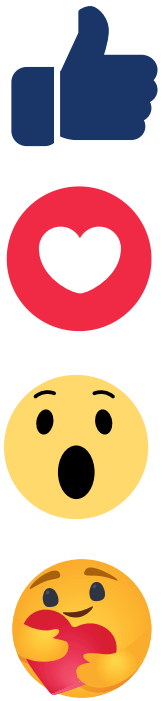
MSB Agency Meeting Presentations

To help facilitate public awareness of the MSB CSAP, promote the safety survey, and ensure a smooth plan adoption process, the project team met with key MSB committees to provide an overview of the MSB CSAP and gather comments from transportation and safety professionals, policy makers, and the public. These included:

- MSB Transportation Advisory Board
- Local Road Service Area Advisory Board
- MSB Planning Commission
- Joint Assembly/Planning Commission Meeting
- Mat-Su Valley Planning (MVP) Technical Committee
- MVP Policy Board

Social Media, News Publications, & Email Notifications

Social media is a powerful tool for promoting plan awareness and gathering feedback at key milestones of the planning process. It can help ensure broad public participation. The project team created a Facebook post and a promotional reel to help publicize the safety survey. The post and reel guided people to the project website where they could learn more about the plan, view the latest plan documents, learn how to get involved in the process, and contact the project team. The Facebook post was promoted through paid advertising on the MSB Facebook page. **The reel was shared 36 times and watched 15,000 times.** The stakeholder/outreach list was used to reach a broad cross section of the MSB Expanded Core Area through email correspondence at key milestones during development of the existing conditions analysis.



Chapter 5:

Equity Considerations

MAT-SU BOROUGH SAFE STREETS FOR ALL

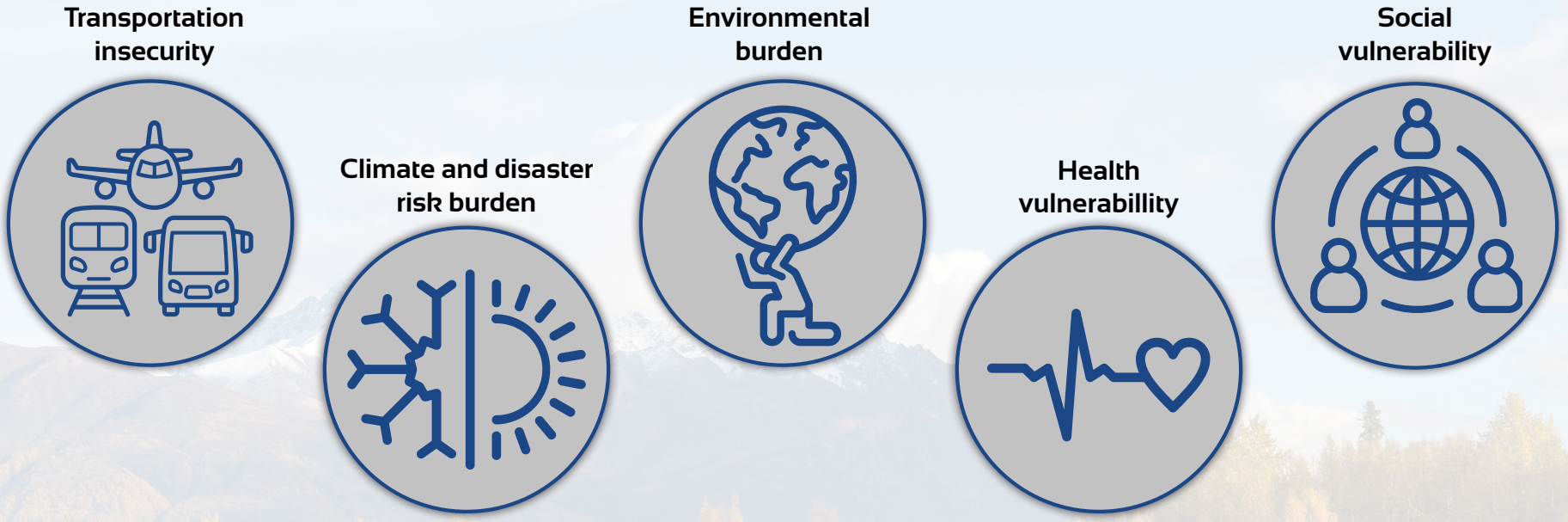
Defining Equity in Transportation

An equitable transportation system strives to support all users by providing transportation options that are affordable and reliable, while meeting the needs of the communities they serve. Executive Order 13985 *Advancing Racial Equity and Support for Underserved Communities* (2021) defines equity as "the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality."

Building an equitable transportation system means taking extra care to consider and plan for the unique challenges that disadvantaged communities face regarding mobility and connectivity needs. Engaging with disadvantaged populations early and often during the transportation planning process can help a community respond to these needs and adjust to ensure an equitable transportation network is achieved. During the planning process and particularly regarding public involvement and outreach, it is the responsibility of transportation planning agencies to ensure that the entire community is included, regardless of race, nationality, income, age, sex, or disability.

Vulnerable Populations Within the MSB Expanded Core Area

As part of the MSB CSAP process, the project team performed a comprehensive equity analysis to identify disadvantaged populations within the MSB Expanded Core Area. These populations have disproportionately higher risks navigating the transportation network. The results of this analysis show a correlation between demographics and safety risk, and they provide an equity-specific lens that was used to help prioritize and recommend projects for implementation in this plan. The plan utilized three methods to identify vulnerable populations within the project area. The first method analyzed results from the Council on Environmental Quality's Climate and Economic Justice Screening Tool. This tool utilized census tract boundaries from 2010 and includes the following eight categories to assess climate and economic justice burden: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. The second tool used was the USDOT Equitable Transportation Community (ETC) Explorer. This interactive web application complements the Climate and Economic Justice Screening Tool by focusing on transportation-related disadvantages. The ETC Explorer analyzes five components to look at the overall burden experienced by a community due to underinvestment in transportation. They include:



Using this tool, we assessed that **nearly the entire MSB Expanded Core Area experiences transportation disadvantages and transportation insecurity.** Transportation insecurity is a core component indicating transportation disadvantage in a community. It occurs when a significant number of people in a community are unable to experience regular, reliable, and safe mobility to meet their daily needs. Transportation insecurity is also a substantial factor in persistent poverty.

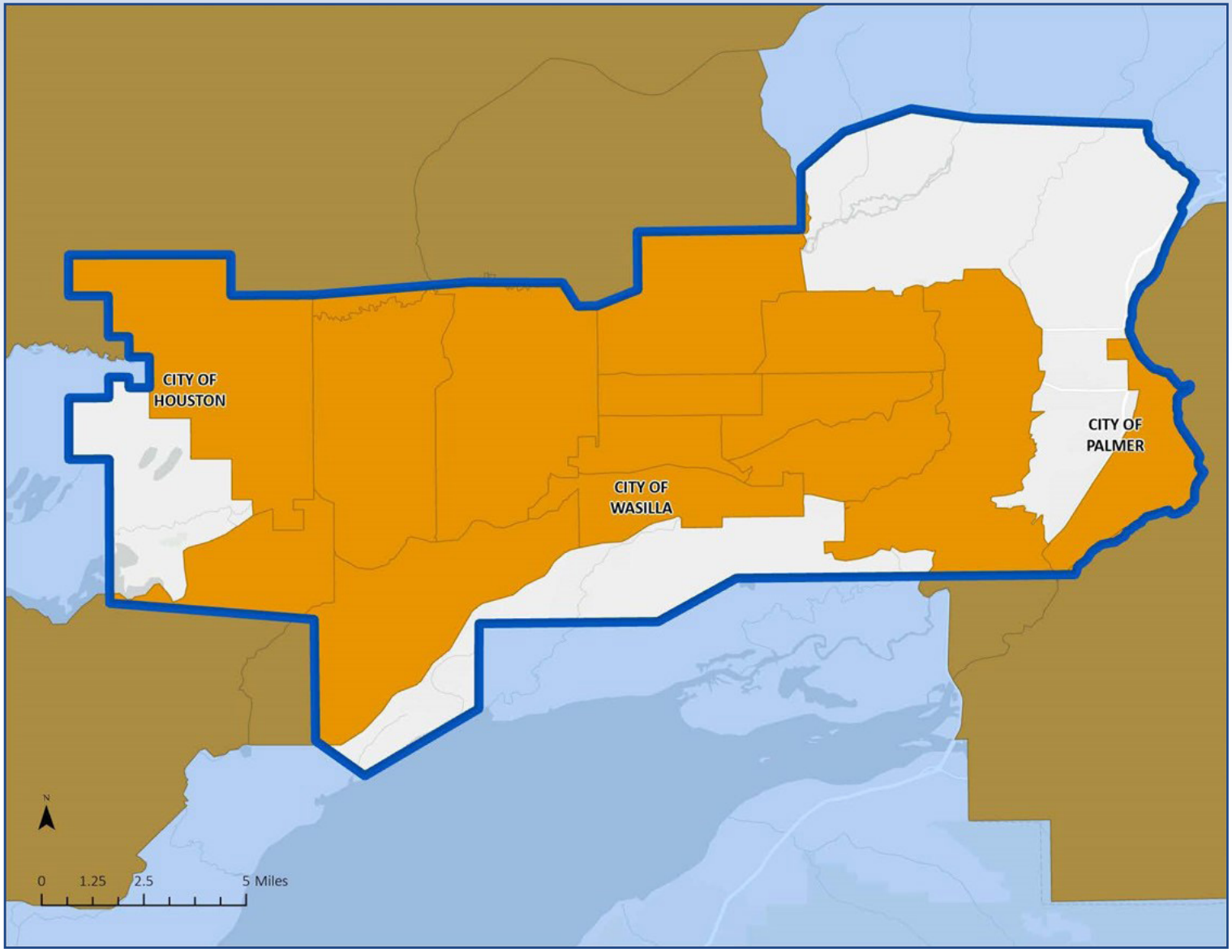


Figure 25. Areas that scored high in three components of the ECT Explorer tool.

On deeper analysis, the orange areas in the above map were found to have high scores in three components of the ETC Explorer Tool. These included transportation insecurity, health vulnerability, and social vulnerability.

Transportation Insecurity

Transportation insecurity occurs when people are unable to meet their daily needs regularly, reliably, and safely due to the following three prevalent factors:

- **Transportation access** – Includes long wait times and difficultly traveling by car, walking, biking, or taking transit. Long commute times and limited access to a vehicle are barriers to employment and resources.
- **Transportation cost burden** – Households that spend a greater than average percentage of their income on transportation, which can include transit costs, vehicle maintenance and insurance costs, gasoline, and fuel. Overspending on transportation costs can make people more vulnerable to losing housing, not being able to afford hospital and medical care, and not being able to afford healthy food options, which can lead to chronic illness and obesity.
- **Transportation safety** – This factor indicates higher than average scores for the number of motor vehicle fatalities per capita.

Social Vulnerability

Social vulnerability measures lack of employment, level of education, level of poverty, percentage of home ownership, access to online resources, housing cost burden, age, English proficiency, and disability status.

Health Vulnerability

The health vulnerability category assesses the rates of disease that can be attributed to air, noise, and water pollution; limited mobility conditions due to lack of safe walking facilities; dependence on a vehicle; and long commute times. This category looks at the prevalence of asthma, cancer, high blood pressure, diabetes, and poor mental health in a community.

Social Vulnerability Indicators Within the MSB Expanded Core Area

Finally, a third equity analysis of the MSB Expanded Core Area focused on the social vulnerability category of the ETC Explorer to assess the most highly disadvantaged areas. For the third equity analysis, the project team used socioeconomic status and household characteristics to assess social vulnerability.

Indicators for socioeconomic status include

- Percent of population with income below 2x the poverty level
- Percent of people age 25+ with less than a high school diploma
- Percent of people age 16+ who are unemployed
- Percent of total housing units that are renter-occupied
- Percent of houses that spend 30% or more of their income on housing with less than $75K income
- Percent of population uninsured
- Percent of households with no internet subscription
- Gini index (degree of inequality in the distribution of income/wealth)

Indicators for household characteristics include

- Percent of population 65 years or older
- Percent of population 17 years or younger
- Percent of population with a disability
- Percent of population (age 5+) with limited English proficiency
- Percent of total housing units that are mobile homes

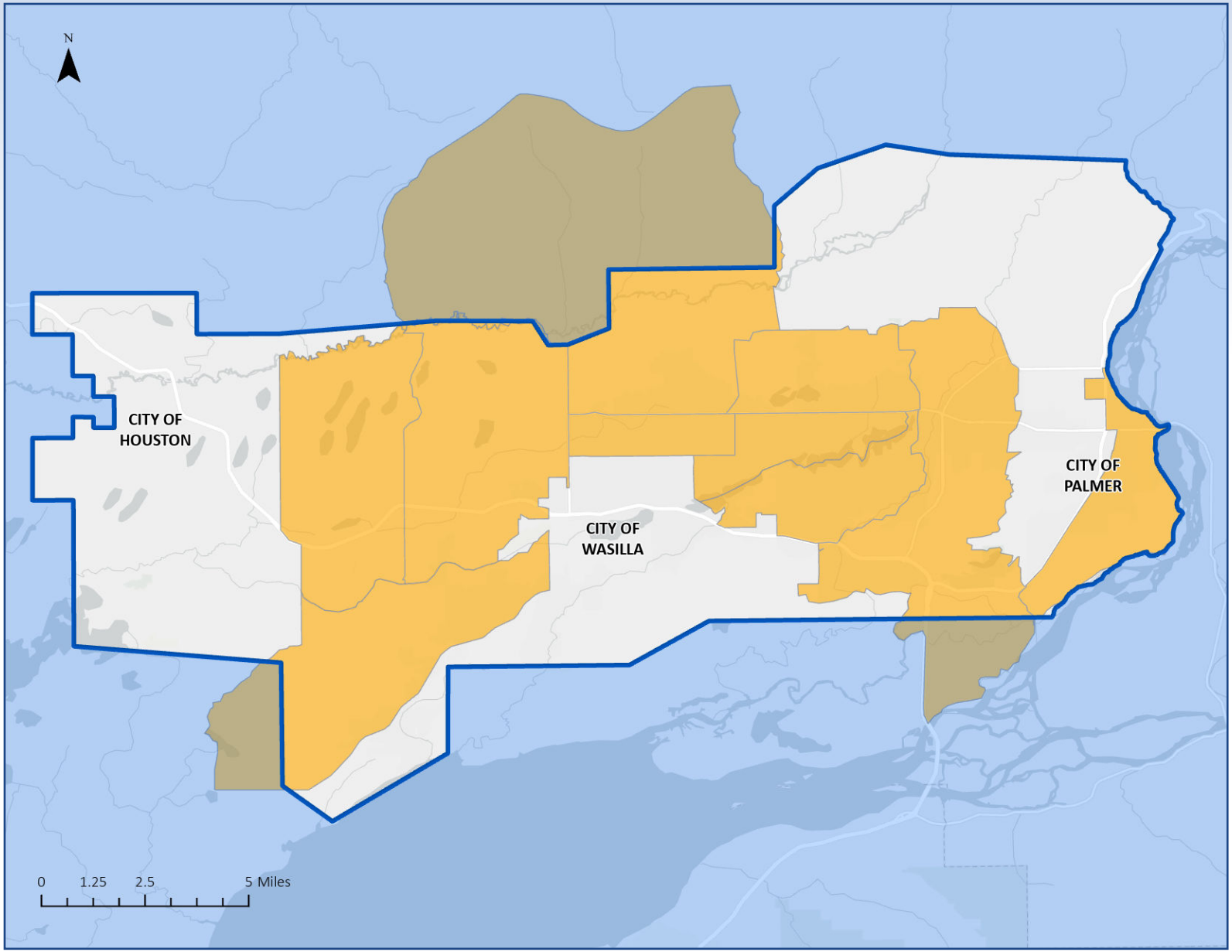


Figure 26. Moderately disadvantaged areas that would receive a moderate impact from projects.

These areas show high transportation insecurity, health vulnerability, and social vulnerability. However, these areas do not exhibit the higher extent of social vulnerability as those in the yellow area of Figure 27. Therefore, improvements in these areas will have a moderate impact to equity.

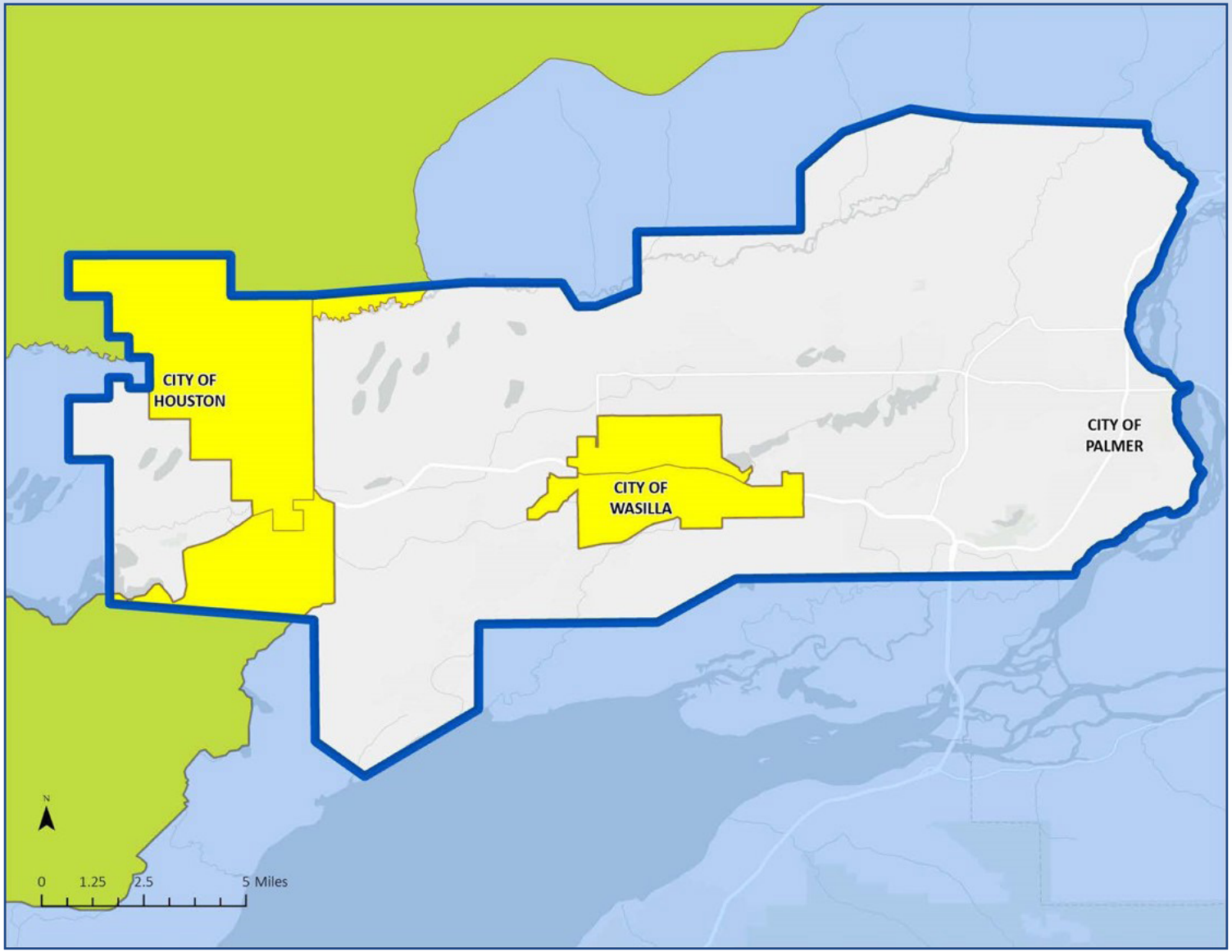


Figure 27. Highly disadvantaged areas that would recieve a high impact from projects.

Four census tracts within the MSB Expanded Core Area had high percentages of the indicators for social vulnerability. They include Houston, Big Lake, North Wasilla, and South Wasilla, as shown in yellow in this figure. These areas are considered the most disadvantaged or underserved in the MSB Expanded Core Area, and would receive the highest impact from an equity perspective for strategies and projects recommended in this plan.

High Injury Equity Analysis

The MSB Expanded Core Area experienced 4,802 crashes between 2018-2022. Of those crashes, 57 resulted in a fatality and 159 resulted in a serious injury. The following figure depicts the crash locations for fatalities and serious injuries.

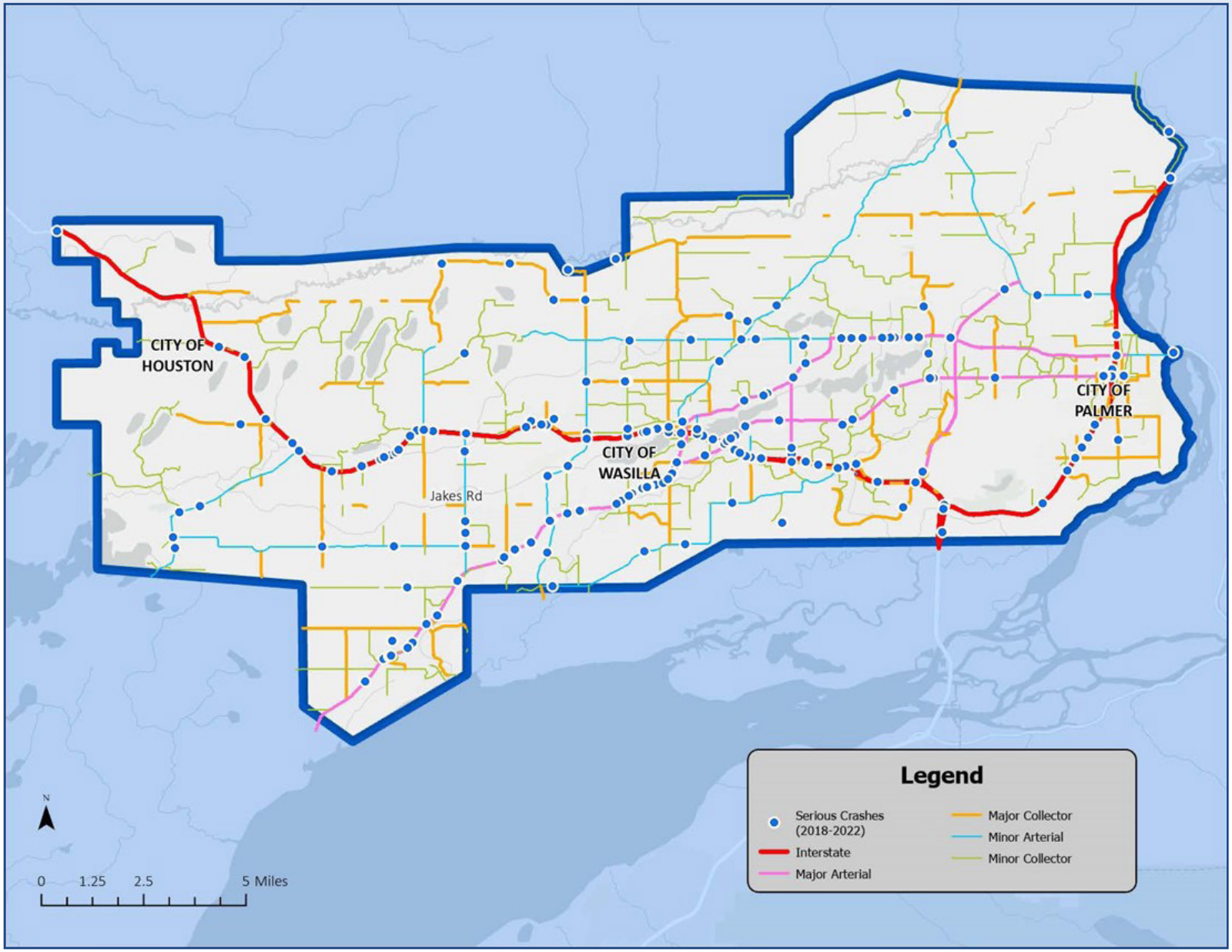
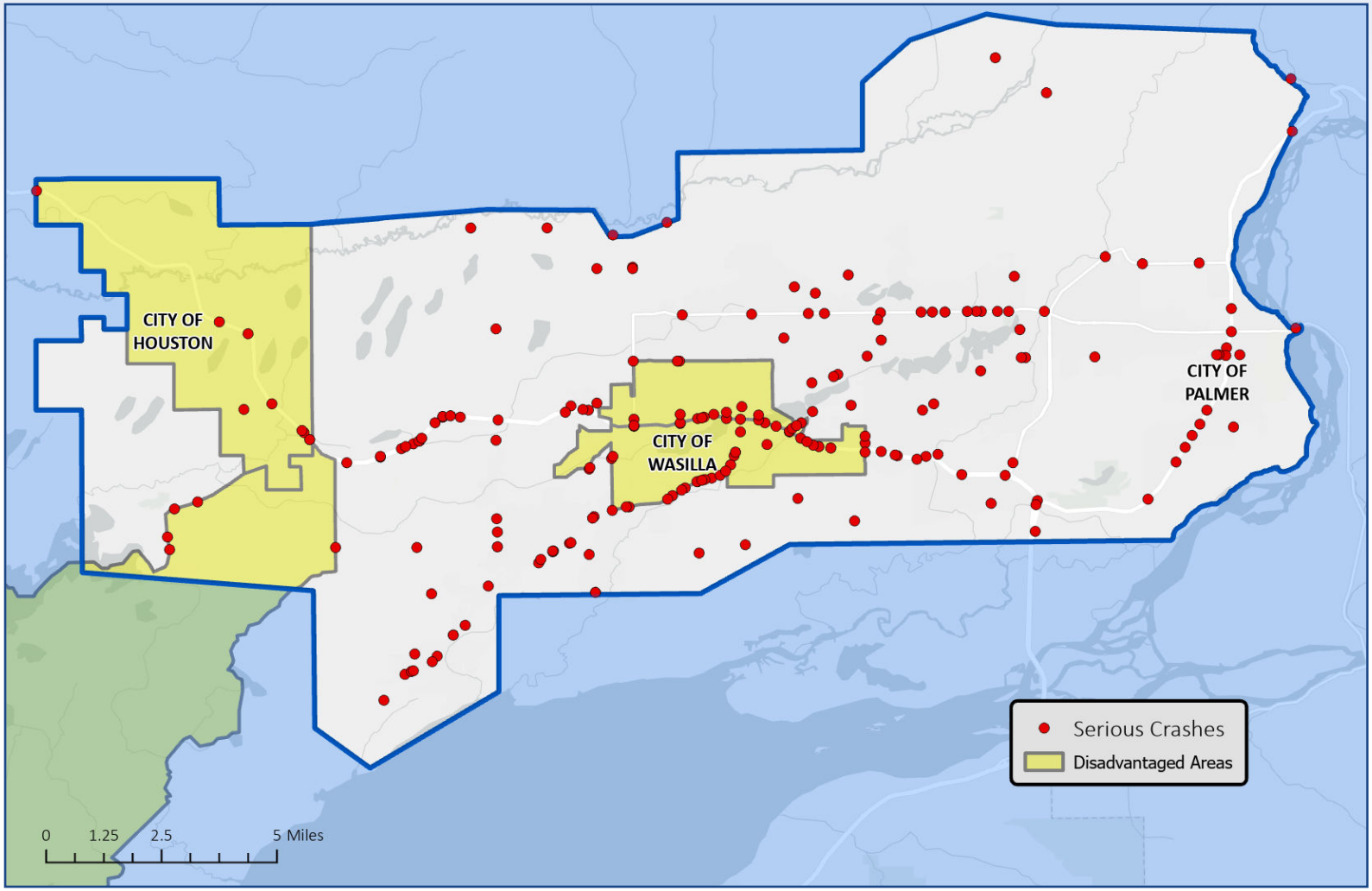


Figure 28. Locations of all serious and fatal injury crashes.

Looking at these crashes through an equity lens developed using only the social vulnerability indicators analysis, it was determined that 2,050 **(42% of all crashes)** occurred in the areas determined to have highly disadvantaged populations. Of those crashes, 11 resulted in a fatality and 59 resulted in a serious injury. Furthermore, **32% of all serious injury and fatality crashes occurred in areas with highly disadvantaged populations.** Both total crashes and serious crashes are overrepresented in these areas, as the disadvantaged population boundaries comprise less than 18% of the MSB Expanded Core Area boundary.



As this map illustrates, the number of fatal and serious injury crashes is disproportionately skewed towards areas with highly disadvantaged populations. By focusing on the high injury network and expanding quality mobility options in areas with highly disadvantaged populations, the MSB can significantly improve transportation safety for socially vulnerable populations.

Figure 29. Locations of all serious crashes compared to disadvantaged areas.

Transportation Disparities

The MSB CSAP emphasizes minimizing safety risks within the transportation network. However, other factors can lead to transportation inequality within disadvantaged populations. These factors can have a substantial impact on a community member's health, ability to work, and ability to meet their day-to-day needs such as access to groceries and consumer goods. They include elevated safety risks for people who depend on transit facilities and have limited access to transportation options and desired destinations, such as places of work, healthcare, education, and social networks. When disadvantaged populations are also subject to these transportation disparities, it creates a state of transportation poverty, which can severely limit a population's resources for meeting mobility needs. It can also lead to social isolation and a reduced quality of life.

This following figure outlines the transportation disparities that exist within the study area based on the two social vulnerability categories used in the third equity analysis—socioeconomic status and household characteristics. They include access to transportation options and desired destinations, quality of transportation, safety risks, and health risks.

The recognition of transportation disparities is growing in the United States and building momentum towards creating meaningful solutions. To avoid perpetuating disparities within the transportation network, it is important to recognize emerging needs within the MSB Expanded Core Area and plan to address them in future transportation improvements. Some examples of emerging needs for this area include:

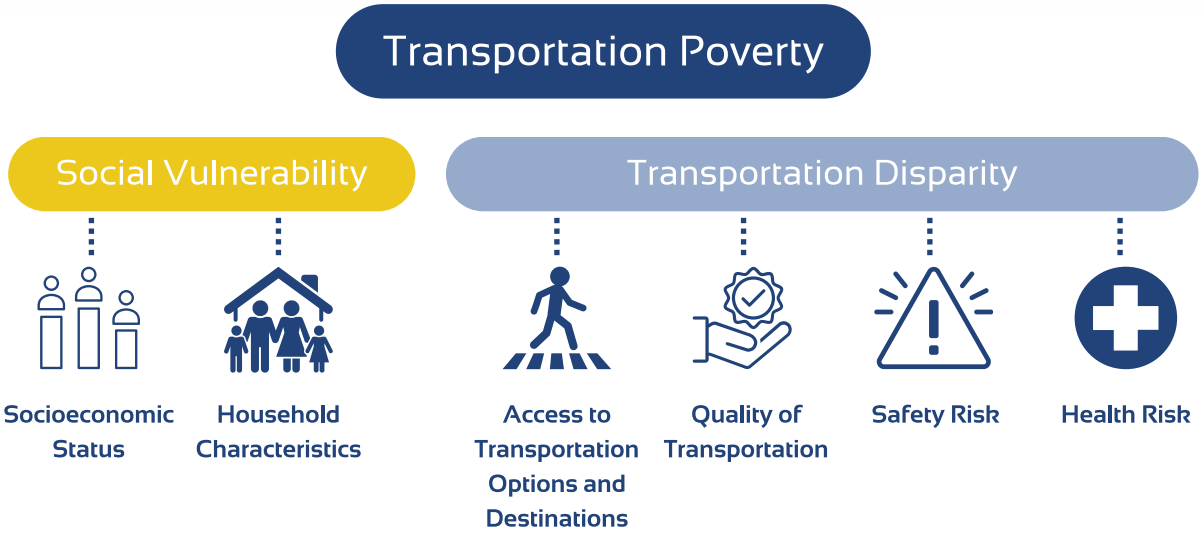


Figure 30. What makes up transportation poverty?

- Older MSB residents need safe and convenient multi-modal options so they can choose to age in place.
- Common impacts of climate change, including severe storms, higher than average winds, and heavy snowfall can disproportionately affect disadvantaged populations, limiting their ability to access basic services. Providing convenient transportation options lowers the reliance on single vehicle ownership and provides alternatives in the event of a severe climate event.
- Changes in travel patterns due to part-time work and telework abilities can result in lower peak-hour congestion and more dispersed trips throughout the day. Encouraging a shift toward shared mobility options and roadway optimization will help the community envision a proactive plan for growing MSB populations.

Transportation Barriers that Exist Within Vulnerable Populations

Transportation barriers are caused by a lack of adequate transportation or access to transportation to the extent that it interferes with an individual's ability to meet their daily needs and be a functioning member of society. For the MSB Expanded Core Area the project team identified the following barriers through the CSAP Equity Analysis:

High cost of transportation (higher than the 90th percentile nationally)

Lack of transit facilities/routes

Long commute times to employment and resources

Limited access to a vehicle

Vehicle maintenance/ insurance/fuel costs (higher than the 90th percentile nationally)

Lack of safe walking and biking facilities

Lack of safety on roadways (MSB has a higher-than-average rate of motor vehicle fatalities per capita than other areas nationally)

Lack of adequate all-season maintenance to keep roads and pathways clear

Low income to transportation needs cost ratio

Limited access to transportation options and destinations

By addressing these barriers through future investments in the MSB Expanded Core Area transportation network, transportation disparities can be diminished to create greater equity, a safer and more convenient transportation system, and a safer community.

Equitable Distribution of Safety Investments

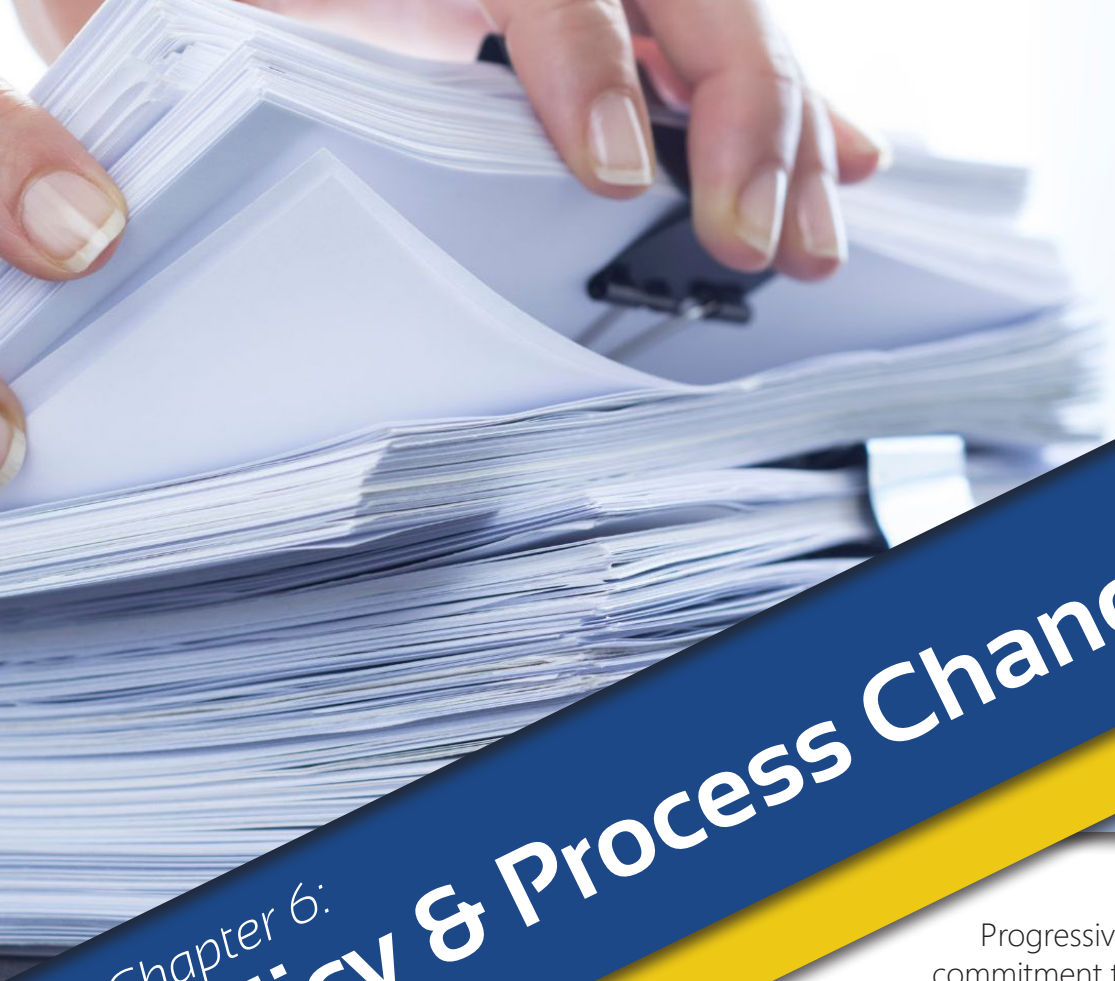
This equity analysis is a core component of the MSB CSAP and will serve to influence decisions about future safety investments within the MSB Expanded Core Area. The disproportionate safety risk identified within disadvantaged populations in the study area means that any safety improvements made in these areas, including new infrastructure, policies, programs, enforcement, and education, will help to advance equity. This equity analysis can also be used in future planning efforts such as assisting with determining selection criteria for the local area Metropolitan Planning Organization's (Mat-Su Valley Planning) Transportation Improvement Program (TIP). This analysis helps determine where future investments will make the most headway in decreasing severe injuries and fatalities. It will also help make the most of limited transportation improvement funding.

Recommendations

To ensure that the MSB Expanded Core Area makes the most of its limited resources to advance transportation equity, it is important to respond to the transportation disparities and barriers that have been identified in the MSB CSAP. Infrastructure and services that support safe, multi-modal transportation should be advanced throughout the MSB Expanded Core Area, but with specific focus given to the areas of Houston, Big Lake, North Wasilla, and South Wasilla. Investments in infrastructure and services could include:

- Expanding **local transit** operators
- Expanding **commuter/service** providers like Valley Transit
- Building **transit facilities** such as bus stops, bus shelters, transit corridors, and park-and-ride lots
- Investing in protected walking and biking facilities such as **sidewalks and separated pathways**
- Funding adequate **all-season maintenance** of existing multi-modal transportation facilities
- Including funding for all-season maintenance in planned transportation infrastructure (new facilities)
- Installing roadway and pedestrian-scale **lighting in urban areas**
- Retrofitting existing transportation facilities to ensure **compliance with the Americans with Disabilities Act** (ADA)
- Ensuring that new or planned transportation facilities are ADA compliant
- Encouraging the development of transit-supportive corridors that incentivize compact, **mixed-use development** along commercial nodes and urban centers; affordable housing; and easy access to walking and bicycling facilities
- **Closing gaps** within the existing transportation networks with new planned infrastructure
- Connecting the on-street transportation network to existing pathways and trails
- **Expanding the Safe Routes to School (SRTS) program** to include specific project investment recommendations for school zone improvements

The above recommendations are specific to equity within the MSB CSAP. The implementation chapter in the final plan will include additional safety recommendations for all areas within the MSB Expanded Core Area.



Chapter 6:

Policy & Process Changes

MAT-SU BOROUGH
SAFE STREETS FOR ALL

Progressive safety policies and processes are an essential part of the MSB's commitment to creating a safe transportation system. Policy and process changes that support a culture of roadway safety can build a framework that protects users of the transportation network, decreasing serious injuries and saving lives.

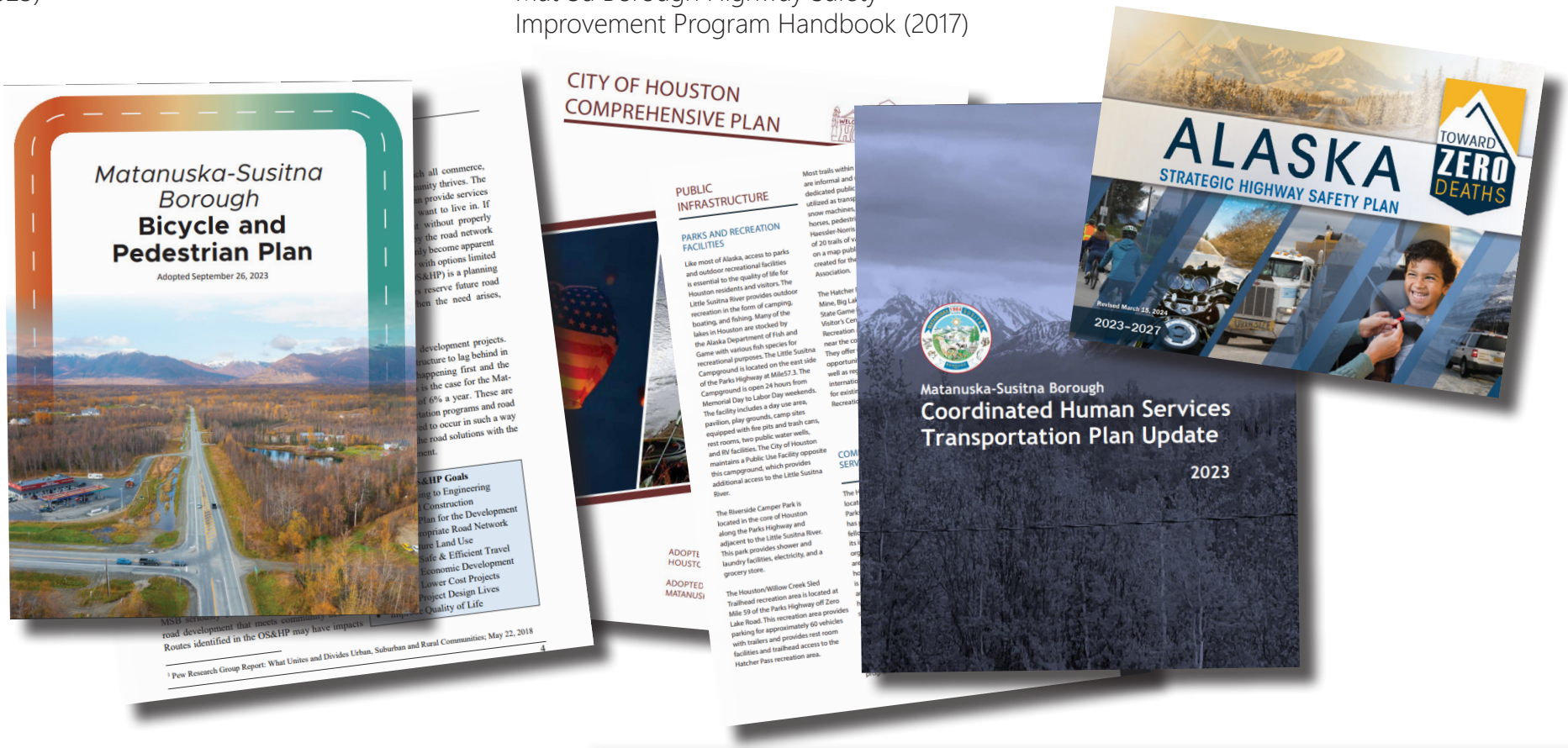
Existing Plan Reviews

The project team evaluated existing plans to analyze relevant goals, strategies, policies, and recommended projects from those efforts. Wherever possible, these planning initiatives are carried forward and aligned with MSB CSAP goals, polices, strategies, and recommended projects. Consolidating these transportation safety planning elements into one document will also help facilitate CSAP implementation after it is adopted.

The project team reviewed the following plans, identifying the overarching plan goal; transportation safety-related goals; key safety-related policies, programs, and projects; and applicability to the MSB CSAP. Summaries of our reviews of the following plans are in Appendix B: Existing Conditions Report.

List of Plans Reviewed

- Mat-Su Borough Comprehensive Plan Update (in process)
- Alaska DOT&PF Statewide Transportation Improvement Program (2024)
- Alaska Strategic Highway Safety Plan (2024)
- Bogard-Seldon Corridor Access Management Plan (Draft, 2024)
- Alaska Vulnerable Road User Assessment (2023)
- Mat-Su Borough Bicycle & Pedestrian Plan (2023)
- Mat-Su Borough Coordinated Human Services Transportation Plan Update (2023)
- Mat-Su Valley Planning (MVP) MPO Boundary Development Document & Interactive Map (2023)
- Mat-Su Borough Official Streets & Highways Plan (2022)
- Mat-Su Borough Transportation Infrastructure Program (2021, 2023 & 2024)
- City of Houston Comprehensive Plan (2017)
- Mat-Su Borough Highway Safety Improvement Program Handbook (2017)
- Mat-Su Borough Long Range Transportation Plan (2017)
- Mat-Su Borough MPO Self-Assessment (2016)
- City of Wasilla Comprehensive Plan (2011)
- Mat-Su Borough Core Area Comprehensive Plan (2007)
- City of Palmer Comprehensive Plan (2006)
- Mat-Su Borough Comprehensive Plan (2005)



Plan Review - Key Findings

Transportation-Related Safety Goals

These plans typically share the common goals of improving road safety and aligning with long-range strategies to improve transportation efficiency, promote healthy communities, and foster vibrant economies. Common transportation safety-related goals include:

- Reduce and mitigate crashes
- Reduce congestion
- Promote efficient movement of people, goods, and services throughout the borough
- Protect and foster the health, safety, and welfare of the MSB community
- Improve pedestrian and vehicle connections adjacent to the Glenn Highway
- Identify and prioritize trail improvements and future trail corridors
- Expand safe, accessible, and affordable transit facilities
- Provide safe street networks that enhance the quality of life for residents
- Grow sidewalk networks and improve maintenance of sidewalks
- Improve connectivity
- Prioritize projects that will strengthen the transportation network and improve safety
- Identify funding opportunities to implement plan recommendations

Plan Review - Key Findings

Transportation Safety-Related Recommendations

Many of the plans reviewed included recommendations that serve to strengthen and complete the existing transportation network to support safe multi-modal movement throughout the MSB. Many plans also stress the importance of integrating street and trail connectivity to develop pedestrian and bicycle linkages between schools, public facilities, neighborhoods, parks and open spaces, and population centers, where feasible. Potential countermeasures from these plans that could apply to the MSB CSAP include:

- Access management, intersection, and driveway consolidation
- ATV Policy adoption to designate facilities for this use type
- Incorporating flat-bottomed gravel ditches, stabilized shoulders, and trail/road intersections into new road construction
- Installing more pedestrian crossing infrastructure
- Separating vulnerable road users from motor vehicle traffic
- Installing signage and wayfinding on trails and within population centers
- Paving local roads to decrease dust/visibility/asthma issues
- Expanding transit service with a focus on senior centers and vulnerable populations
- Enhancing ADA accessibility on walkways
- Implementing better lighting on trails, pathways, and in town centers
- Updating multi-modal design standards
- Updating the Subdivision Construction Manual to include bicycle and pedestrian safety and connectivity

Plan Review - Project Recommendations

Project recommendations included in previous planning efforts may be good candidates for SS4A projects after countermeasures have been identified. In the case of the Statewide Transportation Improvement Program (STIP), if funding is secured, those projects would likely be screened out of SS4A consideration. The project team analyzed the project recommendations in these plans, integrating them into the safety analysis and project selection methodology described in Chapter 7, Strategy and Project Selections. Recommended projects from MSB existing plans can be found in Appendix B of the Existing Conditions Memorandum dated November 26, 2024.

Policy Review

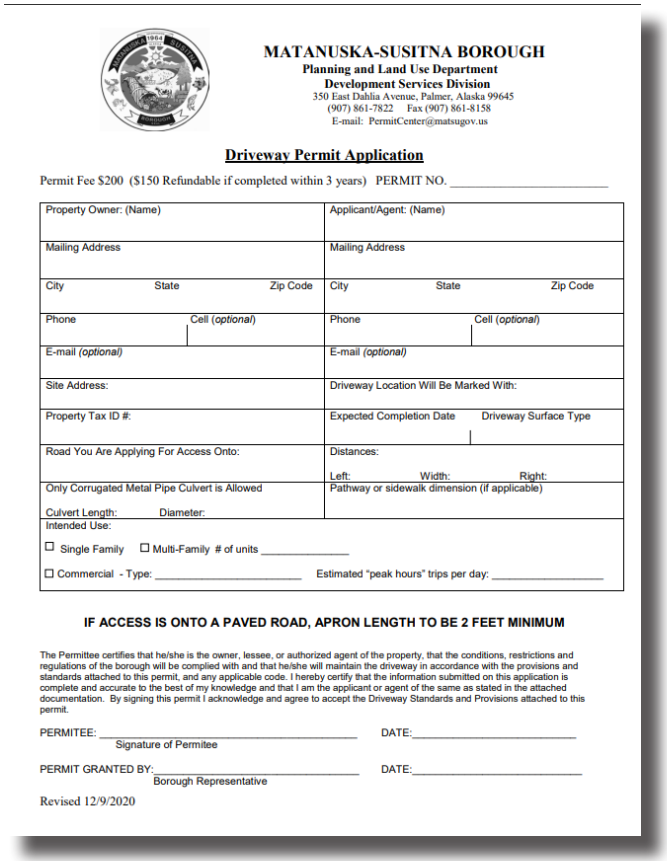
Until Vision Zero is achieved, all communities can do more to improve safety. However, the MSB has done or is already doing things that support Vision Zero objectives. This section describes areas of success and other areas with opportunities for improvement.

Code Review

The project team did not conduct a comprehensive review of MSB code, as this effort is presently underway as part of the MSB's Sub-Area Solutions Studies. However, the project team performed a cursory review to identify issues directly related to safety. Recommendations based on this review are found in the Existing Conditions Memorandum dated November 26, 2024, and some of these formulated the basis for, and can be used in support of, the recommended policies and practices found in this chapter. They include recommended changes to:

Driveway applications code (11.02.040)

High volume driveway standards code (11.02.070)



MATANUSKA-SUSITNA BOROUGH
Planning and Land Use Department
Development Services Division
350 East Dahlia Avenue, Palmer, Alaska 99645
(907) 861-7822 Fax (907) 861-8158
E-mail: PermitCenter@matsugov.us

Driveway Permit Application

Permit Fee $200 ($150 Refundable if completed within 3 years) PERMIT NO. _____

Property Owner: (Name)	Applicant/Agent: (Name)
Mailing Address	Mailing Address
City State Zip Code	City State Zip Code
Phone Cell (*optional*)	Phone Cell (*optional*)
E-mail *(optional)*	E-mail *(optional)*
Site Address:	Driveway Location Will Be Marked With:
Property Tax ID #:	Expected Completion Date Driveway Surface Type
Road You Are Applying For Access Onto:	Distances: Left: Width: Right:
Only Corrugated Metal Pipe Culvert is Allowed Culvert Length: Diameter:	Pathway or sidewalk dimension (if applicable)
Intended Use: ☐ Single Family ☐ Multi-Family # of units _____ ☐ Commercial - Type: _____ Estimated "peak hours" trips per day: _____	

IF ACCESS IS ONTO A PAVED ROAD, APRON LENGTH TO BE 2 FEET MINIMUM

The Permittee certifies that he/she is the owner, lessee, or authorized agent of the property, that the conditions, restrictions and regulations of the borough will be complied with and that he/she will maintain the driveway in accordance with the provisions and standards attached to this permit, and any applicable code. I hereby certify that the information submitted on this application is complete and accurate to the best of my knowledge and that I am the applicant or agent of the same as stated in the attached documentation. By signing this permit I acknowledge and agree to accept the Driveway Standards and Provisions attached to this permit.

PERMITEE: _____ DATE: _____
Signature of Permitee

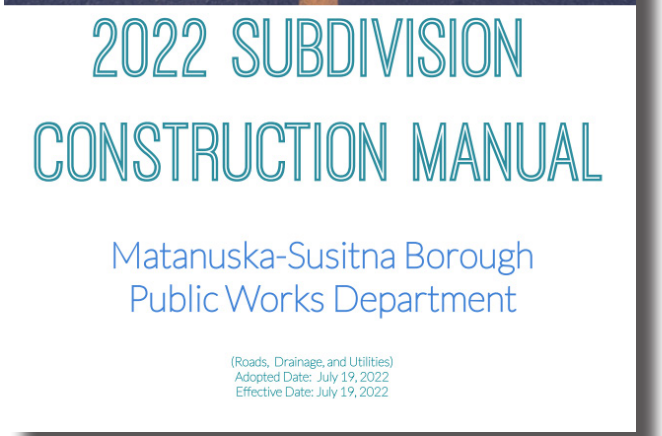
PERMIT GRANTED BY: _____ DATE: _____
Borough Representative

Revised 12/9/2020

Changes to design criteria in the Subdivision Construction Manual

Traffic impact analyses code (11.020.080)

Promote Complete Streets and/or self-enforcing roadways, including design speed, reductions in lane width, and warranting conditions for separate non-motorized facilities.



2022 SUBDIVISION CONSTRUCTION MANUAL

Matanuska-Susitna Borough
Public Works Department

(Roads, Drainage, and Utilities)
Adopted Date: July 19, 2022
Effective Date: July 19, 2022

Program and Process Review

What is already working?

The MSB CSAP intends to build on best practices that are already working in the MSB to improve transportation safety. The project team identified several MSB programs and processes that have been shown to improve safety. These include:

Designating and Decomissioning Safety Corridors

Roundabout Construction

Transportation Capital Investments

Highway Safety Improvement Program

Data

WHAT'S ALREADY WORKING?

Designating and Decomissioning Safety Corridors

The Parks Highway between Wasilla and Houston was the second of four Safety Corridors designated in Alaska in 2007. It was the first to be decommissioned in 2022 once the four-lane divided highway, with segments of separated multi-use path, was completed. **This corridor saw a 55% reduction in fatal crashes** between 2009 and 2022.

Knik-Goose Bay Road was designated as a Safety Corridor in 2009. Work is currently underway to reconstruct it as a divided highway with a separated multi-use path. In November 2024, DOT&PF decommissioned four miles of Safety Corridor designation upon completion of the first phase of this reconstruction.

Designating these high-crash corridors as Safety Corridors incorporates the tenets of the SSA by adding an enforcement focus (more serious penalties for speeding infractions) and a call to action to allocate funding for construction of needed changes to these roadways.

WHAT'S ALREADY WORKING?

Data

The MSB has extensive data that are collected and organized into a GIS data system. This practice is valuable as it can inform elected bodies of specific needs and trends. In addition to collecting asset management needs, the MSB collects data on public requests for speed calming. These data can be used as part of a speed management policy that considers public input and common themes. They can also be used to help support local requests for increased enforcement presence, particularly outside of the city boundaries of Palmer and Wasilla.

WHAT'S ALREADY WORKING?

Roundabout Construction

Since 2010, eight single-lane or multi-lane roundabouts have been constructed in the MSB Expanded Core Area, with at least six more planned. Roundabouts are an FHWA Proven Safety Countermeasure that can reduce fatal and serious injury crashes by 81%. They are continuing to grow in number across Alaska and show the same effectiveness within the state as in national studies.

This safety track record is why Alaska DOT&PF has a "Roundabouts First" policy, requiring engineers to consider whether a roundabout is appropriate before considering other intersection solutions. Engineers are also required to document when traffic signals are selected over a single-lane roundabout.

Roundabouts are effective because they reduce the number of potential conflicts, reducing the likelihood of a crash. They also substantially reduce speeds, which reduces the severity of crashes when they do occur. Before and after crash data and benefit costs of single-lane roundabouts were not analyzed in the MSB, but conclusions from 2018-2022 data are provided below.

Each location had consistent trends: no serious injury, and no bicycle, pedestrian, or motorcycle crashes. Each location demonstrates that while crashes may occur, they are not serious. This indicates that single-lane roundabouts are an effective intersection treatment on collector and arterial roads in the MSB Expanded Core Area.

- **Lucille Street and Seldon Road Roundabout** was developed under MSB's Highway Safety Improvement Program (HSIP) and constructed in 2014. There were 23 crashes at this intersection from 2018-2022, most of which were angle crashes. Where driver circumstances were reported, they were listed as failure to yield.
- **Trunk Road and Parks Highway South Ramp Roundabout** was constructed in 2016. There were 14 crashes at this intersection from 2018-2022. Where driver circumstances were reported, they were listed as failure to yield.
- **Big Lake Road and Northshore Drive Roundabout** was constructed in 2016. There were two crashes at this intersection from 2018-2022. One was an angle crash, and the other was a crash with a sign.

WHAT'S ALREADY WORKING?

Transportation Capital Investments

Through DOT&PF and locally funded projects, it is estimated the MSB Expanded Core Area has recently constructed or is planning to construct over $600M in transportation projects that will significantly contribute to safety and operations in the region.[2] Some of the larger dollar investments contributing to that total include:

- Glenn Hwy.: Parks Hwy. to S. Inner Springer Loop Phase II
- Knik-Goose Bay Road Reconstruction
- Wasilla-Fishhook Main St. Rehabilitation
- Seward Meridian Road, Phase II: Palmer-Wasilla Hwy. to Seldon Road
- Parks Hwy. MP 52-57 Reconstruction (Big Lake to Houston)
- Glenn Hwy.: Arctic Avenue to Palmer-Fishhook
- Fairview Loop Rehabilitation and Pathway
- Bogard Road Safety and Capacity Improvements (Trunk Road to Grumman Circle)

The MSB has its own TIP and has successfully secured voter-approved bond projects for local needs. For some projects, the MSB has used local funds as a match to DOT&PF's Community Transportation Program to further leverage available funding sources and increase the likelihood of grant awards. MSB TIP projects include addressing multi-modal needs such as a pathway on the Inner-Outer Springer Loop. The projects also address safety needs in and around schools with pathway improvements (E Nelson Road near Machetanz Elementary) and school site safety improvements (Finger Lake and Shaw Elementary Schools). The TIP also appropriately addresses asset management through drainage improvements (Jolly Creek) and pavement preservation (Earl Drive, Eek St. Pavement Rehabilitation).

The region also benefits from city-sponsored projects from the cities of Houston, Palmer, and Wasilla and will soon have a local TIP dedicated to funding for the recently formed Metropolitan Planning Organization, MVP for Transportation.

[2] Review of DOT&PF 2024-2027 STIP Amendment #1, DOT&PF's 2024-2027 HSIP Funding Plan, Mat-Su Borough TIP-21, 23, and 24 as well as DOT&PF open construction phases for projects in the Mat-Su Borough Expanded Core Area as of August 2024. DOT&PF projects include total project development cost.

WHAT'S ALREADY WORKING?

Highway Safety Improvement Program

Roads within the MSB are eligible for project nomination and funding under DOT&PF's HSIP, regardless of the road's ownership. This funding program within the STIP is focused on reducing fatal and serious crashes through systemic or spot safety improvements. The program requires eligible projects to have crash data demonstrating a safety cost-benefit through established countermeasures.

Recently, a $20M two-way left-turn lane was constructed on Palmer-Wasilla Highway under HSIP. This program is also funding three roundabouts under development at Hollywood and Vine, Palmer-Fishhook and Trunk Road, and Wasilla-Fishhook at Spruce and Peck.

Some project activities are not eligible under HSIP, and its cost-benefit requirements generally eliminate the eligibility of higher-dollar improvements such as grade-separated interchanges. HSIP projects must present an engineering solution to a demonstrated problem, which makes other factors such as public input and equity less likely to influence its nominations. However, federal rulemaking is underway to incorporate equity considerations into the program.

The *Mat-Su Borough HSIP Handbook*, last updated in 2017, is modeled after DOT&PF's handbook of the same name. The handbook was developed to augment DOT&PF's HSIP by prioritizing safety projects, maintaining local control, and allowing more flexibility on the data-driven approach. (Prior to 2021, DOT&PF often had a lag of up to four years when producing crash data, making data flexibility useful.)

The *Mat-Su Borough HSIP Handbook* has project screening criteria similar to DOT&PF's program and it was used successfully in 2014 to construct the roundabout at Seldon Road and Lucille Street. The manual has not been updated in recent years due to a lack of resources, and no dedicated capital funding program exists for safety projects.

While the MSB's investment in transportation improvements is commendable, dedicating a portion of the capital funding program to safety, especially as population growth and development occurs, would be beneficial. Such a program could be designed to focus on recommendations and tools from the CSAP. It could include projects identified during the plan's data evaluation, as well as future evaluations of the publicly available and updated crash data presented through the crash dashboard developed under this plan.

Recommended Policies and Practices

Building upon findings from the MSB plan review, stakeholder and community feedback, and national best practices, the plan recommends developing the following policies and practices to eliminate barriers to safer streets and help foster a culture of roadway safety in the MSB Expanded Core Area.

The policies and practices below are rated as high or moderate in terms of their impact toward improving transportation equity for underserved populations. No recommended policy is believed to have a low impact on improving equity, based on the extent of disadvantaged population areas within the MSB Expanded Core Area and how proposed policies benefit vulnerable road users (VRUs) region-wide. See Chapter 5 for discussion about disadvantaged population areas.

Table 5: Safe People - SSA Recommended Policies and Practices for MSB Expanded Core Area

ID	Equity Impact	Policy/Practice
SP1	High	Establish a Safety Action Plan (Safe Streets MSB) Implementation working group.
SP2	High	Implement Safe Streets MSB (or Vision Zero) campaigns and build and maintain a regional Safe Streets MSB (or Vision Zero) webpage.
SP3	High	Create and distribute educational materials to complement development of an MSB Complete Streets policy that aligns with the MVP Complete Streets Policy.
SP4	Moderate	Work with local community partners to create and distribute seasonal safety messaging on how to be safe on the roadway during winter and low light conditions.
SP5	Moderate	Combine countermeasure deployment with promotional activities (press releases, promotional signage, media interviews).
SP6	Moderate	Explore a change in state law to reduce the legal blood alcohol content (BAC) for impaired driving.
SP7	Moderate	Implement a submittal checklist for developers and/or roadway design project reviews prior to project approval.
SP8	High	Host safety walking tours annually for elected officials and the public to demonstrate safety needs and navigating locations where improvements have been implemented.
SP9	High	Create a policy to establish consistent messaging for school zone safety throughout the MSB.
SP10	Moderate	Work with local partners to develop a safety campaign that encourages compassion in young people to advocate for safe driving behaviors.
SP11	High	Work with local agencies and policy makers to create economic investment incentives for new development that adds walkable facilities, smaller lot sizes, increased density, and greenspace.
SP12	Moderate	Work with the MSB School District to expand offerings of driver's education for students. Explore opportunities to defray costs through grants or local sponsorships .
SP13	High	Explore purpose and feasibility of a local ATV and snowmachine safety program, working with local dealerships and trail rider groups. Focus on education and outreach for safe and legal ATV and snowmachine operations.

Table 6: Safe Vehicles - SSA Recommended Policies and Practices for MSB Expanded Core Area		
ID	**Equity Impact**	**Policy/Practice**
SV1	High	Evaluate the MSB's vehicle fleet, and when replacement vehicles are due, give consideration for the smallest vehicle size suitable for the task.
SV2	Moderate	Child car seat education and workshops
SV3	Moderate	Adult car fitting education and workshops (e.g., proper mirror adjustment, ergonomics, and other safe practices in vehicles)
SV4	High	Income-based programs and potential incentives for vehicle owners that address vehicle maintenance issues such as operable headlights and blinkers, brakes and brake lights, and tires with proper all-season tread
SV5	High	When purchasing replacement vehicles for MSB vehicle fleet, consider vehicles with more safety features and automations such as lane assist, backup cameras, and other hazard warnings.

Table 7: Safe Speeds - SSA Recommended Policies and Practices for MSB Expanded Core Area		
ID	**Equity Impact**	**Policy/Practice**
SS1	Moderate	Initiate policy development for active monitoring for speed enforcement.
SS2	Moderate	Review/implement speed management policies for setting speed limits.
SS3	High	Assess the appropriateness of speed and functionality of local and state roads in the MSB through the development of an MSB Complete Streets Plan and future MSB transportation plan updates.
SS4	Moderate	Develop a consistent speed zone policy for schools within the MSB Expanded Core Area.
SS5	Moderate	Work with local enforcement agencies to advocate for increased funding, staffing, and equipment to strengthen policing capabilities throughout the MSB.
SS6	Moderate	Work with local enforcement agencies to educate policy makers and advocate for stronger laws and stricter fines and penalties to improve accountability for speeding and traffic violations.

Table 8: Safe Roads - SSA Recommended Policies and Practices for MSB Expanded Core Area		
ID	**Equity Impact**	**Policy/Practice**
SR1	High	Develop an MSB Complete Streets Plan.
SR2	High	Update street design guidelines, standards, and borough code to support Complete Streets policies and Safe System principles.
SR3	Moderate	Prioritize and pursue implementation funding for the projects recommended in the MSB CSAP. Refresh the safety priority analysis at least every three years to ensure continued relevancy.
SR4	Moderate	Systematically install low-cost safety countermeasures at priority locations identified in the MSB CSAP and throughout the region.

Table 8: Safe Roads - SSA Recommended Policies and Practices for MSB Expanded Core Area		
ID	**Equity Impact**	**Policy/Practice**
SR5	Moderate	Share the countermeasures and toolbox solutions identified in the MSB CSAP with applicable implementors (e.g., developers).
SR6	Moderate	Apply for federal grant funding, such as the SS4A program, to leverage traditional funding sources for safety demonstration and implementation efforts.
SR7	High	Create policy to promote safe street design for developers of new subdivisions within the MSB, with a focus on when non-motorized facilities are required.
SR8	Moderate	Create policy to require impact fees and Traffic Impact Analyses for new subdivisions.
SR9	Moderate	Initiate design guidance and/or policy to reduce minimum thresholds for right- or left-turn lanes for roadway designers and developers.
SR10	High	Develop guidelines for evaluating implementation of a road diet, in coordination with the Complete Streets policy and Complete Streets plan.
SR11	High	Create policy and coordinate with pending Alaska Traffic Manual updates to establish consistent features within school zones including speed zones, signs and markings, and lighting practices.
SR12	High	Create policy to establish consistent all-season maintenance practices for transportation facilities within one mile walking distance of a school including sidewalks, multi-use pathways, and bus stops.
SR13	High	Prioritize the safety of all road users during winter maintenance through MSB agency coordination and evaluate mechanisms and resources to streamline maintenance processes, such as interagency agreements.
SR14	High	Develop a working group to identify the key challenges and roadblocks and provide solutions associated with maintaining streets, sidewalks, and bicycle facilities year-round, but especially during a snow or weather event.
SR15	High	Reinstate an MSB HSIP program, update HSIP Handbook and advocate for dedicated funding to HSIP projects as a separate component of capital improvement or TIP projects.
SR16	Moderate	Encourage efficient resource allocation through consolidation of Road Service Areas.

Table 9: Post Crash Care - SSA Recommended Policies and Practices for MSB Expanded Core Area		
ID	**Equity Impact**	**Policy/Practice**
PCC1	Moderate	Facilitate training sessions for law enforcement agencies on traffic safety during crash response and on comprehensive crash reporting.
PCC2	High	Collaborate with health organizations and non-profits to engage in treatment options for people involved in drug and alcohol related crashes.
PCC3	High	Improve ambulance availability and response times.

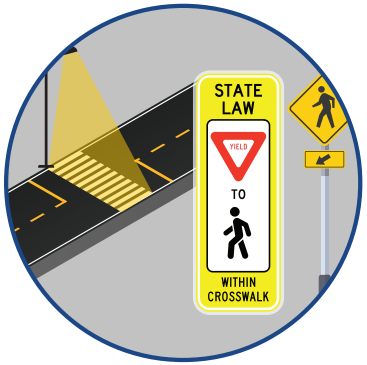
Safety Countermeasures

This safety toolkit features design treatments known to reduce crashes involving people driving, walking, bicycling, or rolling (using a wheelchair or other mobility assistive devices). It is intended as a guideline for roadway engineers, transportation planners, and other agency officials to aid decision-making during the planning and design of roadway improvement projects. This toolkit is not an all-inclusive list, and other treatments may be relevant and applicable for safety improvements. These treatments were primarily selected from FHWA's Proven Safety Countermeasures as appropriate for MSB's roads. The entire toolkit can be found in Appendix D: Safety Toolkit.

Appropriate Speed Limits & Speed Feedback Signs

Speed Safety Cameras

Bicycle Lanes



Crosswalk Visibility Enhancements

Leading Pedestrian Intervals

Medians & Pedestrian Refuge Islands

Rectangular Rapid Flashing Beacons (RRFBs)

Walkways & Shared Use Paths

Safety Countermeasures

Road Diets (Roadway Reconfiguration)

Enhanced Delineation for Horizontal Curves

Roadside Design Improvements at Curves

Wider Edge Lines

Longitudinal Rumble Strips & Stripes

Safety Edge℠

Dedicated Left- and Right- Turn Lanes at Intersections

Corridor Access Management

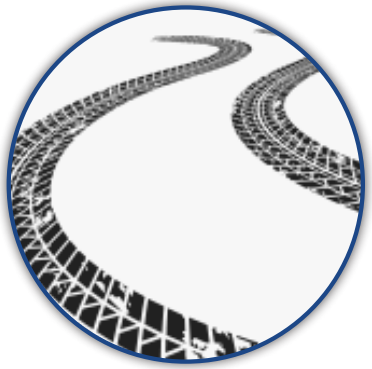
Safety Countermeasures

Roundabouts

Backplates with Retroreflective Borders

Transverse Rumble Strips

Lighting

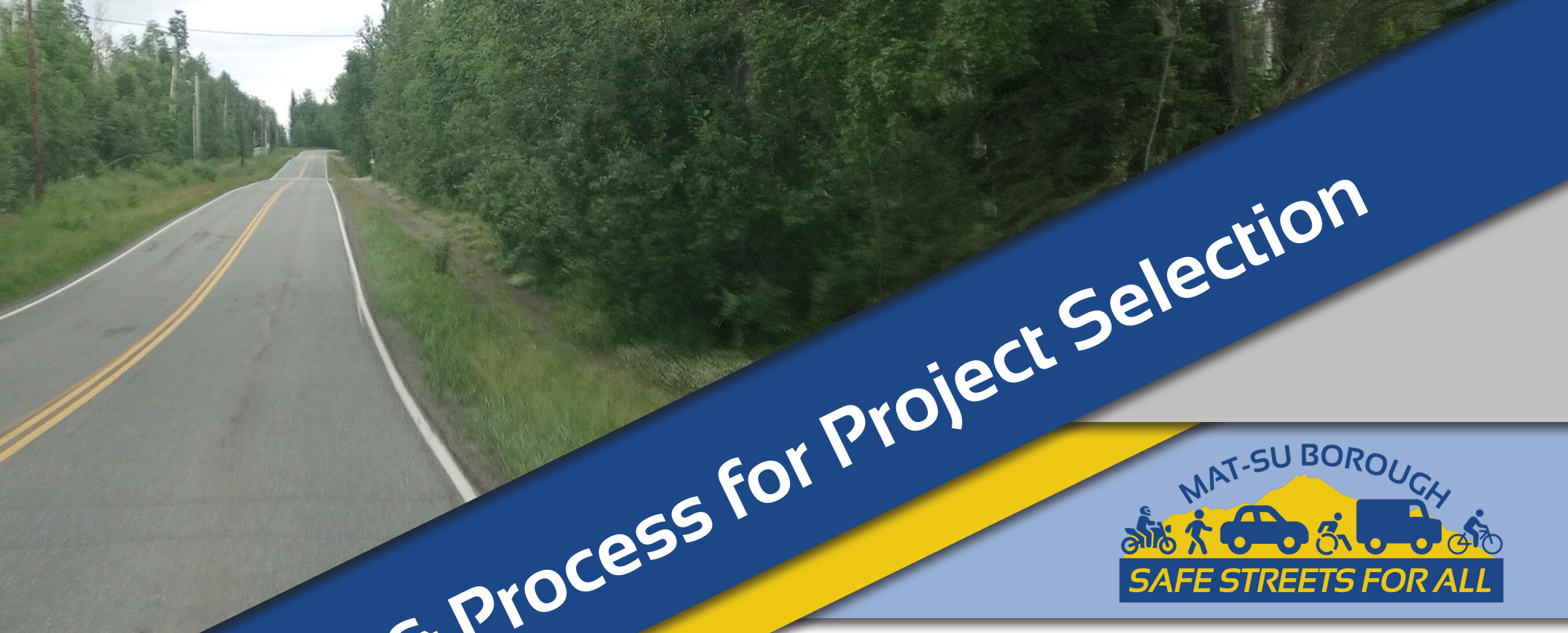


High Friction Surface Treatment

Local Road Safety Plans & Road Safety Audits

Separate ATV Users With Their Own Trail or Facility

Install "NO MOTOR VEHICLES" Signs Along Separated Paths



Chapter 7:

Strategy & Process for Project Selection

MAT-SU BOROUGH
SAFE STREETS FOR ALL

Overview

The process for selecting recommended projects followed these steps:

1. Identify high injury segments and intersections based on crash data
2. Identify risk profiles for serious crashes based on crash history and other contextual information
3. Establish priority locations on the network
4. Using countermeasures and strategies identified in this CSAP, develop scopes for recommended infrastructure projects or supplemental plan recommendations to improve road safety

Detailed discussion of the process for establishing priority locations, including associated maps, can be found in Appendix C, Safety Analysis Report. Priority areas were developed using criteria for overall considerations that considered overall crashes and risk profiles. A separate set of criteria and profiles were used for VRUs.

High Injury Networks

Overall High Injury Network (HIN) and VRU HINs were developed based on a points assignment.
Overall HIN: 5 points for a fatal crash, 3 points for a serious injury crash, and 1 point for a minor injury crash.
VRU HIN: All crashes equally weighted (52 total).

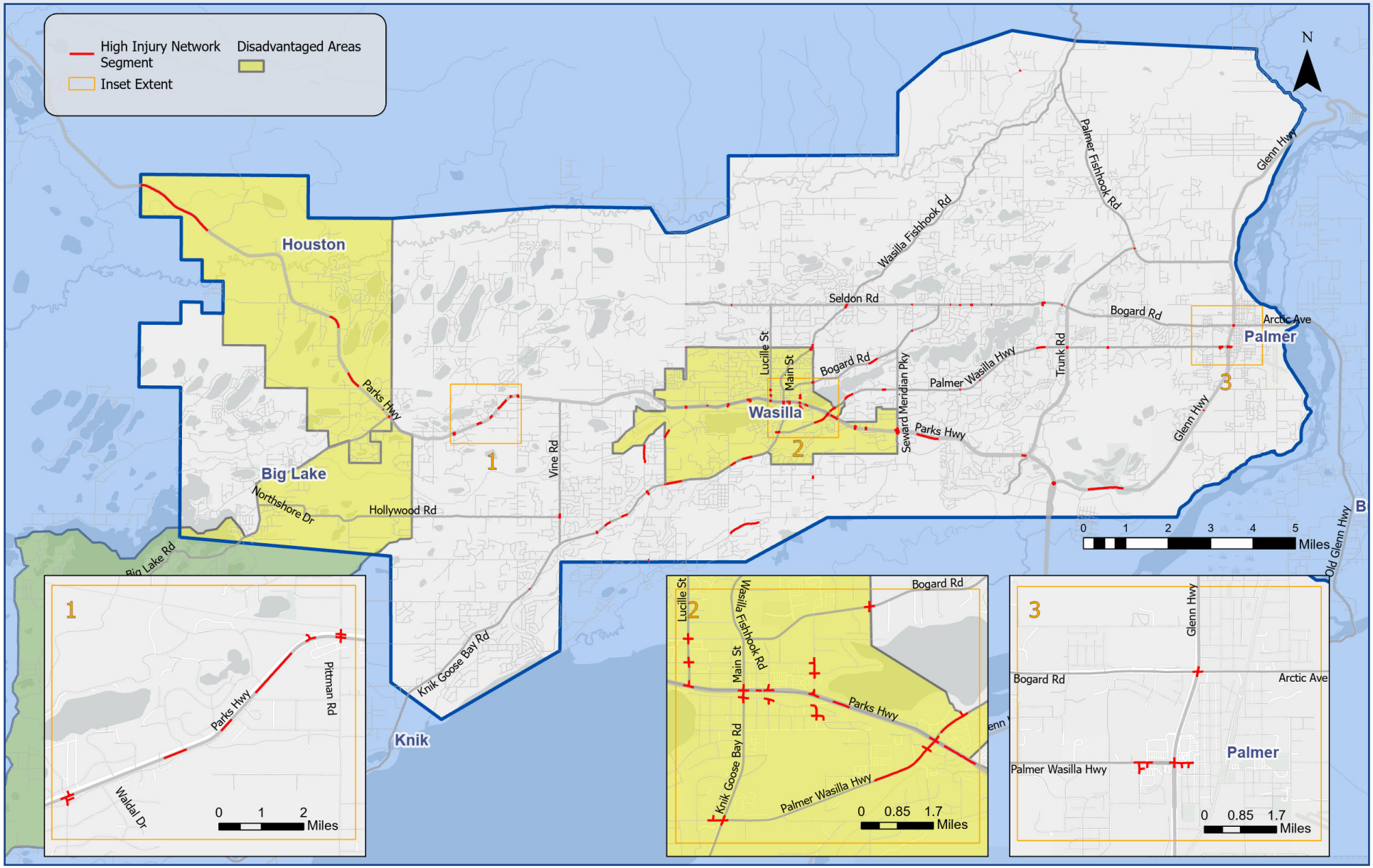


Figure 31. Overall HIN map.

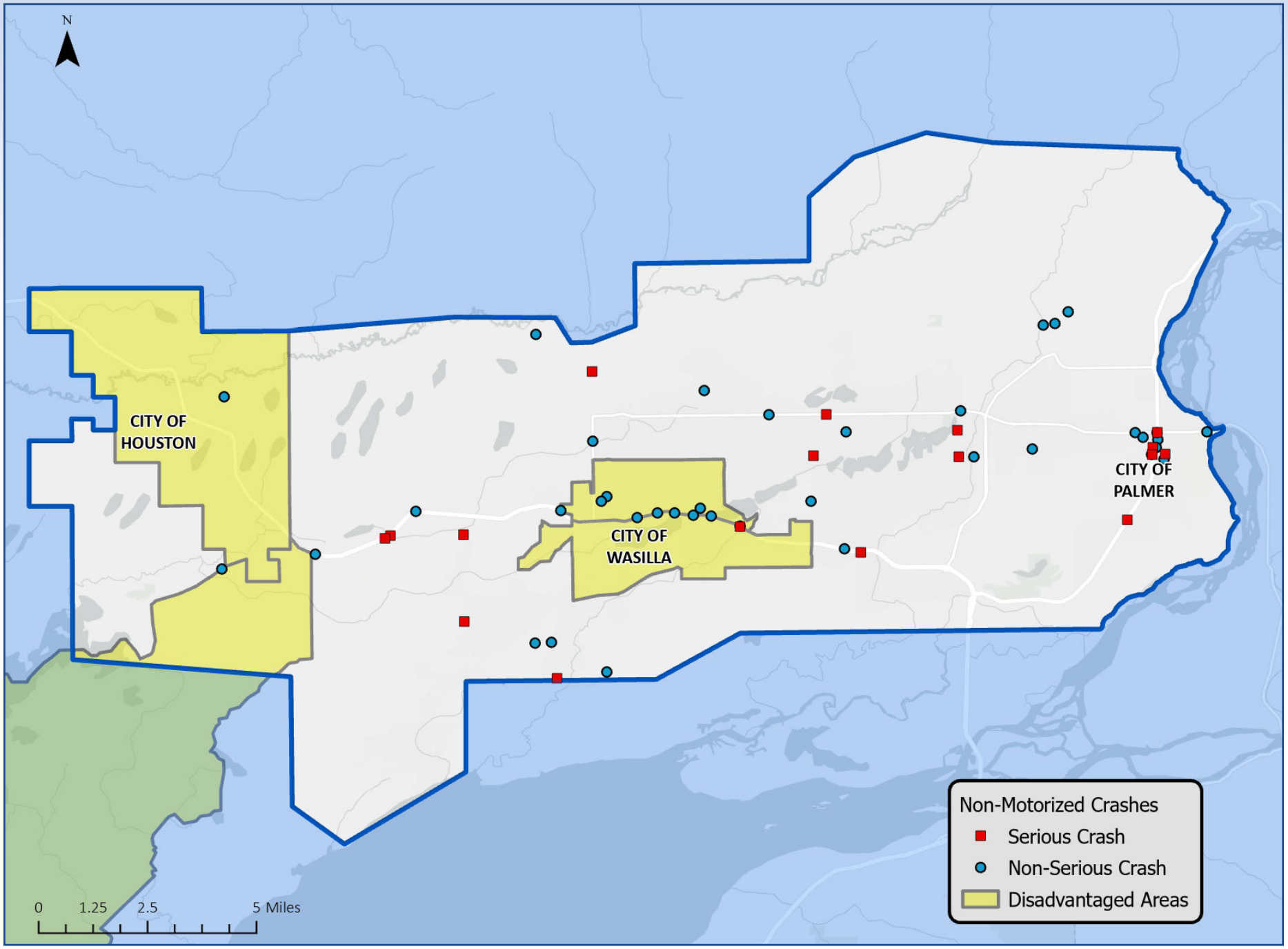


Figure 32. VRU HIN map.

Risk Profiles

Analysis of serious crashes revealed the following systemic risk factors, which are described in more detail in Appendix C.

Of all serious crashes...

71% were on roads with a **posted speed limit of 45+ MPH**

42% were at an **unsignalized intersection**

64% were **outside city limits**

Serious Crashes Risk Factors

Of all VRU crashes...

58% were on roads with a **posted speed limit of 45+ MPH**

58% were at a location with **no separated pathway**

65% were **at an intersection**

60% were on **collector or arterial roads**

VRU Crashes Risk Factors

Priority Location Weighting

The following figures visually depict the process used for weighting locations beyond the risk profiles above and high injury networks to account for areas that may not present historic crash data, but still have safety risks and needs. Contextual factors for the overall priority locations included equity (as defined by a location identified in a disadvantaged population area), community feedback, and local roads. Contextual factors for VRU priority locations included equity, community feedback, and proximity to a VRU destination, defined as within ¾ of a mile of a school, recreational area, or a community or senior center.

How we identified overall priority locations

Does this area meet certain risk factors?

YES, 3 factors	YES, 2 factors	YES, 1 factor	NO
+5 points	+3 points	+2 points	No points

Risk factors include:
- Speed limits ≥45 mph
- Unsignalized intersections
- Outside city limits

+

Is this area included on the high injury network?

YES	NO
+3 points	No points

What is the high injury network? These are segments of roads and intersections with a high density of serious crashes.

+

How high is the rate of serious crashes?

HIGHEST	MODERATE	LOW	NONE
+3 points	+2 points	+1 point	No points

What's a serious crash?
A crash is classified as a "serious crash" when at least one party has to seek medical attention or dies from injuries sustained.

+

Is this location in a disadvantaged area?

YES	NO
+3 points	No points

What makes an area disadvantaged?
Classification is based on a variety of criteria such as income level, access to public transportation, environmental factors, and more.

+

Was this location mentioned by survey respondents?

YES, 3+ times	YES, twice	YES, once	NO
+3 points	+2 points	+1 point	No points

900+ people
answered our safety survey.

+

Is this a local road?

YES	NO
+3 points	No points

What is a local road?
Low speed, lower traffic volume roads that move travelers short distances. There tend to be fewer lanes of travel and maximum access to driveways and side streets. These make up 74% of roads on the network.

=

Add up all points. More points = higher priority

A nuanced approach is used when determining priority areas. Areas with planned improvements were screened out, and locations influenced by the Parks Highway were included in one overarching systemic recommendation.

Figure 33. Process for identifying overall priority locations

How we identified VRU priority locations

A vulnerable road user (VRU) is someone who is walking, biking, or rolling (like in a wheelchair) on a roadway.

Does this area meet certain risk factors?

YES, 3 factors	YES, 2 factors	YES, 1 factor	NO
+5 points	+3 points	+2 points	No points

Risk factors include:
- Speed limits ≥45 mph
- No separated pathway
- Any intersection
- Collectors and arterials

+

Is this area included on the high injury network?

YES	NO
+3 points	No points

Non-motorized high injury network
In addition to high injury network for crashes between two or more motor vehicles, there is a network for crashes between a vehicle and a VRU.

+

Is this location in a disadvantaged area?

YES	NO
+5 points	No points

42% of all crashes occurred in areas determined to have high disadvantaged populations. **32% of all fatal and serious injury crashes** happened in these areas.

+

Was this location mentioned by survey respondents?

YES, 3+ times	YES, twice	YES, once	NO
+3 points	+2 points	+1 point	No points

Less than half of survey respondents felt their community is a safe place to walk.

+

Are there VRU destinations within 3/4 mile?

YES, 3+ places	YES, 2 places	YES, 1 place	NO
+3 points	+2 points	+1 point	No points

What is a VRU destination?
These include schools, recreational facilities, community centers, and senior centers.

=

Add up all points. More points = higher priority

We looked at areas holistically meaning we didn't just look at the segment, but the network itself. For example, a segment of Green Forest Drive emerged that was close to Bogard/Engstrom. That area has a future project planned, but we looked at the rest of Green Forest Drive, and our public survey comments, to identify a lack of bike/ped facilities.

Figure 34. Process for identifying VRU priority locations

Priority Locations

The process of determining priority locations described earlier was conducted in ArcGIS to reveal segments of highest points (overall, and for VRU) and then reviewed in list format. Each list was reviewed for priority segments, with some similar or adjacent segments showing on both lists. Segments were reviewed against recently constructed safety improvement projects or ones planned and funded to initiate design. If a proposed project had safety elements that were likely to mitigate safety issues in the area, those locations were generally not evaluated for project recommendations.

The Parks Highway corridor presented the most priority segments, as did the Palmer-Wasilla Highway especially near the Parks. These areas were identified for an overall corridor access management need. Area-wide recommendations were also considered for systemic improvements or further supplemental planning, such as at schools and on local roads. Consideration was also given to geographic distribution to provide project recommendations across the MSB Expanded Core Area.

Project recommendation narratives are provided below followed by maps for each location. Because priority locations were pulled from overall and VRU lists that each had different scoring mechanisms as described earlier, an estimation of relative ranking is provided. It is worth noting that several locations appear on both lists (see Appendix C). They are provided in ranking order of score, but this is not necessarily a required order of implementation. This is particularly true for area-wide recommendations that are multi-location, and so were not scored collectively. Several priority locations had identical scores.

A narrative of the recommendation is provided along with a planning level, total project cost estimate (including design development), and a recommended timeframe to initiate and implement:

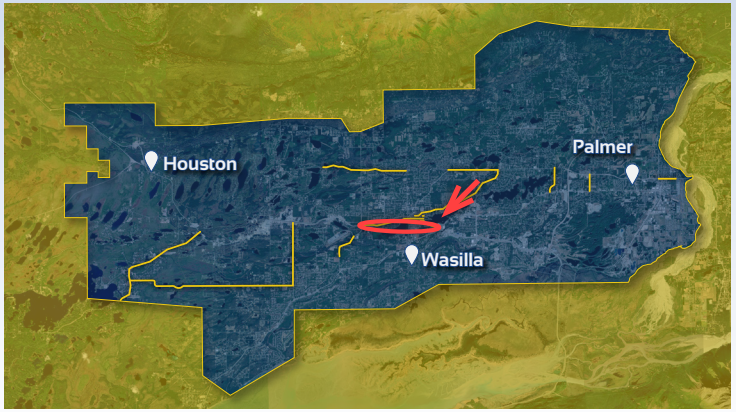
Short-term:
0-5 years

Mid-term:
5-10 years

Long-term:
10-15 years

An equity impact assessment is provided for each project in consideration of its location in the MSB Expanded Core Area's underserved populations (see Chapter 5) and benefit to VRUs.

See Appendix D for the Safety Toolkit which describes many of the suggested safety countermeasures within the project recommendations.



#1 Parks Highway Corridor (Church Road to Seward Meridian Parkway)

Background:

This high-volume corridor (26,700 to 34,000 average annual vehicles per day) is on the Interstate Highway System but also serves as a major east-west corridor for local trips within Wasilla. Rapid development, frequent access points (both signalized and unsignalized), and no median divider in several areas contribute to delay, congestion, and a high density of serious crashes. The section west of Church Road was recently reconstructed as a divided highway with consolidated access points, and east of the Seward Meridian Parkway, the highway has ramp-only access. The intersection with the Palmer-Wasilla Highway is near a major retail development and the surrounding area has a very high density of crashes.

The Parks Highway bisects the community of Wasilla, and there is a need for all modes to access the highway on both sides. The Alaska Railroad (south side) and development on the north side makes adding a continuous frontage road network complicated. Pedestrians must cross a long distance at signalized intersection crosswalks. The corridor is balancing the competing needs of access and mobility and these, along with safety, will continue to degrade without more stringent access management.

Recommendations – Short Term:

A comprehensive look at access in the corridor is necessary to understand the operational considerations of various access management methods, including partial or full restriction of access and development of parallel access roads. Short-term improvements at 10 signalized intersections in this corridor would benefit pedestrians.

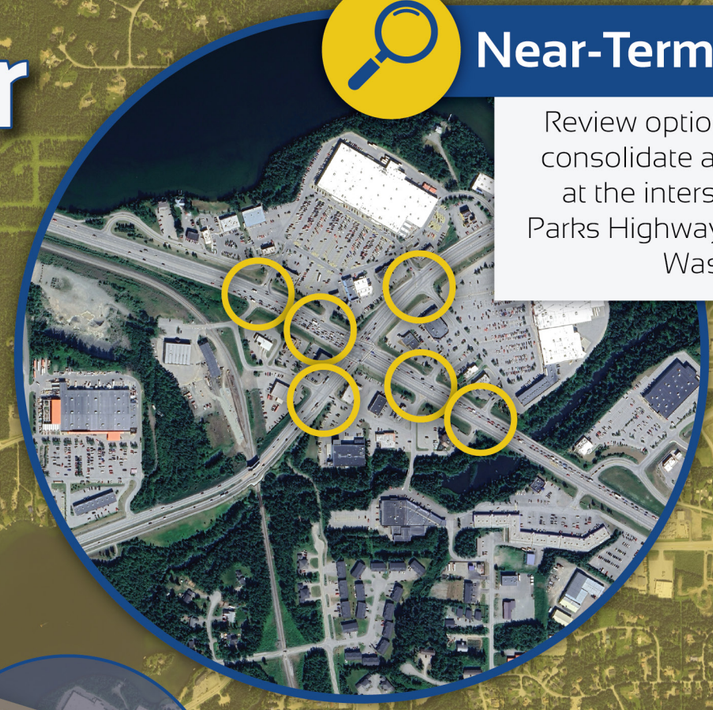
- Supplemental plan for a corridor access management plan for this corridor that includes traffic analysis and comprehensive public engagement with area businesses and residents. Some solutions can be implemented immediately once analysis is completed, such as median closures, and would likely be eligible under DOT&PF's HSIP. Supplemental plans are eligible for SS4A grants.
  Estimated plan cost: $2.5M
- Systemic intersection improvements at signals area-wide, but with priority given to this corridor to implement retroreflective signal backplates, accessible pedestrian signals, and leading pedestrian intervals. The cost estimate assumes these changes are implemented as pro-rated portions of systemic improvements under HSIP for this corridor. Pedestrian refuges were considered separately and may not be eligible under that program.
  Estimated cost: $180,000

Estimated Equity Impact:

High. This corridor is in one of the highest disadvantaged population areas of the MSB Expanded Core Area, and these systemic and corridor improvements directly benefit VRUs.

#1 Parks Highway Corridor

Church Road to Seward Meridian Parkway



Near-Term Priority

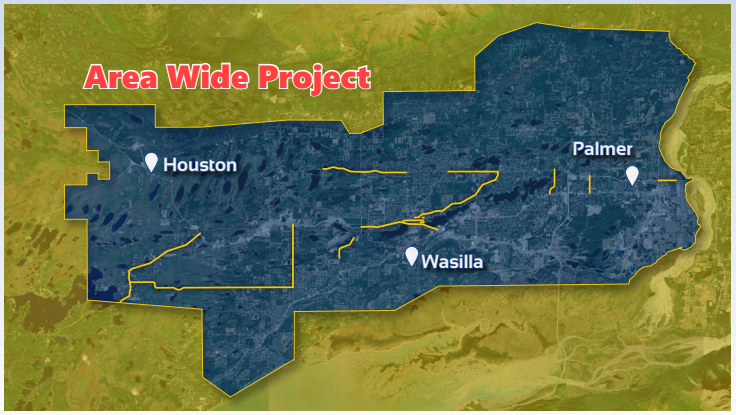
Review options to close & consolidate access points at the intersection of the Parks Highway and Palmer Wasilla Highway

Systemic Intersection Improvements

Accessible Pedestrian Signals
Leading Pedestrian Interval
Retroreflective Signals & Backplates
Pedestrian Refuge Islands

Corridor Access Management Plan

Review driveway access, signalized intersections, and frontage road networks



#2 Safe, Equitable Walking Routes to School (Area Wide)

Background:

This project prioritizes upgrades to school zones (signs, beacons, markings, and walking routes) within disadvantaged population areas. Safe routes to school (SRTS) projects are eligible for implementation grants under SS4A, and the program emphasizes these improvements for the underserved areas of communities.

The MSB, MSB School District, and DOT&PF have a working group that regularly meets to discuss and prioritize recommended school walking routes, but they do not have outside resources to support this work. Additional support would help keep walking route maps current and provide regular updates to priority lists for capital project needs. The MSB has been funding all SRTS projects through its TIP program since exhausting the SRTS funding offered through DOT&PF.

Recommendations - Short Term:

- Supplemental plan to sustain and build the SRTS program for a three-year period. ***Estimated cost for plan: $350,000***
- Implement projects at the following school sites. ***Estimated cost: $6.5M***
  - Wasilla Middle and High Schools: Construct separated path on both sides of Bogard between N Crusey and Wasilla-Fishhook. Add new pathways from Bogard Road to the north border of Iditarod Elementary property, and along the north border of Wasilla High School that connects south to the football field.
  - Burchell High School: Add a crosswalk at Nicola Avenue and Deskas Street. Add path on east side of Deskas Street and on Nicola Avenue between Church Road and Lucas Road.
  - Iditarod Elementary: Construct a sidewalk or separated path on Kalli Circle, Glen Circle, Kara Circle , Danna Avenue, and Aspen Avenue. Add crosswalk and RRFBs on Wasilla-Fishhook.
  - Houston Middle and High Schools: Build a path connecting Pepper Street to the school parking lot.
  - Big Lake Elementary: Expand school zone and add a crosswalk at Hollywood Road. A separated path on Hollywood Road is recommended separately under Project 9, Hollywood Road Safety Improvements.
  - Meadow Lakes Elementary: Add path along east side of Pittman Road between Zehnder Circle and Meadow Lakes Loop.
  - Tanaina Elementary: Add crossing and flashers at Mulchatna Drive and Lucille Street. Add sidewalk on Mulchatna Drive from Lucille Street to Raven's Flight Drive.
  - Dena'ina Elementary: Add pedestrian crossings and flashers on W. Clay Chapman Road/Knik Knack Mud Shack Road and S. Alix Drive. Add a path on the west side of S. Alix Drive from W. Trimotor Street, and along west side of Knick Knack Mud Shack Road to school entrance.
  - Teeland Middle School: Add sidewalk on E. Tambert Drive.
  - Knik and Goose Bay Elementaries: Add path on north side of Hollywood Road between Vine Street and Edelweiss Drive. Improve crossings at school entrance.

Safe, Equitable Walking Routes to School (Area Wide) cont.

Recommendations - Mid Term:

- Construct a separated pathway along Hawk Lane for Houston Middle and High Schools.
  Estimated cost: $2.2M
- Larson Elementary/Teeland Middle School: Construct a separated path on Seldon Road between Wasilla-Fishhook Road and Seward Meridian Parkway. Evaluate crossings with RRFBs at Larson Elementary and at Anoka Place (consider posted speed of Seldon, possibly in conjunction with Project #11, E. Seldon Road Improvements).
  Estimated cost: $1.5M

Estimated Equity Impact:

High. Projects directly benefit VRUs, and school locations are either in one of the highest disadvantaged population areas of the MSB Expanded Core Area, and/or are designated Title I schools in the moderately disadvantaged population area where a high proportion of students receive assistance with free or reduced lunch costs.

#2 Safe, Equitable Walking Routes To School

Area-Wide Project

Safe Routes to School Plan

Create a plan focused on safe school routes, crossings, and plans for implementation and maintenance.

Houston

Houston Middle & High Schools

Big Lake Elementary School

Meadow Lakes Elementary School

Knik & Goose Bay Elementary Schools

Dena'ina Elementary School

Tanaina Elementary School

Burchell High School

Wasilla Middle & High Schools & Iditarod Elementary

Wasilla

Larson Elementary & Teeland Middle School

Palmer

Equitable Walking Routes to Schools in Disadvantaged Areas

Houston Middle & High Schools
Big Lake Elementary School
Dena'ina Elementary School
Knik & Goose Bay Elementary Schools
Meadow Lakes Elementary School
Burchell High School
Wasilla Middle & High Schools
Iditarod Elementary School
Tanaina Elementary School
Larson Elementary & Teeland Middle Schools

#2 Safe, Equitable Walking Routes To School Area-Wide Project

Houston Middle & High Schools

Add separated pathway for Hawk Lane
Add path connection from school to Pepper Lane

Big Lake Elementary School

See project 9 for separated pathway on Hollywood
Add crossing at Hollywood and extend school zone

Dena'ina Elementary School

Add crossings
Add paths on S. Alix Drive and Knik Knack Mud Shack Drive

Knik & Goose Bay Elementary Schools

Add north side path from Vine Road to Edelweiss Drive
Improve crossings at schools

Tanaina Elementary School

Add crossing at Mulchatna Dr and Lucille St
Add paths on Mulchatna Dr

Iditarod Elementary School

Add separated paths for Kalli, Glen, and Kara Circles, and Danna and Aspen Avenues
Improve crossing at Wasilla-Fishhook at Kalli/Carpenter

Meadow Lakes Elementary School

Add path along east side of Pittman between Zehnder Circle and Meadow Lakes Loop

Burchell High School

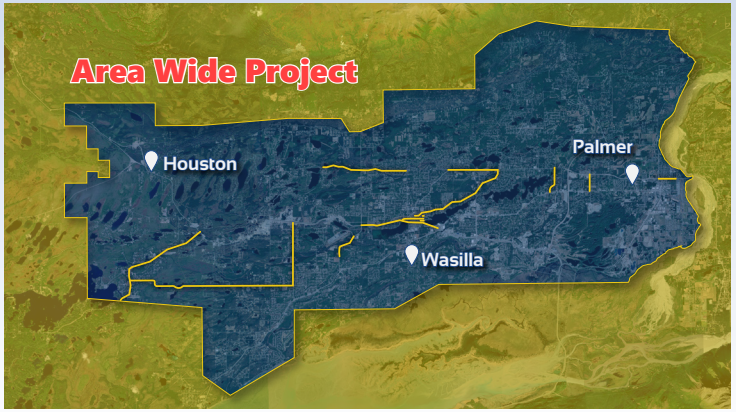
Add crosswalk at W. Nicola Avenue and Deskas Street
Add separated path along W. Nicola between Church and Lucas
Add sidewalk to east side of Deskas Street

Wasilla Middle & High Schools

Add separated path both sides of Bogard between N. Crusey and Wasilla-Fishhook
Add pathway from N. Crusey into Wasilla Middle School building entrance
Add path from Bogard to the north border of Wasilla High that connects south to the football field

Larson Elementary & Teeland Middle School

Add crossings on Seldon at Larson Elementary and Anoka Place
Add pathway on E Tambert Drive and along Bogard Road between Seward Meridian and Wasilla Fishhook



#3 Separated Pathway Regulatory Signs (Area Wide)

Background:

Community survey responses and focus group discussions revealed concerns with ATV and snowmachine use on separated pathways. This presents both a safety concern with the resulting user and speed conflicts, and additional maintenance concerns for gravel tracking and raveling of asphalt path edges. Motorized vehicle use of facilities intended for pedestrians is prohibited by state law (Alaska Administrative Code 02.455(g)). Younger drivers of ATVs and snowmachines may not be aware of this. Signs are expected to improve compliance through increased awareness.

Recommendation - Near Term:

- Install regulatory (NO MOTOR VEHICLES) signs along separated pathways at various entry points, such as at intersections with side streets.
  Estimated cost: $160,000

Estimated Equity Impact:

High. ATVs on facilities intended for bicycles and pedestrians create a user conflict and safety concern for VRUs.

#3 Separated Pathway Regulatory Signs

Area-Wide Project

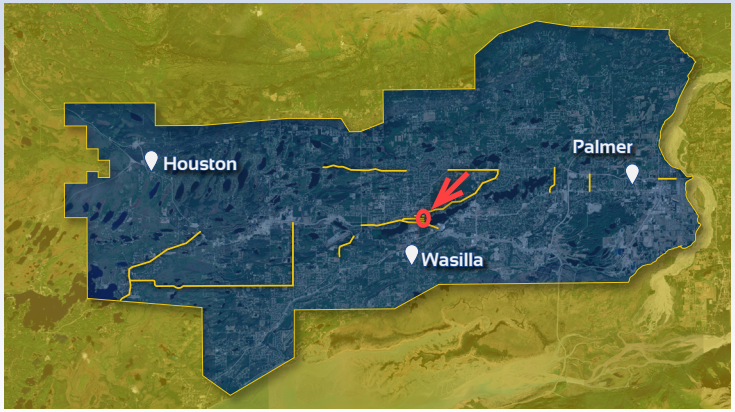
Houston

Palmer

Wasilla

NO MOTOR VEHICLES Signs

Install these regulatory signs on pathways throughout the borough. Do this in conjunction with bicycle/pedestrian and ATV safety campaigns.



#4 Westpoint Drive & Crusey Street Pedestrian Improvements

Background:

This proposed project falls within a disadvantaged population area and has proximity to VRU destinations (Wasilla Middle and High Schools, ice rink, library, parks, and access to Wasilla Lake). Crusey is a five-lane road with a sidewalk on both sides with retail areas closer to the Parks Highway and additional development further north as Crusey approaches the schools. There is no crosswalk across either leg of Westpoint Drive despite the fact there are sidewalk facilities on both sides of Crusey. There is also no pedestrian facility into the retail area (Carrs) and near McDonald's. Pedestrian crossing opportunities on Crusey are limited to signalized intersections.

Recommendation - Near Term:

- Stripe crosswalks at both legs of Westpoint Drive and Crusey. Install a crosswalk at Lakeshore Drive and at Swanson Avenue and an RRFB at one or both.
  Estimated cost: $330,000 assumes two locations for the beacons.

Recommendations - Mid Term:

- Consider a road diet on Crusey and the need for a continuous left turn lane; re-use this space for bike lanes and/or a center median with a pedestrian refuge.
  Estimated cost: $300,000

- Construct a sidewalk on Westpoint Drive from Crusey to retail (Carr's) in front of McDonald's.
  Estimated cost: $450,000

Estimated Equity Impact:

High. Projects recommended directly benefit VRUs and this project falls within the one of the highest disadvantaged population areas of MSB's Expanded Core Area.

#4 Westpoint Drive & Crusey Street Pedestrian Improvements

Lakeshore Avenue

Crusey Street

New Crosswalks

Across Crusey Street at Lakeshore and Swanson
Across Westpoint Drive at Crusey Street

Add RRFB

At Lakeshore Ave and Swanson Ave

City of Wasilla Public Library

New Sidewalk

Along the southern side of Westpoint Drive

Consider Road Diet

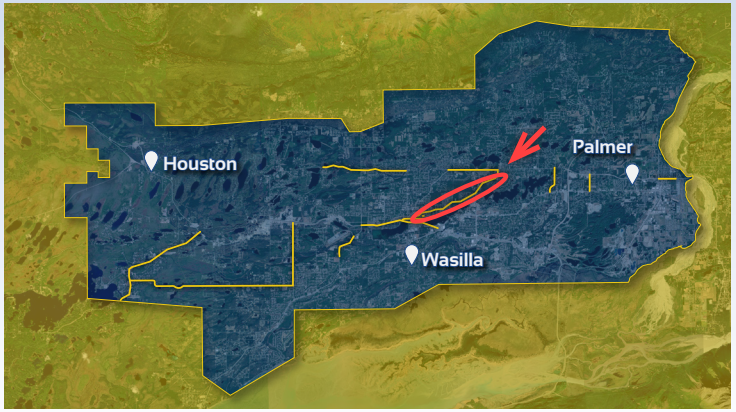
Swanson Avenue

Carrs

Westpoint Drive

Westpoint Drive

N



#5 Bogard Road Intersection Improvements and Separated Path (Seldon Road to Peck Street OR Seldon Road to Wasilla-Fishhook)

Background:

E Bogard from Wasilla-Fishhook Road to Seldon Road is a high-speed (55 mph) arterial (over 8,000 annual average vehicles per day) with multiple access points for residential areas. The intersection at Tait Drive had a cluster of crashes between 2018 and 2022 with one serious injury crash recorded. There is no continuous separated path facility, although a separated path between Seldon Road and Peck Street was recommended in the 2023 Mat-Su Borough Bicycle and Pedestrian Plan. The intersection of Seldon and Bogard is a busy intersection of two arterials with a mini roundabout. The mini roundabout has been effective, but a modern single-lane roundabout would improve capacity and operational concerns. It would also provide improved traffic calming through channelized approaches and a raised center island.

Recommendations - Mid Term:

- Right- and left-turn lanes at Tait Drive and at Copper Creek Road, with added lighting.
  Estimated cost: $2.2M
- Separated path from Seldon to Peck or Wasilla-Fishhook. The Wasilla-Fishhook end has path recommendations tied to Wasilla Middle School which are considered separately under school area projects.
  Estimated cost: $2.8M
- Modern single-lane roundabout at Bogard and Seldon.
  Estimated cost: $6M

Estimated Equity Impact:

The turn lanes and roundabout are a **low** impact as they do not fall within the highest disadvantaged population area of the MSB Expanded Core Area and do not directly benefit VRUs, although new roundabout approaches can be redesigned to improve visibility of VRUs. The separated path from Seldon to Wasilla-Fishhook is estimated to have a **high** impact as it directly benefits VRUs and a portion falls within one of the highest disadvantaged population areas.

#5 Bogard Road Intersection Improvements and Separated Path

Seldon Road to Peck Street OR
Seldon Road to Wasilla-Fishhook Road

Intersection Improvements

At Tait Drive and Copper Creek Road: Increase lighting and add turn lanes

Add Separated Pathway

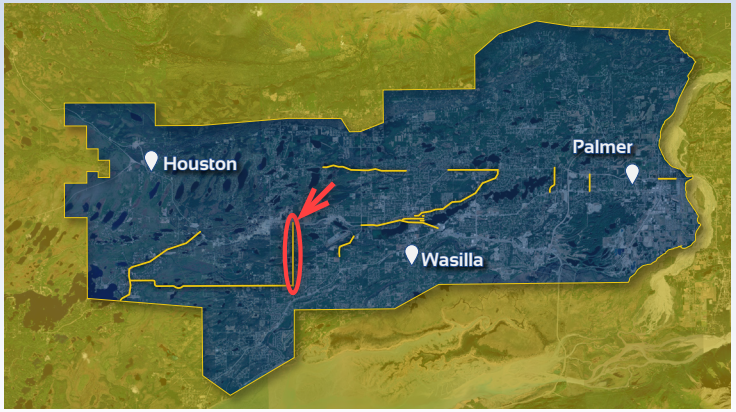
Roundabout

Update the mini roundabout at Bogard/Seldon to a modern roundabout

Project in Progress

Alaska DOT&PF has a resurfacing project from Wasilla-Fishhook to Main, but this project will not add a path or turn lanes

Seldon Road
Bogard Road
Tait Drive
Copper Creek Road
Bogard Road
Seward-Meridian Parkway
Wasilla-Fishhook Road
Peck Street
Main Street



#6 Vine Road Separated Path

Background:

Vine Road is a high-speed minor arterial between Knik-Goose Bay Road and the Parks Highway with between 4,000 and 5,000 annual average vehicles per day. The road has narrow shoulders, which limits accommodations for bicycles and pedestrians. DOT&PF is developing a project to reconstruct Vine from Knik-Goose Bay to Hollywood Road, including a roundabout at the intersection. This project will include a separated path on the west side.

Recommendation - Mid Term:

- Construct a separated pathway on the west side of Vine Road as a continuation of the proposed Vine Road: KGB to Hollywood Road project.
  Estimated cost: $4M

Estimated Equity Impact:

High. Project directly benefits VRUs and is within the moderately disadvantaged population area of the MSB Expanded Core Area.

#6 Vine Road Separated Path

Parks Highway

Vine Road

Hollywood Road

Knik-Goose Bay Road

Add a Separated Path

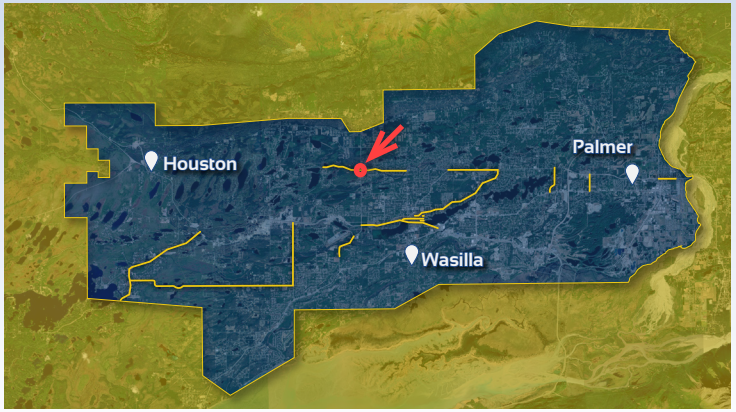
From Knik-Goose Bay Road to the Parks Highway

Planned Projects

Alaska DOT&PF has a planned project to add a separated pathway from Knik-Goose Bay Road to Hollywood Road, however it is not currently funded.

DOT&PF has near-term plans to resurface Vine Road, but it will not include a separated path.

There is a planned project to install a roundabout at Hollywood and Vine to improve safety.



#7 Seldon Road and Chuch Road Intersection Improvements

Background:

This is a two-way, stop-controlled intersection with the right-of-way given to Church Road, which is posted at 45 mph. There is a pedestrian path on the south side of the intersection, but there is no lighting in the area. Church Road is a long, straight, rural section of road where drivers may tend to speed. There has been a cluster of crashes at this intersection, though no serious ones. Crashes involved running the stop signs, despite the fact the intersection has oversized stop signs and intersection warning signs.

Recommendations - Mid Term:

- Roundabout and add intersection lighting. Accommodate crosswalks on the south side of the intersection to connect pathways. ***Estimated cost: $6M***

Estimated Equity Impact:

High. Project would benefit VRUs through an added crossing and reduced vehicle speeds, and is within the moderately disadvantaged population area of the MSB Expanded Core Area.

#7 Seldon Road and Church Road Intersection Improvements

Roundabout

A single-lane roundabout

or

Flashing Beacon

Seldon Road

Church Road

Seldon Road

Church Road

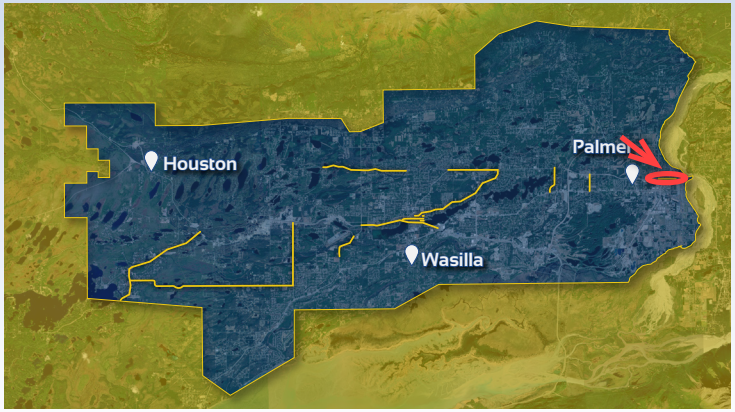
Increased Lighting

Crosswalks

Crosswalks for the southern leg of the intersection to accomodate the existing path

Planned Project

Lower-cost improvements in near term include transverse rumble strips and converting to 4-way stop.



#8 Arctic Avenue Bicycle and Pedestrian Improvements (Glenn Highway to Palmer Airport Road)

Background:

This is a low-speed arterial road in Palmer that serves adjoining residential areas, schools and recreational areas, the Palmer airport, and is the primary access to the Old Glenn Highway for Butte residents. The section between Glenn Highway and Valley Way has pathways on both sides of the road but they are shared use facilities for both bicycles and pedestrians. There are limited mid-block crossing opportunities for pedestrians despite schools in the area (Academy Charter School, and Swanson and Sherrod Elementaries to the north). The north side of Arctic lacks a separated path from Gulkana Street east to Academy Charter School. This corridor could benefit from a corridor plan to address longer-term access management and non-motorized needs.

Recommendations - Short Term:

- Supplemental plan for access management and non-motorized facility needs from Glenn Highway to Clark-Wolverine Road, or other eastern boundary as determined with DOT&PF and the City of Palmer.
  Estimated cost for plan: $500,000

- Stripe bicycle lanes in existing shoulder like the corridor west of Glenn Highway, as recommended in MSB's Bicycle and Pedestrian Plan. Width of bicycle lane available through re-striping only may not be desirable long term, so this may be an interim measure until wider shared-use facilities can be constructed.
  Estimated cost: $75,000

- Construct separated path or sidewalk on north side between Gulkana Street and Palmer Airport Road. Improve crosswalk and install an RRFB at Academy Charter School. Install crosswalk at Valley Way, consider an additional crosswalk at Gulkana St.
  Estimated cost: $650,000

Estimated Equity Impact:

Moderate. While the project does not fall within a disadvantaged population area of the MSB Expanded Core Area, it directly benefits VRUs with improvements to facilities used to access VRU destinations.

#8 Arctic Avenue Bicycle and Pedestrian Improvements

Glenn Highway to Palmer Airport Road

Bike Lanes and/or Widened Pathway

Both sides of the road from the Glenn Highway to Gulkana Street
Consider striping the existing shoulders from Gulkana to the airport as a bike lane

Separated Path

On the north side of Arctic from Gulkana to the airport

Valley Way

Gulkana Street

Academy Charter School

Arctic Avenue

Glenn Highway

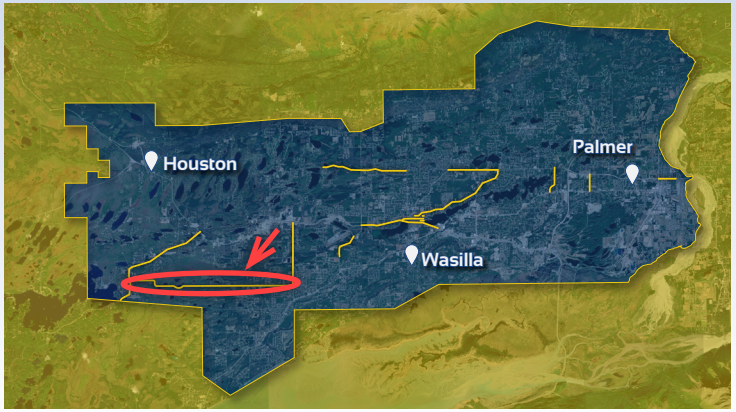
Palmer Airport Road

Pedestrian Crossings

At Gulkana Street, Valley Way, and Academy Charter School

Supplemental Corridor Plan

Address access management and bicycle and pedestrian needs between Glenn Highway and Clark-Wolverine



#9 Hollywood Road Safety Improvements (Big Lake Road to Vine Road)

Background:

Hollywood Road is a major collector connecting Vine Road to Big Lake Road. It is posted at 40 mph and lacks a shoulder or separated facilities for bicycles or pedestrians.

Recommendation - Short Term:

- Improve delineation on the curves near the transfer station and Edsulu Drive, including oversized chevrons and advanced warning signs.
  Estimated cost: $70,000

Recommendation - Mid-Term:

- Construct right- and left-turn lanes and lighting at Sylvan Lane and Johnsons Road.
  Estimated cost: $1.7M

Recommendation - Long Term:

- Construct separated path (south side) from Connie Lane to Big Lake Road or widen shoulders.
  Estimated cost: $8M (assumes higher cost path).

Estimated Equity Impact:

High overall. The separated path from Connie Lane to Big Lake Road directly benefits VRUs within the west side of Hollywood Road, which is within one of the highest disadvantaged population area of the MSB Expanded Core Area. The school improvements at Knik and Goose Bay Elementaries would have a high impact as they directly benefit VRUs, are Title I schools, and are within the moderately disadvantaged population area of the MSB Expanded Core Area. All other proposed improvements are within the most disadvantaged population area of the MSB Expanded Corea Area with the exception of Sylvan Lane, but safety improvements on this corridor are considered a high equity impact overall.

#9 Hollywood Road Safety Improvements

Big Lake Road to Vine Road

Intersection Improvements

At Big Lake Road and Hollywood Road

Enhanced Curve Delineation

Near Transfer Station

Planned Projects

Alaska DOT&PF has a resurfacing project planned for 2025 but it does not include a path, shoulders, or a turn lane.

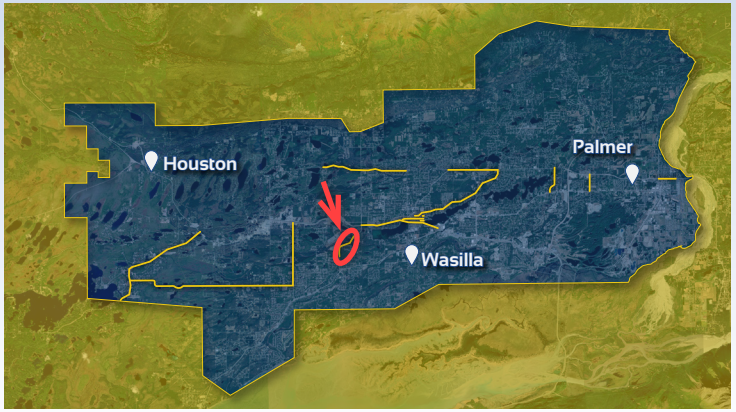
There is a planned project to install a roundabout at Hollywood and Vine to improve safety.

Add a Separated Path or Add Shoulders

From Big Lake Road to Connie Lane

Add Turn Lanes and Lighting

At Johnsons Road and Sylvan Lane



#10 Clapp Street Safety Improvements (Curtis Menard Sports Center to Laurie Avenue)

Background:

Clapp Street is a 40 mph collector road with up to 3,000 vehicles per day annually on average. It accesses residential areas, gravel pits, and the Curtis Menard Sports Center.

Recommendation - Short Term:

- Enhance curve delineation and clear brush around curves near Mack Drive.
  Estimated cost: $80,000

Recommendations - Mid-Term

- Construct right- and left-turn lanes at Mack Drive and Laurie Avenue. Both right- and left-turn lanes may not be necessary.
  Estimated cost: $1.6M
- Add continuous lighting between Curtis Menard Sports Center and Laurie Avenue.
  Estimated cost: $800,00

Estimated Equity Impact:

High overall. Clapp Street north of Mack Drive is within one of the highest disadvantaged population area of the MSB Expanded Core Area and safety improvements in this corridor are considered a high equity impact overall.

#10 Clapp Street Safety Improvements

Curtis Menard Sports Center to Laurie Avenue

Increased Lighting

Enhanced Curve Delineation

Brush Clearing

Add Turn Lanes

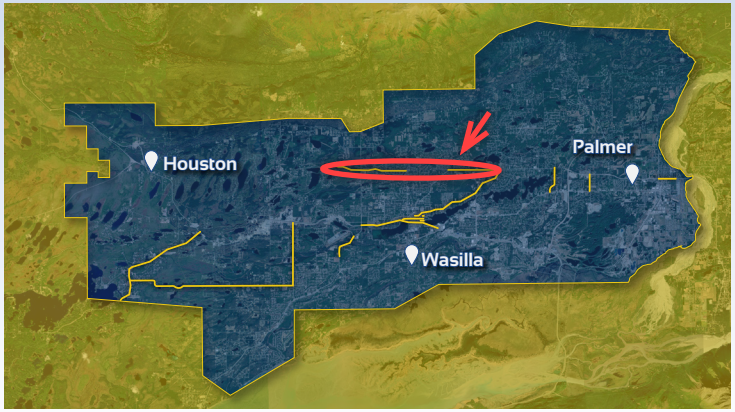
At Laurie Ave and Mack Drive

Curtis Menard Sports Center

Clapp Street

Mack Drive

Laurie Avenue



#11 E. Seldon Road Safety Improvements (Windy Bottom Road to Lucille Street & Wasilla-Fishhook Road to Bogard Road)

Background:

E Seldon Road is a high-speed east-west arterial with over 8,000 annual average vehicles per day on its west end. It accesses many residential areas and has frequent turning traffic. The section between Bogard and Church Road falls into Segments D, E, and F under the Bogard-Seldon Corridor Access Management Plan, recently released for draft review. This plan addresses future access management needs including driveway closures and consolidations, medians, and need for left-turn lanes.

Recommendation - Short Term:

- Initiate a project to reconstruct Seldon Road between Bogard Road and Wasilla-Fishhook Road, and from Lucille Street to Church Road. Construct left-turn lanes at Schrock Road, Tait Drive, and Northgate Place, as recommended in the Bogard-Seldon Corridor Access Management Plan. Add lighting and a separated pathway between Wasilla-Fishhook Road and Bogard Road. ***Estimated cost: $50M*** (based on other DOT&PF STIP project total costs for Seldon Road)

Recommendations - Mid-Term:

- Add pedestrian lighting on the path from Church Road to Windy Bottom Road. ***Estimated cost: $500,000***

Estimated Equity Impact:

High. Project would directly benefit VRUs within a moderately disadvantaged population area of the MSB Expanded Core Area.

#11 E. Seldon Road Safety Improvements

Windy Bottom Road to Lucille Street and Wasilla-Fishhook Road to Bogard Road

Add Separated Pathway and Lighting

Seldon & Church Intersection Improvements

Either a roundabout or flashing beacon with lighting and a crosswalk

Add Pedestrian Lighting

From Windy Bottom to Church

Construct Turn Lanes Recommended by Bogard-Seldon Corridor Plan

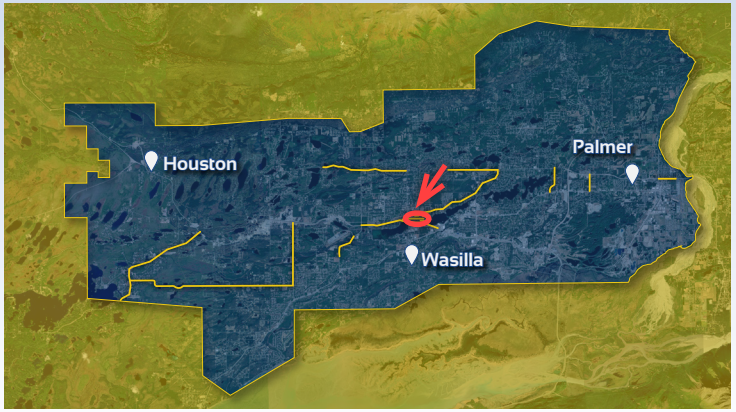
Add Left Turn Lanes

At Schrock, Tait, and Northgate Place

Planned Project

Alaska DOT&PF has a project programmed in the STIP to work on Seldon between Lucille and Wasilla-Fishhook

Windy Bottom Road
Church Road
Lucille Street
Wasilla-Fishhook Road
Schrock Road
Tait Drive
Northgate Place
Bogard Road



#12 Swanson Avenue Complete Street (Parks Highway to Crusey Street)

Background:

Swanson Avenue is a local road in downtown Wasilla and connects a variety of facilities including businesses, Iditapark, Valley Performing Arts Center, Wasilla Public Library, and the Wasilla Museum and Visitors Center. It is a lighted, low-speed road with narrow sidewalks on both sides. It has a continuous two-way left-turn lane that may not be necessary given traffic turning volumes.

Recommendation - Short Term:

- Make a Complete Street through re-striping. If acceptable for traffic operations, remove the center two-way left-turn lane and use the remaining width for striping bicycle lanes. The pending Main Street couplet project downtown will be implementing one-way cycle tracks, which would complement bike lanes on Swanson Avenue. Re-stripe and sign all stop-controlled intersections between Tommy Moe Way and Yenlo Street.
  Estimated cost: $260,000

Recommendations - Mid-Term:

- Widen sidewalks to six feet to match the portions of the Swanson Avenue sidewalks that will be this width on each side of Main Street and Yenlo Street after the Main Street couplet project. If this can be accomplished without new right-of-way acquisition, this change should be moved to the short term.
  Estimated costs: $2.3M

Estimated Equity Impact:

High. Project would directly benefit VRUs within one of the highest disadvantaged population area of the MSB Expanded Core Area.

#12 Swanson Avenue Complete Street

Parks Highway to Crusey Street

Install 6-foot Sidewalks

Match the pending Main Street project

Remove Two-Way Center Turn Lane

Swanson Avenue

Parks Highway

Lucille Street

Main Street

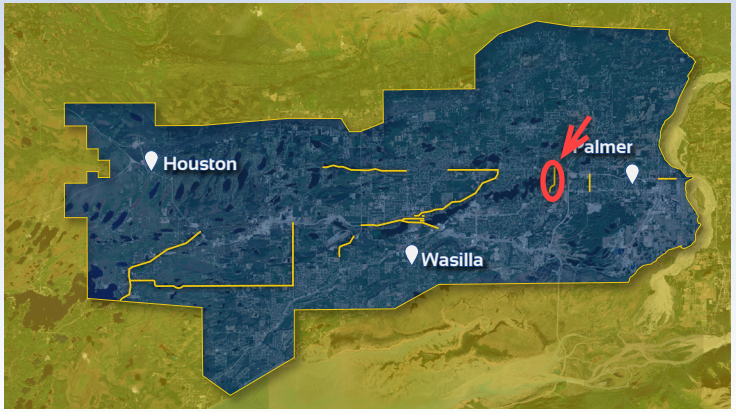
Carrs

Crusey Street

Retain Shoulder/Bike Lane

Enhanced Crosswalks

Enhanced striping and signs at all stop-controlled intersections



#13 Green Forest Drive Improvements

Background:

This is a local road that is desired for improvements to collector road standards. It is narrow, lacks pedestrian/bicycle facilities, and residents report excessive speeds.

Recommendation - Short Term:

- Include an attached (curbed) pathway (if feasible within the right-of-way) in current TIP project to upgrade this road. Right-of-way is constrained on this road and partial acquisitions may be impractical due to minimum lot size requirements. Add a mini roundabout at E Frances Lane for improved circulation and traffic calming.
  Estimated cost: $7.2M, inclusive of planned TIP upgrades which are estimated at $6.2M.

Estimated Equity Impact:

Moderate. Project would directly benefit VRUs with a new facility and/or traffic calming within a moderately disadvantaged population area of the MSB Expanded Core Area.

#13 Green Forest Drive Improvements

Bogard Road

Green Forest Drive

Trunk Road

E Frances Lane

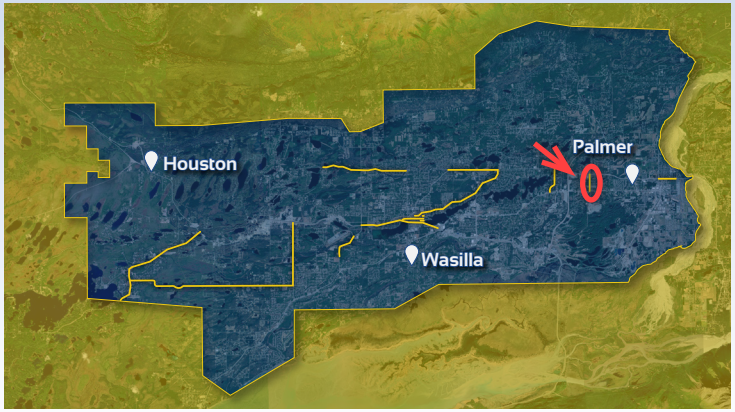
Palmer-Wasilla Hwy

Add an Attached Path Making this a Complete Street

Right-of-way constraints make a separated facility challenging, but it is recognized as a need in this area

Roundabout

A mini-roundabout at E. Frances Lane for traffic calming and circulation



#14 49th State Street Separated Path

Background:

49th State Street is a high-speed major collector in Palmer and lacks non-motorized facilities. Constructing a path eliminates a gap in bicycle/pedestrian facilities between Palmer-Wasilla Highway and Bogard Road. This area serves Colony Middle and High Schools and has recent multi-family housing development. A separated path is currently proposed as a TIP project and was identified in the MSB Bicycle and Pedestrian Plan.

Recommendation - Short Term:

- Continue to develop the proposed separated path project. Add a crosswalk and Rectangular an RRFB at the southern school driveway access to Colony High School.
  Estimated cost: $2.8M

Estimated Equity Impact:

Moderate. While the project does not fall within a disadvantaged population area of the MSB Expanded Core Area, it directly benefits VRUs with improvements to facilities used to access VRU destinations.

#14 49th State Street Separated Path

Colony High School

Bogard Road

49th State Street

Palmer-Wasilla Highway

New Crosswalk

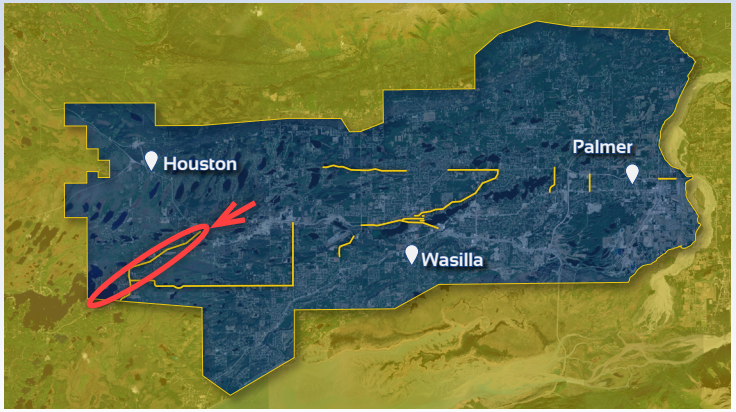
At southern driveway of Colony High School

Add RRFB

At southern driveway of Colony High School

Add a Separated Path

Supplement or replace funds for MSB TIP 21 project



#15 Big Lake Road Intersection Improvements

Background:

Big Lake Road is a high-speed arterial that accesses the community of Big Lake. The first 3.5 miles are posted at 55 mph. There is a separated path, but there is limited lighting and advance warning for intersections along the route that access various residential areas.

Recommendation - Mid Term:

- Add lighting and right- and left-turn lanes to up to three intersections for increased conspicuity. Suggested intersections include Shotgun Drive, Kenlar Road, Birch Lake Drive, Beaver Lake Road, and Pedro Pio Drive.
  Estimated cost: $2.7M

Estimated Equity Impact:

High. Project falls within one of the highest disadvantaged population areas of the MSB Expanded Core Area, and safety improvements in this corridor are considered a high equity impact overall.

#15 Big Lake Road Intersection Improvements

Enhanced Intersections

Enhanced lighting and signs. Possible intersections include Shotgun Drive, Pedro Pio Road, Kenlar Road, Birch Lake Drive, and Beaver Lake Road

Parks Highway

Big Lake Road

Planned Project

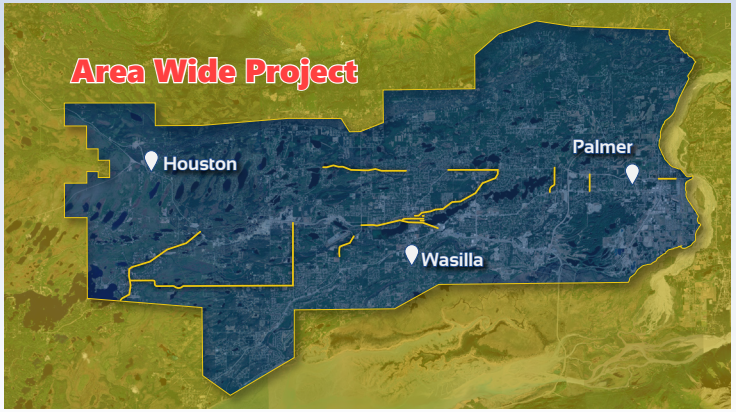
Alaska DOT&PF has a resurfacing project planned for 2025 from the Parks Highway to North Shore Drive, but it will not include turn lanes or new lighting.

DOT&PF plans to reconstruct Big Lake Road from MP 3.6-9.1

Add Turn Lanes

North Shore Drive

Hollywood Road



#16 Local Road Speed Management Plan (Area Wide)

Background:

Local roads comprise 74% of the MSB Expanded Core Area network of roads. While a relatively low percentage of serious crashes occur on these local roads (a reflection of lower speed and lower volumes), many residents expressed concern in the community survey with speeding on residential roads and associated discomfort with walking and bicycling in their neighborhoods. A supplemental plan can focus on specific road safety needs, mitigating options, and maintenance implications. Neighborhood input can give community councils a tool to recommend and pursue funding for physical traffic calming measures.

Recommendation - Short Term:

- Prepare a supplemental plan focused on local roads that are identified for needing traffic calming, in accordance with a policy for establishing when traffic calming is warranted.
  Estimated plan cost: $350,000

Estimated Equity Impact:

Moderate to high, depending on location of application with respect to disadvantaged population areas. Traffic calming directly benefits VRUs by helping reduce the severity of injury in the event of a collision with a motor vehicle.

#16 Local Road Speed Management Plan

Area-Wide Project

Local Road Speed Management Plan

Create a supplemental plan to evaluate public interest in local road traffic calming potential countermeasures such as mini roundabouts, speed humps, speed tables and more. Keep any specific maintenance considerations in mind. Complete this plan in conjunction with a policy recommendation for evaluating when roads warrant traffic calming. Potential routes for inclusion in this project include, but are not limited to: Serendipity Loop, Lakeview Loop, Cottonwood Loop, Hart Lake Loop, Charley Drive, Melanie Drive, Vaunda Drive.

Houston

Palmer

Wasilla

Chapter 8:

Progress & Transparency

MAT-SU BOROUGH
SAFE STREETS FOR ALL

Setting up for Successful Plan Implementation

With a comprehensive understanding of the safety landscape in the MSB Expanded Core Area, and a defined list of prioritized areas and projects to implement, it is important to provide a clear list of actions that the MSB and its partners can follow. This will ensure the region achieves the transportation safety goals laid out in the MSB CSAP. No plan is complete without an implementation matrix that identifies a clear action item, what overarching policy or practice it is associated with, when it should happen, and who will be responsible for implementing it. These key steps to plan implementation are described in the Implementation Matrix below.

Integral to successful plan implementation is a clearly defined method of tracking progress toward improving safety on the roadway. The Safe Streets MSB Dashboard and Performance Measures and Targets table can be used together to track plan implementation over time.

Finally, this chapter closes with a recommended strategy for updating the MSB CSAP so it remains relevant for long-term success.

Implementation Matrix

Table 10: Implementation Matrix - Immediate (0-2 years)		
Implementation Action	**Related Policy/ Practice**	**Implementation Partners**
Apply for federal grant funding, such as the Safe Streets for All program, to implement recommended near-term projects outlined in Chapter 7. Strategy and Project Selections of the MSB CSAP.	SR3, SR4, SR5	MSB, City of Houston, City of Palmer, City of Wasilla, MVP
Apply for federal grant funding, such as the Safe Streets for All program, to implement near-term demonstration projects or supplemental planning projects that align with the MSB CSAP.	SR3, SR4, SR5, SR6	MSB, City of Houston, City of Palmer, City of Wasilla, MVP
Begin systematically installing low-cost safety countermeasures at locations identified for improvement in Chapter 7. Strategy and Project Selections, and throughout the region.	SR4, SR5, SP5	MSB, City of Houston, City of Palmer, City of Wasilla, MVP, DOT&PF
Share the MSB CSAP and Safety Countermeasures Toolkit with partner transportation agencies such as MVP and DOT&PF in support of implementation projects.	SP3, SR5	MSB
Establish a Safe Streets MSB Working Group to guide development of a Safe Streets MSB or Vision Zero campaign and website, including seasonal safety messaging, safety in school zones (developing consistent speed zone policy, signs and markings, and maintenance procedures for schools), and encouraging compassion and community responsibility in young drivers through campaign partnerships with health and human service organizations, parent groups, and schools.	SP1, SP2, SP4, SS4, SP9, SP10, SP11, SR11	MSB, City of Houston, City of Palmer, City of Wasilla, MVP, DOT&PF, Alaska State Troopers, MSB School District, Mat-Su Health Foundation
Implement a Winter Dashboard for MSB to show the public the status of open requests, in progress, and snow removal on routes for borough-maintained routes.	SR12, SR13, SR14	MSB
Establish a Maintenance Working Group to address key challenges and roadblocks associated with all-season maintenance of streets, sidewalks, multi-use pathways, bike lanes, bus stops, and school zones. Devise a resource such as a checklist or infographic to illustrate the hierarchy of information, roles, and responsibilities for adhering to maintenance goals. Explore potential efficiencies in RSA consolidation.	SR12, SR16, SR14	MSB, City of Houston, City of Palmer, City of Wasilla, MVP, DOT&PF
Organize and facilitate an annual safety walking tour for elected officials and the public to demonstrate safety needs and navigating locations where improvements are planned or have recently been implemented.	SP8	MSB, City of Houston, City of Palmer, City of Wasilla, MVP, DOT&PF

Table 10: Implementation Matrix - Immediate (0-2 years)		
Implementation Action	**Related Policy/ Practice**	**Implementation Partners**
Initiate policy for automated speed enforcement, and/or implement a pilot project.	SS1	MSB, Alaska State Troopers, Palmer Police Department, Wasilla Police Department
Initiate review of policy to determine when a road diet is recommended.	SR1, SR2, SR10	MSB, MVP
Create a Safe Streets MSB Coordinator position to staff Safe Streets MSB and Maintenance Working Groups and support CSAP implementation.	SP1, SP2, SP3, SP4	MSB, MVP, DOT&PF
Evaluate the feasibility of a local ATV and snowmachine safety program, working with local dealerships and trail rider group(s). Focus on education and outreach for safe and legal ATV and snowmachine operations.	SP13	MSB, Alaska State Troopers, recreational ATV rider/trail user group(s)
Initiate implementing on-demand transit services for vulnerable populations and eventual fixed-route transit services.	SP14	MSB, MVP, Connect Mat-Su
Establish metrics to increase ambulance response times. Identify where metrics can improve through increased staffing and fleet and explore funding options.	PCC3	MSB
Consider safe vehicle sizes and safety features in replacing MSB vehicle fleets.	SV1, SV5	MSB
Explore initiating programs to improve community use of safe vehicle practices through child car seat education, adult safe vehicle practices, and income-based education and incentives for maintaining safe vehicle features (tires, headlights, blinkers).	SV2, SV3, SV4	MSB, Connect Mat-Su, DOT&PF, Alaska Highway Safety Office

Table 11: Implementation Matrix - Mid-Term (2-10 years)		
Implementation Action	**Related Policy/ Practice**	**Implementation Partners**
Apply for federal grant funding, such as the Safe Streets for All program, to implement recommended mid-term projects outlined in Chapter 7. Strategy and Project Selections of the MSB CSAP.	SR3, SR4, SR5	MSB, City of Houston, City of Palmer, City of Wasilla, MVP
Apply for federal grant funding, such as the Safe Streets for All program, to implement mid-term demonstration projects and supplemental planning projects that align with the MSB CSAP.	SR3, SR4, SR5, SR6	MSB, City of Houston, City of Palmer, City of Wasilla, MVP
Develop an MSB Complete Streets Policy and Plan.	SP3, SR1, SS3	MSB, City of Houston, City of Palmer, City of Wasilla, MVP
Update street design guidelines, standards, and municipal codes to support Complete Streets policies and Safe System principles.	SR2, SR9, SP7, SS4, SR11	MSB, MVP
Establish a Development Working Group to develop policies and procedures to enforce safe street design for developers of new subdivisions within the MSB. This includes requiring impact fees and Traffic Impact Analyses for new subdivisions and increasing minimum thresholds for right- or left-turn lanes for developers and roadway designers and developing a checklist.	SP7, SP11, SR7, SR8, SR9	MSB, MVP
Review and implement new speed management policy for setting speed limits on borough roads.	SS2	MSB, Alaska State Troopers
Continue to systematically install low-cost safety countermeasures at locations identified for improvement in Chapter 7. Strategy and Project Selections.	SR4, SP5	MSB, City of Houston, City of Palmer, City of Wasilla, MVP, DOT&PF
Combine countermeasure deployment with promotional activities (press releases, promotional signage, media interviews) during implementation of new infrastructure construction.	SP5	MSB, MVP
Explore a change in state law to reduce the legal BAC for impaired driving and work with local partners to promote treatment options for those involved in drug and alcohol related crashes.	SP6, SP12	MSB, Alaska State Troopers
Work with local enforcement agencies to advocate for increased funding, staffing, and equipment to strengthen policing capabilities throughout the MSB.	SS5	MSB, Alaska State Troopers,Palmer Police Department, Wasilla Police Department

Table 11: Implementation Matrix - Mid-Term (2-10 years)		
Implementation Action	**Related Policy/ Practice**	**Implementation Partners**
Work with local enforcement agencies to educate policy makers and advocate for stronger fines and consequences to promote accountability for speeding and traffic violations.	SS6	MSB, Alaska State Troopers, Palmer Police Department, Wasilla Police Department
Facilitate training sessions for law enforcement agencies on crash reporting and traffic safety.	PCC1	MSB, DOT&PF, Alaska State Troopers, Palmer Police Department, Wasilla Police Department
Update MSB HSIP Handbook and advocate for dedicated capital funding for HSIP projects within MSB capital improvement programs.	SR15	MSB
Collaborate with health agencies and local nonprofits to engage in treatment options for people involved in drug- and alcohol-related crashes.	PCC2	MSB, Mat-Su Health Foundation, Connect Mat-Su
Review and update the MSB CSAP.		Mat-Su Borough

Table 12: Implementation Matrix - Long-Term (10+ years)		
Implementation Action	**Related Policy/ Practice**	**Implementation Partners**
Apply for federal grant funding, such as the Safe Streets for All program, to implement any remaining recommended mid-term and long-term projects outlined in Chapter 7. Strategy and Project Selections of the MSB CSAP.	SR3, SR4, SR5, SR6	MSB, City of Houston, City of Palmer, City of Wasilla, MVP, DOT&PF
Continue to systematically install low-cost safety countermeasures at locations identified for improvement in Chapter 7. Strategy and Project Selections.	SR4	MSB, City of Houston, City of Palmer, City of Wasilla, MVP, DOT&PF
Review and update the MSB CSAP.		MSB

Tracking Progress

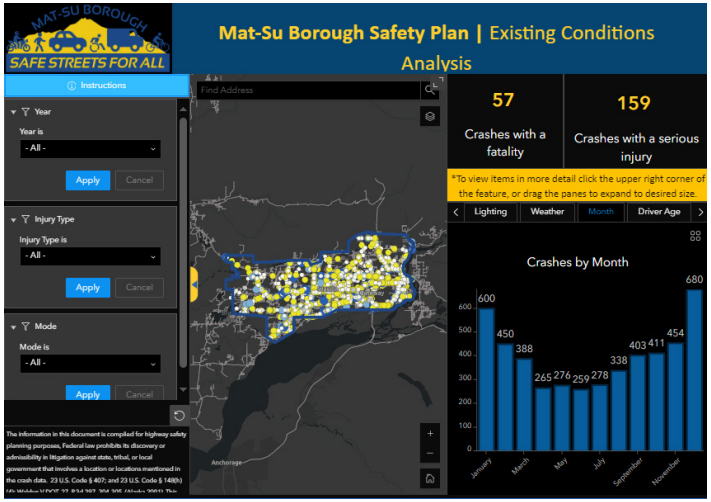
Safe Streets MSB Dashboard

To enhance road safety and work towards the goal of zero roadway fatalities and serious injuries, the project team developed a comprehensive Safe Streets MSB Dashboard (the Dashboard). This interactive online resource will assist the MSB in continuous monitoring of safety trends, crash patterns, and other contributing safety elements in the years following adoption of the MSB CSAP. The Dashboard is an essential component of the MSB CSAP, providing a tool for data-driven decision making and strategic planning.

The Dashboard integrates a variety of map data to provide a clear and comprehensive view of road safety data:

- **High Injury Network:** Displays a heat map of roads with the highest concentration of serious crashes, identifying priority areas for safety improvements.
- **Equity Layer:** Includes an equity layer to identify areas with high concentrations of vulnerable populations within the MSB Expanded Core Area.

The Dashboard will allow the MSB to filter crash data based on specific safety attributes to better assess current trends and make informed decisions about project implementation.



- **Year:** Filter crash data by year to analyze trends over time.
- **Month:** Filter information by month to view the effects of seasonality on crashes.
- **Lighting Conditions:** Filter crash data by daylight at time of crash.
- **Influence of Drugs or Alcohol:** Filter information by suspected drug or alcohol use.
- **Driver Age:** Filter crash data by driver age range.
- **Weather:** Filter information by presence of rain, snow, ice, or dry pavement.
- **Crash Type:** Filter crash data by crash factors including angle crashes (such as left turn or T-bone), run off the road, head on, animal, and mode choice.
- **Injury Type:** Filter information by severity of injury including fatality, serious injury, injury, and property damage only.

An essential goal of the Dashboard is to support the MSB in reaching zero roadway fatalities and serious injuries. The Dashboard will provide an up-to-date, data-driven assessment of safety on the MSB Expanded Core Area road system, thereby helping the MSB make proactive and informed decisions as they work towards accomplishing this ambitious goal. The Dashboard should be updated and reviewed annually to provide a current assessment of safety trends as they unfold over time and for comparison to the crash reduction target of this plan. It is estimated to take MSB GIS staff 40 hours to incorporate a new year of crash data into the dashboard each year, plus another 20 hours for Public Works or Planning staff to review the trend changes, for a total annual estimated staff impact cost of $6,000.

Performance Measures and Targets

Table 13: Roadway Performance Measures					
Performance Measure	**2025 Target**	**2026 Target**	**2027 Target**	**2028 Target**	**2029 Target**
Number of fatal crashes on the roadway (five-year rolling average)	10	10	10	9	9
Number of serious injury crashes on the roadway (five-year rolling average)	29	28	27	26	25
Number of non-motorized fatalities	1	0	0	0	0
Number of non-motorized serious injuries	1	1	0	0	0

Table 14: Transit Performance Measures					
Performance Measure	**2025 Target**	**2026 Target**	**2027 Target**	**2028 Target**	**2029 Target**
Number of added transit operators serving disadvantaged populations in the MSB			1		
Number of commuter/demand service providers, such as Valley Transit, serving disadvantaged populations		1	1	1	1
Number of transit routes serving disadvantaged populations			3	3	3
Number of bus stops in disadvantaged areas			15	15	15
Number of bus stop shelters within disadvantaged areas			5	5	5
Percentage of population using transit facilities or other alternative transportation in disadvantaged areas			3%	4%	5%

Table 15: Safe Walking and Biking Facilities Performance Measures					
Performance Measure	**2025 Target**	**2026 Target**	**2027 Target**	**2028 Target**	**2029 Target**
Number of added sidewalks on a road segment within disadvantaged areas (one side of road = one sidewalk)		2			
Number or length of added multi-use pathways within disadvantaged areas		1			
Number of separated pathways added; any road segment	1	1	1	1	
Number of protected bicycle facilities added within disadvantaged areas			1	1	

Table 16: Maintenance Performance Measures					
Performance Measure	**2025 Target**	**2026 Target**	**2027 Target**	**2028 Target**	**2029 Target**
Minimum annual funding increase to maintenance budgets for road and pathway maintenance in the MSB over prior year	2%	3%	3%	3%	3%
Average time (in hours) to clear snow from walking and bicycling facilities in disadvantaged areas	<36 hrs	<36 hrs	<24 hrs	<24 hrs	<24 hrs

Table 17: Project Implementation Performance Measures					
Performance Measure	**2025 Target**	**2026 Target**	**2027 Target**	**2028 Target**	**2029 Target**
Number of MSB CSAP-recommended projects initiated	1	1	1	1	1
Number of MSB CSAP-recommended projects completed			1	1	1
Number of SS4A supplemental plans and/or demonstration projects completed	1	1	1	1	1

Table 18: Safe Programs and Policies Performance Measures					
Performance Measure	**2025 Target**	**2026 Target**	**2027 Target**	**2028 Target**	**2029 Target**
Safe Streets MSB Coordinator Position	x				
Safe Streets MSB Working Group	x				
Maintenance Working Group	x				
Development Working Group		x			
Complete Streets Policy		x			
Complete Streets Plan			x		

Table 19: Enforcement Performance Measures					
Performance Measure	**2025 Target**	**2026 Target**	**2027 Target**	**2028 Target**	**2029 Target**
Number of added active law enforcement officer positions assigned to MSB		3	3	3	3
Number of training sessions for law enforcement agencies on crash reporting and/or traffic safety during crash response	1	1	1	1	1
Policy developed for, or implementation of, automated speed enforcement on at least a pilot basis		x			

Updating the MSB CSAP

The MSB CSAP will help guide key transportation safety strategies for many years to come. However, it is essential that the CSAP be monitored and kept up to date, ensuring that it reflects the most current safety trends and continues to align with community goals for transportation safety. The MSB will regularly update the CSAP to reflect:

- Progress on action items outlined in the implementation matrix.
- Progress toward completion of recommended projects to improve high-priority corridors.
- Progress towards performance measures.
- Implementation of recommended policies and programs or new safety initiatives.
- Updates to crash data and socioeconomic changes within the MSB Expanded Core Area.

It is recommended that the MSB provide an update to the MSB CSAP every four years and work with MVP to ensure integration of safety data into regular MVP MTP updates.

Appendix A: References

Executive Summary

- https://www.transportation.gov/sites/dot.gov/files/2022-06/SS4A_Action_Plan_Components.pdf
- https://www.transportation.gov/sites/dot.gov/files/2024-02/SS4A-FY24-Self-Certification-Worksheet.pdf

Chapter 3: Safety Analysis

- https://www.iihs.org/news/detail/turning-off-red-light-cameras-costs-lives-new-research-shows
- https://www.ntsb.gov/Advocacy/safety-topics/Documents/Point-05%20SafetyBriefingFacts%20March2023.pdf
- https://highways.dot.gov/safety/proven-safety-countermeasures/enhanced-delineation-horizontal-curves and Safety Toolkit, Appendix D
- https://highways.dot.gov/safety/proven-safety-countermeasures/roadside-design-improvements-curves and Safety Toolkit, Appendix D
- https://highways.dot.gov/safety/proven-safety-countermeasures/wider-edge-lines and Safety Toolkit, Appendix D
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- https://highways.dot.gov/safety/proven-safety-countermeasures/backplates-retroreflective-borders and Safety Toolkit, Appendix D
- https://highways.dot.gov/safety/proven-safety-countermeasures/crosswalk-visibility-enhancements and Safety Toolkit, Appendix D
- https://highways.dot.gov/safety/proven-safety-countermeasures/dedicated-left-and-right-turn-lanes-intersections and Safety Toolkit, Appendix D
- https://highways.dot.gov/safety/proven-safety-countermeasures/bicycle-lanes and Safety Toolkit, Appendix D
- https://highways.dot.gov/safety/proven-safety-countermeasures/rectangular-rapid-flashing-beacons-rrfb and Safety Toolkit, Appendix D
- https://highways.dot.gov/safety/proven-safety-countermeasures/corridor-access-management and Safety Toolkit, Appendix D
- https://highways.dot.gov/safety/proven-safety-countermeasures/appropriate-speed-limits-all-road-users and Safety Toolkit, Appendix D

Chapter 4: Engagement and Collaboration

- https://ss4a.matsugov.us/

Chapter 5: Equity Considerations

- https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/

Chapter 6: Policy and Process Changes

- https://dot.alaska.gov/stwdplng/hwysafety/assets/pdf/2022_Safety_Corridors_Audit.pdf
- https://dot.alaska.gov/stwdplng/hwysafety/safety_corridors.shtml#:~:text=Currently%20the%20Seward%20%28May%202006%29%2C%20the%20Parks%20%28October,are%20the%20four%20designated%20Safety%20Corridors%20in%20Alaska.
- https://highways.dot.gov/safety/proven-safety-countermeasures/roundabouts and Safety Toolkit, Appendix D
- https://dot.alaska.gov/stwddes/dcstraffic/roundabouts.shtml
- https://highways.dot.gov/sites/fhwa.dot.gov/files/2024-02/HSIP%20NPRM%20Briefing%202-27-24.pdf

Appendix B: Existing Conditions Report

Existing Conditions Memorandum for Mat-Su Borough Comprehensive Safety Action Plan

PREPARED BY MICHAEL BAKER INTERNATIONAL FOR MATANUSKA-SUSITNA BOROUGH

November 26, 2024

List of Figures

Introduction

In 2023, the Matanuska-Susitna (Mat-Su) Borough applied for and was awarded a U.S. Department of Transportation - Safe Streets for All grant to develop a Comprehensive Safety Action Plan (CSAP) for the Mat-Su Borough's Expanded Core Area. The CSAP will be a strategic roadmap to help the Mat-Su Borough move towards a safer transportation network to significantly reduce serious injuries and fatalities on the roadway. To begin this planning effort, a comprehensive analysis of existing conditions was undertaken to provide a solid foundation on which to build the Mat-Su Borough's CSAP. The map below shows the study area analyzed in the Existing Conditions Memorandum.

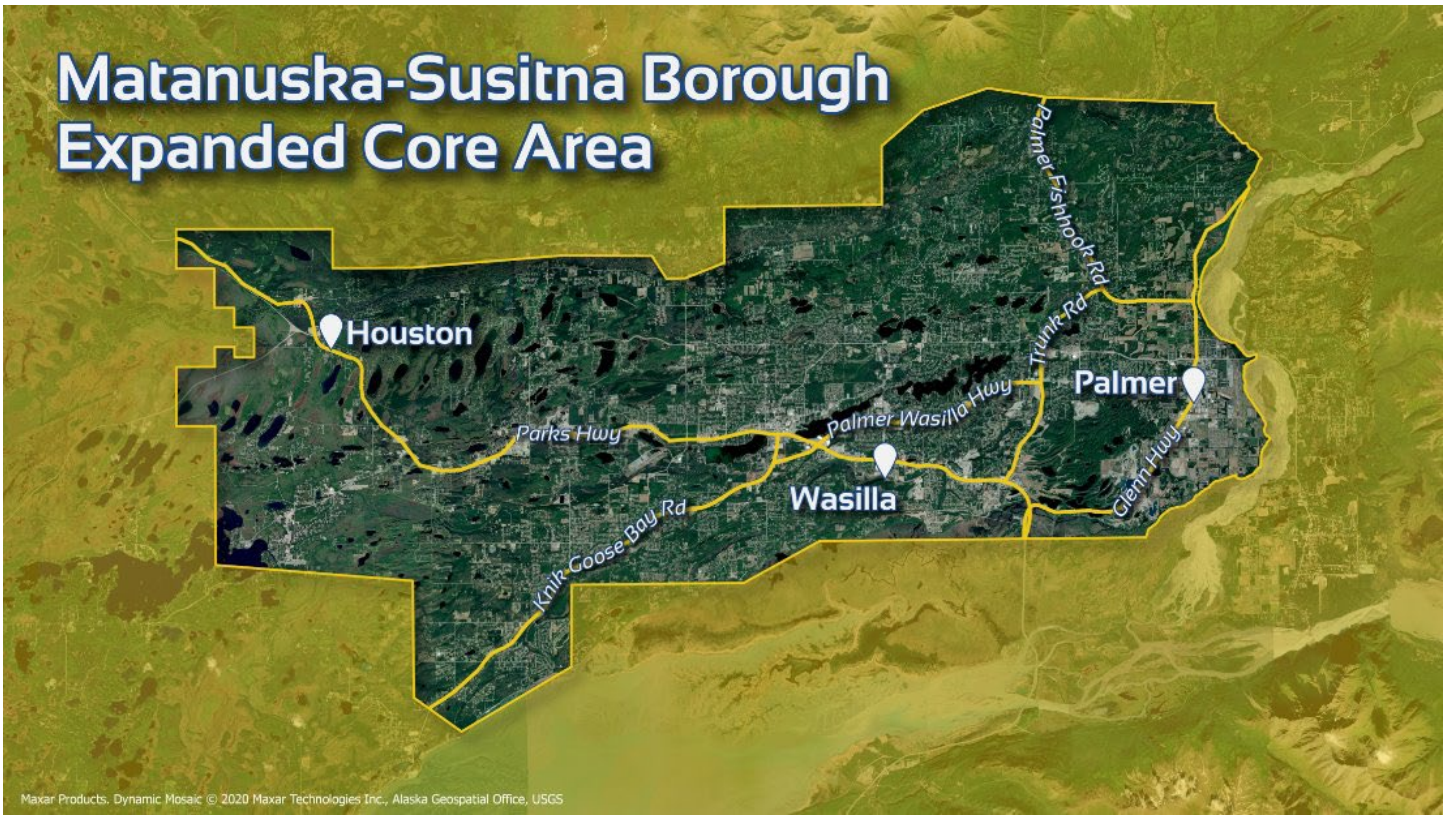


Figure 1. Map of the Mat-Su Borough Expanded Core Area

The existing conditions analysis includes an overview of the Safe Systems Approach; a crash data summary and key trends analysis; a comprehensive equity analysis outlining disadvantaged populations that exist within the study area; a peer city review; a review of existing Mat-Su Borough transportation safety-related plans, policies, and programs; and a comprehensive review of the methods used to gather input from stakeholders and the public on current safety conditions within the Mat-Su Borough Expanded Core Area.

Safe System Approach

The development of the Mat-Su Borough Comprehensive Safety Action Plan (CSAP) will follow the Safe System Approach (SSA), a national roadway safety strategy developed by the U.S. Department of Transportation (USDOT). Every year, an average of 43 Mat-Su Borough residents are seriously injured or killed on the transportation network in the Expanded Core Area. The ripple effects of these serious crashes go far beyond the lives of the people involved. They reverberate through families, friends, neighborhoods, and the whole community. The SSA recognizes that crashes are preventable. By making changes to key elements of the transportation system, we can anticipate human mistakes and create layers of protection within the network that reduce fatalities and serious injuries.

In the United States, the number of serious injuries and fatalities on the transportation network is on the rise. This represents a public health concern that merits a focused, comprehensive solution. In 2024, the National Highway Traffic Safety Administration estimated that 8,650 people died in traffic crashes nationally in the first three months of the year alone. Within the Mat-Su Borough Expanded Core Area, more than 10,000 roadway crashes occurred between 2013-2022. These included 99 fatal crashes, 345 serious injury crashes, and 69 crashes involving bicycles and pedestrians, 93% of which resulted in injury or death.

Figure 2. Safe System Approach diagram courtesy of USDOT

The SSA was developed as part of the Vision Zero initiative, which states that no person should be killed or seriously injured on the road system, and that even one death is unacceptable. This approach is founded on five core elements and six core principles that work together to form a safe system that protects all road users.

The following principles of the SSA work together to create safer people, safer vehicles, safer speeds, safer roads, and engage in post-crash care.

1. Death and serious injuries on the transportation network are unacceptable.
2. Humans make mistakes, and a safe system protects them better when they do.
3. Humans are vulnerable to the forces of a crash.
4. Responsibility to improve safety within the transportation network is shared between road users and transportation practitioners.
5. To be effective, safety must be proactive and systematic.
6. Redundancy within the system is crucial to success.

This approach shifts the focus towards both human mistakes and human vulnerability to design a system with protections in place that help mitigate crash severity and occurrence.

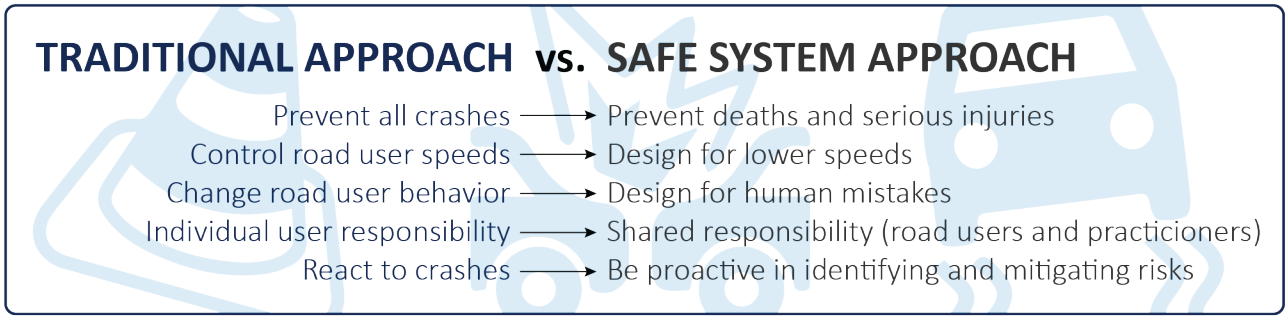


Figure 3. Comparison of traditional versus Safe System Approach

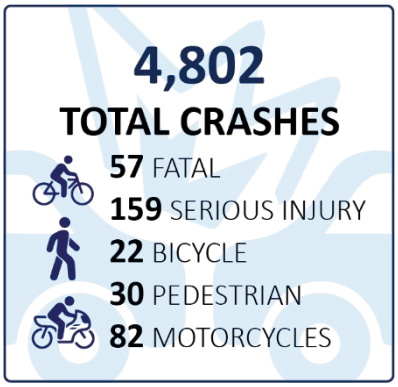
The six core SSA principles listed above guide the development of all Mat-Su Borough CSAP components, including the comprehensive crash data analysis, robust public outreach, focus on equity and vulnerable populations within the Mat-Su Borough Expanded Core Area, recommended project selection and prioritization, and suggested countermeasures and tools to help mitigate and prevent crashes.

Crash Data Summary and Key Trends

Overview

Below is a summary of crash data within the Mat-Su Borough's Expanded Core Area boundary from 2018-2022. Michael Baker International, on behalf of the borough, obtained and analyzed data from an Alaska Department of Transportation and Public Facilities (DOT&PF) database that comprises reports submitted by local law enforcement agencies and self-reporting through the Alaska Division of Motor Vehicles.

Key takeaways from 2018-2022 crash trends



Most crashes are concentrated in Wasilla.

- Crashes are most concentrated around the W Parks Highway, S Knik-Goose Bay Road, E Bogard Road, N. Crusey Street, N. Lucille Street, and E. Palmer-Wasilla Highway (see Figure 5).
  - Fatal and serious injury crashes (referred to in this document as "serious crashes") follow this trend, with the highest concentrations around the Parks Highway and E. Palmer-Wasilla Highway (see Figure 6).

Most crashes occur on high-speed, high-volume roads.

- More crashes are occurring on interstates compared to other road classifications, which is a direct correlation to speed and volume.
- However, **more crashes occurred on major and minor arterials** combined than on interstates (see Figure 4). This same pattern is present with serious crashes.

Drugs and alcohol are the top contributing factors to serious crashes.

- Drugs or alcohol were involved in **24% of serious crashes**.

Most serious crashes happen at intersections.

- 75% of all crashes and 66% of serious crashes are **intersection related**.

There are more crashes during winter, but fewer serious crashes.

- 71% of crashes occur in the **winter months** (October-March), but only 46% of serious crashes occur during winter.

Most crashes involved two or more vehicles.

- The most common first harmful event was a crash with another vehicle (79%) and the second most common was hitting a live animal (6.5%).
- Hitting another vehicle was also the most common event for serious crashes (65%) and the second most common was vehicle rollover (6%).

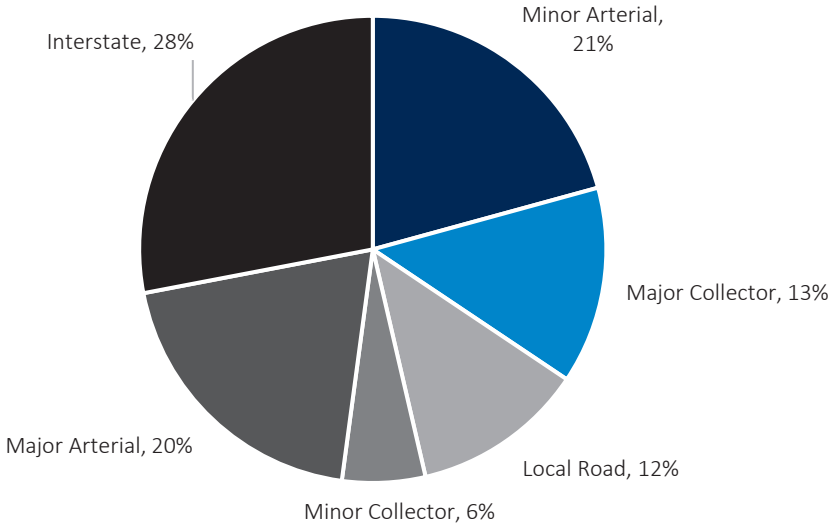


Figure 4. Percent of crashes by roadway functional class

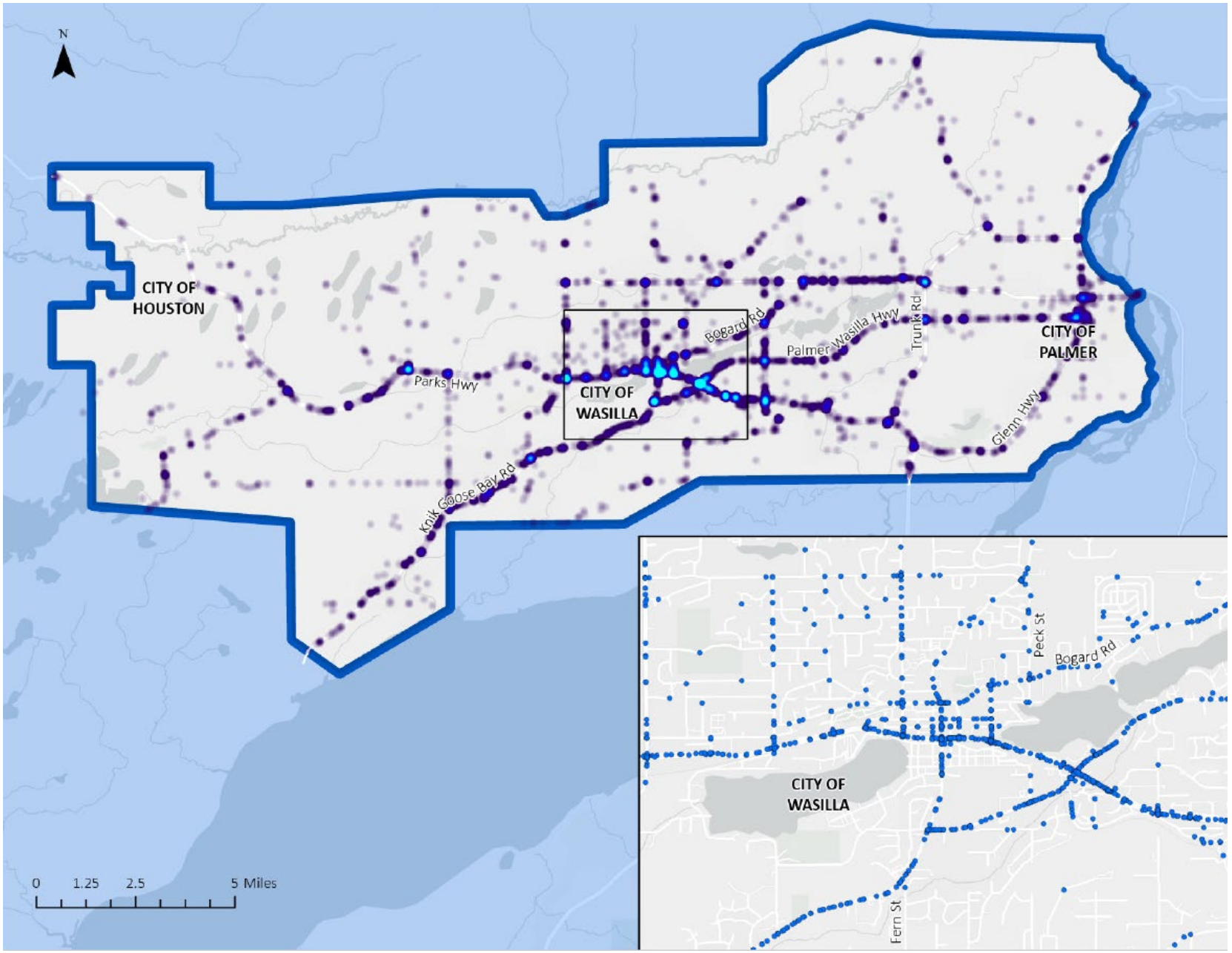


Figure 5. Heat map with point map inset showing concentration of all crashes in the Mat-Su Expanded Core Area

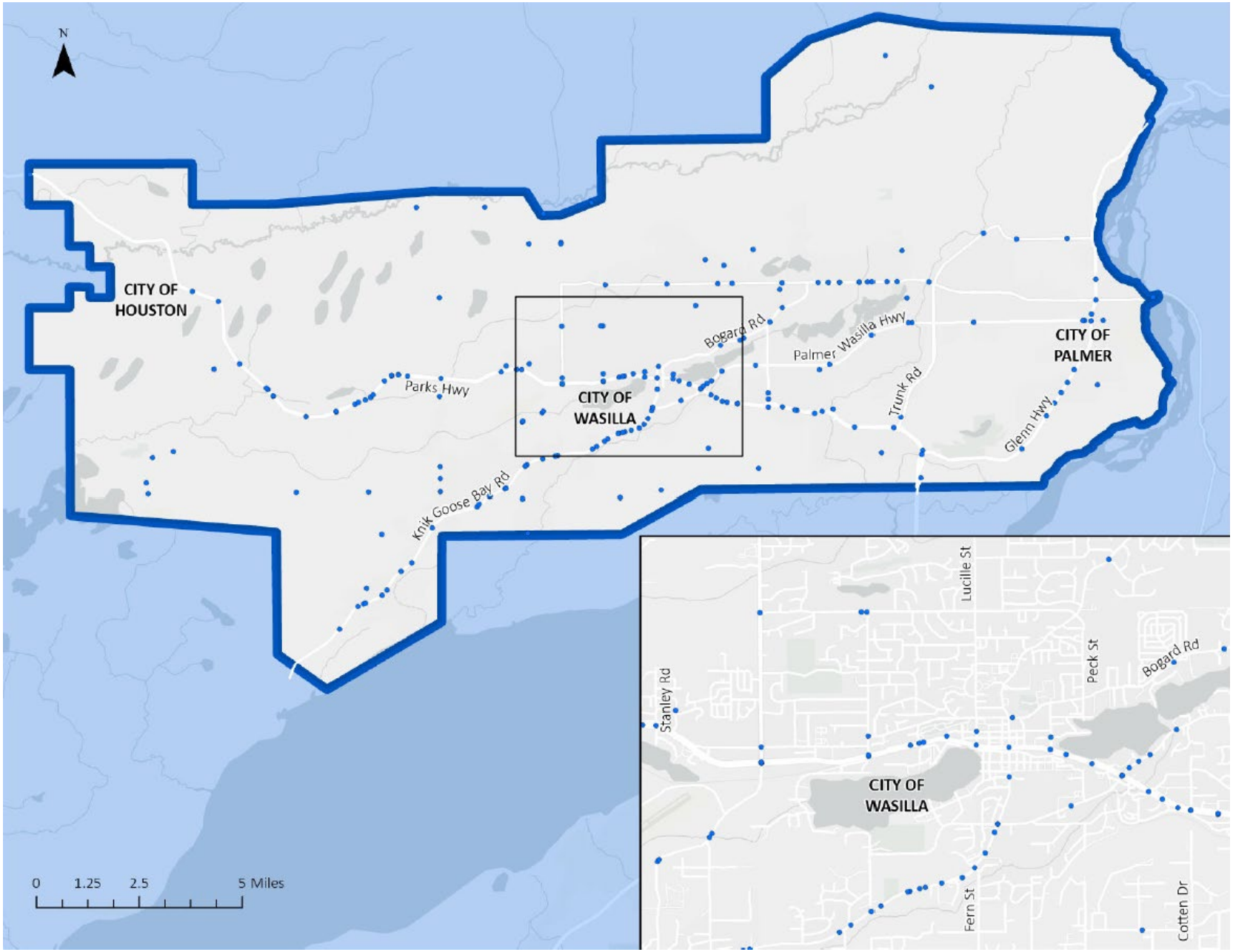


Figure 6. Map showing concentration of serious crashes in Mat-Su Expanded Core Area

Data clarification and potential data gaps

Fatal and serious injury crash definitions

This report discusses and analyzes fatal crashes and serious injury crashes by event. This means that each crash event that includes the death or serious injury of one or more individuals is counted as one serious crash. The total number of fatalities and serious injuries may be more than the number of fatal and serious injury crashes.

Alaska defines a fatal crash as one where death results within 30 days from the injuries received in the traffic crash. Serious injuries are defined as "severe lacerations [with] significant loss of blood; Broken or distorted extremity (arm or leg); Crush injuries; Suspected skull, chest or abdominal injury other than bruises or minor lacerations; Significant burns (second and third degree burns over 10% or more of the body); Unconsciousness when taken from the crash scene; or Paralysis."[1] Most serious injury crashes will have an ambulance response and/or require hospitalization.

Data collection

There are many opportunities for varied and sometimes contradictory responses in crash data report fields. One notable example relates to the use of seatbelts. One field asks if there was "driver restraint misuse" and another field asks if a "driver restraint system [was] used." It is unclear whether "misuse" includes not using a restraint system. Multiple reports indicated no misuse and no use of a restraint system. Duplicative and ambiguous fields like these increase the likelihood of the fields not being completed as intended, which makes accurate data analysis more challenging.

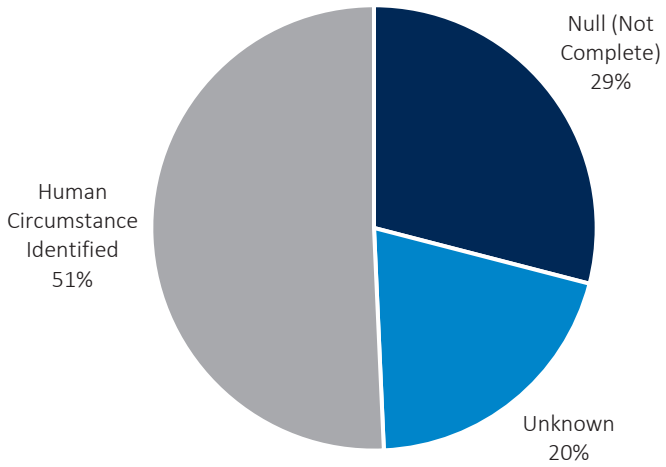


Figure 7. Human circumstances breakdown for all crashes, showing extent of missing or incomplete information for this data field

The extent of "null" (not completed), "unknown," and vague options that do not provide valuable insight on crash reports reveal missed opportunities for understanding the factors involved in crashes. Figure 7 is a chart that exemplifies this with the "human circumstance" breakdown of all crashes. Nearly 50% of the data from these fields yield no meaningful information with fields showing as "null," "unknown," or "no contributing action/circumstance" or "other contributing action/circumstance." This data field is useful and includes choices such as: driver inattention, following too closely, or ran red light or stop sign. Reducing the extent of choices in this field may increase quality of response in crash reports.

Self-reporting

Forty-three percent of crash reports were completed using Form 12209, which is submitted by individuals (not law enforcement officers). Seventy-three percent of those reported no injuries. None of these reports indicated misuse of seatbelts, or speed or alcohol as factors in the crash. While better than no data at all, driver self-reports are less likely to capture all data fields as accurately as when completed by a third-party law enforcement officer, adding further subjectivity to data fields. All fatal crashes and all but five reports indicating serious injuries were completed by law enforcement officers using Form 12200.

[1] https://highways.dot.gov/media/20141

Big Picture Trends

Five-Year Trend

Since 2018, the total number of crashes is trending upward (Figure 8) even when including a decline in 2020, which is likely due to the COVID pandemic when fewer drivers were on the road. Serious crashes are on a flatter but upward trend (Figure 9).

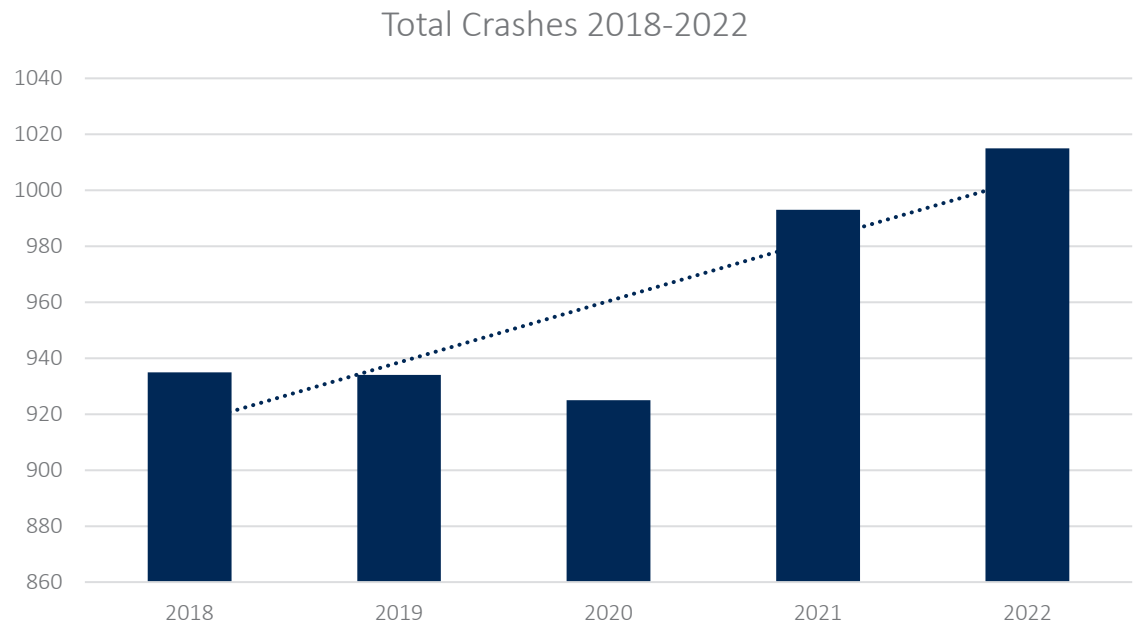


Figure 8. Total crashes by year and growth trend

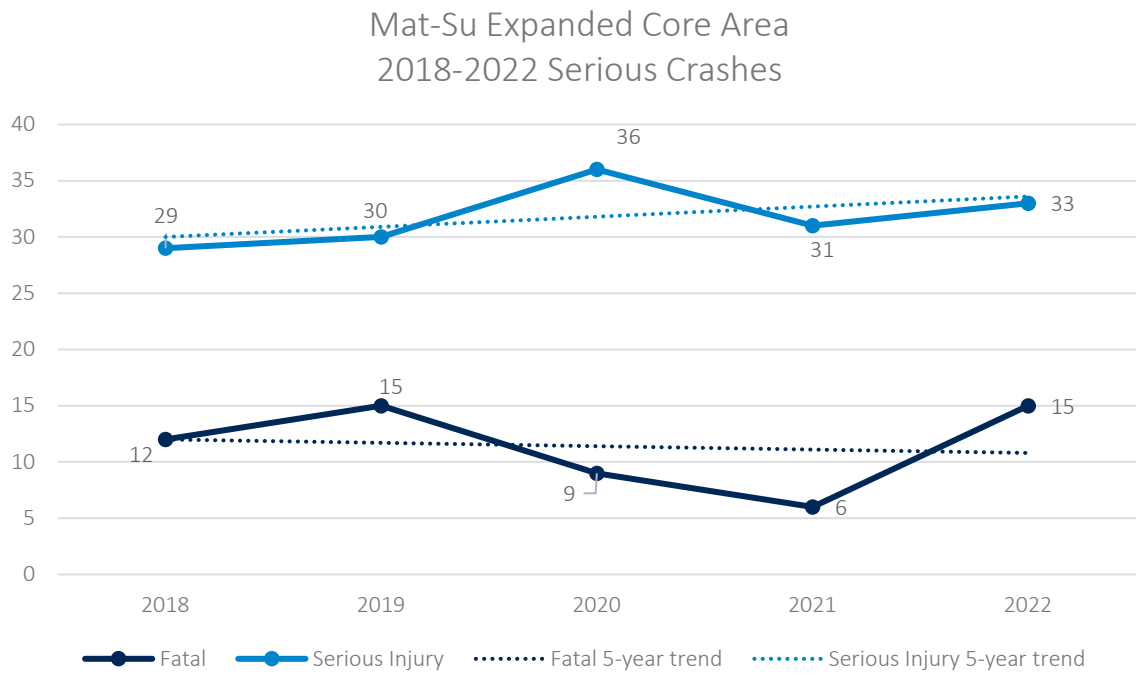


Figure 9. Serious crashes by year and growth trend

Driver Age

Drivers aged 25-34 were involved in 17% of all crashes and 22% of serious crashes. Drivers aged 18 experienced the highest extent of crashes for any single age, but drivers aged 25 experienced the most serious crashes for any age (Figure 10 and Figure 11). Total crashes and serious crashes generally declined for drivers after age 65.

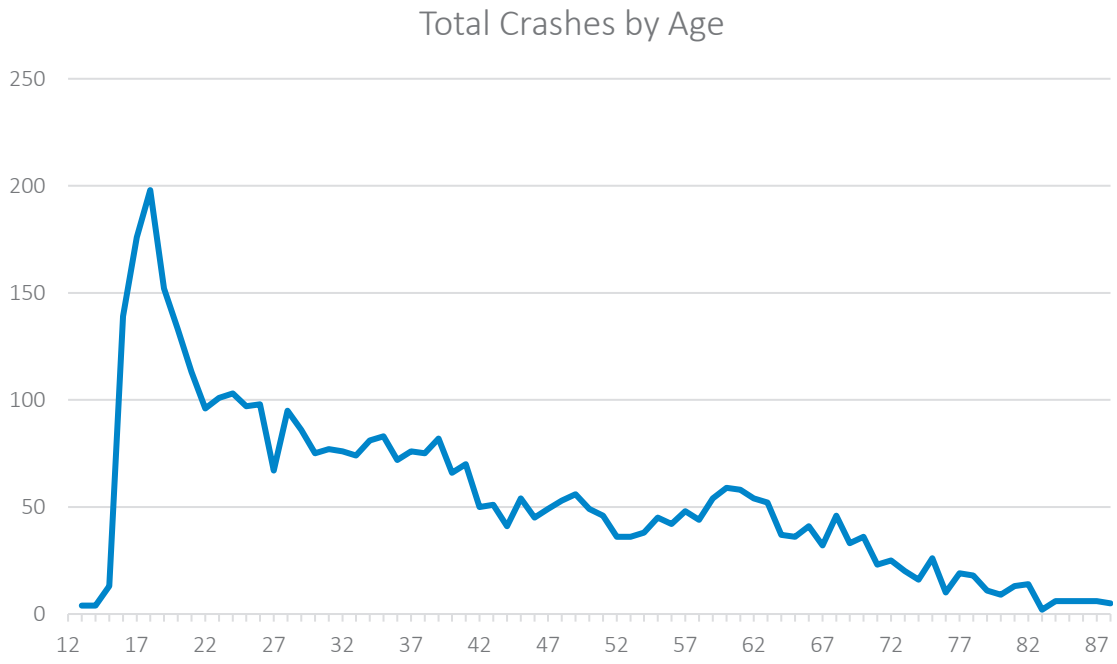


Figure 10. Number of crashes by age

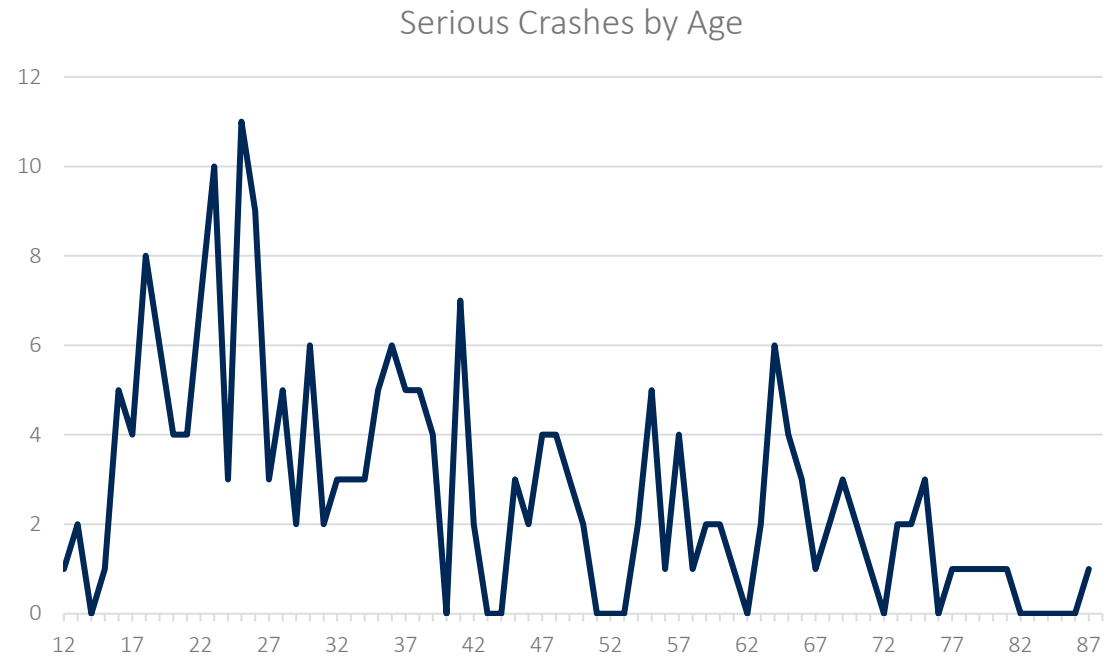


Figure 11. Number of serious crashes by age

Contributing Action at Time of Crash

A contributing unit in a crash report is the entity that was the main contributor to the crash, i.e., the person at fault. Figure 12 shows the most common actions of the contributing unit at the time of a serious crash. Going straight, which may indicate speed as a contributing factor to the crash, and turning left are the primary actions involved in serious crashes.

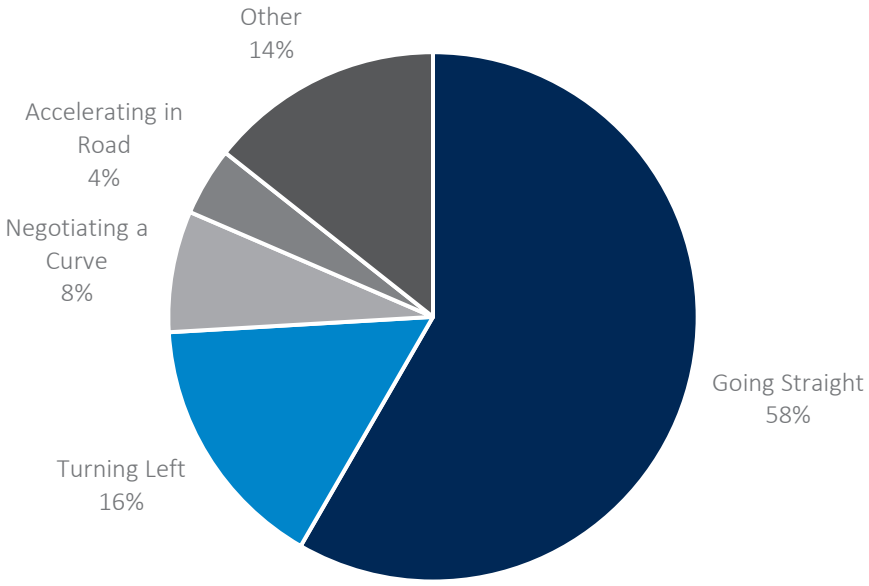


Figure 12. Contributing unit action at time of serious crash

Trends by Mode

Most crashes (97.2%) were motor vehicle crashes, with nearly 2% motorcycles and the remainder involving bicycles and pedestrians (1% combined). For serious crashes, motorcycles make up a larger proportion by mode at 15% (Figure 13).

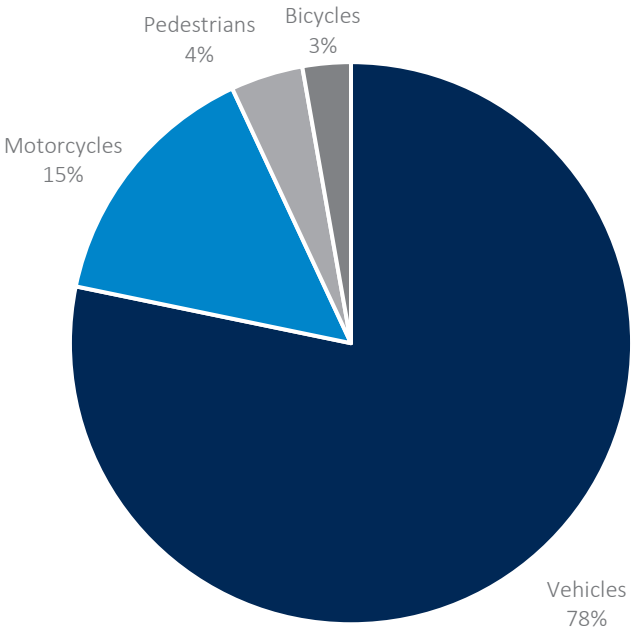


Figure 13. Serious crashes by mode

Motor Vehicle Trends

There were 4,668 motor vehicle crashes from 2018-2022, of which 169 (or 3.6%) were serious crashes. Alcohol was a factor in 17.8% of serious crashes. Males accounted for 59% of drivers in serious crashes while females accounted for 39%[2] (Figure 14).

PRIMARY MOTOR VEHICLE TRENDS

4,668 total crashes

43 FATAL

124 SERIOUS INJURY

Top serious crash types:

- Single vehicle run off the road
- Head-on
- Rear-end
- Left turn (angle)

Top serious crash human circumstances:

- Run off the road
- Failure to yield
- Failed to keep in lane
- Ran stop sign / red light
- Inattentive, careless, erratic, negligent

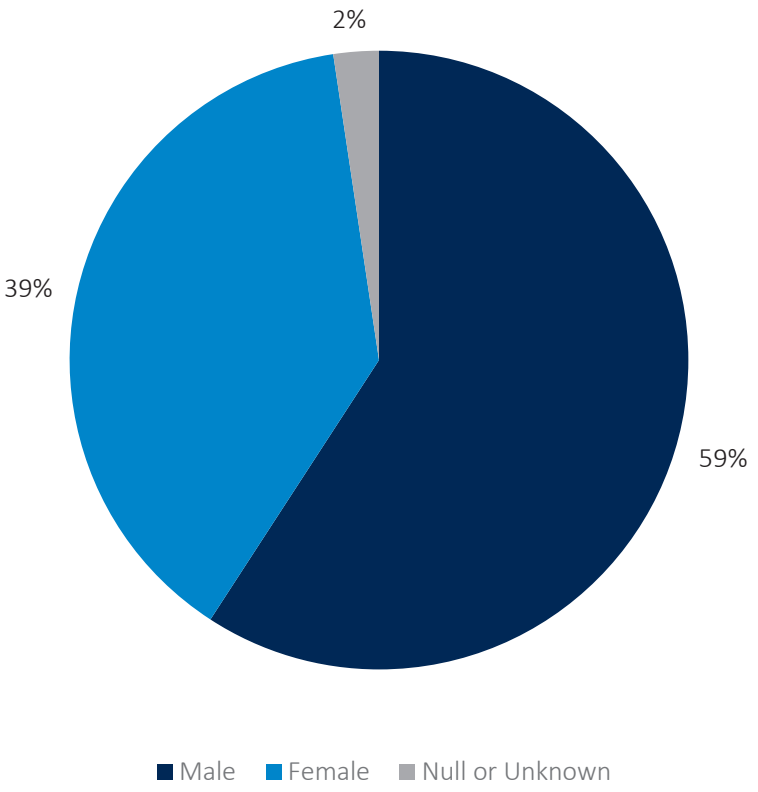


Figure 14. Serious motor vehicle crashes by driver gender

[2] From driver's license data or as identified on an individual crash report. The Alaska Division of Motor Vehicles recognizes only male and female for gender (sex) in driver licensing.

Motorcycle Trends

There were 82 motorcycle crashes from 2018-2022, and 32 (or 39%) were serious crashes. Alcohol was a factor in 12% of all motorcycle crashes and 12% of all serious motorcycle crashes. The first harmful event in 75% of serious crashes was hitting a motor vehicle. Males were involved in more motorcycle crashes (72%) than females (25%). In all but one of the serious motorcycle crashes, the driver wore no helmet, it was not a USDOT-approved helmet, or it was unknown whether they wore a helmet. No helmet worn was cited in three of the six (50%) fatal motorcycle crashes, and one other fatal crash cited a non-USDOT-approved helmet was worn by the driver. Figure 17 shows the location of motorcycle crashes in the Expanded Core Area.

PRIMARY MOTORCYCLE TRENDS

82 total crashes

6 FATAL

26 SERIOUS INJURY

Top serious crash types:

- Angle
- Front to rear

Top serious crash human circumstances:

- Failure to yield
- Inattentive, careless, erratic, negligent

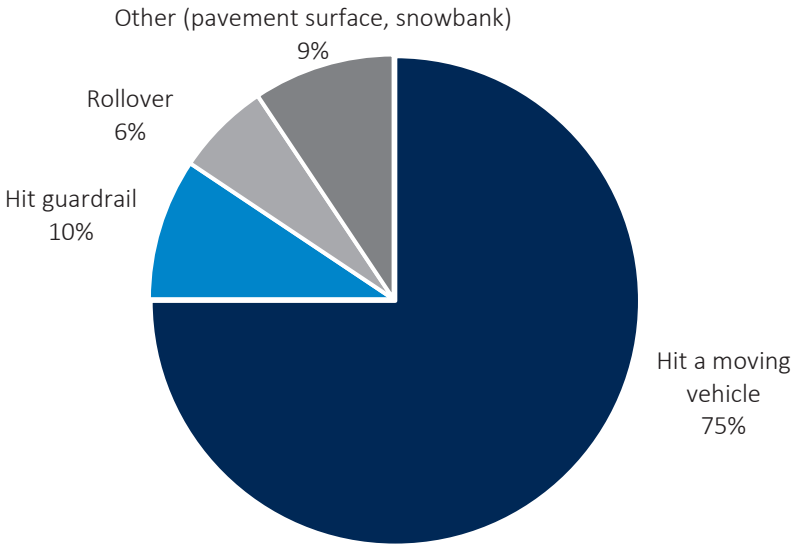


Figure 15. Serious motorcycle crash first harmful event

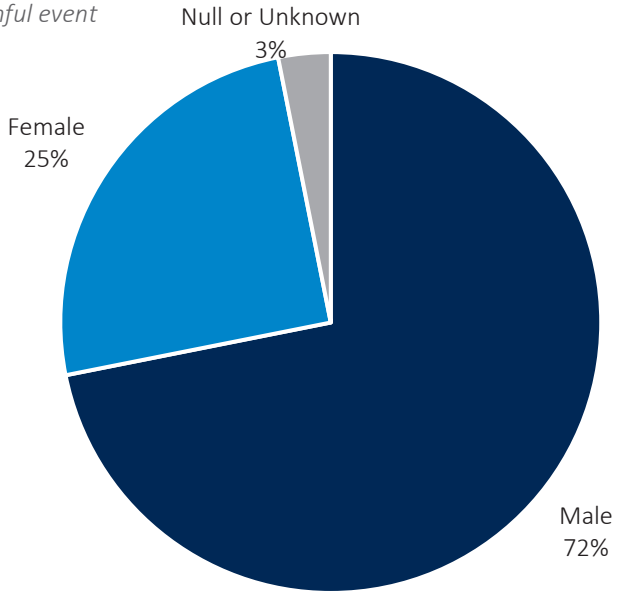


Figure 16. Serious motorcycle crashes by driver gender

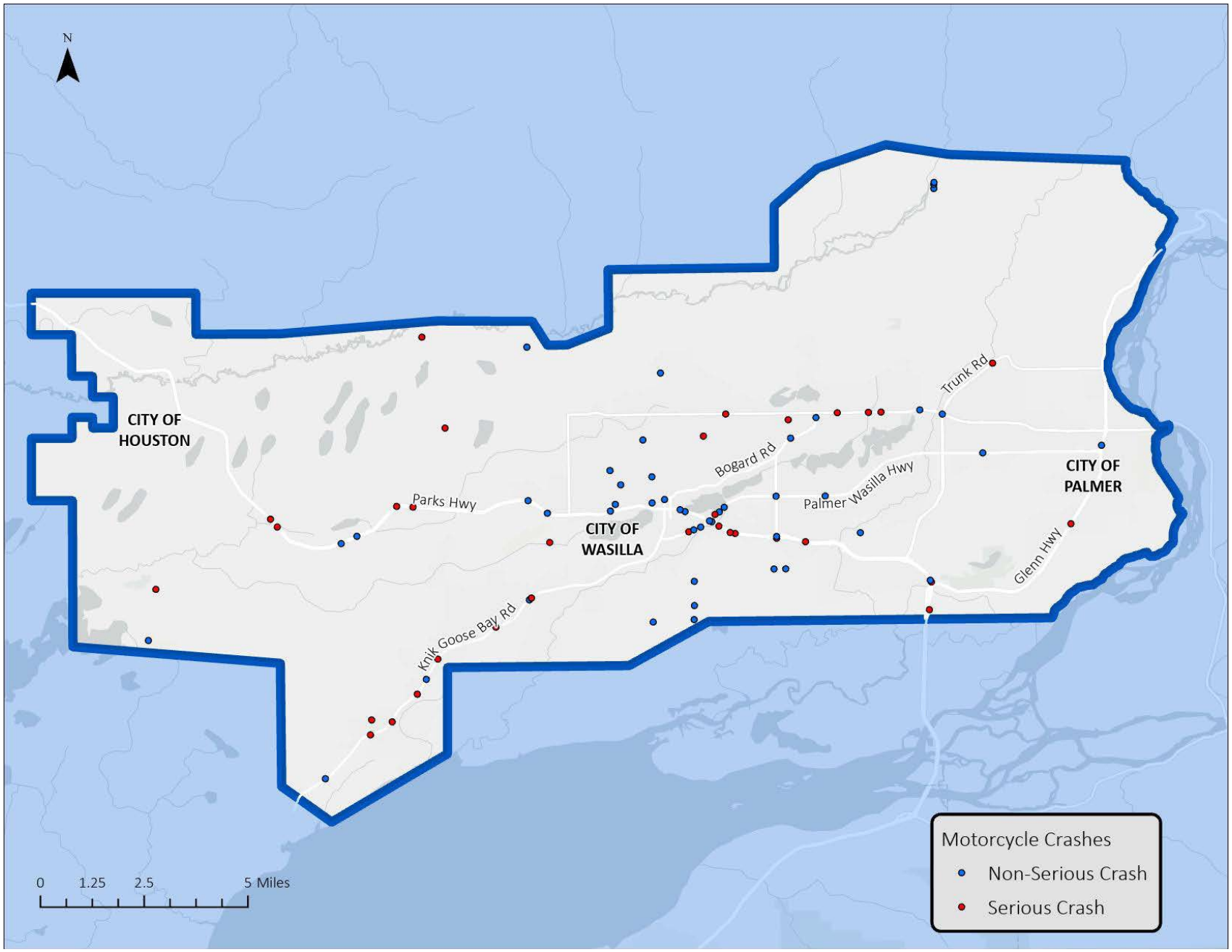


Figure 17. Locations of motorcycle crashes in the Mat-Su Expanded Core Area

Bicycle Trends

There were 22 bicycle crashes from 2018-2022, with six (27%) serious crashes—one fatality and five serious injuries. All but three bicycle crashes resulted in some form of injury (see Figure 18). Figure 21 shows that the location of bicycle crashes is predominantly intersections for both all crashes (82%) and for serious crashes (83%.)

Figure 19 shows the most common action of the contributing unit at the time of the crash, and Figure 20 shows the lighting conditions at the time of the crash.

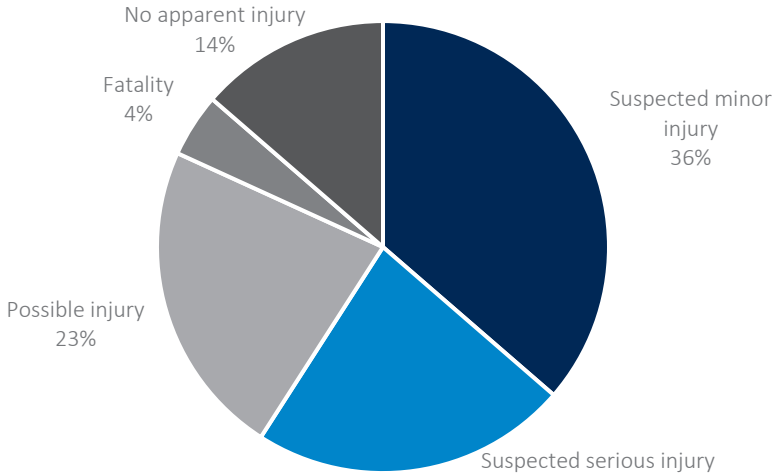


Figure 18. Severity of bicycle crashes

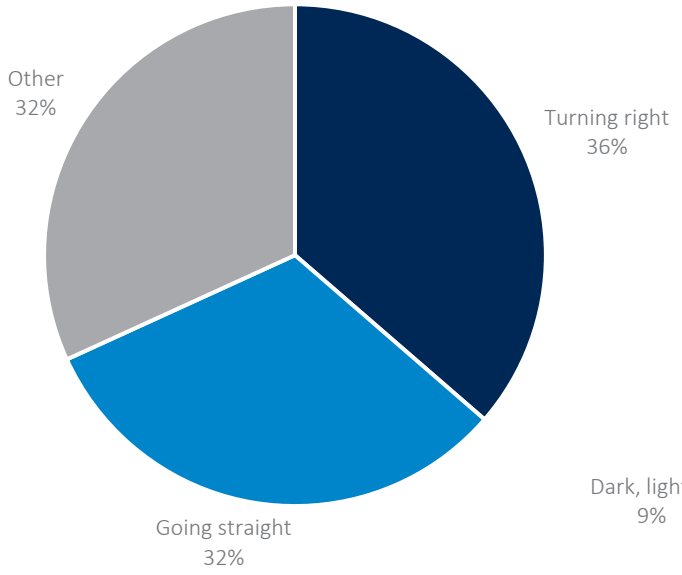


Figure 19. Contributing unit action in all bicycle crashes

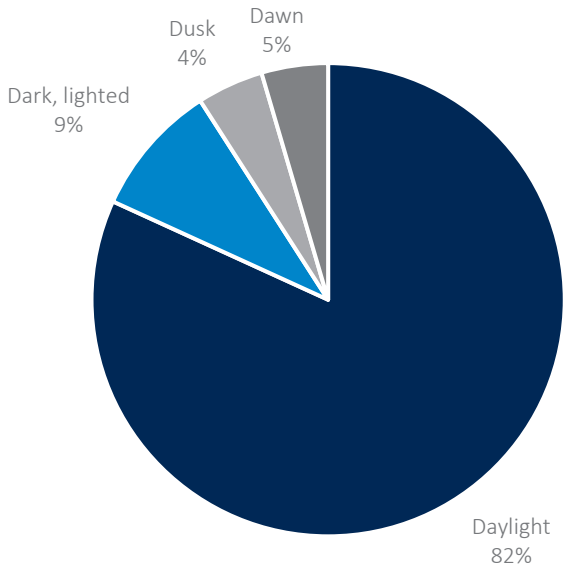


Figure 20. Lighting conditions for all bicycle crashes

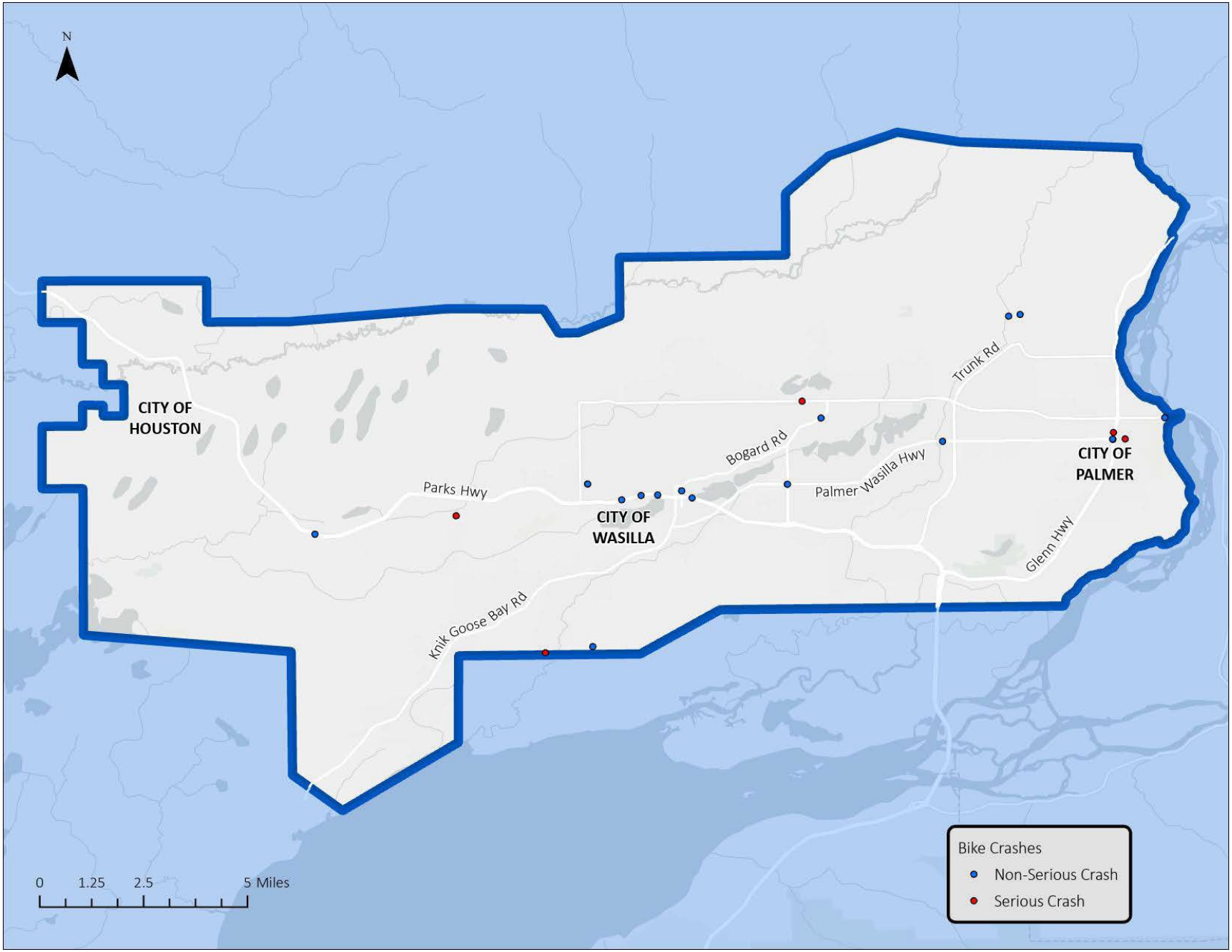


Figure 21. Location of bicycle crashes in the Mat-Su Expanded Core Area

Pedestrian Trends

There were 30 crashes involving pedestrians from 2018-2022, with 9 of those (30%) being serious crashes—5 fatalities, and 4 serious injuries. All but three pedestrian crashes resulted in some form of injury (see Figure 22). Figure 23 shows lighting conditions for pedestrian crashes, which are mostly occurring in dark conditions. Figure 24 shows contributing actions at the time of a pedestrian crash. Figure 25 shows the location of pedestrian crashes is predominantly at intersections for both all crashes (70%) and serious crashes (20%.)

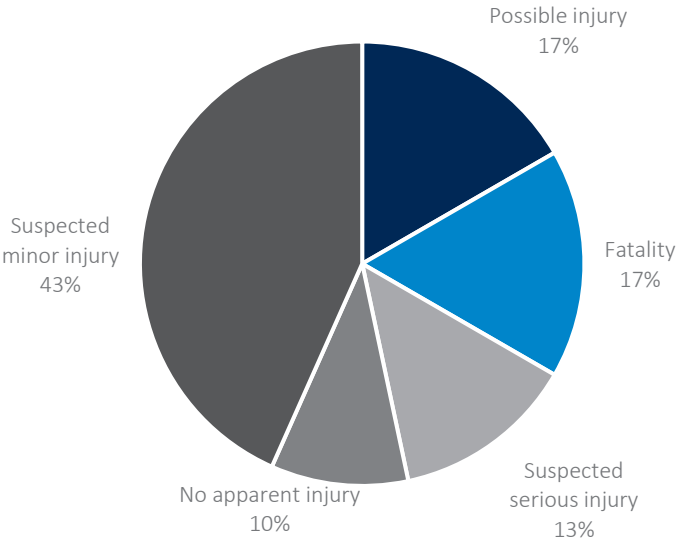


Figure 22. Severity of pedestrian crashes

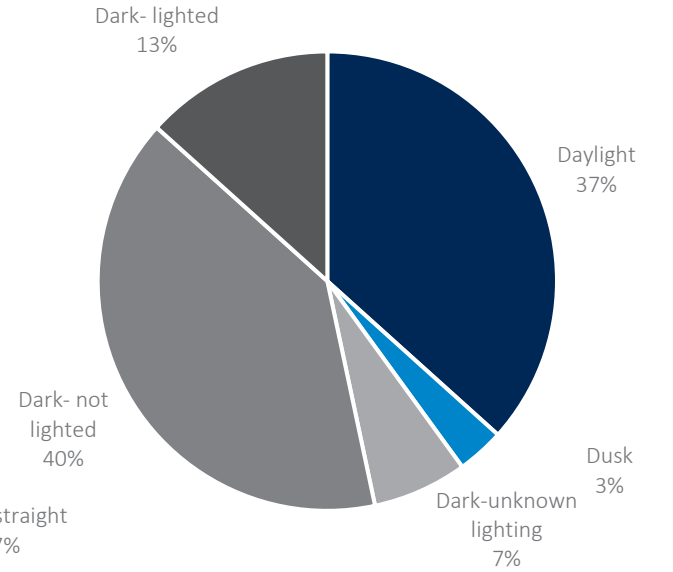


Figure 23. Lighting conditions for all pedestrian crashes

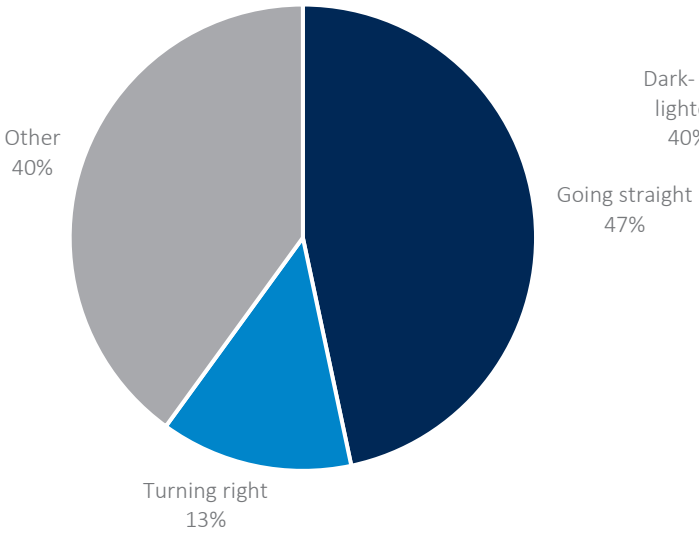


Figure 24. Most contributing unit's action in pedestrian crashes

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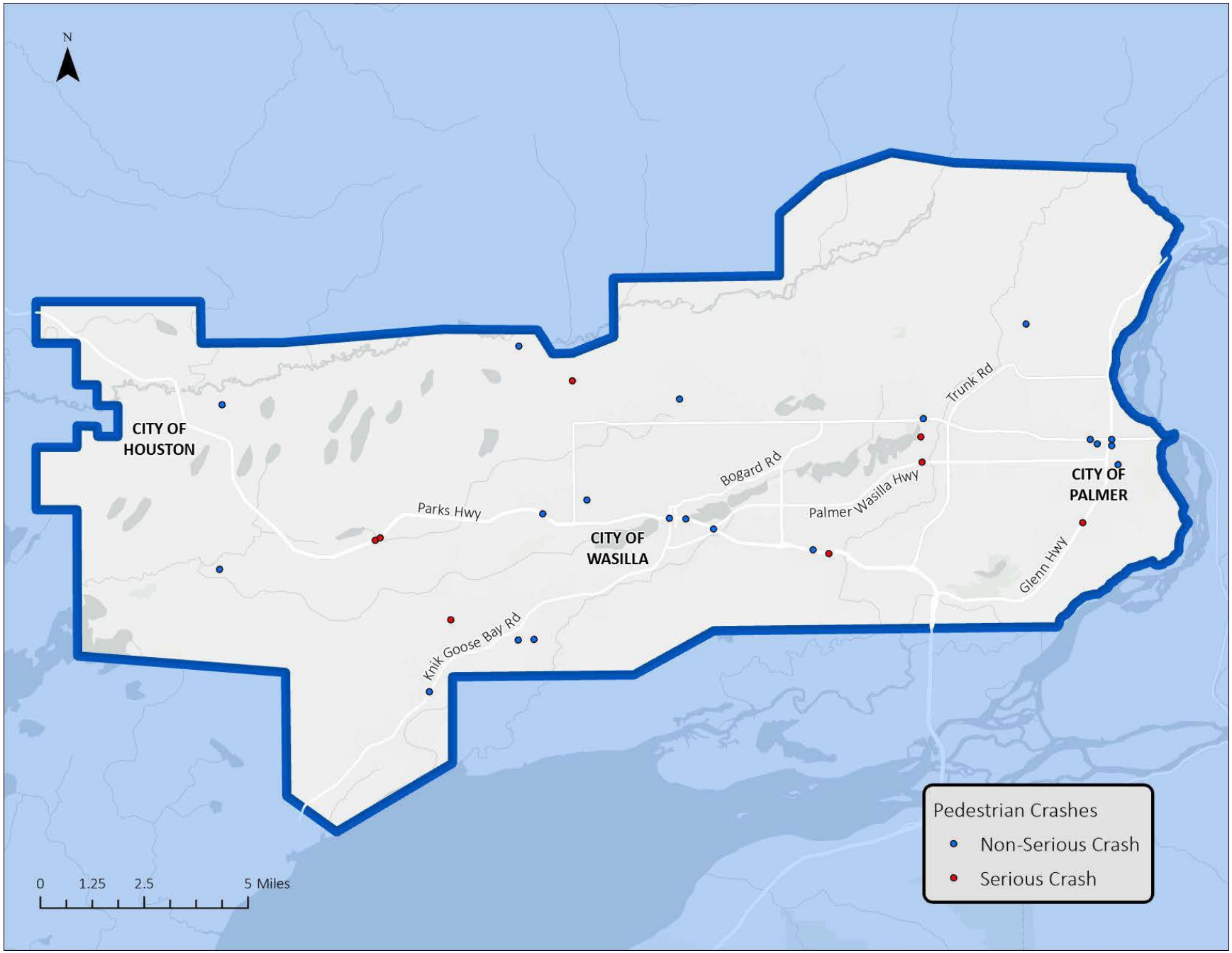

Figure 25. Location of pedestrian crashes in the in the Mat-Su Expanded Core Area

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Environmental Trends (lighting, surface condition, adverse weather)

Most crash types occurred in the winter months, with 75% occurring from October through March. However, only 46% of serious crashes occurred during this same timeframe, with the highest months for serious crashes occurring in September and July (12% and 10% of all serious crashes, respectively). Figure 26 shows the distribution of crash severity by month from 2018-2022.

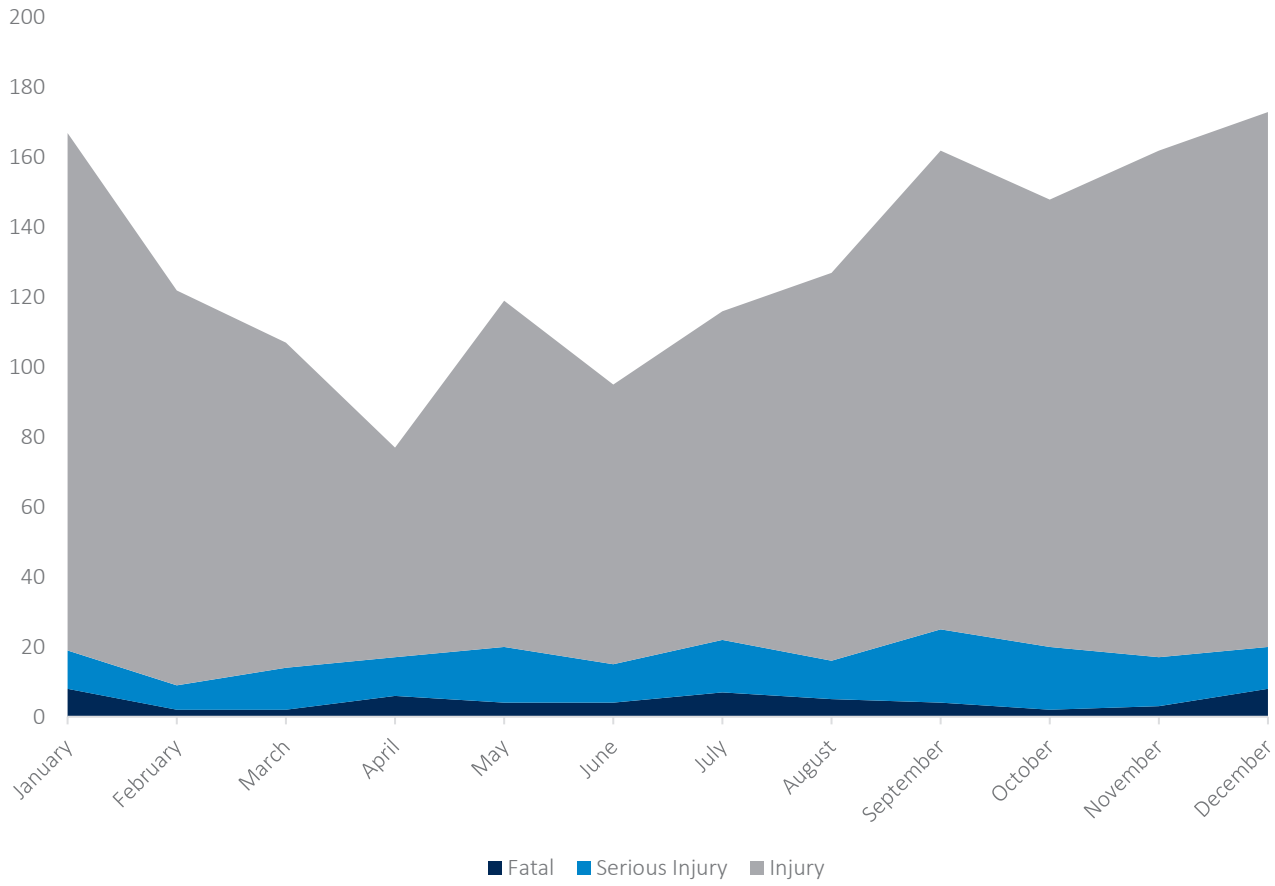

Figure 26. Crashes by month

While more total crashes are occurring in the winter months, dark and winter road conditions do not appear to be the predominant contributing factors for all crashes. Figure 27 indicates nearly half of all crashes occur during dry conditions, Figure 29 conditions (64%) and daylight (62%), correlating to the highest crash months of September and July.

This data suggest both darkness and inclement weather conditions are not a major contributing factor to crashes. In particular, most serious crashes are happening in dry road conditions. The environmental conditions trend for serious crashes may indicate aggressive or overconfident driving, and that drivers may be more conservative or cautious in less favorable conditions. As noted in modal trends, bicycle crashes occur more commonly during daylight hours (82% of all crashes), but most pedestrian crashes (63%) do not occur during daylight hours. Twenty-one percent of all serious crashes occur in dark and unlighted conditions, compared to 13% of all crashes occurring in those conditions, suggesting a lack of roadway lighting could be a factor in serious crashes.

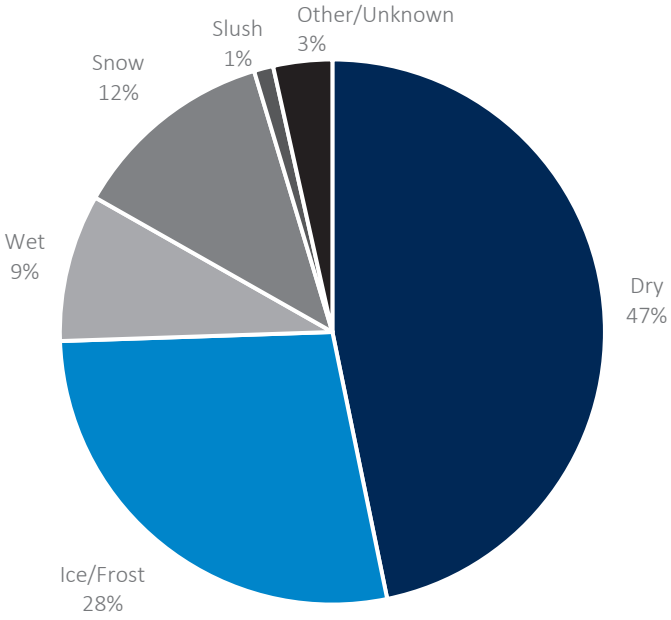

Figure 28. Road conditions at the time of all crashes

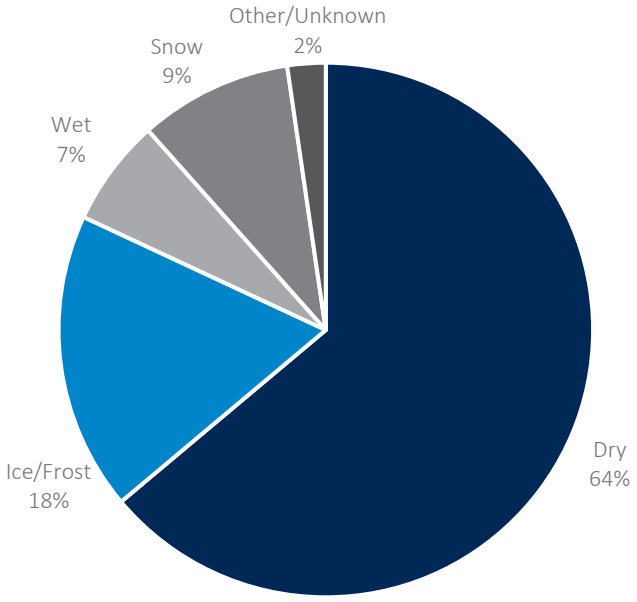

Figure 27. Road conditions at the time of serious crashes

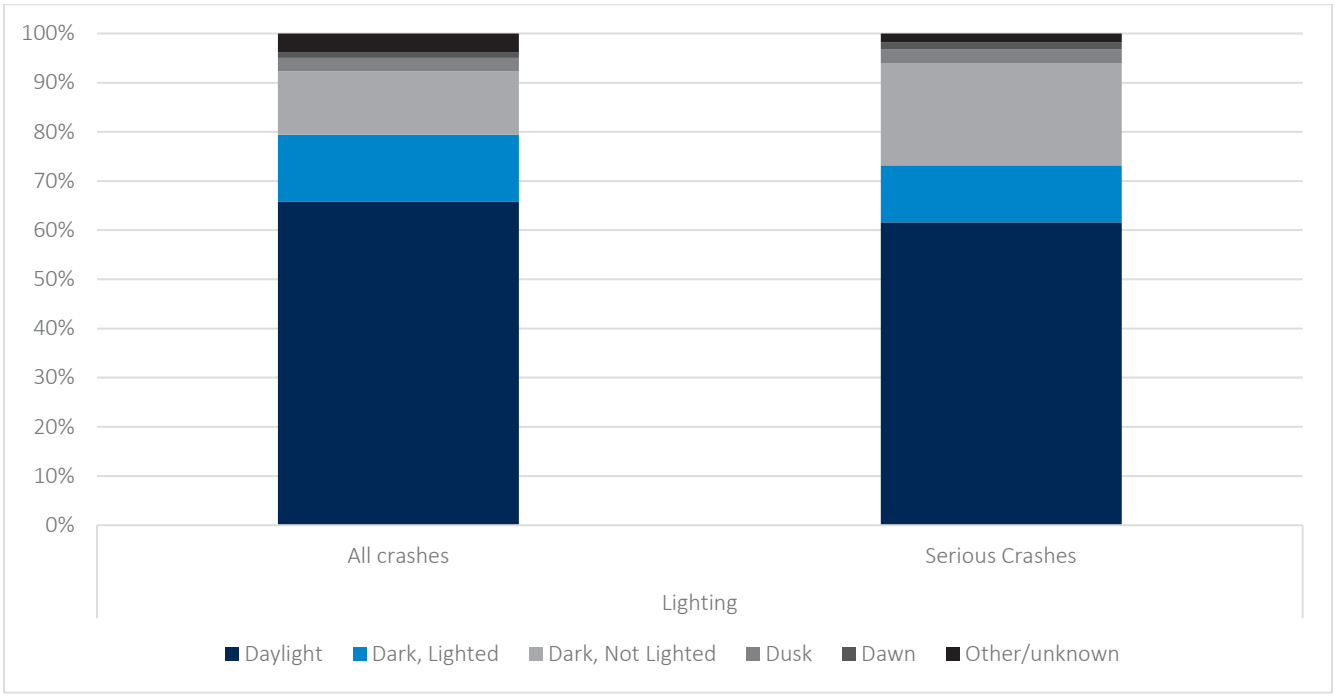

Figure 29. Lighting conditions at time of crash

Equity Analysis

Defining Equity in Transportation

An equitable transportation system strives to support all users by providing transportation options that are affordable and reliable and that meet the needs of the communities they serve. Executive Order 13985 *Advancing Racial Equity and Support for Underserved Communities*[3] (2021) defines equity as "the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality."

Building an equitable transportation system means taking extra care to consider and plan for the unique challenges that disadvantaged communities face regarding mobility and connectivity needs. Engaging with disadvantaged populations early and often during the transportation planning process can help a community respond to these needs and adjust to ensure an equitable transportation network is achieved. During the planning process and particularly regarding public involvement and outreach, it is the responsibility of transportation planning agencies to ensure that the entire community is included, regardless of race, nationality, income, age, sex, or disability.

Vulnerable Populations within the Expanded Core Area

As part of the Mat-Su Borough CSAP process, we performed a comprehensive equity analysis to identify disadvantaged populations within the Mat-Su Borough Expanded Core Area. These populations have disproportionately higher risks navigating the transportation network. The results of this analysis show a correlation between demographics and safety risk, and they provide an equity-specific lens that can be used to help prioritize and recommend projects for implementation in the final Mat-Su Borough CSAP. To complete this analysis, we used three separate methods for determining disadvantaged populations in the Mat-Su Borough Expanded Core Area. The first method features results using the Council on Environmental Quality's Climate and Economic Justice Screening Tool. This tool utilized census tract boundaries from 2010 and includes the following eight categories to assess climate and economic justice burden:

- Climate Change – loss of agriculture, buildings, and population because of climate change, flood risk, and wildfire risk
- Energy – high energy costs
- Health – asthma, diabetes, heart disease, low life expectancy
- Housing – historic underinvestment, high housing costs, lack of green space, lack of indoor plumbing, presence of lead paint
- Legacy pollution – presence of abandoned mining land or former defense sites, proximity to hazardous waste facilities, proximity to superfund sites, proximity to risk management plan facilities
- Transportation – exposure to diesel particulate matter, transportation barriers, traffic proximity and volume
- Water and wastewater – presence of underground storage tanks and releases of wastewater discharge
- Workforce development – linguistic isolation, low median income, poverty, unemployment

Purple shading in the map below shows areas with a high number of indicators signifying the presence of climate and economic justice burdens. These areas specific to the Mat-Su Borough Expanded Core Area indicate low-income populations, higher than average (above the 90th percentile) energy costs, lack of indoor plumbing, higher than average (above the 90th percentile) relative cost and time spent on transportation, and high (above 90th percentile) numbers of unemployment.

[3] https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/

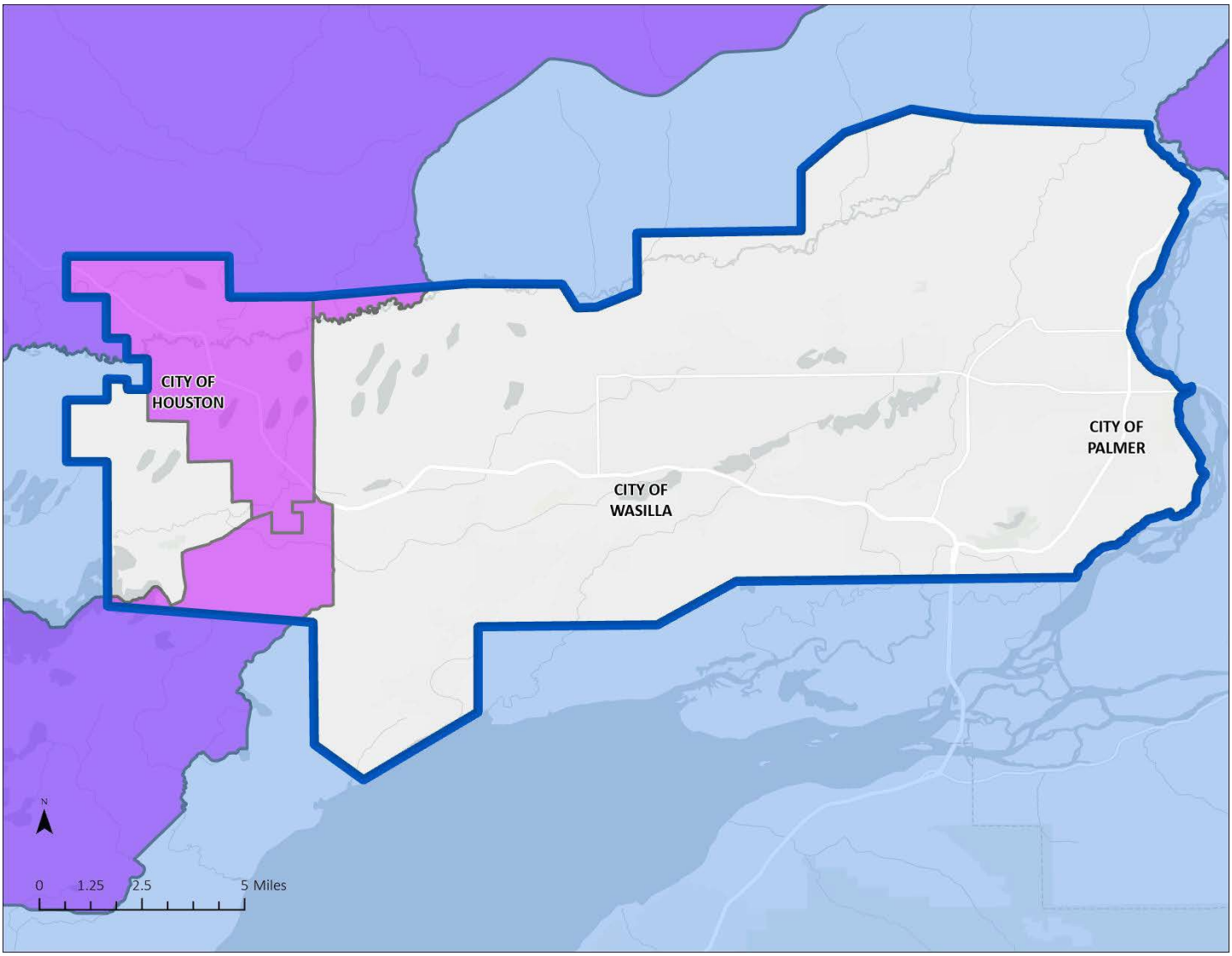

Figure 30. Climate and Economic Justice Screening Tool analysis for Expanded Core Area

The second equity analysis tool we used was the USDOT Equitable Transportation Community (ETC) Explorer. This interactive web application serves to complement the Climate and Economic Justice Screening Tool by focusing on transportation-related disadvantages. The ETC Explorer analyzes five components to look at the overall burden experienced by a community due to underinvestment in transportation. They include:

- Transportation insecurity
- Climate and disaster risk burden
- Environmental burden
- Health vulnerability
- Social vulnerability

Using this tool, we assessed that nearly the entire Mat-Su Borough Expanded Core Area experiences transportation disadvantages and transportation insecurity. Transportation insecurity is a core component indicating transportation disadvantage in a community. It occurs when a significant number of people in a community are unable to experience regular, reliable, and safe mobility to meet their daily needs. Transportation insecurity is also a substantial factor in persistent poverty.

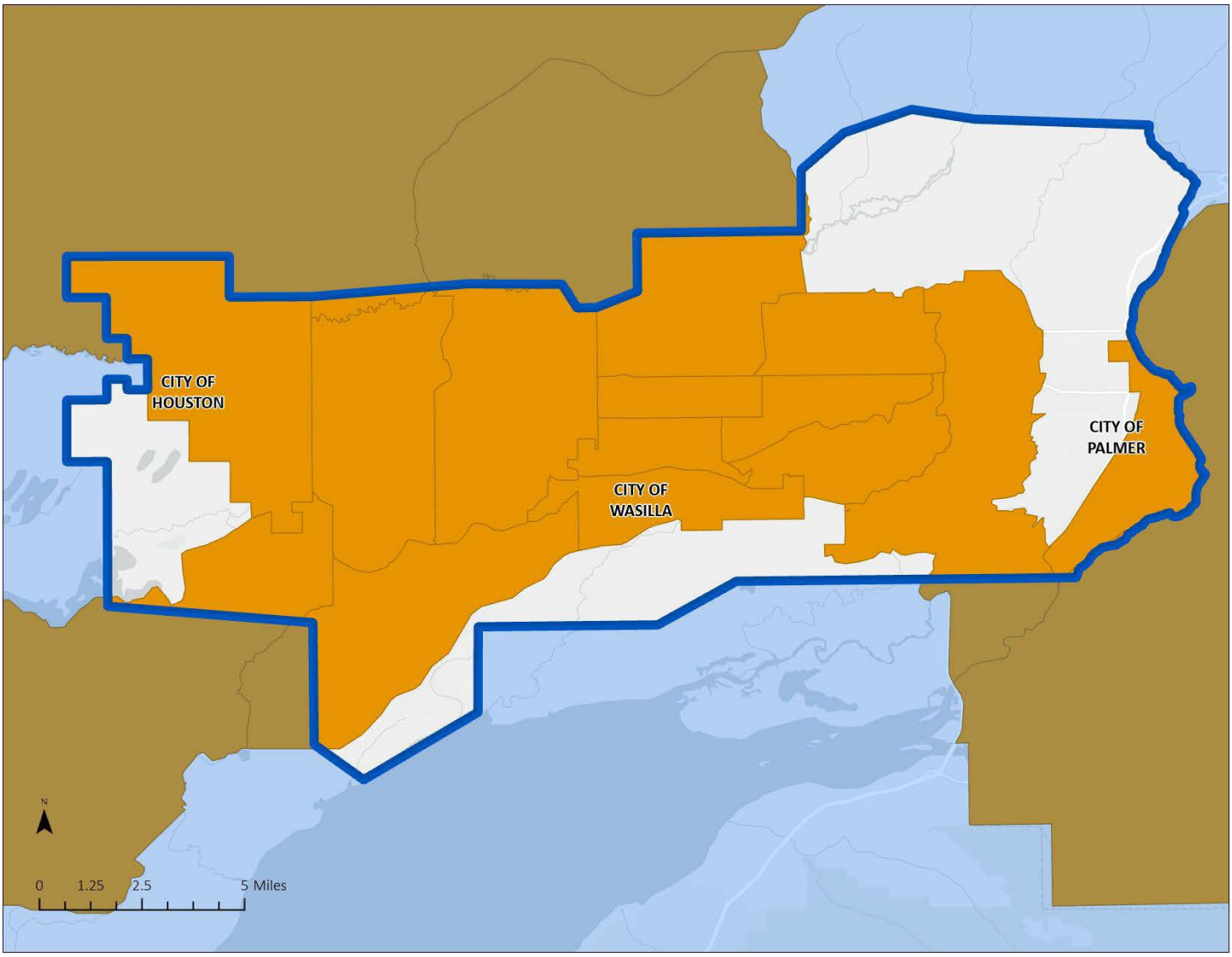

Figure 31. USDOT ETC analysis for the Expanded Core Area

On deeper analysis, the orange areas in the above map were found to have high scores in three components of the ETC Explorer Tool. These included transportation insecurity, health vulnerability, and social vulnerability.

Transportation insecurity

Transportation insecurity occurs when people are unable to meet their daily needs regularly, reliably, and safely due to the following three prevalent factors.

- Transportation access – Includes long wait times and difficultly traveling by car, walking, biking, or taking transit. Long commute times and limited access to a vehicle are barriers to employment and resources.
- Transportation cost burden – Households that spend a greater than average percentage of their income on transportation, which can include transit costs, vehicle maintenance and insurance costs, gasoline, and fuel. Overspending on transportation costs can make people more vulnerable to losing housing, not being able to afford hospital and medical care, and not being able to afford healthy food options, which can lead to chronic illness and obesity.
- Transportation safety – This factor indicates higher than average scores for the number of motor vehicle fatalities per capita.

Social Vulnerability

Social vulnerability measures lack of employment, level of education, level of poverty, percentage of home ownership, access to online resources, housing cost burden, age, English proficiency, and disability status.

Health Vulnerability

The health vulnerability category assesses the rates of disease that can be attributed to air, noise, and water pollution; limited mobility conditions due to lack of safe walking facilities; dependence on a vehicle; and long commute times. This category looks at the prevalence of asthma, cancer, high blood pressure, diabetes, and poor mental health in a community.

Finally, a third equity analysis of the Mat-Su Borough Expanded Core Area focused on the social vulnerability category of the ETC Explorer to assess the highest disadvantaged areas. This analysis is explained in the next section, Social Vulnerability Indicators within the Expanded Core Area.

Social vulnerability indicators within the Expanded Core Area

For this equity analysis, we used socioeconomic status and household characteristics to assess social vulnerability.

Indicators for socioeconomic status include:

- Percent of population with income below 200% of poverty level
- Percent of people age 25+ with less than a high school diploma
- Percent of people age 16+ who are unemployed
- Percent of total housing units that are renter-occupied
- Percent of houses that spend 30% or more of their income on housing with less than $75k income
- Percent of population uninsured
- Percent of households with no internet subscription
- Gini index (degree of inequality in the distribution of income/wealth)

Indicators for household characteristics include:

- Percent of population 65 years or older
- Percent of population 17 years or younger
- Percent of population with a disability
- Percent of population (age 5+) with limited English proficiency
- Percent of total housing units that are mobile homes

Four census tracts within the Mat-Su Borough Expanded Core Area had high percentages of the above indicators for social vulnerability. They include Houston, Big Lake, North Wasilla, and South Wasilla.

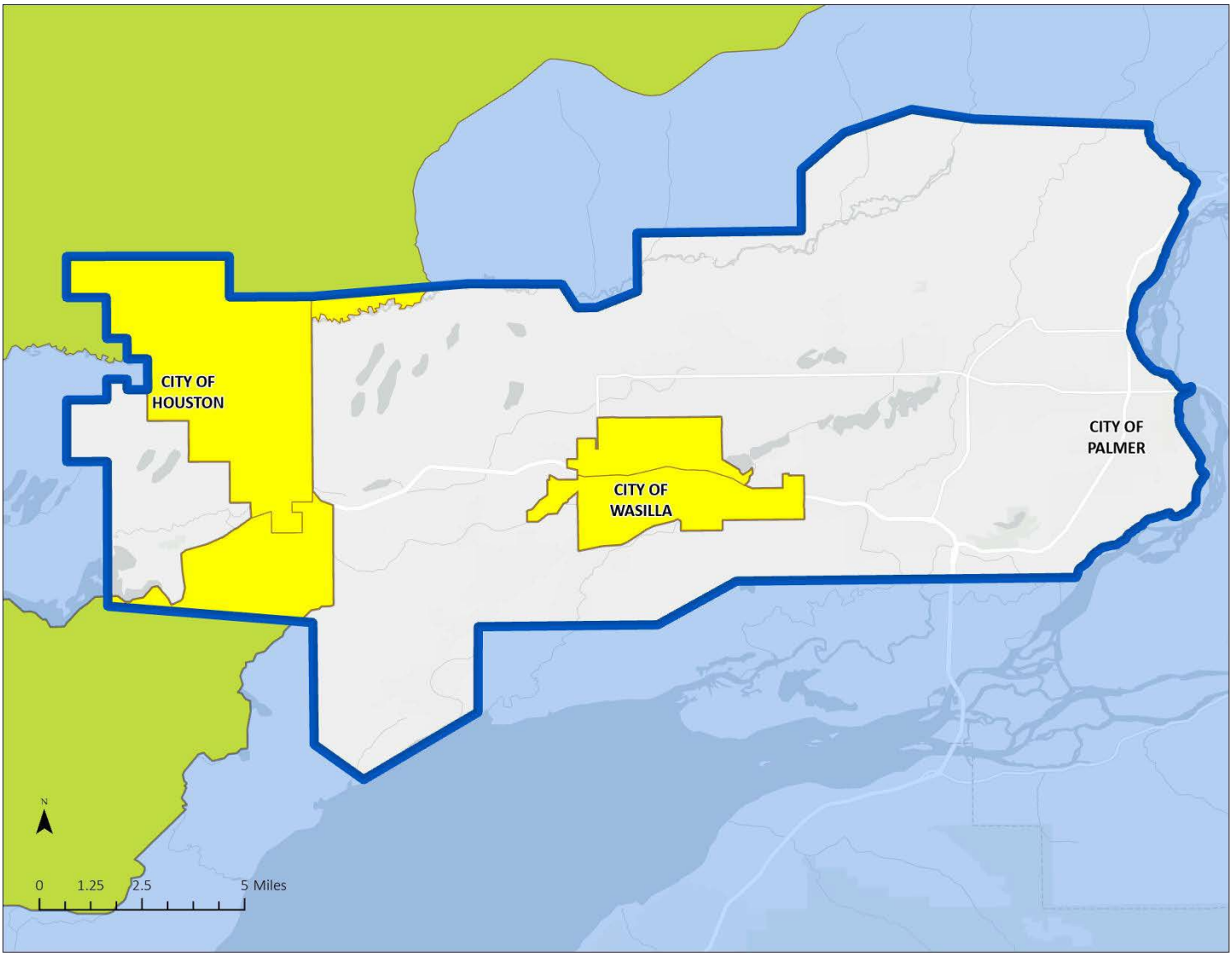

Figure 32. USDOT ETC analysis of social vulnerability in the Expanded Core Area

High Injury Area Equity Analysis

The Mat-Su Borough Expanded Core Area experienced 4,802 crashes between 2018-2022. Of those crashes, 57 resulted in a fatality and 159 resulted in a serious injury. Figure 33 depicts the crash locations for fatal and serious injury crashes.

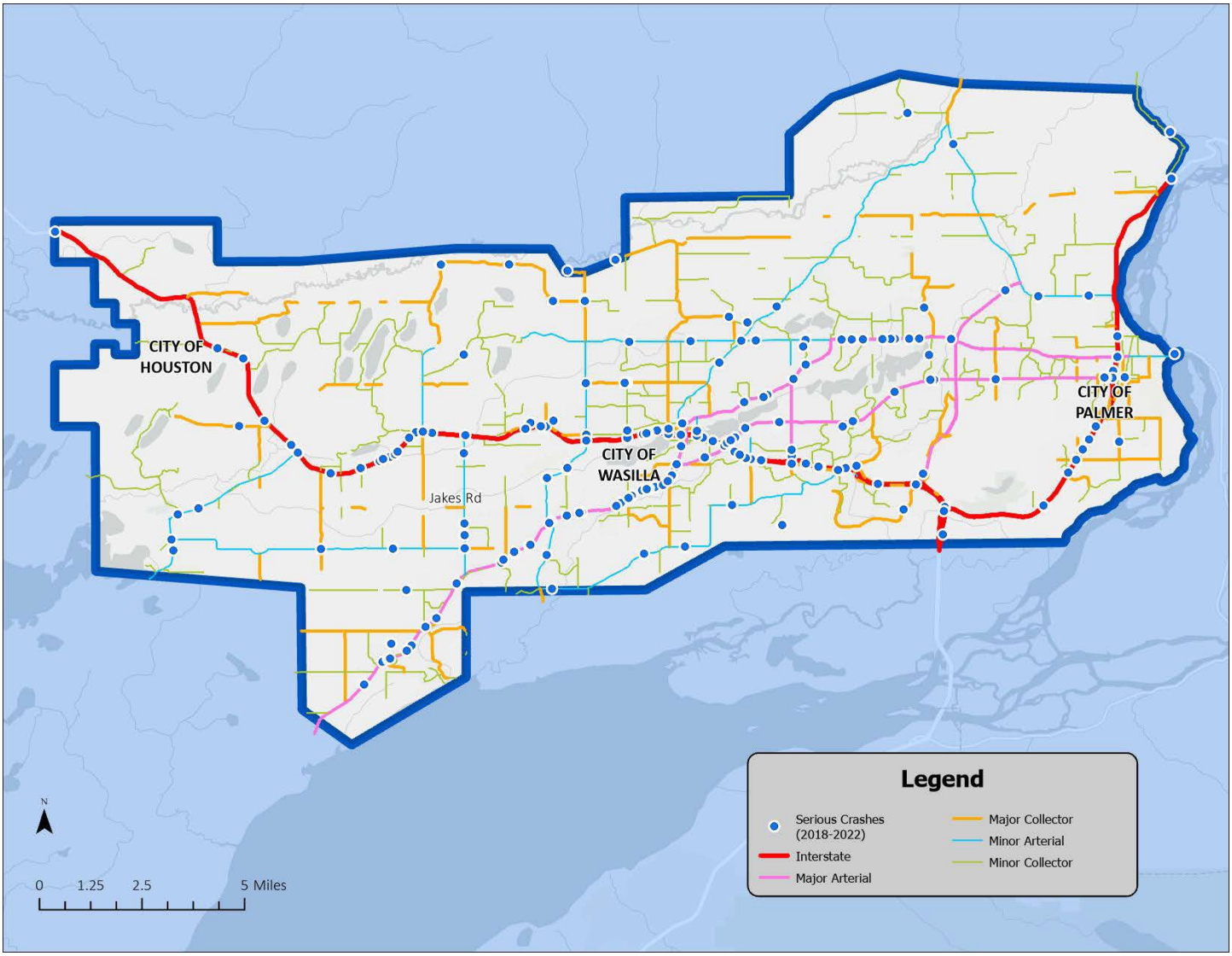

Figure 33. Mat-Su Expanded Core Area Crashes 2018-2022 (Fatalities and Serious Injuries)

Looking at these crashes through an equity lens developed using only the social vulnerability indicators analysis, it was determined that 2,050 (**42% of all crashes**) occurred in the areas determined to have high disadvantaged populations. Of those crashes, 11 resulted in a fatality and 59 resulted in a serious injury. Furthermore, **32% of all serious injury and fatality crashes occurred in areas with greater disadvantaged populations.** Both total crashes and serious crashes are overrepresented in these areas, as the disadvantaged population boundaries comprise less than 18% of the Mat-Su Expanded Core Area boundary.

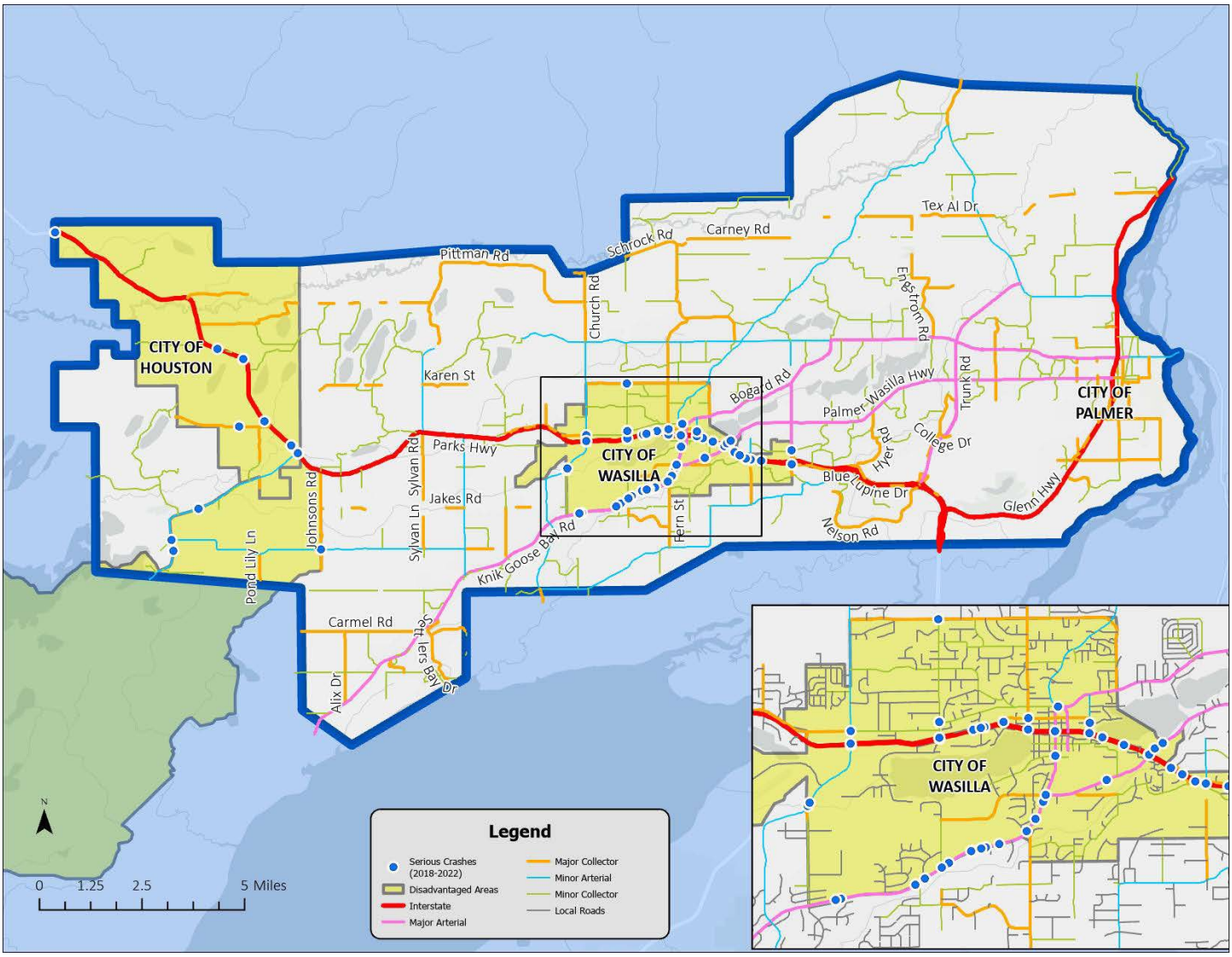

Figure 34. Mat-Su Expanded Core Area Crashes 2018-2022 (Fatalities and Serious Injuries in Disadvantaged Areas)

Figure 34 illustrates where fatal and serious injury crashes occurred in disadvantaged population areas. By focusing on the expanding quality mobility options and focusing on road safety issues in these areas, the Mat-Su Borough can have a profound effect on improving transportation safety for socially vulnerable populations.

Transportation Disparities

The Mat-Su Borough CSAP emphasizes minimizing safety risks within the transportation network. However, other factors can lead to transportation inequality within disadvantaged populations. These factors can have a substantial impact on a community member's health, ability to work, and ability to meet their day-to-day needs such as access to groceries and consumer goods. They include elevated safety risks for people who depend on transit facilities and have limited access to transportation options and desired destinations, such as places of work, healthcare, education, and social networks. When disadvantaged populations are also subject to these transportation disparities, it creates a state of transportation poverty, which can severely limit a population's resources for meeting mobility needs. It can also lead to social isolation and a reduced quality of life.

Figure 35 outlines the transportation disparities that exist within the study area based on the two social vulnerability categories used in the third equity analysis—socioeconomic status and household characteristics. They include access to transportation options and desired destinations, quality of transportation, safety risks, and health risks.

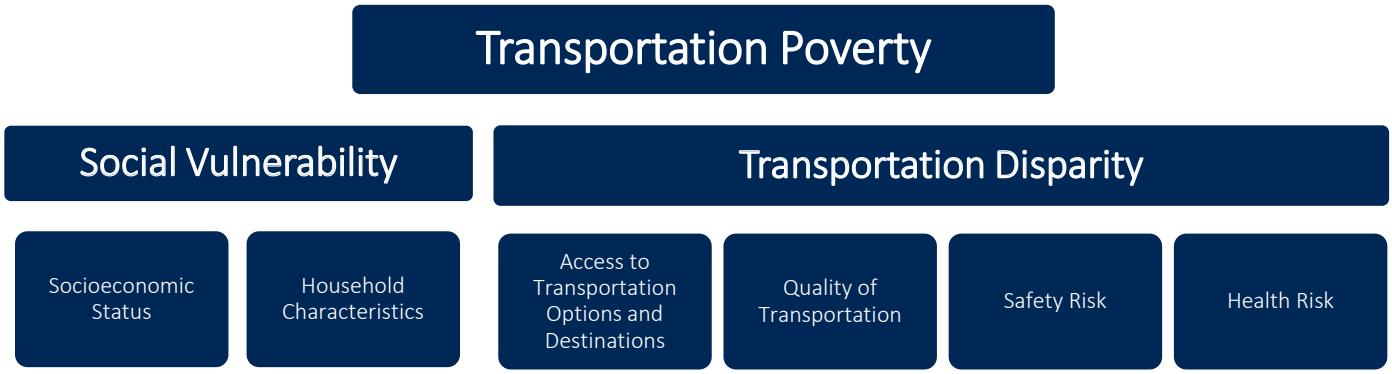

Figure 35. Transportation Poverty Diagram

The recognition of transportation disparities is growing in the United States and building momentum towards creating meaningful solutions. To avoid perpetuating disparities within the transportation network, it is important to recognize emerging needs within the Mat-Su Borough Expanded Core and plan to address them in future transportation improvements. Some examples of emerging needs for this area include:

- Older Mat-Su Borough residents need safe and convenient multi-modal options so they can choose to age in place.
- Common impacts of climate change, including severe storms, higher than average winds, and heavy snowfall can disproportionately affect disadvantaged populations, limiting their ability to access basic services. Providing convenient transportation options lowers the reliance on single vehicle ownership and provides alternatives in the event of a severe climate event.
- Changes in travel patterns due to part-time work and telework abilities can result in lower peak-hour congestion and more dispersed trips throughout the day. Encouraging a shift toward shared mobility options and roadway optimization will help the community envision a proactive plan for growing Mat-Su populations.

Transportation Barriers That Exist Within Vulnerable Populations

Transportation barriers are caused by a lack of adequate transportation or access to transportation to the extent that it interferes with an individual's ability to meet their daily needs and be a functioning member of society. For the Mat-Su Borough Expanded Core Area we identified the following barriers through the CSAP Equity Analysis:

- High cost of transportation (higher than 90th percentile nationally)
- Lack of transit facilities/routes
- Long commute times to employment and resources
- Limited access to a vehicle
- Vehicle maintenance/insurance/fuel costs (higher than 90th percentile nationally)
- Lack of safety on roadway (Mat-Su Borough has a higher-than-average rate of motor vehicle fatalities per capita than other areas nationally)
- Lack of safe walking and biking facilities
- Lack of adequate all-season maintenance to keep pathways clear
- Low income to transportation needs cost ratio
- Limited access to transportation options and destinations

By addressing these barriers through future investments in the Mat-Su Borough Expanded Core Area transportation network, transportation disparities can be diminished to create greater equity, a safer and more convenient transportation system, and a safer community.

Regional Transportation Indicators Within the Expanded Core Area

To help mitigate transportation barriers that exist in the Mat-Su Borough Expanded Core Area, it is important that the Brough proactively work to address each barrier and measure the effectiveness of mitigation over time to indicate progress. To help that process be effective, indicators that measure progress in decreasing these barriers over time need to be developed. For each barrier identified in the equity analysis, one or multiple regional transportation indicators are suggested in the table below. The corresponding performance measures shown will help to track progress on mitigating transportation barriers and potential inequities that exist within the Mat-Su Borough Expanded Core Area.

Transportation Barrier	Regional Transportation Indicator	Performance Measure (within Mat-Su Borough Expanded Core Area)
High cost of transportation	Affordability Accessibility	• Transportation cost analysis performed with each new census update
Lack of transit facilities/routes	Accessibility Connectivity Effectiveness Mobility Health	• Number of transit operators that serve disadvantaged populations • Number of commuter/demand service providers, such as Valley Transit, serving disadvantaged populations • Number of transit routes serving disadvantaged populations • Number of bus stops in disadvantaged areas • Number of bus stop shelters within disadvantaged areas
Long commute times to employment and resources	Accessibility Effectiveness Health	• Average distance from disadvantaged households to employment centers • Average distance from disadvantaged households to resources (grocery stores, schools, parks, urban centers)
Limited access to a vehicle	Accessibility Affordability Mobility	• Access to a vehicle analysis performed with each new census update
Vehicle maintenance/insurance/ fuel costs	Affordability Accessibility	• Transportation cost analysis performed with each new census update
Lack of safety on roadways	Safety Effectiveness Health	• Yearly update on number of fatal and serious injury crashes within disadvantaged areas • 3-year (repeating) survey to assess level of comfort and feelings of safety on the transportation network
Lack of safe walking and biking facilities	Accessibility Affordability Connectivity Effectiveness Mobility Health Safety	• Number of added sidewalks within disadvantaged areas • Number of added multi-use pathways within disadvantaged areas • Number of protected bicycle facilities added within disadvantaged areas • Number of gaps in the non-motorized transportation network overall
Lack of adequate all-season maintenance	Accessibility Effectiveness Mobility Connectivity Health Safety	• Number of maintenance vehicles servicing the Mat-Su Borough Expanded Core Area • Average yearly funding for maintenance in the Mat-Su Borough Expanded Core Area • Number of maintenance staff servicing the Mat-Su Borough Expanded Core Area • Average time (in hours) to clear walking and bicycling facilities in disadvantaged areas of snow and debris

Transportation Barrier	Regional Transportation Indicator	Performance Measure (within Mat-Su Borough Expanded Core Area)
Low income to transportation needs cost ratio	Affordability Accessibility	• Percentage of population using transit facilities or other alternative transportation in disadvantaged areas
Limited access to transportation options and destinations	Accessibility Mobility Connectivity Effectiveness Mobility Health Safety	• Number of transit routes serving disadvantaged areas • Average distance from households to urban centers in disadvantaged areas • Average distance from households to walking and bicycling routes in disadvantaged areas • Average distance from households to transit stops in disadvantaged areas

Equitable Distribution of Safety Investments

This equity analysis is a core component of the Mat-Su Borough CSAP and will serve to influence decisions about future safety investments within the Mat-Su Borough Expanded Core Area. The disproportionate safety risk identified within disadvantaged populations in the study area means that any safety improvements made in these areas, including new infrastructure, policies, programs, enforcement, and education, will help to advance equity. This equity analysis can also be used in future planning efforts such as assisting with determining selection criteria for the local area Metropolitan Planning Organization's (MVP) Transportation Improvement Program. This analysis helps determine where future investments will make the most headway in decreasing severe injuries and fatalities. It will also help make the most of limited transportation improvement funding.

Recommendations

To ensure that the Mat-Su Borough Expanded Core Area makes the most of limited resources in advancing transportation equity, it is important to respond to the transportation disparities and barriers that have been identified in the Mat-Su Borough CSAP. Infrastructure and services that support safe, multi-modal transportation should be advanced throughout the Expanded Core Area, but also specifically targeted towards the areas of Houston, Big Lake, North Wasilla, and South Wasilla. Investments in infrastructure and services could include:

- Expanding local transit operators
- Expanding commuter/service providers like Valley Transit
- Building transit facilities such as bus stops, bus shelters, transit corridors, and park and ride lots
- Investing in protected walking and biking facilities such as sidewalks and separated pathways
- Funding adequate all-season maintenance of existing multi-modal transportation facilities
- Including funding for all-season maintenance in planned transportation infrastructure (new facilities)
- Installing roadway and pedestrian-scale lighting in urban areas
- Retrofitting existing transportation facilities to ensure compliance with the Americans with Disabilities Act (ADA)
- Ensuring that new or planned transportation facilities are ADA compliant
- Encouraging the development of transit supportive corridors that incentivize compact, mixed-use development along commercial nodes and urban centers, affordable housing, and easy access to walking and bicycling facilities
- Closing gaps within the existing transportation networks with new planned infrastructure
- Connecting the on-street transportation network to existing pathways and trails
- Expanding the Safe Routes to School Program to include specific project investment recommendations for school zone improvements

The above recommendations are specific to equity within the Mat-Su Borough CSAP. The implementation chapter in the final plan will include additional safety recommendations inclusive to all areas within the Mat-Su Borough Expanded Core Area.

Peer City Review

To better understand how the Mat-Su Borough Expanded Core Area's roadway crashes compared to similarly sized winter communities, we evaluated crash and population data for several other communities. Where possible, the Mat-Su Borough Expanded Core Area was also compared to statewide data.

To account for the variability in roadway network length in relation to traffic volumes, comparing on a vehicle miles traveled (VMT) basis rather than population alone helps portray a more accurate picture of crash trends from one community to another. VMTs are calculated by the total length of road in a segment or network multiplied by the average annual daily traffic of each route or segment, times 365 days per year.

VMTs are published at the state level as required by the Federal Highway Administration (FHWA), but not necessarily at the local level. VMT data were not available for all communities. Similarly, publicly available crash data varies at the municipal level, so the leading factor of crashes for peer cities was not analyzed. A summary of data by community is in Appendix A: Summary Data and Sources for Peer City Comparison. Notes about the data sources and their limitations are also provided.

Comparison Community Backgrounds

Communities selected for comparison were chosen from the Midwest or Western states with winter climates. Fairbanks North Star Borough and Kenai Peninsula Borough were also selected as more closely relatable communities on the statewide level. Western states typically have underdeveloped and growing transportation networks like the Mat-Su Borough Expanded Core Area. Fargo, North Dakota (considered Midwestern) has a comparable climate to the Mat-Su Borough. Appendix A contains more background on the comparison communities and how they correspond to the Mat-Su Expanded Core Area.

Total crashes

The Mat-Su Borough Expanded Core Area is in the low end of total crashes for comparison communities for both population and VMTs (where data were available). This is not surprising given the Mat-Su Borough Expanded Core Area is on the low end of VMTs for all comparison communities. However, Cass County, North Dakota has far greater VMTs (likely given the presence of I-29 and I-94) and notably had lower crashes per VMT.

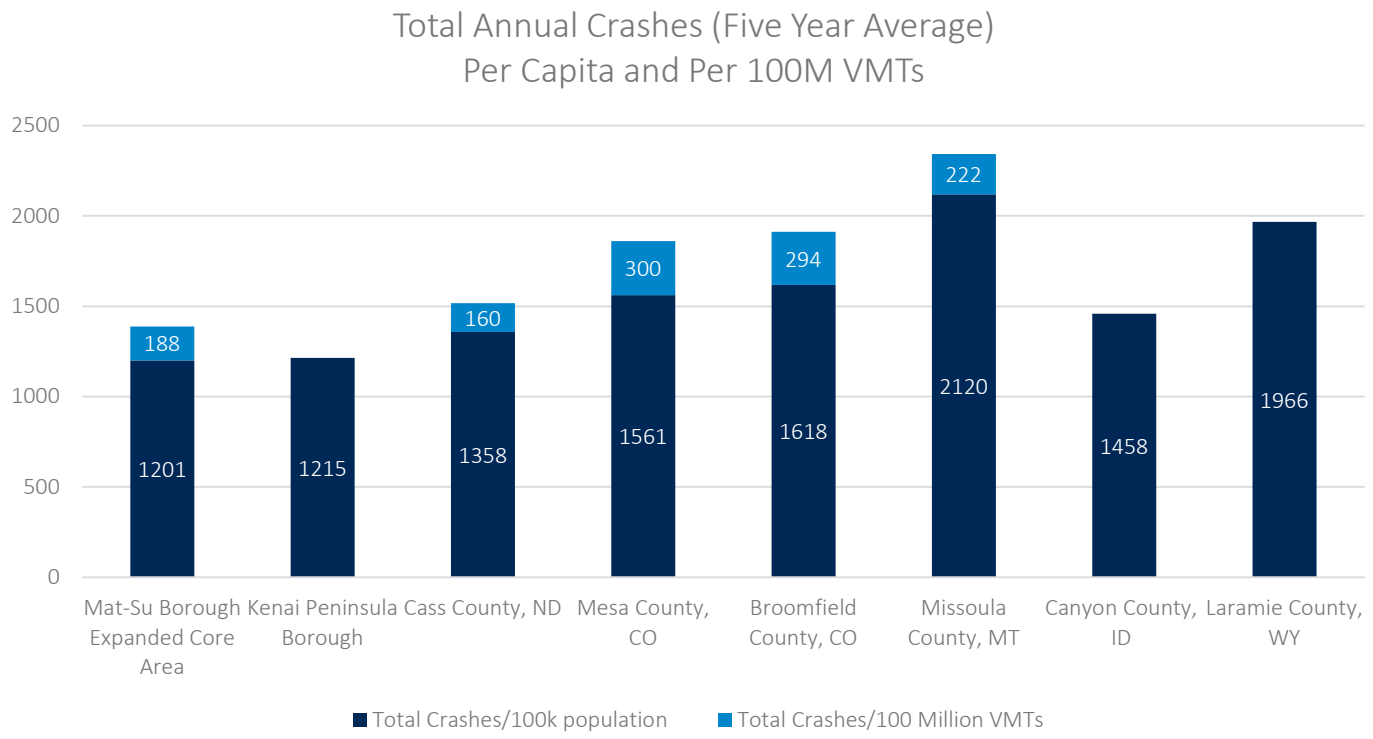

Figure 36. Total annual crashes by comparison community

Fatal and Serious Injury Crashes

The composite of fatal and serious injury crashes is a better indicator of serious crash trends as evaluating fatal crashes on their own may show high variability over a given period. The Mat-Su Borough Expanded Core Area averaged 43.2 fatal and serious injury crashes from 2018-2022, comprising 10.5% of the state's total. This was mostly comparable to Laramie County, Wyoming, and Kenai Peninsula Borough, but was substantially less than Canyon County, Idaho. By VMT, the Mat-Su Borough Expanded Core Area was slightly above the state rates of fatal and serious injury crashes, but well below comparison communities in total serious crashes.

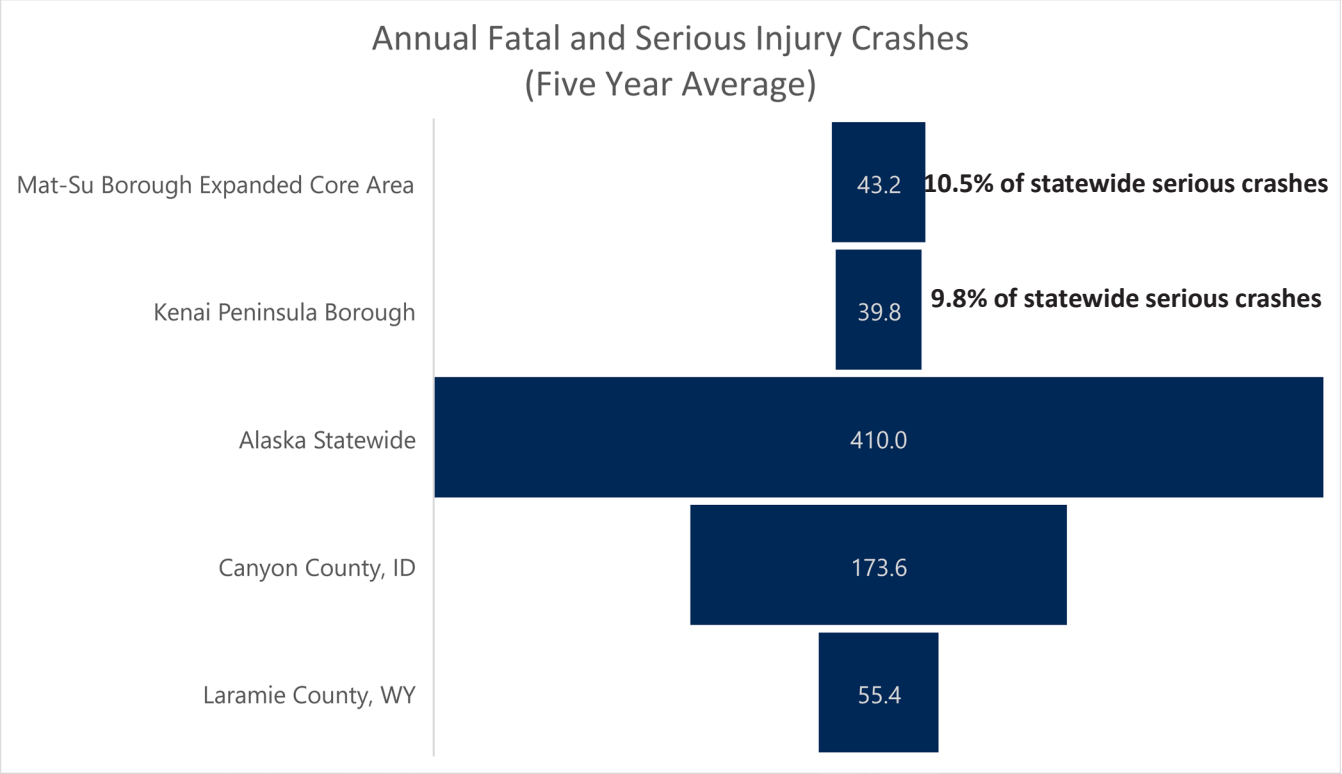

Figure 37. Fatal and serious crashes by comparison community

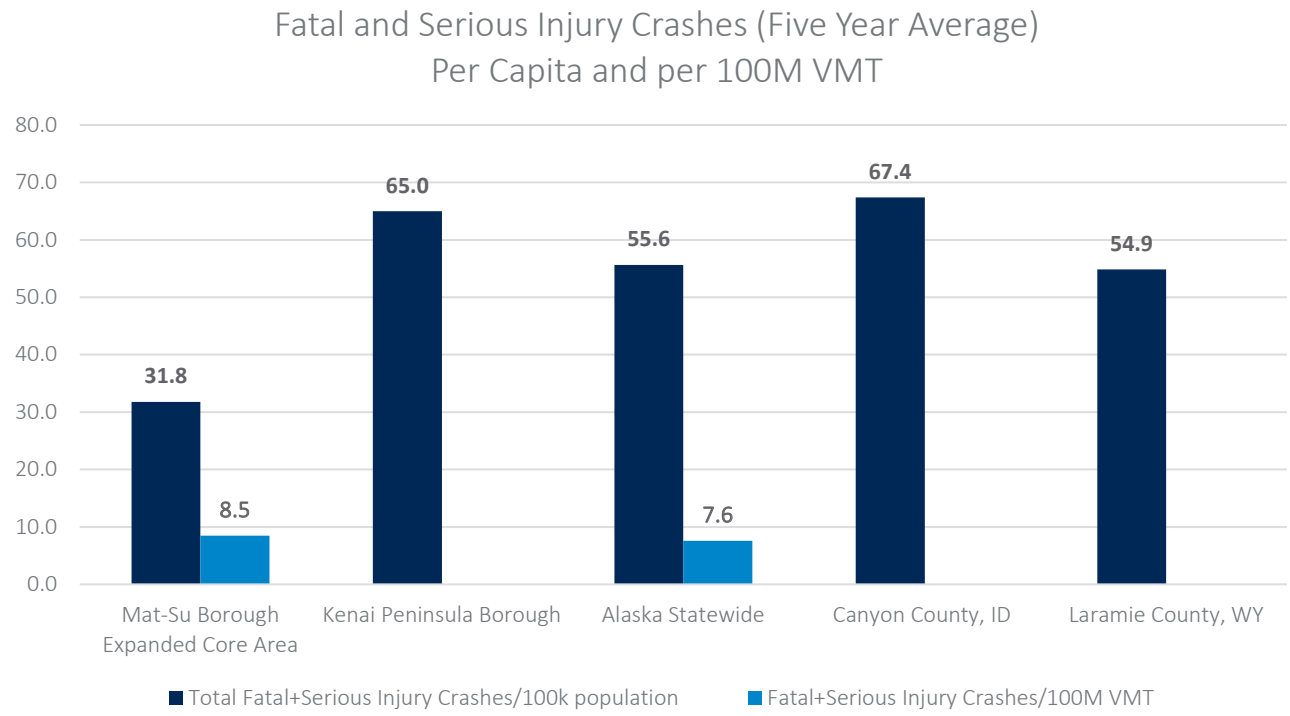

Figure 38. Serious crashes per capita and VMT by comparison community

Fatal Crashes

Peer cities were compared for fatalities for further context, particularly since fatal crash data are more widely available for states and municipalities. The Mat-Su Borough Expanded Core Area led all communities in fatal crashes per capita by a small margin. The Expanded Core Area led by a large magnitude per VMT, however, with only Mesa County on a comparable but slightly lower crash rate per VMT.

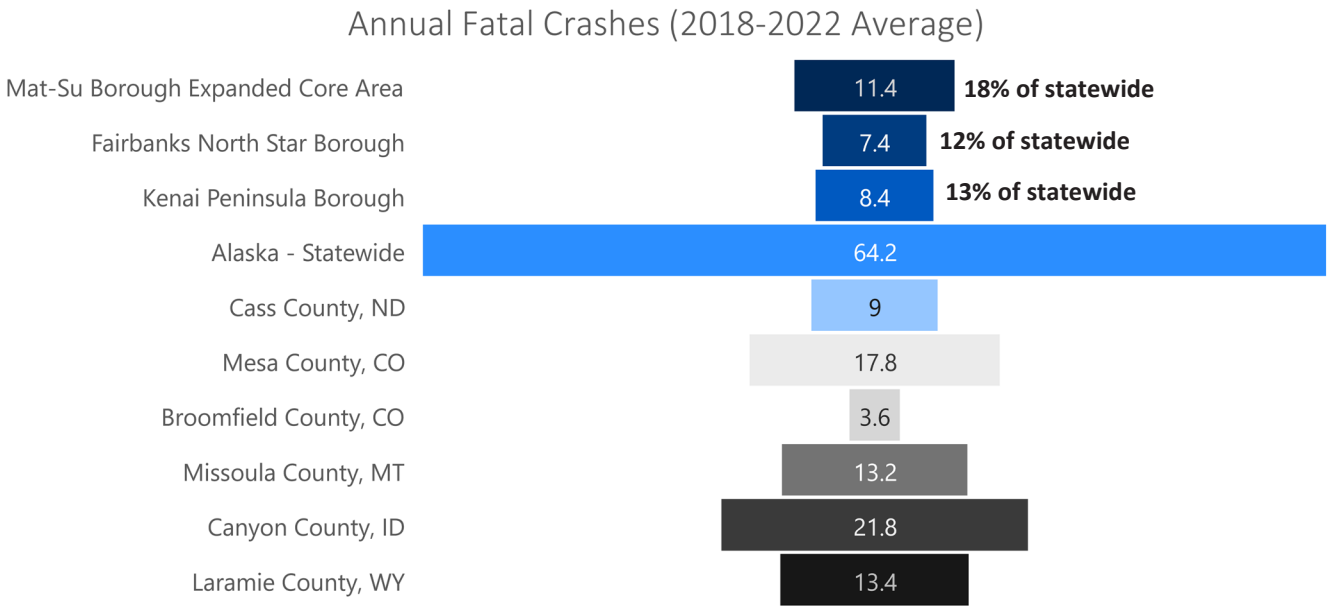

Figure 39. Annual fatal crashes by comparison community

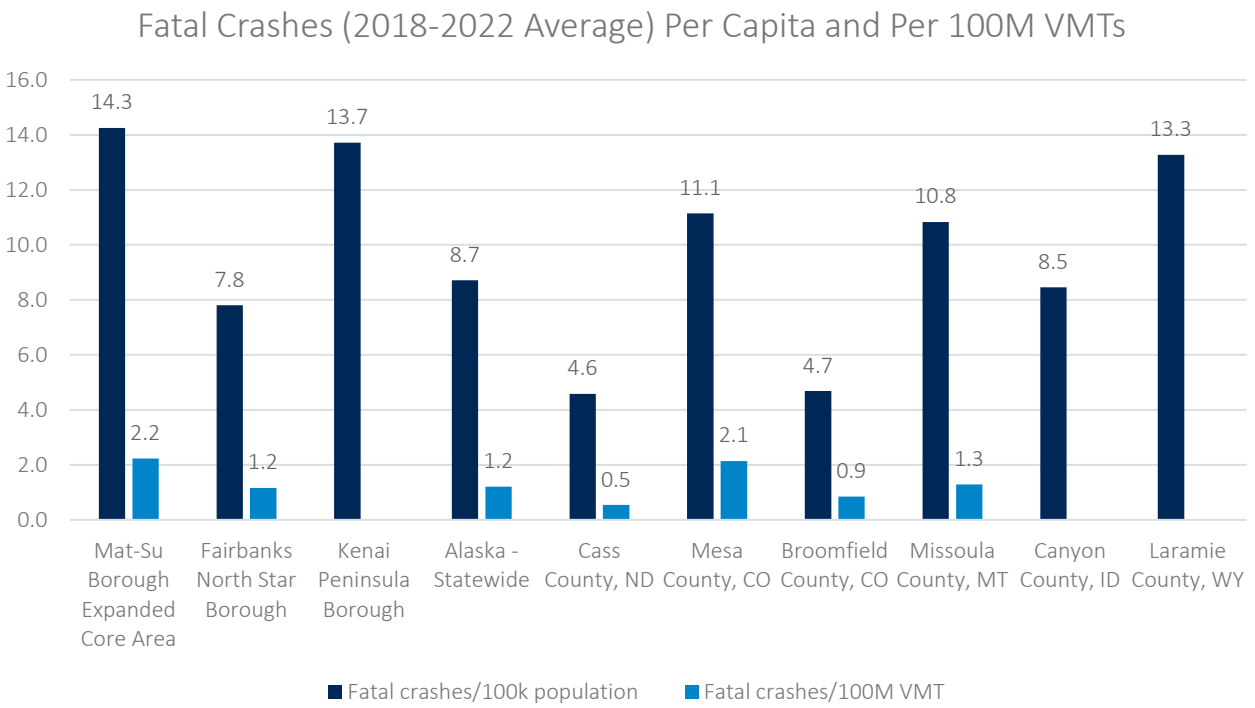

Figure 40. Fatal crashes per capita and VMT by comparison community

Exposure to Crash Risk

Alaska DOT&PF's defined program methodology for evaluating exposure type in its Highway Safety Improvement Program is simply traffic volume or average annual daily traffic (AADT). VMT can also be a measure of risk exposure for a given route or a network. Other exposure metrics can include population, number of registered vehicles, and number of licensed drivers. Population data for the Mat-Su Borough Expanded Core Area is described in Table A-2, Appendix A. As of 2023, the Mat-Su Borough has 80,330 registered motor vehicles, or 12% of the state's total.[4] Vehicle registration data for the smaller Mat-Su Expanded Core Area is unknown, and the Alaska Division of Motor Vehicles does not publish licensed drivers by municipal area.

For motor vehicle traffic, the highest volume[5] route segments in the Mat-Su Borough Expanded Core Area as of 2022 are:

- Parks Highway near Palmer-Wasilla Highway (36,500 AADT)
- Knik-Goose Bay Road near Parks Highway (15,200 AADT)
- Glenn Highway near Bogard Road (14,600 AADT)
- Palmer-Wasilla Highway near Trunk Road (14,000 AADT)

Total crashes in the heat map shown in Figure 5 correlate to higher concentrations of crashes in these route segments.

For bicycles and pedestrians, FHWA defines exposure to roadway features criteria as follows:[6]

- **Urban roadways** have a higher concentration of non-motorized users and, accordingly, a higher proportion of non-motorized crashes occur on these routes
- **Divided roadways** are demonstrated to be safer for non-motorized users compared to undivided roadways
- **Work zone crashes** disproportionately affect non-motorized users

[4] Alaska Division of Motor Vehicles: https://dmv.alaska.gov/media/rs3owmwl/2023_registeredvehiclesbyboundaryreport.pdf
[5] Alaska DOT&PF: https://alaskatrafficdata.drakewell.com/publicmultinodemap.asp
[6] https://highways.dot.gov/safety/pedestrian-bicyclist/safety-tools/synthesis-methods-estimating-pedestrian-and-bicyclist-8

- **Higher posted speed** increases the probability of a non-motorized user fatality
- **Lack of roadway lighting** increases the likelihood of a non-motorized fatality
- **Sidewalks, bike lanes, road shoulders, and on-street parking** are all shown to improve safety for bicycles and pedestrians, while the **presence of bus stops** appears to increase pedestrian crash frequency
- **Multilane** roadways are more likely to see a higher incidence of non-motorized crashes
- **Signalized intersections** generally present less risk to non-motorized users compared to unsignalized intersections
- **Marked crosswalks** present mixed data for prevalence of pedestrian fatalities, with volume and the presence of other traffic control devices greatly affecting pedestrian fatalities

For the relatively low number of bicycle crashes in the Mat-Su Borough Expanded Core Area, they appear most prevalent on exposure features along undivided segments of the Parks Highway (an interstate with higher posted speed) and urban arterials (higher posted speed). The relatively low number of pedestrian crashes appear intersection-related with a slightly higher prevalence at unsignalized intersections.

Plan, Policy, and Program Reviews

Plan Reviews

To ensure the Mat-Su Borough CSAP builds upon past transportation safety planning efforts, we studied existing plans to analyze relevant goals, strategies, policies, and recommended projects from those efforts. Wherever possible, these planning initiatives will be carried forward and aligned with Mat-Su Borough CSAP goals, polices, strategies, and recommended projects. Consolidating these transportation safety planning elements into one document will also help facilitate CSAP implementation after it is adopted.

Summaries of our reviews of the following plans are in Appendix B: MSB CSAP Plans Review. For each plan, we performed an analysis of the overarching plan goal; transportation safety-related goals; key safety-related policies, programs, and projects; and applicability to the Mat-Su Borough CSAP.

Plan Title	Plan Owner	Year
Mat-Su Borough Comprehensive Plan Update	Mat-Su Borough	in process
Alaska DOT&PF Statewide Transportation Improvement Program	DOT&PF	2024
Alaska Strategic Highway Safety Plan	DOT&PF	2024
Bogard-Seldon Corridor Access Management Plan (Draft)	Mat-Su Borough	2024
Alaska Vulnerable Road User Assessment	DOT&PF	2023
Mat-Su Borough Bicycle & Pedestrian Plan	Mat-Su Borough	2023
Mat-Su Borough Coordinated Human Services Transportation Plan Update	Mat-Su Borough	2023
Mat-Su Valley Planning (MVP) MPO Boundary Development Document & Interactive Map	Mat-Su Borough	2023
Mat-Su Borough Official Streets & Highways Plan	Mat-Su Borough	2022
Mat-Su Borough Transportation Infrastructure Program	Mat-Su Borough	2021,2023 & 2024
City of Houston Comprehensive Plan	City of Houston	2017
Mat-Su Borough Highway Safety Improvement Program Handbook	Mat-Su Borough	2017
Mat-Su Borough Long Range Transportation Plan	Mat-Su Borough	2017
Mat-Su Borough MPO Self-Assessment	Mat-Su Borough	2016
City of Wasilla Comprehensive Plan	City of Wasilla	2011
Mat-Su Borough Core Area Comprehensive Plan	Mat-Su Borough	2007
City of Palmer Comprehensive Plan	City of Palmer	2006
Mat-Su Borough Comprehensive Plan	Mat-Su Borough	2005

Key Findings

Transportation related safety goals

A common theme among these plans are the goals of improving road safety and aligning with long-range strategies to improve transportation efficiency, promote healthy communities, and foster vibrant economies. Common transportation safety-related goals include:

- Reduce and mitigate crashes
- Reduce congestion
- Promote efficient movement of people, goods, and services throughout the borough
- Protect and foster the health, safety, and welfare of the Mat-Su Borough community
- Improve pedestrian and vehicle connections adjacent to the Glenn Highway
- Identify and prioritize trail improvements and future trail corridors
- Expand safe, accessible, and affordable transit facilities
- Provide safe street networks that enhance the quality of life for residents
- Grow sidewalk networks and improve maintenance of sidewalks
- Improve connectivity
- Prioritize projects that will strengthen the transportation network and improve safety
- Identify funding opportunities to implement plan recommendations

Transportation safety-related recommendations

Many of the plans reviewed included recommendations that serve to strengthen and complete the existing transportation network, supporting safe multi-modal movement throughout the Mat-Su Borough. Many plans also stress the importance of integrating street and trail connectivity, developing pedestrian and bicycle linkages between schools, public facilities, neighborhoods, parks and open spaces, and population centers, where feasible. Potential countermeasures from these plans that could apply to the Mat-Su Borough CSAP include:

- Access management, intersection, and driveway consolidation
- ATV Policy adoption to designate facilities for this use type
- Incorporation of flat-bottomed gravel ditches, stabilized shoulders, and trail/road intersections into new road construction
- Installing more pedestrian crossing infrastructure
- Separating vulnerable road users from motor vehicle traffic
- Installation of signage and wayfinding on trails and within population centers
- Pavement of local roads to decrease dust/visibility/asthma issues
- Expanding transit service with a focus on senior centers and vulnerable populations
- Enhance ADA accessibility on walkways
- Implement better lighting on trails, pathways, and in town centers
- Update multi-modal design standards
- Update the Subdivision Construction Manual to include bicycle and pedestrian safety and connectivity

Project Recommendations

Project recommendations included in previous planning efforts may be good candidates for Safe Streets for All (SS4A) projects after countermeasures have been identified. In the case of the Statewide Transportation Improvement Program, if funding is secured, those projects would likely be screened out of SS4A consideration. Below are the recommended projects included in each plan.

Alaska DOT&PF Statewide Transportation Improvement Program (latest approved) and Highway Safety Improvement Program (Note: some of these have started or recently completed construction, and as such are not good candidates for SS4A but are included to show recent transportation improvements and investment.)

- Bogard Road N. Earl to N. Engstrom
- Bogard Road Safety and Capacity Improvements
- Fairview Loop Road Rehabilitation and Pathway
- Hermon Road Extension (Parks to Palmer-Wasilla)
- Hemmer Road Upgrade and Extension
- Palmer-Fishhook Separated Pathway (Trunk to Edgerton-Parks)
- Parks Highway MP 52-57 Reconstruction (Big Lake to Houston)
- Glenn Highway: Parks Highway to South Inner Springer Loop (Cienna Ave.)
- Glenn Highway Arctic Avenue to Palmer-Fishhook Road Safety and Capacity Improvements
- Seldon Road Extension Phase II: Windy Bottom/Beverly Lakes Road – Pittman
- Seldon Road Reconstruction: Wasilla-Fishhook to Lucille Street
- Knik-Goose Bay Road Reconstruction
- Wasilla to Fishhook Main Street Reconstruction
- Big Lake Road Rehabilitation
- Trunk (Nelson) Road Rehabilitation
- Inner and Outer Springer Loop Separated Pathway
- (HSIP) Bogard Road at Engstrom/Green Forest Drive Intersection Improvements
- (HSIP) Vine Road at Hollywood Road Intersection Improvements
- (HSIP) Church Road and Spruce Ave Intersection Flashing Beacon
- (HSIP) Wasilla-Fishhook Road and Spruce Ave./Peck St. Roundabout
- (HSIP) Palmer-Fishhook Road and Trunk Road Roundabout
- (HSIP) Pittman Road Shoulder Widening and Slope Flattening
- (HSIP) Bogard Road: Greyling Street to Grumman Circle Safety Improvements
- (HSIP) Bogard Road: Trunk Road to Engstrom Safety Improvements

Alaska Vulnerable Road User Assessment

- Bogard/Arctic Avenue from Anna St. to Gulkana St.
- East Palmer-Wasilla from Felton St. to Valley Way
- East Palmer-Wasilla and Glenn Hwy.
- West Bogard and Glenn Hwy.
- East Parks and Palmer-Wasilla Hwy.

City of Houston Comprehensive Plan

- Parks Highway bypass
- Four-Lane Upgrade from Big Lake to Houston
- Access consolidation W. Larae Road/Airolo
- Access consolidation Corn St.
- Access consolidation N. Dana Ct. to Railroad Undercrossing
- More pedestrian crossings (general)
- Secondary road link to Beaver Lake area
- Access to middle and high schools from Delroy Road
- Alternate access to Cheri Lake
- Bridge connecting Armstrong Road to Prater Lake area

- Pathway along Hawk Lane (between middle and high schools)
- Connect Hawk Lane pathway to Big Beaver Lake
- Pathway along Kenlar Road

City of Palmer Comprehensive Plan

- Glenn Highway Bypass
- Bogard Road Extension
- Downtown – East West Connection
- Felton Extension
- Pave all roads within community (general)
- Connect north and south Gulkana St.

City of Wasilla Comprehensive Plan

- Expand Parks Highway through Downtown Wasilla
- Mack Dr. with Clapp Road extension
- New intersection at Fairview Road
- Conceptual Transportation Site Master Plan

Mat-Su Borough Long Range Transportation Plan

- Access Development Plans for all major collectors and arterial roadways
- Highway Safety Corridor designation for between Palmer and Wasilla
- Glenn Hwy. Erosion Protection
- Parks Highway/Talkeetna Spur Ped Improvements
- Palmer Wasilla Highway widen to three lanes
- Bridge replacement Montana Creek and Sheep Creek
- Nelson Road extension to Fairview Loop Road
- Engstrom Road Congestion Relief
- Engstrom Rd North extension to Tex Al
- Tex Al Road Upgrade and Extension
- Glenn/Parks Interchange Hospital Access Improvements
- Ongoing AKDOT&PF Asset Management and Safety Improvement Program
- Seldon Road - Beverly Lake Road to Pittman Road
- Jensen Road Extension to Soapstone Road
- Museum Drive Extension west to Vine Road
- Katherine Drive Connection to Trunk Road
- Vine Road Improvements - Hollywood Blvd. to Parks Hwy.
- Wolverine Road from Wolverine Creek Canyon to approximately Mile 10 (where maintenance ends)

Mat-Su Borough Transportation Infrastructure Program (21, 23, 24)

- Lucille Street Rehabilitation
- Cheri Lake Drive/Karen Avenue/King Arthur Drive
- Fern Street Reconstruction
- Palmer-Fishhook Separated Pathway
- Inner-Outer Springer Loop Pathway (see STIP)
- MSB School District Pedestrian Projects (Safe Routes to Schools)
- School Site Traffic and Safety Improvements: Shaw Elementary School
- School Site Traffic and Safety Improvements: Finger Lake Elementary School

- School Site Traffic and Safety Improvements: Pioneer Peak Elementary School
- King Arthur Drive Reconstruction
- Johnsons Road Upgrade
- Edgerton Parks Rd - Mtn Trails Drive Upgrade & Pathway
- MSB School District Shaw Elementary Access Improvements
- 49th State Street Pathway
- Smith Road Extension Upgrade and Pathway
- Green Forest Drive Upgrade
- Engstrom North Extension to Tex-Al

Policy and Program Reviews

Programs and Policy Review Related to Safety

Until Vision Zero is achieved, all communities can do more to improve safety. However, Mat-Su Borough has done or is already doing things that support Vision Zero objectives. This section describes areas of success and other areas with opportunities for improvement.

Code Review

We did not conduct a comprehensive review of Mat-Su Borough code, as this effort is presently underway as part of the borough's Sub-Area Solutions Studies. However, we performed a cursory review to identify issues directly related to safety. Below is a summary of recommendations based on this review:

Chapter 11 (Roads, Streets, Sidewalks and Trails)

- 11.020.040 Driveway Applications
    - (A)(4) triggers a turn lane warrant analysis when 50 or more vehicles are anticipated in the peak hour. Consider not constraining turn lane warrants to only high-volume driveways. AASHTO's GB7 (see Policy Section) identifies left turn lane warrants starting as low as five turning vehicles in the peak hour. Consideration should be given for other contextual factors to require a turn lane analysis such as AADT, roadway functional classification, crash history, or other roadways key for development as identified in the Official Highways and Streets Plan.
    - For both (A)(4) and (A)(5), consider requiring, as a factor in triggering a warrant or traffic impact analysis, a 15- or 20-year growth projection and/or the growth factor for anticipated trips as the basis or source of projected growth for a given roadway to ensure consideration is given to future anticipated traffic growth and not just the year of development.
- 11.020.070 High Volume Driveway Standards
    - Consider adopting the latest version of AASHTO for left turn lane warrants in part B. The cited standard is from 1967 and considerable research has been conducted since then (see the Corridor Access Management section).
    - Consider a review of requirements or creating custom requirements for right turn lane warrants. See the Increase minimum thresholds for right or left turn lanes for developers and roadway designers section for examples of practices in other communities. While the turning traffic volume warrants will always be higher for right turn lanes than for left turn lanes, other mitigations for right turning traffic such as 10:1 approach tapers can be considered.
- 11.020.080 Traffic Impact Analysis
    - (A)(3) Consider removing reference to the date or version of the Transportation Research Board's *Highway Capacity Manual* and requiring the most current version be used instead. Using the most current version of a cited manual ensures the latest research and best practices are applied and does not require the borough to update code every time a new manual is released. This practice is consistent with

Mat-Su Borough Code 11.020.040(A)(2)(h)(ii), which requires use of the most current version of the Institute of Traffic Engineers *Trip Generation Manual*. This practice is also used in the Mat-Su Borough 2022 Subdivision Construction Manual where AASHTO manuals are cited.

2022 Subdivision Construction Manual

- Table A-1 Design Criteria: consider making design speed equal to posted speed to promote operating speeds at the target speed.
- Section C-B.02: consider less than 12-foot lane widths where context-appropriate for arterials and collectors to help reduce driver speed, and potentially provide wider shoulders or space for non-motorized users.
- General: consider warranting requirements for separated bicycle or pedestrian facilities.

Mat-Su Borough is preparing a draft design criteria manual. The considerations above should also be given in this criteria manual, with particular focus on selecting a design speed. Designing to a speed higher than the intended posted and operational speed may promote driving above the intended speed and is not consistent with the practice of designing roadways to be self-enforcing. See the Review/implement speed management policies for setting speed limits section on speed management policies and DOT&PF's shift to designing self-enforcing roadways.

Program Review

Designating and Decommissioning Safety Corridors

The Parks Highway between Wasilla and Houston was the second of four Safety Corridors designated in Alaska in 2007. It was the first to be decommissioned in 2022 once the four-lane divided highway, with segments of separated multi-use path, was completed. This corridor saw a 55% reduction in fatal crashes[7] between 2009 and 2022.

Knik-Goose Bay Road[8] was designated as a Safety Corridor in 2009, with work currently underway (beginning in 2022) that should allow for removal of this designation once it becomes a divided highway with a separated multi-use path. Crash data reinforce the reason Knik-Goose Bay Road was designated as a safety corridor, as shown in the heat map in Figure 5.

Designating these high crash corridors as Safety Corridors incorporates the tenets of the SSA by adding an enforcement focus (more serious penalties for speeding infractions) and a call to action to allocate funding for construction of needed changes to these roadways.

Roundabout Construction

Since 2010, eight single-lane or multi-lane roundabouts have been constructed in the Mat-Su Borough Expanded Core Area, with at least six more planned. Roundabouts are an FHWA Proven Safety Countermeasure[9] that can reduce fatal and serious injury crashes by 81%. They are continuing to grow in number across Alaska and show the same effectiveness within the state as in national studies.

This safety track record is why Alaska DOT&PF has a "Roundabouts First[10]" policy, requiring engineers to consider whether a roundabout is appropriate before considering other intersection solutions. Engineers are also required to document when traffic signals are selected over a single-lane roundabout.

Roundabouts are effective because they reduce the number of potential conflicts, reducing the likelihood of a crash. They also substantially reduce speeds, which reduces the severity of crashes when they do occur. Before and after crash data and benefit costs of Mat-Su area single-lane roundabouts were not analyzed, but conclusions from 2018-2022 data are provided below.

[7] https://dot.alaska.gov/stwdplng/hwysafety/assets/pdf/2022_Safety_Corridors_Audit.pdf
[8] https://dot.alaska.gov/stwdplng/hwysafety/safety_corridors.shtml#:~:text=Currently%20the%20Seward%20%28May%202006%29%2C%20the%20Parks%20%28October,are%20the%20four%20designated%20Safety%20Corridors%20in%20Alaska
[9] https://highways.dot.gov/safety/proven-safety-countermeasures/roundabouts
[10] https://dot.alaska.gov/stwddes/dcstraffic/roundabouts.shtml

Each location had consistent trends: no serious injury, and no bicycle, pedestrian, or motorcycle crashes. Each location demonstrates that while crashes may occur, they are not serious, indicating that single-lane roundabouts are an effective intersection treatment on collector and arterial roads in the Mat-Su Borough Expanded Core Area.

- Lucille St. and Seldon Road Roundabout was developed under Mat-Su Borough's Highway Safety Improvement Program (HSIP) and constructed in 2014. There were 23 crashes at this intersection from 2018-2022, most of which were angle crashes. Where driver circumstances were reported, they were listed as failure to yield.
- Trunk Road and Parks Highway South Ramp Roundabout was constructed in 2016. There were 14 crashes at this intersection from 2018-2022. Where driver circumstances were reported, they were listed as failure to yield.
- Big Lake Road and Northshore Drive Roundabout was constructed in 2016. There were two crashes at this intersection from 2018-2022. One was an angle crash, and the other was a crash with a sign.

Transportation Capital Investments

Through DOT&PF and locally funded projects, it is estimated the Mat-Su Borough Expanded Core Area has recently constructed or is planning to construct over $600M in transportation projects that will significantly contribute to safety and operations in the region.[11] Some of the larger dollar investments contributing to that total include:

- Glenn Hwy.: Parks Hwy. to S. Inner Springer Loop Phase II
- Knik-Goose Bay Road Reconstruction
- Wasilla to Fishhook Main St. Rehabilitation
- Seward-Meridian Road, Phase II: Palmer-Wasilla Hwy. to Seldon Road
- Parks Hwy. MP 52-57 Reconstruction (Big Lake to Houston)
- Glenn Hwy.: Arctic Avenue to Palmer-Fishhook
- Fairview Loop Rehabilitation and Pathway
- Glenn Hwy. Parks to Old Glenn
- Bogard Road Safety and Capacity Improvements (Trunk Road to Grumman Circle)

The Mat-Su Borough has its own Transportation Improvement Program (TIP) and has successfully secured voter-approved bond projects for local needs. For some projects, the borough has used local funds as match to DOT&PF's Community Transportation Program to further leverage available funding sources and increase the likelihood of grant awards. Mat-Su Borough TIP projects include addressing multi-modal needs such as a pathway on the Inner-Outer Springer Loop. The projects also address safety needs in and around schools with pathway improvements (E. Nelson Road near Machetanz Elementary) and school site safety improvements (Finger Lake and Shaw Elementary Schools). The TIP also appropriately addresses asset management through drainage improvements (Jolly Creek) and pavement preservation (Earl Drive, Eek St. Pavement Rehabilitation).

The region also benefits from city-sponsored projects from the cities of Houston, Palmer, and Wasilla and will soon have a local TIP dedicated to funding for the recently formed Metropolitan Planning Organization, MVP for Transportation.

Highway Safety Improvement Program

Roads within the Mat-Su Borough are eligible for project nomination and funding under DOT&PF's HSIP, regardless of the road's ownership. This funding program within the Statewide Transportation Improvement Program (STIP) is focused on reducing fatal and serious crashes through systemic or spot safety improvements. The program requires eligible projects to have crash data demonstrating a safety cost-benefit through established countermeasures.

Recently, a $20M two-way left-turn lane was constructed on Palmer-Wasilla Highway under HSIP. This program is also funding three roundabouts under development at Hollywood and Vine, Palmer-Fishhook and Trunk Road, and Wasilla-Fishhook at Spruce and Peck.

Some project activities are not eligible under HSIP, and its cost-benefit requirements generally eliminate the eligibility of higher-dollar improvements such as grade-separated interchanges. HSIP projects must present an engineering solution to

[11] Review of DOT&PF 2024-2027 STIP Amendment #1, DOT&PF's 2024-2027 HSIP Funding Plan, Mat-Su Borough TIP-21, 23, and 24 as well as DOT&PF open construction phases for projects in the Mat-Su Borough Expanded Core area as of August 2024. DOT&PF projects include total project development cost.

a demonstrated problem, which makes other factors such as public input and equity less likely to influence its nominations. However, federal rulemaking is underway to incorporate equity considerations[12] into the program.

The *Mat-Su Borough HSIP Handbook*, last updated in 2017, is modeled after DOT&PF's handbook of the same name. The handbook was developed to augment DOT&PF's HSIP by prioritizing safety projects, maintaining local control, and allowing more flexibility on the data-driven approach. (Prior to 2021, DOT&PF often had a lag of up to four years with producing crash data, making data flexibility useful.)

The *Mat-Su Borough HSIP Handbook* has project screening criteria similar to DOT&PF's program and it was used successfully in 2014 to construct the roundabout at Seldon Road and Lucille Street. The manual has not been updated in recent years due to lack of resources, and no dedicated capital funding program exists for safety projects.

While Mat-Su Borough's investment in transportation improvements is commendable, dedicating a portion of the capital funding program to safety, especially as population growth and development occurs, would be beneficial. Such a program could be designed to focus on recommendations and tools from the CSAP. It could include projects identified during the plan's data evaluation, as well as future evaluations of the publicly available and updated crash data presented through the crash dashboard developed under this plan.

Data

The Mat-Su Borough has extensive data that are collected and organized into a GIS data system. This practice is valuable as it can inform elected bodies of specific needs and trends. In addition to collecting asset management needs, the Mat-Su Borough collects data on public requests for speed calming. These data can be used as part of a speed management policy that considers public input and common themes. They can also be used to help support local requests for increased enforcement presence, particularly outside of the city boundaries of Houston, Palmer, and Wasilla.

Safety Strategies and Programs in Other Communities

SSA is an emerging concept for the Nation and for communities, and many are embracing the Vision Zero goal through public commitments and the SS4A program. The next section describes some safety strategies being planned or used in other communities, and some that are already being implemented in Alaska.

Education

►*Collaborate with DOT&PF and the Metropolitan Planning Organization to implement Vision Zero campaigns and maintain a regional Vision Zero webpage*

These campaigns focus on behaviors of concern such as distracted driving, driving under the influence, all modes sharing the road, and unsafe behavior from younger drivers. This collaborative effort requires a coordinator or champion to be effective.

Benefit: Promotes a culture of traffic safety among a community's leaders and decision makers. A website can provide resources for safety emphasis areas and supports the shared responsibility aspect of the SSA.

Communities: Boulder, Colorado[13], Denver Metro Council of Governments,[14], Ada County, Idaho[15]

►*Combine countermeasure deployment with promotional activities*

Generate announcements such as press releases, conduct media interviews, organize ribbon cuttings, and install promotional signs at project sites.

[12] https://highways.dot.gov/sites/fhwa.dot.gov/files/2024-02/HSIP%20NPRM%20Briefing%202-27-24.pdf
[13] https://bouldercolorado.gov/media/11606/download?inline hereafter hyperlinked as Boulder, Colorado
[14] https://drcog.org/transportation-planning/planning-future/safety/regional-vision-zero hereafter hyperlinked as Denver Metro Council of Governments
[15] https://www.achdidaho.org/community-resources/education/let-s-get-there-safely hereafter hyperlinked as Ada County, Idaho

Benefit: Publicizes community safety efforts and provides an opportunity to educate the public on the rationale and benefits. May improve morale for transportation staff working on these initiatives.

Communities: Boulder, Colorado

Enforcement

►*Active monitoring for red light-running*

Deploy cameras at traffic signals to assist law enforcement officials through automated enforcement.

Benefit: Drivers who are not compliant at traffic signals present a risk of severe angle crashes. Increased compliance can result in a corresponding reduction in crash severity, potentially reducing fatal crashes[16] at signalized intersections by 21%. The USDOT has published operational guidelines for camera deployment.[17]

Communities: Boulder, Colorado

►*Explore a change in state law to reduce legal blood alcohol content (BAC) for impaired driving*

Reduce the impaired driving threshold from a BAC of 0.08 to 0.05.

Benefit: Recognizing these crashes are 100% preventable, this threshold reduction reinforces the cultural stigma of having even one drink and then driving. Utah saw a 20% reduction[18] in its fatal crash rate (per 100M VMT) from 2016 to 2019 (law passed in 2017, took effect 2019). This practice is supported by the National Transportation Safety Board, whose 2023 paper cites research indicating the law had no apparent impact on alcohol sales, consumption, or tourist revenue—only driver choices. While Mat-Su Borough does not have the authority to change state law, its community leaders could advocate for the change to legislators.

Communities: State of Utah

►*Facilitate training sessions for law enforcement agencies on crash reporting and traffic safety*

Benefit: Particularly in areas with multiple law enforcement jurisdictions, training provides support on addressing key crash profiles and behaviors (to get ahead of the crash data reporting lag). Promotes consistency in generating comprehensive crash reports for improved data quality.

Communities: Denver Metro Council of Governments

Infrastructure

►*Enhanced delineation for horizontal curves*

Improve conspicuity of horizontal curves and enhance advanced warning to prevent run-off-the-road crashes on high-speed roadways. Includes installing delineators, chevron signs, larger fluorescent and/or retroreflective sign panels, dynamic curve warning signs including speed radar feedback signs, and in-lane curve warning through pavement markings.

Benefit: These are low-cost improvements for areas with a high incidence of run-off-the-road crashes and/or curves. As an example, oversized chevron signs can reduce fatal and injury crashes[19] by 15%.

[16] https://www.iihs.org/news/detail/turning-off-red-light-cameras-costs-lives-new-research-shows
[17] https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/red_light_camera_systems_operational_guidelines.pdf
[18] https://www.ntsb.gov/Advocacy/safety-topics/Documents/Point-05%20SafetyBriefingFacts%20March2023.pdf
[19] https://highways.dot.gov/safety/proven-safety-countermeasures/enhanced-delineation-horizontal-curves

Communities: This is an FHWA Proven Safety Countermeasure applied nationwide and in Alaska. For example, these were installed across the state on rural roadways including the Richardson, Steese, and Alaska Highways, where as much as a 20:1 benefit-cost ratio was realized.[20]

► *Roadside design improvements at curves*

Provide additional clear zone through slope flattening and/or shoulder widening on roads near horizontal curves to provide a more traversable or recoverable area for vehicles that leave the roadway.

Benefit: Providing a clear zone of 30 feet from 16.7 feet has been shown to reduce all crashes[21] by up to 44%.

Communities: This is an FHWA Proven Safety Countermeasure applied nationwide. This is a customary design practice for roadway rehabilitation and reconstruction projects (including Mat-Su area projects) but it can be applied as a spot improvement if crash history suggests curves are contributing to run-off-the-road crashes.

► *Wider edge lines*

Stripe 6-inch roadway fog lines instead of the standard 4-inch fog line to emphasize the roadway edge.

Benefit: This FHWA Proven Safety Countermeasure has shown to reduce non-fatal and injury related crashes[22] (not intersection related) on two-lane rural roadways by 37%, and has a 25:1 benefit-cost ratio for fatal and serious injury crashes on two-lane rural roadways. Roadway restriping can be a low-cost improvement.

Communities: FHWA's research cites application in Missouri and Idaho.

► *Road diets*

Convert four-lane roadways to three-lane, or three-lane roadways to two-lane depending on context and capacity. Utilize the space previously used by vehicles for bicycle and pedestrian accommodations. Some roads constructed decades ago may no longer need all the vehicular lanes considering shifts in transportation modes and build-outs of other road networks.

Benefit: This FHWA Proven Safety Countermeasure has shown to reduce total crashes[23] between 19 and 47%. Depending on the facility, it can be implemented at relatively low cost through roadway restriping and can also add new facilities without introducing the need for new right-of-way.

Communities: Walla Walla, Washington,[24] Minneapolis, Minnesota,[25] and nationwide

► *Flashing yellow arrows at signalized intersections*

Advises drivers to use caution on a permissive left turn, as opposed to the traditional "yield on green ball" signal, which is not always intuitive because green indicates "go."

Benefit: Flashing yellow arrows are shown to reduce total crashes,[26] especially angle crashes for the permissive left turn at a traffic signal. Protected left turn phases (solid green arrow) remain safer but can reduce efficiency of intersection operations.

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[20] https://aws.state.ak.us/OnlinePublicNotices/Notices/Attachment.aspx?id=142395 for 13NR04 Richardson Highway MP 291- 295 Enhanced Curve Delineation
[21] https://highways.dot.gov/safety/proven-safety-countermeasures/roadside-design-improvements-curves
[22] https://highways.dot.gov/safety/proven-safety-countermeasures/wider-edge-lines
[23] https://highways.dot.gov/safety/proven-safety-countermeasures/road-diets-roadway-reconfiguration
[24] https://www.wallawallawa.gov/home/showpublisheddocument/9438/638424659891470000 hereafter hyperlinked as Walla Walla, Washington
[25] https://lims.minneapolismn.gov/Download/RCAV2/31027/18-Vision-Zero-Action-Plan-2023-2025.pdf hereafter hyperlinked as Minneapolis, Minnesota
[26] https://highways.dot.gov/sites/fhwa.dot.gov/files/FHWA-HRT-19-035.pdf

Communities: Nationwide including Alaska[27] and Mat-Su Borough (not fully deployed at all signals)

►*Leading pedestrian interval at intersections*

A leading pedestrian interval gives pedestrians the opportunity to enter the crosswalk at an intersection 3 to 7 seconds before vehicles are given a green indication, improving their visibility in the crosswalk before turning vehicles approach the crosswalk.

Benefit: This FHWA Proven Safety Countermeasure can potentially reduce pedestrian-vehicle crashes[28] by up to 13% at intersections and is very low cost to implement if only signal timing changes are required.

Communities: Walla Walla, Washington, Boulder, Colorado

►*Retroreflective signal backplates*

Promotes traffic signal visibility, conspicuity, and orientation for both older and color vision deficient drivers.

Benefit: Can provide a 15% reduction in total intersection crashes[29]. These backplates can be implemented in conjunction with other signal modernization projects, such as flashing yellow arrow implementation. This has been done in Fairbanks and is planned in Anchorage.

Communities: Alaska, Walla Walla, Washington, and Minneapolis, Minnesota

Crosswalk visibility enhancements

These enhancements include ladder-style crosswalks, enhanced signs and markings, and improved lighting at crosswalks. These treatments should focus on uncontrolled intersections and mid-block crossings at areas that connect key pedestrian generators.

Benefit: This proven safety countermeasure can reduce pedestrian crashes[30] by up to 40%.

Communities: Nationwide, Walla Walla, Washington.

Dedicated right- and left-turn lanes at intersections

Auxiliary lanes, or turn lanes, separate stopped or turning traffic from through-traffic movements at the approaches to intersections.

Benefit: Right-turn lanes can reduce total crashes[31] at an intersection by 14-26%, while left-turn lanes can provide a 28 to 48% reduction. This FHWA Proven Safety Countermeasure can be considered preemptively or in response to intersection crash patterns. Discussion about design guideline policy decisions is provided in the **Reduce minimum thresholds for right or left turn lanes for developers and roadway designers** section.

Communities: Nationwide, including Alaska and Mat-Su Borough.

Dedicated bicycle lanes

These facilities make space for bicyclists and alert motorists to anticipate the presence of bicycles adjacent to the travel lane. Implementing can be low cost depending on the existing road width. Protected bike lanes add a further element of bicycle lane visibility and improve comfort and safety for cyclists.

Benefit: Adding bicycle lanes can reduce total crashes[32] up to 30% on urban two-lane collectors and local roads.

[27] https://dot.alaska.gov/stwddes/dcstraffic/fya/index.shtml
[28] https://highways.dot.gov/safety/proven-safety-countermeasures/leading-pedestrian-interval
[29] https://highways.dot.gov/safety/proven-safety-countermeasures/backplates-retroreflective-borders
[30] https://highways.dot.gov/safety/proven-safety-countermeasures/crosswalk-visibility-enhancements
[31] https://highways.dot.gov/safety/proven-safety-countermeasures/dedicated-left-and-right-turn-lanes-intersections
[32] https://highways.dot.gov/safety/proven-safety-countermeasures/bicycle-lanes

Communities: Walla Walla, Washington, Boulder, Colorado, and Minneapolis, Minnesota.

Implement rectangular rapid flashing beacons

Enhances awareness of pedestrian crossings at uncontrolled marked crosswalks by providing pedestrian activated (as needed) beacons.

Benefit: This FHWA Proven Safety Countermeasure is particularly effective at multilane crossings with speed limits less than 40 mph. It can improve motorist yield compliance by 98% and reduce pedestrian crashes[33] up to 47%.

Communities: Anchorage and Fairbanks, Alaska, Boulder, Colorado, and Minneapolis, Minnesota.

Roundabouts

See **Roundabout Construction section** about roundabout benefits and specific data in the Mat-Su Borough.

Policy

Establish a regional Vision Zero working group

This group consists of borough/county, MPO, and city representatives who meet regularly to discuss local roadway safety issues.

Benefit: The Safety Action Plan stakeholder team (Vision Zero Working Group) continues to meet after the plan to evaluate local safety issues, opportunities, and to maintain accountability to the regional Safety Plan.

Communities: Denver Regional Council of Governments.

Corridor access management

Plan access management for a given corridor with various tactics for eventual infrastructure projects combined with a development management policy such as:

- Reducing or consolidating access points (driveways)
- Manage spacing of future driveways to limit density and reduce conflicts
- Implement raised medians to reduce left turning and cross-traffic conflicts
- Implement roundabouts and/or restricted crossing U-turns and median U-turns that reduce left-turn conflicts
- Provide auxiliary turn lanes with adequate deceleration and storage
- Develop frontage or backage off-arterial roads (one way or two way) that are lower speed and keep local traffic off the main higher speed artery

Benefit: Reducing the density of driveways on urban arterials can reduce fatal and serious injury crashes[34] by 25 to 31%. Access management has proven to provide benefits to businesses across the United State, with most businesses reporting the same or increased sales and the same or increased property values.

Communities: Nationwide, including Mat-Su Borough (Parks Highway Wasilla to Big Lake, Knik-Goose Bay Road).

Review/implement speed management policies for setting speed limits

Safe speeds are a core tenet of SSA because human error compounded with speed can result in serious crashes. Speed management policies[35] are one way of managing the energy (and resulting severity) of a crash and are an FHWA Proven Safety Countermeasure.[36] Where allowed by state law, local jurisdictions are designating reduced speed zones beyond the statutory maximum speed limits when regulatory limits do not fit a road or traffic conditions.[37] Many states and communities, including Alaska DOT&PF, are departing from the traditional practice of setting speed limits based on 85th percentile speed. Alaska DOT&PF's emerging speed management policy will focus on self-enforcing roadways[38] to give drivers more indicators than a speed limit sign to advise them to drive a target speed more appropriate for the local

[33] https://highways.dot.gov/safety/proven-safety-countermeasures/rectangular-rapid-flashing-beacons-rrfb
[34] https://highways.dot.gov/safety/proven-safety-countermeasures/corridor-access-management
[35] https://highways.dot.gov/sites/fhwa.dot.gov/files/Safe_System_Approach_for_Speed_Management.pdf
[36] https://highways.dot.gov/safety/proven-safety-countermeasures/appropriate-speed-limits-all-road-users
[37] This is allowed by state law in Alaska. See Alaska Administrative Code 13 AAC 275 and 13 AAC 280
[38] https://www.fhwa.dot.gov/publications/research/safety/17098/17098.pdf?_gl=1*o3j07d*_ga*MTAxNDg2NDg3Ni4xNzIzNTA2ODM5*_ga_VW1SFWJKBB*MTcyMzUwNjgzOC4xLjEuMTcyMzUwOTcyMy4wLjAuMA

context.[39] This is in line with NCRHP Report 966: *Posted Speed Limit Setting Procedure Tool*, which departs from the 85th percentile speed with more focus on roadway context and use.

Benefit: The city of Seattle saw a 26% reduction in traffic fatalities after implementation of city-wide speed management strategies. Another study found that on rural roads, setting a speed limit to 5 mph below the 85th percentile improved compliance with speed limits and may result in fewer serious and overall crashes.[40]

Communities: Walla Walla, Washington, Minneapolis, Minnesota, Austin, Texas,[41] and Boulder, Colorado.

Additional resources: The FHWA provides technical assistance to local governments trying to set safe, reasonable, and consistent speed limits[42] through an engineering evaluation, resources for traffic calming[43], and a template for state and local jurisdictions for development of speed management action plans.[44]

Work with member governments to help update street design guidelines, standards, and municipal codes to support Complete Streets policies and Safe System principles

Supports design consistency within a region and focuses on design parameters that align with Safe System principles.

Benefit: Can complement a Complete Streets Policy and/or Toolkit to assist planners and engineers with addressing safety-related aspects of street design, incorporating Vision Zero principles, applying countermeasures, and including further guidance for creating design components that create safe speeds.

Communities: Denver Regional Council of Governments.

Implement a submittal checklist for developers and/or roadway design project reviews prior to project approval

Benefit: A checklist for designers and reviewers of plans strengthens local staff's knowledge of design code and standards, sets expectations for required elements, and provides additional quality review. For developers, a checklist sets expectations for submittals and can help streamline reviews or delays associated with incomplete submittals. The exercise of creating a checklist can also assist municipal staff in identifying gaps in municipal code or design standards or areas needing improvement. It can be completed in conjunction with design manual updates.

Communities: Ada County, Idaho[45] (developer checklist example).

Establish roadway design standards that cite the most recent version of manuals (e.g., AASHTO, MUTCD, Highway Capacity Manual) in municipal code as applicable

Memorializing a version of manuals in code or other dated reference documents requires regular review of code for any desired updates. Code changes generally require elected body approval.

Benefit: Adopting in code the most recent design manuals from established credible design sources incorporates the most recent research and trends without requiring frequent code review and updates. In turn, designers and developers apply the most modern design criteria.

Communities: Canyon County, Idaho[46]

Reduce minimum thresholds for right or left turn lanes for developers and roadway designers

This section describes policy around the design policy decisions to construct new turn lanes. Benefits of this FHWA Proven Safety Countermeasure are described earlier in the **Program Review** section.

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[39] DOT&PF update to Alaska House Transportation Committee, July 11, 2024
[40] https://highways.dot.gov/safety/proven-safety-countermeasures/appropriate-speed-limits-all-road-users
[41] https://www.austintexas.gov/department/speed-management
[42] https://highways.dot.gov/safety/speed-management/uslimits2
[43] https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer
[44] https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/fhwa_speedmanagementpackage_final.pdf
[45] https://www.achdidaho.org/home/showpublisheddocument/166/638239823692100000
[46] https://www.nampahighway1.com/forms/2022_ACCHD_Manual.pdf

Warrants for turn lanes vary by community. Early research by M.D. Harmelink dating back to 1967 is the origin[47] of many adopted turn lane design guidance policies nationwide. Installing turn lanes, especially left turn lanes, adds cost and can add right-of-way considerations due to the extent of pavement widening and modification to incorporate appropriate tapers and storage. As such, agencies often rely on warrants to validate design decisions and/or to set consistent expectations for developers. Modern research and guidance incorporate context-sensitive design principles for the basis of exceeding design minimums for roadway design professionals and/or developer proposed driveways. Nothing precludes designers from adding a turn lane when one does not meet design warrants, but they should have good (and documented) reasons for straying from established standards. Requiring an unwarranted turn lane of a developer is likely to be heavily resisted and politically elevated due to a perceived arbitrary requirement adding to development costs.

Traditional turn lane guidance leans toward warranting conditions for turn lanes in areas of high through traffic and turning volumes and on higher speed roadways. High traffic volumes are generally not realized in many Alaskan communities except on major arterials, and while turning volumes can be limited depending on the development, they can still present a safety or operational issue. These higher thresholds can limit opportunities to construct turn lanes at the opportune time, which is particularly true for private developments where there is generally only one opportunity to require roadway improvements constructed at their cost (as a condition of granting access.)

Benefit: Adopting new standards based on more recent research[48] allows roadway designers more flexibility and comfort in making decisions to incorporate auxiliary lanes as a safety and operational enhancement to arterial roads (generally associated with more traffic volumes) and turning movements (generally associated with collector roads.) Adopting these approaches into local code (with some further analysis and clarifying directives to make it less subjective for developers to ascertain warrants) could result in more developer-funded auxiliary lanes associated with development. It could also give planners and designers working on borough roads stronger tools for design decision making for incorporating auxiliary lanes in road rehabilitation or reconstruction projects.

Considerations:

Left turn lane warrants: AASHTO's *Policy for Geometric Designs of Highways and Streets*, 2018 (GB7) emphasizes the importance of roadway context in its view that "warrants for the use of auxiliary lanes cannot be stated definitely.[49]" The GB7 takes a generally conservative approach and ranges for establishing when left turn lanes may be warranted for urban and when rural arterials may be warranted. This information is presented in an easy-to-follow table (not complex charts with multiple variables). One key distinction in GB7 from traditional Harmelink charts is that warrants are not dependent on roadway speed, which allows speed to be part of a contextual decision but not a key design criterion. However, GB7 suggests decisions are "after cost benefit evaluation" which ultimately leaves the discretion to the designer and their available project budget.

Using GB7 (or the most modern version) standards for left turn lane warrants is a credible basis for establishing left turn lanes. Local policy must be developed to isolate the appropriate ranges. For example, GB7 suggests an urban arterial at a three-leg intersection and at least 450 vehicles in the peak hour on the major route could warrant a left turn lane with as few as five turning vehicles in any peak hour. However, it goes as high as 50 or more in the peak hour if the through volume is 100 vehicles in the peak hour.[50] Thresholds are considerably lower for rural areas, which is suggestive of a higher likelihood of a following driver being surprised by a turning vehicle in these areas.

Right turn lane warrants have a higher threshold because unlike a left turn, right turners do not have to yield to opposing traffic, which requires a potential stop condition. Alaska DOT&PF uses criteria[51] that do not trigger full right turn lane widths until 40 turns an hour, and the threshold goes up to 100 an hour as through volumes decrease. There are some

[47] https://onlinepubs.trb.org/Onlinepubs/hrr/1967/211/211-001.pdf
[48] https://nap.nationalacademies.org/catalog/22608/left-turn-accommodations-at-unsignalized-intersections
[49] AASHTO's *A Policy on Geometric Design of Highways and Streets,* 2018, Section 9.7.1
[50] AASHTO's *A Policy on Geometric Design of Highways and Streets,* 2018, Tables 9-24 and 9-26
[51] *NCHRP Report 279*, Figure 4-23, 1985, referenced by the Alaska Highway Preconstruction Manual for right turn lanes

variations of these requirements, but the threshold does not change substantially.[52] Arizona DOT has high thresholds for right turn lanes but presents data in a more concise tabular form[53].

Other contextual considerations for right turn lanes should consider total roadway width and shoulder width since shoulders provide some margin of error for slowing vehicles to pull over. Driveway standards can also adopt 10:1 pavement tapers[54] transitioning from driveways on higher speed roads to provide limited deceleration space.

Any new policy should include context guidance to be incorporated into decisions for either right or left turn lanes as is used by Alaska DOT&PF.[55] Policy should also consider surrounding driveways in proximity to the intersection (which may introduce confusion about what the turn lane is accessing) and consider any impacts the added road width may have on bicycles and pedestrian ability to cross at the intersection. Another option is to select classes of roads, or key roads in an area for which a development will automatically trigger a traffic impact analysis, regardless of the development's trip generation. For example, the city of Marysville, Ohio's access management policy is that any proposed development along an arterial will generally require a traffic impact study to demonstrate the need for the access on the arterial and consideration given to future volume and operations.[56]

Consideration should also be given to whether a growth factor should be applied to through volumes or turning traffic. Design projects traditionally target a design year AADT that accounts for projected growth, but developers tend to report maximum peak hour anticipated based on guidelines for trip generation, which may increase once constructed. In a fast-growing community, discretion is needed for when to expect a development may attract more traffic in the foreseeable design year (generally accepted to be 20 years) to apply a realistic growth projection so that the local agency's capital resources are not overly burdened by the actions of a developer. Any policy could ultimately delegate decision making to a designated borough official, regardless of whether the proposal is part of roadway reconstruction or a developer's actions.

Public and Stakeholder Input

Introduction and Purpose

Safety on the roadway is affected by many variables, and there can be several factors associated with any crash. To ensure that the Mat-Su Borough CSAP Existing Conditions Analysis accounts for the wide array of different variables present in the Mat-Su Borough Expanded Core Area, a robust public engagement process was initiated to gain valuable information from a multidisciplinary group of stakeholders, transportation agency professionals, and the public.

Engagement Tactics

Several engagement tactics were deployed to ensure robust public participation for the Existing Conditions Analysis. The following activities were through September 2024. The final CSAP will address engagement tactics through completion of the plan.

This comprehensive engagement strategy included:

- Development of the project website, branding, and logo
- Development of the stakeholder/outreach list
- A meeting with the Safety Action Plan Team (SAPT) to introduce the project and gain valuable insights on safety issues and areas of concern.

[52] Missouri DOT: https://epg.modot.org/index.php/940.9_Auxiliary_Acceleration_and_Turning_Lanes#940.9.7_Right_Turn_Lanes
[53] https://azdot.gov/sites/default/files/2019/05/tgp0245-2019-01.pdf
[54] Alaska Highway Preconstruction Manual, 1190.5.4
[55] https://dot.alaska.gov/nreg/precon/Design_Directives/ See 19-02, Turn Lanes for examples of roadway context considerations
[56] https://marysvilleohio.org/DocumentCenter/View/489/2023-Access-Management-Guidelines?bidId=

- Three pop-up events to provide Mat-Su Borough CSAP information and a platform to identify safety concerns voiced by the public.
- Five Mat-Su Borough agency meeting presentations.
- Social media and news publications.
- Email notifications to a broad stakeholder list.
- A safety survey which had a total of 913 responders and identified over 1,000 locations of concern in and around the Mat-Su Borough Expanded Core Area.

The Project Website

Our team developed a project website using Esri Experience Builder in the first phase of plan development. This website included general information about the plan, the SS4A, SSA, the project timeline and calendar of events, and contact information. To help facilitate engagement in the plan process, the website included a page to notify the public on upcoming public workshops and pop-up events. It also provided an opportunity to sign up for email updates on future planning milestones. Finally, the website includes a documents page where the public can view milestone deliverables including a video recording of Public Workshop #1, the Expanded Core Area Map, an informational recording on the SS4A program, and feedback gathered during Public Workshop #1.

The Stakeholder/Outreach List

Our team developed a robust stakeholder/outreach list which was used to notify the public about the project, upcoming participation events, and the project timeline. Stakeholders included key representatives from the following groups:

- Local Mat-Su Borough Advocacy Groups
- Disability Services
- Family Services
- Recreation
- Senior Services
- Mat-Su Borough Government
- Housing
- Employment Services
- Youth Services
- Tribal Governments
- Health Care
- Business
- Emergency Services
- Education
- Transit

Safety Action Plan Team

To comply with SS4A guidelines for developing CSAPs, we initiated development of an advisory committee to oversee key milestones during the planning process. The SAPT will provide valuable local insights into transportation safety in the study area. It is made up of key transportation and safety representatives from the following agencies:

- Mat-Su Borough Public Works*
- Mat-Su Borough Planning*
- Mat-Su Borough Emergency Services*
- Mat-Su Borough School District*
- MVP*
- DOT&PF*

- Alaska State Troopers*
- City of Palmer
- City of Wasilla
- City of Houston
- Valley Mountain Bikers & Hikers
- Coalition of Mat-Su Senior Centers
- Boys and Girls Club of Mat-Su
- Alaska Trucking Association
- Knik Tribal Council
- Native Village of Chickaloon
- Valley Transit

*Participated in SAPT meetings to date

This group helped to identify specific transportation safety concerns within the Mat-Su Borough Expanded Core and will provide oversight and direction on potential safety solutions, project recommendations, and implementation actions in the final plan.

Pop-up Events

Pop-up events are an effective way to meet the community where they are and provide an opportunity for education and engagement during the plan process. Our team facilitated three pop-up events that collected valuable information from the public including specific safety concern locations and comments on existing and planned facilities. Our team also provided project information flyers, fact sheets, paper copies of the safety survey, and promotional project giveaways (reflective dog bandanas, reflective arm bands, blinking lights, and project stickers). We engaged with the community at three separate in-person events on the following dates:

- August 9, 2024 – Friday Fling in Palmer
- August 17, 2024 – Houston Founders Day
- August 21, 2024 – Wasilla Farmer's Market

Mat-Su Borough Committee Meeting Presentations

To help facilitate public awareness of the Mat-Su Borough CSAP, promote the safety survey, and ensure a smooth plan adoption process, our team met with key Mat-Su Borough committees to provide an overview of the Mat-Su Borough CSAP and gather comments from transportation and safety professionals, policy makers, and the public. These included:

- Mat-Su Borough Transportation Advisory Board
- Local Road Service Area Advisory Board
- Mat-Su Borough Planning Commission
- MVP Technical Committee
- MVP Policy Board

Social Media and News Publications

Utilizing social media to promote plan awareness and gather feedback at key milestones of the plan process is a powerful tool and can help ensure broad public participation. Our team created a Facebook post and a promotional reel to help publicize the safety survey. The post and reel guided people to the project website where they could learn more about the plan, view the latest plan documents, learn how to get involved in the process, and contact the project team. The Facebook post was promoted through paid advertising by the Mat-Su Borough's Facebook page. The reel was shared 36 times and watched 15,000 times. In addition, the Facebook post and reel were shared with the following Facebook groups:

- Friends Who Like Saving Life Thru Driver's Safety Class
- Saving Life Thru Driver's Safety Class
- Willow Area Community Organization
- KGB community, traffic & crime updates - Wasilla, Alaska
- Alaska DOT&PF
- Glenn Highway Construction and General Traffic Report
- Mat-Su Valley Traffic, Road, and Weather Conditions Discussion
- Palmer Alaska Buzz
- Palmer Alaska News
- Mat-Su Borough EMS
- Wasilla Police Department
- Mat-Su Valley News
- City of Houston, Alaska (didn't share the reel but did share the info about the survey)

Email Notifications

The stakeholder/outreach list was utilized to reach a broad cross section of the Mat-Su Borough Expanded Core Area through email correspondence at key milestones during development of the existing conditions analysis. These included:

- Project Initiation – an email notification to launch the project website and educate stakeholders and the public about the purpose of the plan, the SS4A program, and upcoming public participation opportunities.
- Virtual Public Workshop #1 – an email to invite the public to attend the workshop and provide workshop details such as purpose, outcomes, and schedule. This email also promoted and encouraged participation in the safety survey.
- A reminder email to take the safety survey before it closed on September 13, 2024.

Safety Survey

Safety Survey Results

Purpose

We conducted a comprehensive safety survey to gain valuable insight from the public on their perceptions of transportation safety within the Mat-Su Borough Expanded Core Area. The survey included a wide array of questions to understand where the community's biggest opportunities and challenges for transportation safety exist, as well as to identify specific barriers to walking and bicycling. The information from this survey will be used to prioritize broad community safety needs, prioritize safety recommendations, and assess core areas for future investment in the Mat-Su Borough Expanded Core Area.

Methods

The safety survey was launched on June 26, 2024, and open through September 13, 2024. During that time, it was available on the project website. Physical (hard copy) surveys were distributed in Houston, Wasilla, and Palmer at the following locations:

- Houston City Hall
- Wasilla Museum and Visitor Center
- Wasilla Public Library
- Palmer Public Library
- Palmer Museum and Visitor Center

Physical surveys were collected, and their data were entered into the Esri Experience Builder project database. Access to the online survey was provided at the following:

- Virtual Public Workshop #1
- On the project website

- Through a mass email to the project's stakeholder outreach database
- Via paper flyers distributed at public pop-up events
- Via social media outlets including Facebook and Instagram
- At presentations to five local Mat-Su Borough Agencies including the Planning Commission, Local Road Service Area Advisory Board, Transportation Advisory Board, MVP Technical Committee, and MVP Policy Board.

Online Survey

The online survey was developed using Esri Experience Builder and a link was hosted on the project website. Survey responders took the survey via participant self-selection after gaining access to the link through one of the many outreach methods. Any person who was uncomfortable taking the survey online was encouraged (through specific direction on the project website) to call the Michael Baker International project manager to take the survey over the phone.

Paper Survey

Thirty paper surveys were collected at the above-listed locations. Additionally, one paper survey was mailed to the Mat-Su Borough project manager. All data from the paper surveys were manually entered into the Esri Experience Builder project site.

Survey Content

The survey included a total of 16 multiple choice, ranking, and open-ended questions encompassing the following topics:

- Demographics of survey responder (age, ethnicity, place of residence, and gender identity)
- Relationship to the Mat-Su Borough CSAP
- Typical mode of transportation for work and non-work travel
- Perception of safety in place of residence
- Factors affecting the likelihood of walking and biking in place of residence
- Factors encouraging the prioritization of safety
- Challenges to transportation safety
- Priorities for investing in transportation safety
- One open ended question providing the opportunity to share a transportation safety concern
- Online surveys included a map where respondents could drop a pin to identify areas of specific concern

Results

Response rate

The survey garnered a total of 927 complete responses within the Mat-Su Borough area.

Demographics

Age

The largest age group represented in the survey was 36-45 years of age (24%) followed closely by those 46-55 years of age (23%). The next largest groups were 56-65 years of age and 66-75 years of age, representing 18% and 15% of all responders, respectively. People over 75 made up 3% of responders and people 18-25 years of age made up 2% of all responders. There was only one person under 18 who took the survey.

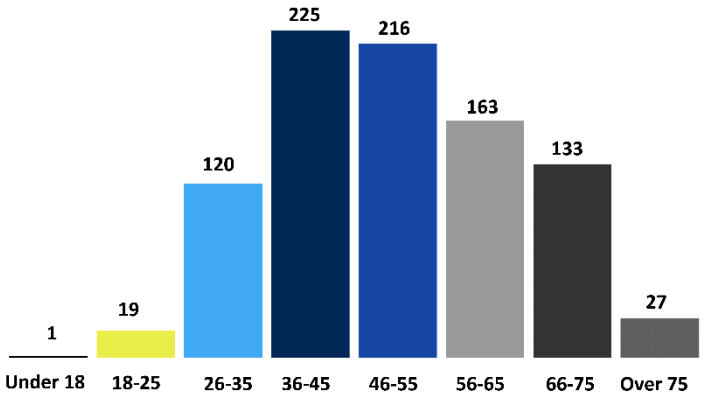

Figure 41. Safety Survey Results – Age of respondents

Ethnicity/Race

Most of the survey respondents identified as white (74%). The next largest identified ethnicity was American Indian or Alaska Native at 4%, while 1% identified as Asian, 1% identified as Black or African American, 1.5% identified as Hispanic or Latino, and 0.25% identified as Native Hawaiian or Other Pacific Islander. Of all survey responders, 2.5% identified as Other and 18% preferred not to answer this question.

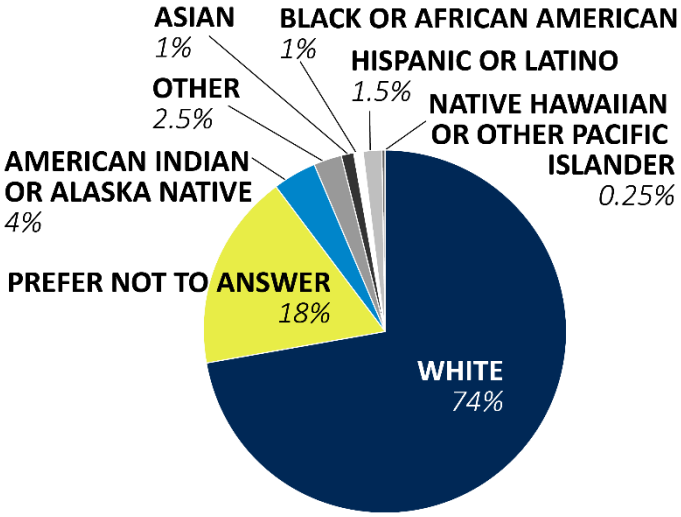

Figure 42. Safety Survey Results – Ethnicity of respondents

Gender Identity

Most survey respondents identified as female (55%) and 30% identified as male, 0.5% identified as non-binary/non-conforming, 11% preferred not to answer, and 0.1% identified as other.

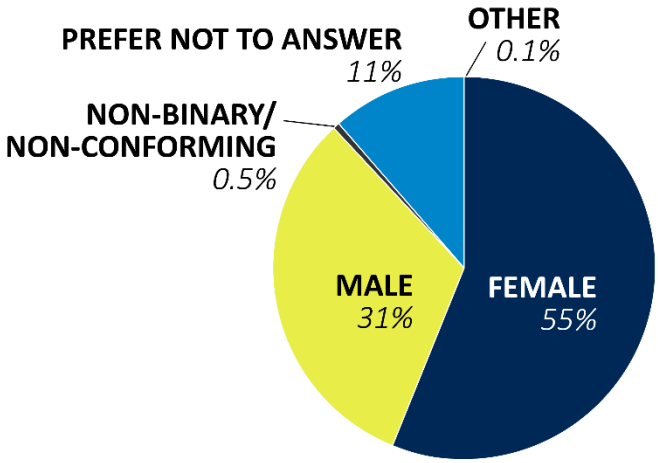

Figure 43. Safety Survey Results – Gender Identity of respondents

Where in the MSB Do You Live?

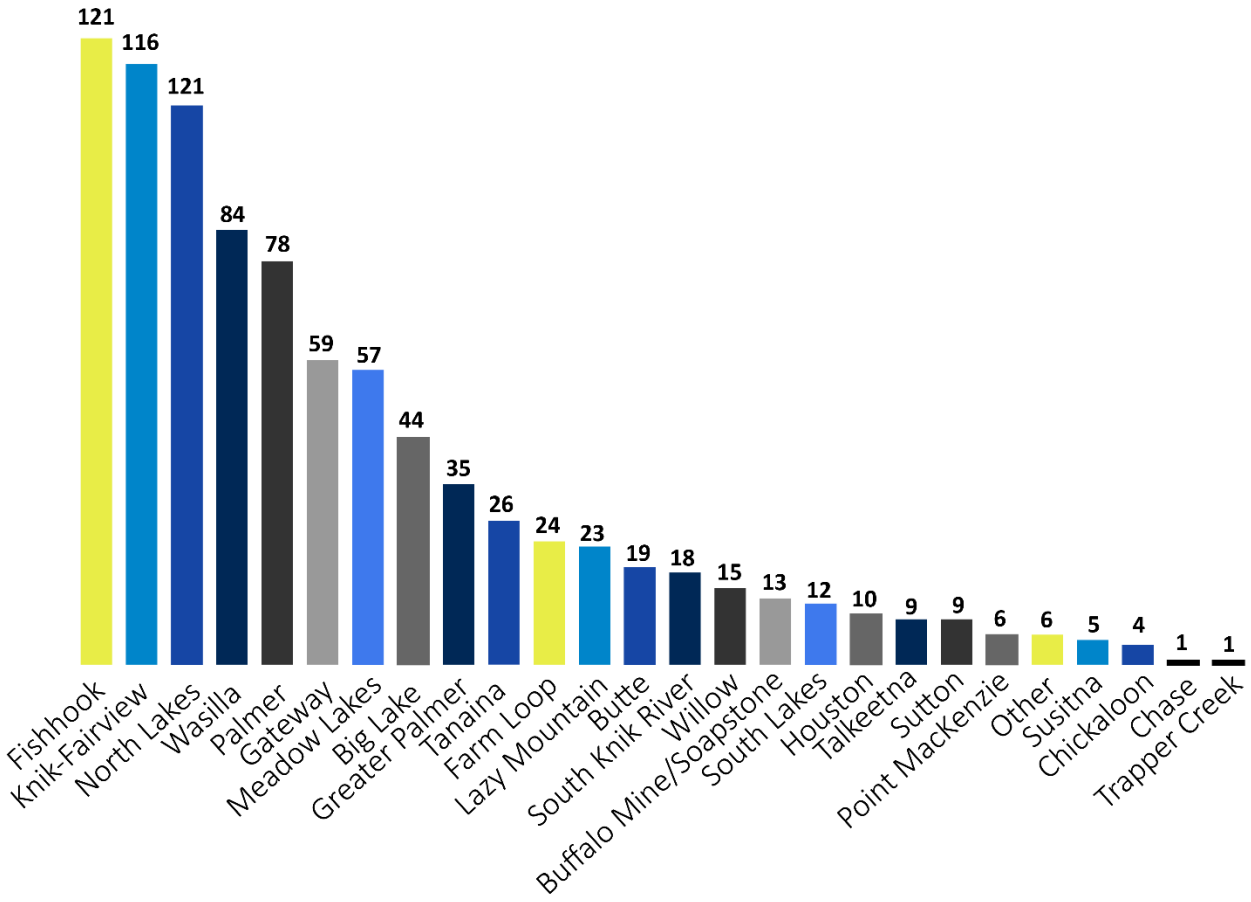

Figure 44. Safety Survey Results – Location of respondents

Regarding where people who took the survey lived, there was good representation across all communities within the Mat-Su Borough Expanded Core Area as well as some from areas outside the study boundary. Most survey responses came from residents of the Fishhook, Knik-Fairview, North Lakes, Wasilla, Palmer, Gateway, and Meadow Lakes communities.

Relationship to Transportation Safety

The overwhelming majority of survey respondents were interested residents at 92%. Safety Professionals made up 4%, while Transportation Professionals made up 3% of respondents. Interested visitors and Interested Non-resident workers each made up 0.5% of respondents.

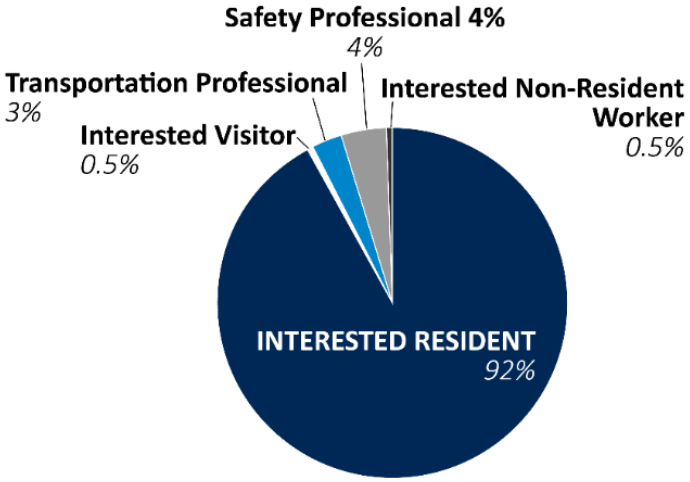

Figure 45. Safety Survey Results – Relationship to Transportation Safety

Modes of Transportation

Workplace Travel

Looking at mode choice in the Mat-Su Borough transportation network, 91% of survey respondents indicated that they use a vehicle or motorcycle for transport to and from their workplace. Of those surveyed, 3.5% chose bicycling as their primary means of commuting to work, 1% walked, 1% rode an ATV, 0.1% use public transportation, and 0.1% indicated needing an assisted mobility device. 4% chose other.

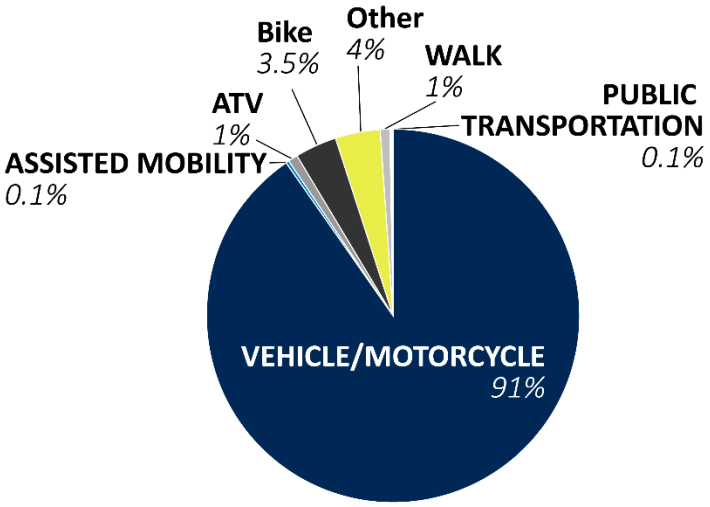

Figure 46. Safety Survey Results – Work Travel Mode Choice

Non-work Travel

For non-work travel, the survey results showed more diversity in mode choice. While 83% of respondents still chose vehicle/motorcycle as their primary mode of choice, 8% indicated bicycling as their primary choice, 4% indicated walking, 3% rode an ATV, and 0.1% used public transit. 1% indicated they used another option for transport.

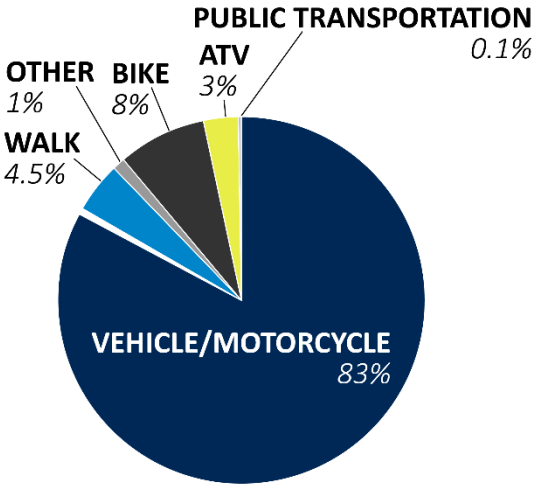

Figure 47. Safety Survey Results – Non-Work Travel Mode Choice

Perceptions to Transportation Safety and Proximity to Transit

A major element of the SS4A program is assessing the perception of safety in and around the transportation network. This is intended to help identify areas of improvement that will encourage greater use of the system and provide more options when it comes to mode choice. The survey asked respondents to share their perception of safety while walking and biking to gauge the ease of access to transit facilities.

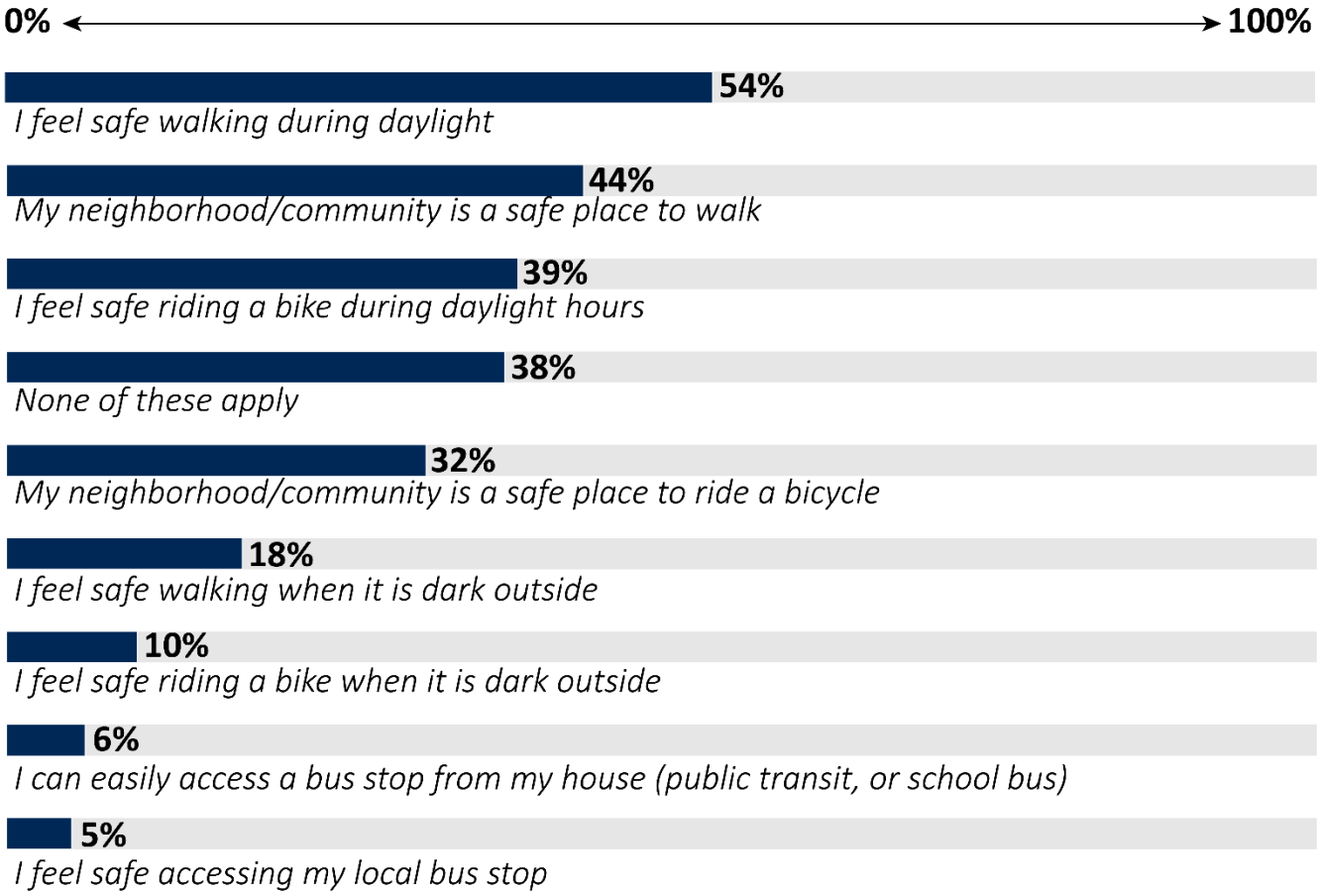

Figure 48. Safety Survey Results – Perceived Safety Walking, Biking, and Taking Transit

Only 54% of survey respondents felt safe walking in their communities during the daytime, and that decreased to 18% when it was dark outside. Similarly, 39% felt safe riding a bicycle during daylight hours, while just 10% felt safe riding a bicycle after nightfall. Only 6% of all respondents felt they had easy access to a bus stop or school bus from their place of residence and even less (5%) felt that it was safe to access their local bus stop.

Choosing to Walk

Identifying barriers to transportation is a key step leading to solutions that promote greater choices for mobility in a community. The survey asked respondents to indicate what improvements or changes might be made to the transportation network that would make them feel more comfortable walking. They were asked to rank the following choices on a scale of 1 to 5, with 1 being not likely at all and 5 indicating extremely likely to encourage them to walk.

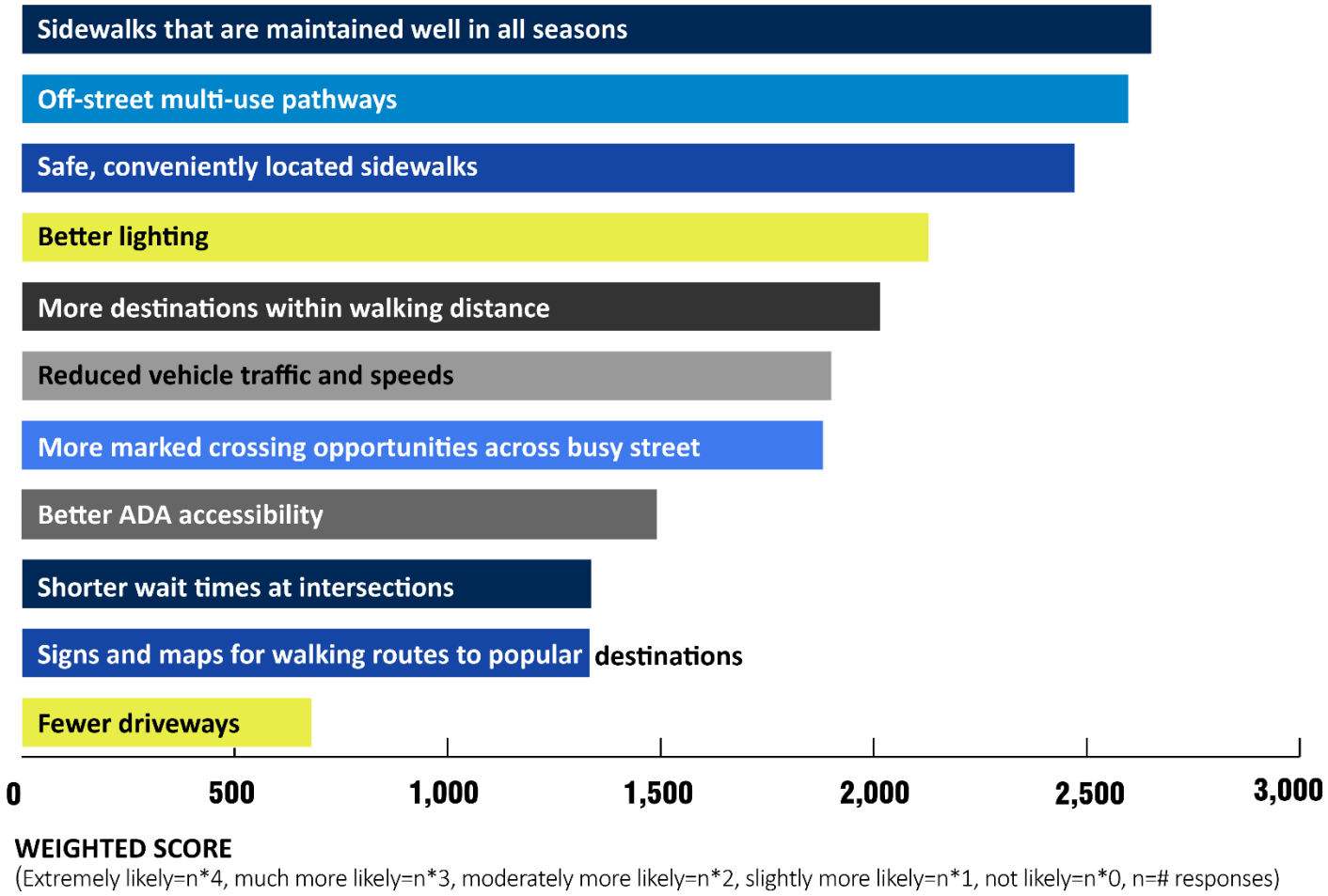

Figure 49. Safety Survey Results – Choosing to Walk

Sidewalks that are well-maintained in all seasons, off-street multi-use pathways, and safe, conveniently located sidewalks were the top three categories that would encourage residents to walk more. Better lighting, destinations within walking distance, reduced vehicle traffic and speeds, and more marked crossing opportunities were the next three highest scoring categories. Better ADA accessibility, shorter wait times at intersections, and signs and maps leading to popular destinations were next. Fewer driveways was the lowest indicator of a change that would increase walking in the Mat-Su Borough Expanded Core area.

Identifying these barriers (potential changes that would increase the likelihood of walking) is a tool that can be used to prioritize future improvements to the transportation network and help allocate valuable transportation safety funds with limited resources.

Choosing to Bike

A similar question was asked about biking within the Mat-Su Borough Expanded Corea area.

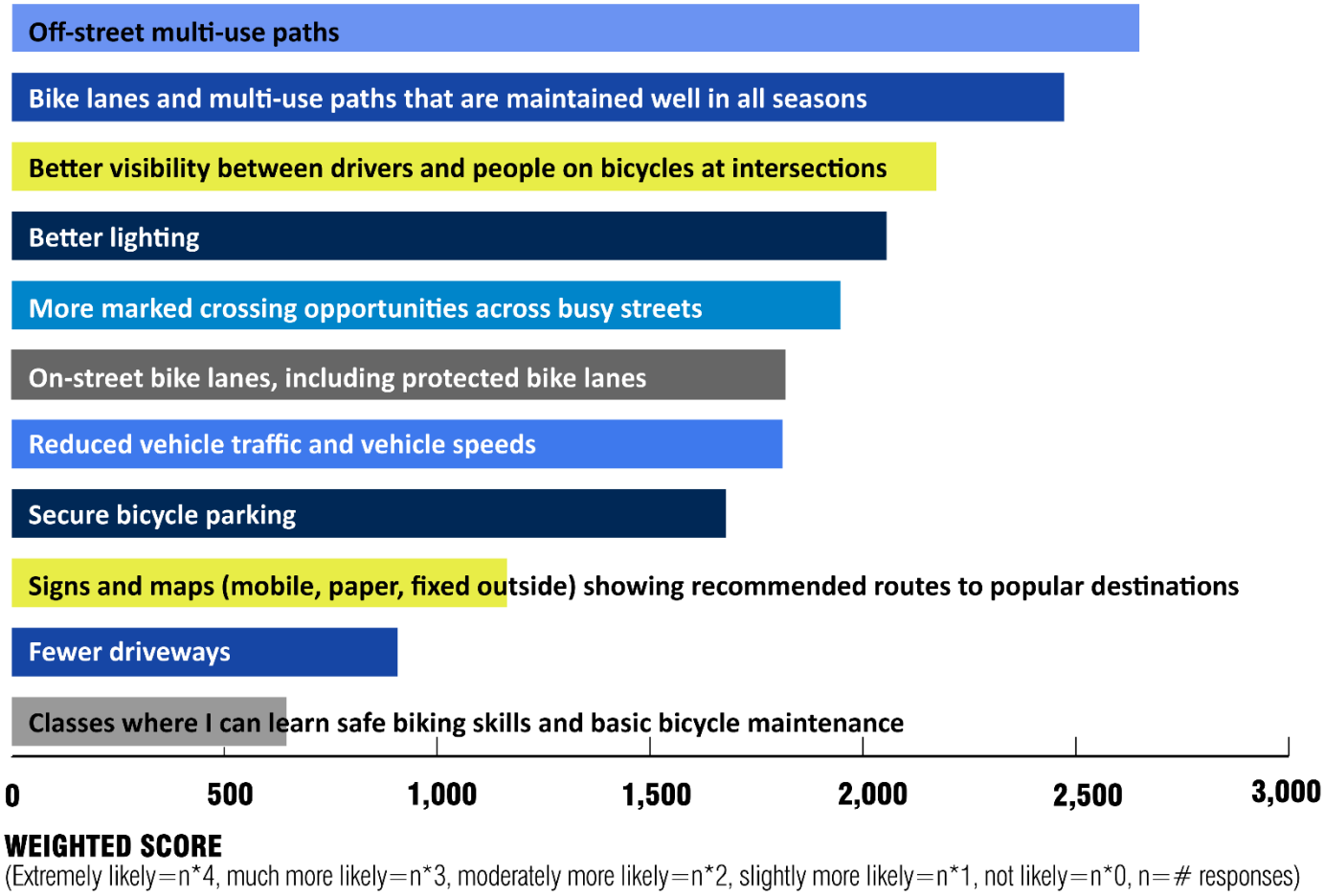

Figure 50. Safety Survey Results – Choosing to Bike

In terms of changes that would encourage people to bike more, the presence of off-street, multi-use paths and well-maintained bike lanes and multi-use paths scored the highest. The next four highest scoring categories included better lighting, more marked crossing opportunities across busy streets, on-street bike lanes including protected bike lanes, and reduced vehicle traffic and vehicle speeds. Secure bicycle parking, signs and maps leading to popular destinations, and fewer driveways were the next three highest scoring categories. Classes teaching safe biking skills and basic bicycle maintenance was the lowest scoring category to have an influence on whether more people choose bicycling.

Encouraging People to Prioritize Safety

To help prioritize improvements that will most help to prioritize safety in the transportation system, survey respondents were asked to assess a variety of actions to determine what actions might have the most impact. The respondents were asked to select all choices that they thought would help to prioritize safety.

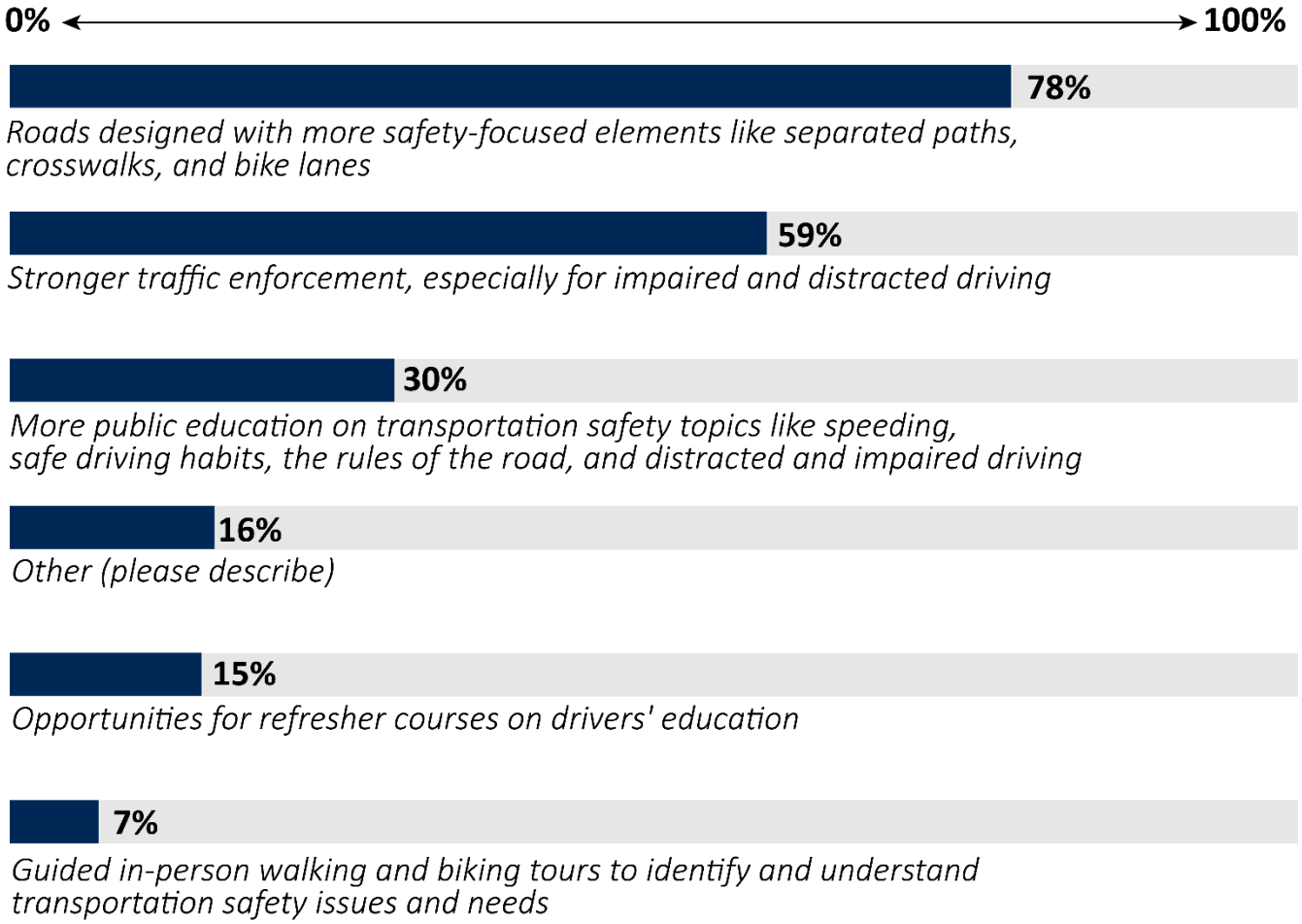

Figure 51. Safety Survey Results – Prioritizing Safety

Overwhelmingly, 78% of respondents chose road design with more safety-focused elements such as separated paths, crosswalks, and bike lanes as the most important action that would help to prioritize safety within the Mat-Su Borough Expanded Core Area. The next highest scoring action (59%) was stronger traffic enforcement, especially for impaired and distracted driving. More public education on transportation safety topics like speeding, safe driving habits, the rules of the road, and distracted and impaired driving came in third, scoring 30%. Fifteen percent of respondents thought that refresher courses on drivers' education would be beneficial and 7% thought that guided, in-person walking and biking tours to identify and understand transportation safety issues and needs would help to prioritize safety in the Mat-Su Borough Expanded Core Area.

The Biggest Challenges to Related to Transportation Safety

In addition to identifying transportation barriers, identifying perceived challenges to improving safety in the transportation network can help to prioritize where resources should be spent to overcome these challenges.

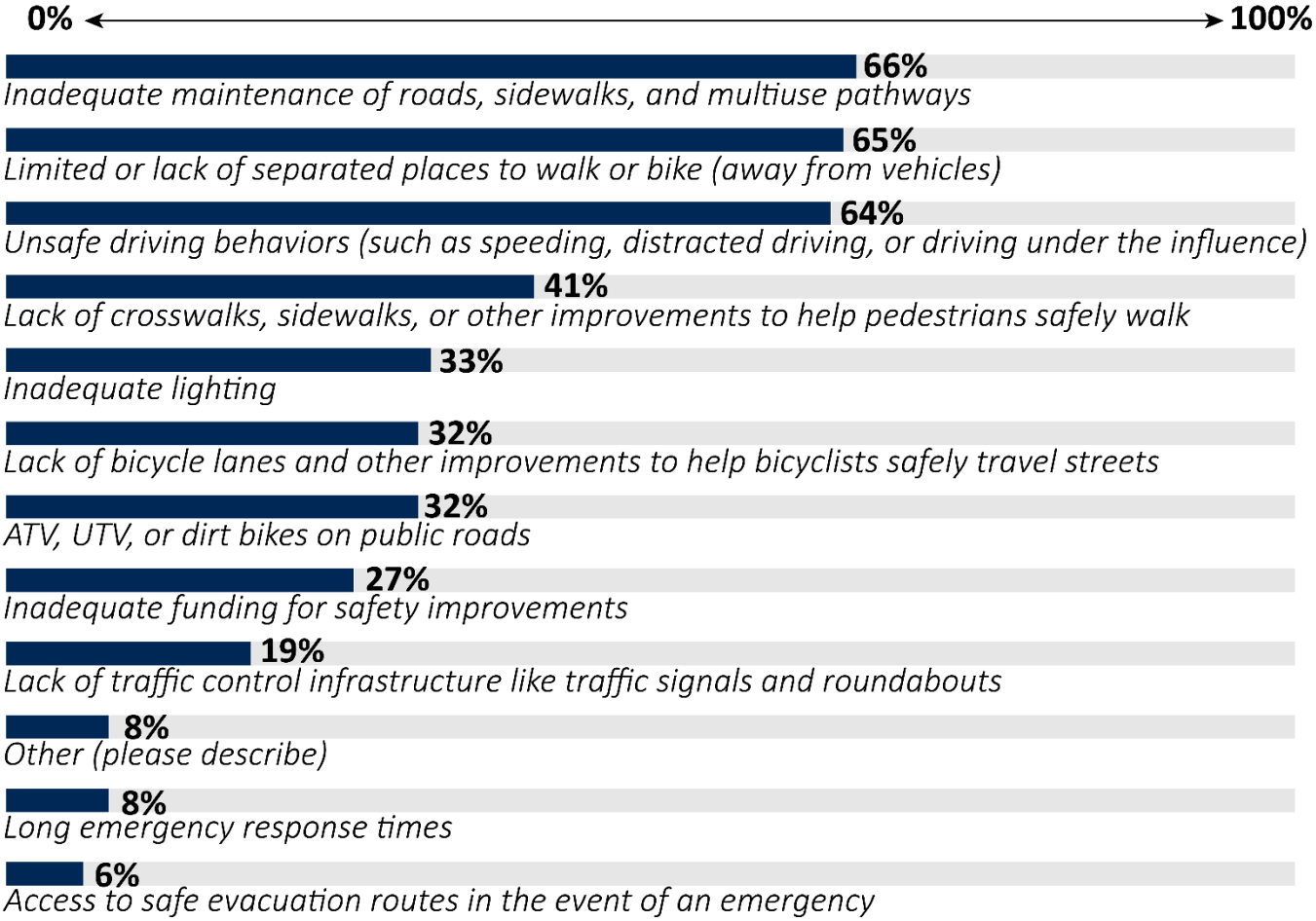

Figure 52. Safety Survey Results – Challenges to Safety

The top three scoring categories for this question included inadequate maintenance of roads, sidewalks, and multiuse pathways (66%); a lack of separated places to walk and bike (away from vehicles) (65%); and unsafe driving behaviors (such as speeding, distracted driving, or driving under the influence) (64%). The next four similarly scored categories included lack of crosswalks, sidewalks, other improvements to help pedestrians safely walk (41%); inadequate lighting (33%); lack of bicycle lanes and other improvements to help bicyclists safety travel the streets (32%); and ATV, UTV, or dirt bikes on public roads (32%). Inadequate funding for safety improvements scored 27%, while lack of traffic control infrastructure like traffic signals and roundabouts scored 19%. Finally, long emergency response times scored 8%, while access to safe evacuation routes scored 6%.

Investments in Transportation Safety

Survey respondents were asked to indicate which of the following investments would have the most impact on improving safety within the Mat-Su Borough Expanded Core Area. They were asked to select their top 5 priorities.

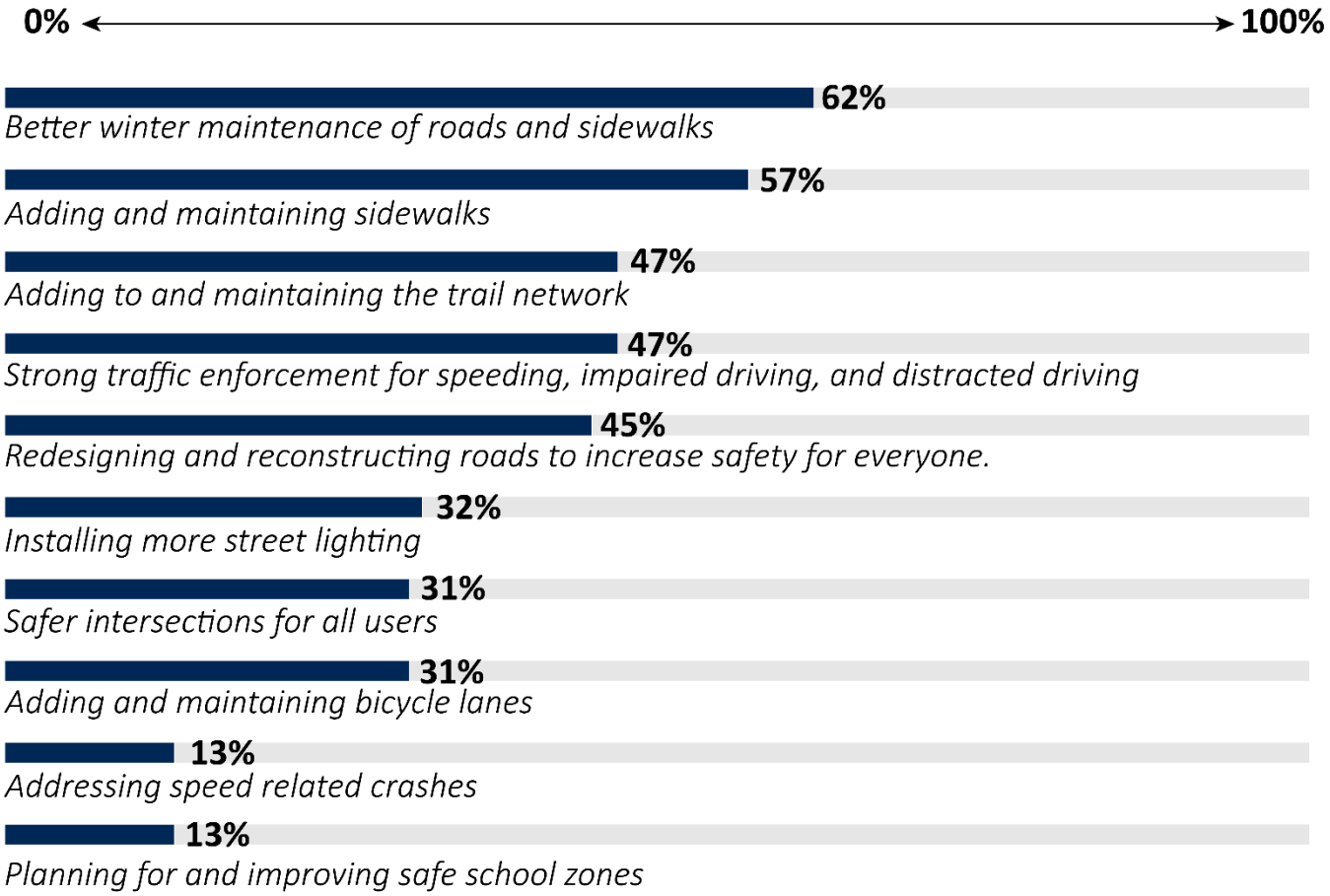

Figure 53. Safety Survey Results – Investing in Safety

Areas of Concern

To help identify specific areas of safety concern, survey respondents were asked to locate their five biggest safety concerns within the study area. Online survey responders were provided a map on which they could drop a pin to notate an area of concern. Paper survey respondents were asked to identify their area of concern using mile markers, intersections, landmarks, and establishments, such as schools or stores, to help identify the location.

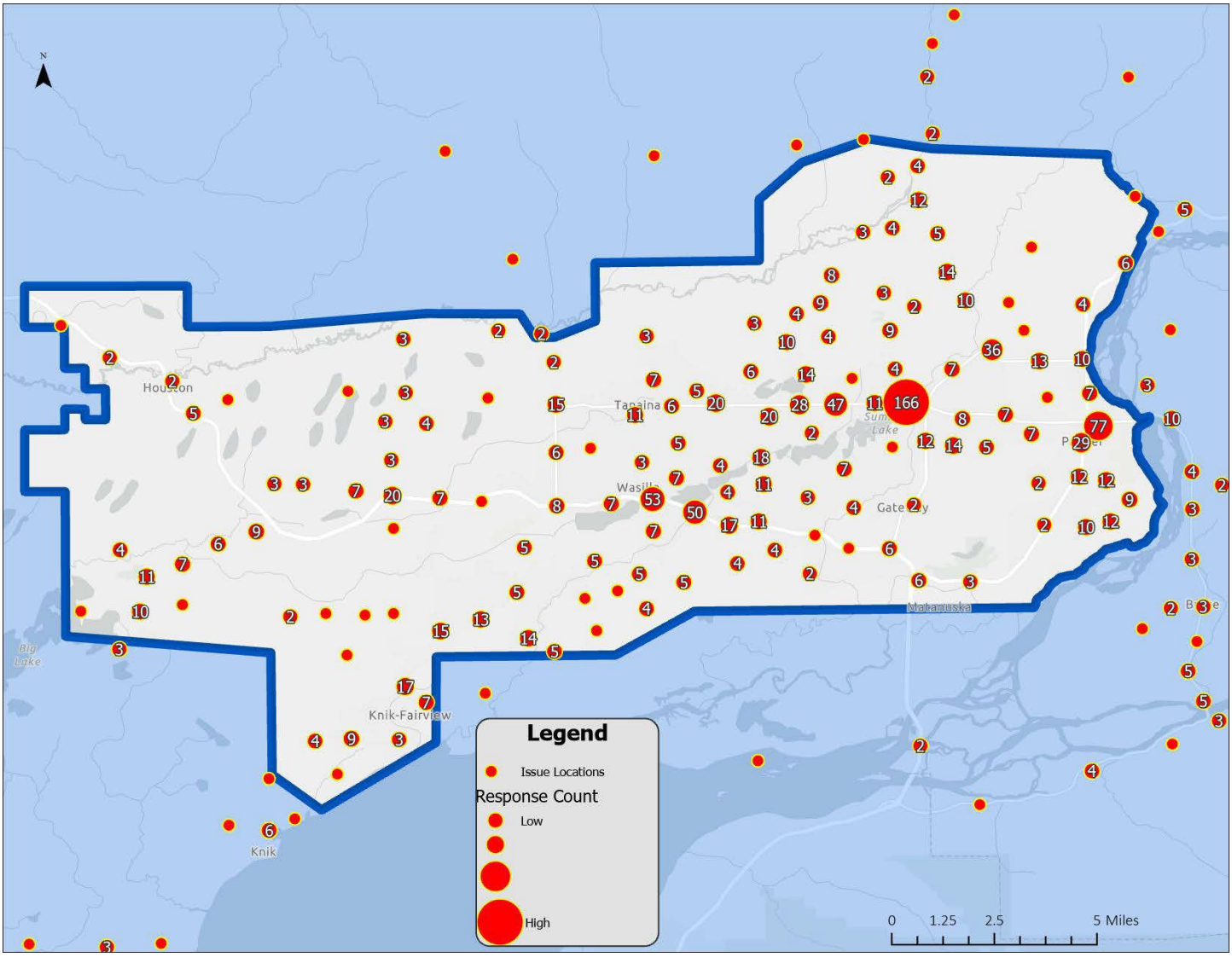

Figure 54. Safety Survey Results – Areas of Concern

This map displays over 1,000 pins dropped by survey participants to indicate their biggest safety concerns in and around the Mat-Su Borough Expanded Core Area. Larger circles are locations with multiple pins indicating the same area of concern. Additionally, survey respondents were asked to explain the safety issue or concern for each location they indicated on the map. Common themes for safety issues identified through the survey included unsafe intersection design, unsafe road design, inadequate facilities for walking and biking, and unsafe speeds on the roadway.

Appendices

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Appendix A: Summary Data and Sources for Peer City Comparison

Table A-1. Peer City Comparisons

Community	General Information	Similarities to Mat-Su Expanded Core Area
Fairbanks North Star Borough	• Third most[57] populated area of Alaska (followed by Anchorage and Mat-Su) and two military bases • Includes City of Fairbanks, North Pole, and University of Alaska Fairbanks • Junction of two interstates, Richardson Highway and Parks Highway	• Generally similar climate • Comparable population and demographics[1] and mix of urban/rural roadways • Similar spread of borough government, city government and unincorporated city boundary between • Similar demographics[1] and VMTs
Kenai Peninsula Borough	• Fourth most[1] populated area of Alaska • Heavy traffic for summer tourist destinations • Reliant on main interstate access: Seward and Sterling Highways and connecting roadways	• Generally similar climate • Comparable population and demographics[1] and mix of urban/rural roadways • Similar spread of borough government, city government and unincorporated city boundary between • Similar demographics[1]
Cass County, North Dakota	• County seat is Fargo, ND, the state's most populated city • Metropolitan Planning Area joined with Moorhead, MN (Fargo-Moorhead Metropolitan Council of Governments)	• Similar climate particularly for wind and winter conditions • Comparable population • Similar demographics[1] • Presence of agriculture and mix of rural/urban roadways • Has experienced rapid population growth since 2010 similar to Mat-Su Borough [58] • Has interstate highway presence (I-29 and I-94)
Mesa County, Colorado	• Encompasses Grand Junction (most populated city in county) • Not considered in Front Rage mountainous area of Colorado, or part of Denver metropolitan area	• Winter climate • Comparable population • Similar demographics[1] and mix of urban/rural roadways • Has interstate highway presence (I-70) • Active trails network and outdoor community • Actively working on an SS4A Comprehensive Safety Action Plan
Broomfield County, Colorado	Consolidated city and county in north central Colorado	• Winter climate • Very comparable population and demographics[1], though population more dense • Similar VMTs • Has interstate highway presence (I-25) • Active trails network and parks/recreational community • Rapid population growth similar to Mat-Su Borough[2]
Missoula County, Montana	• Western county in Montana, Missoula is county seat and largest city in county • College town, home of University of Montana	• Winter climate • Includes many unincorporated communities • Has interstate highway presence (I-90) and mix of urban/rural roadways • Comparable population and demographics[1]
Canyon County, Idaho	• County of "bedroom" communities in western Idaho encompassing Nampa, Caldwell and Middleton, part of Boise (Ada County) metro area	• Winter climate • Has interstate highway presence (I-84) • Comparable population density, demographics demographics[1] as well as mix of urban/rural roadways • Rapid population growth similar to Mat-Su Borough [2]
Laramie County, Wyoming	Southeastern county in Wyoming, home of Cheyenne, the state capital	• Winter climate • Has interstate presence (I-25 and I-80) • Railroad history/in vicinity (Union Pacific) • Comparable population • Similar demographics[1] and mix of urban/rural roadways

[57] Alaska Department of Labor & Workforce Development https://live.laborstats.alaska.gov/pop/estimates/pub/chap2.pdf
[58] US Census Data https://www.census.gov/quickfacts/

Table A-2. Peer City Summary Data

	VMT (hundred million)	Length of Road (mi)	Latest population est. [2]	Land area (Sq Mi)[2]	Population Density (person/Sq Mi)	Fatal crashes 2018-2022 (5 yr avg)[1]	Fatal crashes/100M VMT	Fatal crashes/100k population	Serious Injury Crashes[16] (5 yr average)	Killed + Serious Injury (KSI) Crashes	KSI Crashes/100k population	KSI Crashes/100M VMT	Total Crashes (5 yr avg)	Crashes/100M VMT	Crashes/100k population
Mat-Su Borough Expanded Core Area	5.1[3]	1,184[10]	81,000	253	320	11.4	2.2	14.1	31.8[14]	43.2	53.3	8.5	960[14]	188.3	1185.7
Fairbanks North Star Borough	6.4[4]	1,909[10]	94,840	7,335	13	7.4	1.2	7.8							
Kenai Peninsula Borough	0.10[5]	1,994[10]	61,223	16,017	4	8.4		13.7	31.4[14]	39.8	65.0		744[14]		1215.2
Alaska - Statewide	54[6]	17,681[1]	736,812[2]	571,022	1	64.2	1.2	8.7	335[15]	410.0[15]	55.6	7.6			
Cass County, ND	16.7[7]		196,362	1,765	111	9	0.5	4.6	Not available by county				2666[18]	159.6	1357.7
Mesa County, CO	8.30[8]	266[12]	159,681	3,328	48	17.8	2.1	11.1	CO does not track severity				2492.2[18]	300.1	1560.7
Broomfield County, CO	4.23[8]	28[12]	76,860	33	2,329	3.6	0.9	4.7	CO does not track severity				1243.4[18]	293.8	1617.7
Missoula County, MT	11.63[9]	2,275[13]	121,849	2,593	47	13.2	1.3	10.8	MT does not track severity				2583[18]	222.1	2120.2
Canyon County, ID			257,674	587	439	21.8		8.5	151.6	173.6	67.4		3757[18]		1458.0
Laramie County, WY			100,984	2,686	38	13.4		13.3	42	55.4	54.9		1986[18]		1966.5

Data Source Reference Information:

1. Fatality and Injury Reporting System Tool, National Highway Transportation System Administration, 2018-2022 five-year average, with exception of Mat-Su Borough Expanded Core Area. This is a custom boundary and fatalities were pulled from local law enforcement reports within this boundary, 2018-2022 five-year average.
2. **Communities**: US Census Data population data estimates as of 2023, land area as of 2020. Mat-Su Expanded Core Area population data is not available as this was a boundary determined for purposes of the SS4A grant. MSB Expanded Core area is a custom boundary and estimated from census tracts most closely matching it from the US DOT Equitable Transportation Community Explorer Tool, which sources from US Census. **Alaska statewide population data** from Alaska Dept. of Labor & Workforce Development, estimate as of 2023. Alaska land area from US Census data.
3. Vehicle Miles Traveled (VMT) estimate as of 2022. This was calculated from the length of roadway within the MSB Expanded Core Area (source: MSB GIS data) multiplied by the AADT of routes, where available, times 365. Not all routes in this area had volume data but the most recent year of data available was used. AADT data sourced from DOT&PF and MSB. Low volume roads often do not have AADT data, but accordingly make less of an impact on VMT calculations. This estimate is believed to be reasonably accurate for comparison purposes. **Note:** VMT data is difficult to obtain at a county/city level and generally reported at statewide level. Some states report VMT like Colorado and Montana report by county. Alaska does not report VMT by municipality.
4. Vehicle Miles Traveled estimate as of 2022. This was calculated similar to MSB Expanded Core Area above using DOT&PF AADT data. This estimate is believed to be reasonably accurate for comparison purposes.
5. Vehicle Miles Traveled estimate as of 2022, calculated similar to MSB and FSNB. However, substantial AADT information is missing for more than two thirds of the routes in the KPB, and the VMT, while believed to be substantially lower than MSB and FNSB, is not believed to be actually this low. Crashes per VMT were not carried through in calculations due to this uncertainty.
6. Estimation from 2016-2020 annual VMTs presented in *Alaska Strategic Highway Safety Plan*, updated March 2024.
7. 2022 VMT, North Dakota DOT
8. 2023 VMT, Colorado DOT
9. 2023 VMT, Montana DOT
10. Calculation from GIS data sourced from respective Boroughs. For communities without road length data shown, complete length of network data was not located. Most municipal entities only report roads under their ownership which is not representative of the total length of roads in a network.
11. 2020 estimate, *Alaska Strategic Highway Safety Plan*, updated March 2024.
12. Colorado DOT
13. Montana DOT

14. 2018-2022 crash data from local law enforcement reports. Serious injury crashes shown as annual estimate averaged over five-year period.
15. Rolling average 2016-2020, *Alaska Strategic Highway Safety Plan*, updated March 2024.
16. Where not reported, serious injury crash data is not tracked specifically in these localities at the municipal level (Cass County) or is not tracked by severity (Montana and Colorado). Montana DOT reported this data is not public on advice of counsel and referred us to FIRST/NHTSA for fatality only data. Fairbanks North Star Borough data for 2018-2022 was available but not used for this metric as a known deficiency in data reporting uploads from Fairbanks Police Department since 2018. Total crashes and serious injury crashes would be underrepresented based on available data at this time.
17. Respective state DOT, 2018-2022 annual estimate averaged over this five-year period. Exception: Laramie County data is from 2019-2023 from WYDOT.

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Appendix B: MSB CSAP Plans Review

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MSB CSAP Plans Review						
Plan Title	Plan Ownership	Year Completed	Overarching Goal of Plan	Transportation Safety Related Goals	Key safety related policies/programs/projects	Potential applicability to MSB CSAP
Alaska Vulnerable Road User Assessment	DOT&PF	2023	A program of strategies that uses data and local stakeholders to address safety for vulnerable road users (VRUs). VRUs are generally anyone mobile on a roadway outside of a motor vehicle (pedestrians, bicyclists, wheelchair users, skaters/rollers, children playing, and workers in construction zones.	Identify VRU high risk areas and develops 14 strategies to reduce VRU crash risk.	Identifies high risk corridors and intersections statewide.	Identifies the following MSB Expanded Core Area Corridors for VRUs which may be good candidate SS4A projects once countermeasures identified: ***Bogard/Arctic Avenue** from Anna Street to Gulkana Street ***East Palmer-Wasilla** from Felton St to Valley Way. Similarly identifies high risk intersections: ***East Palmer-Wasilla and Glenn Highway *West Bogard & Glenn Hwy *East Parks & Palmer-Wasilla Highway.** Several strategies are useful and applicable for consideration as CSAP recommended implementation or supplemental planning projects, including deploying FHWA Proven Safety Countermeasures in underserved communities, conducting VRU Safety Audits, installing more pedestrian crossing infrastructure, and separating VRUs from motor vehicle traffic.
Alaska Strategic Highway Safety Plan	DOT&PF	2024	Provides a coordinated framework to unify safety stakeholders in reducing fatalities and serious injuries on public roads statewide.	Incorporates Safe System principles to establish performance goals for reducing fatal and serious injury crashes Toward Zero Deaths, with a commitment to monitor and report on goals over time.	*Key reporting measures include: number of fatalities, rate of fatalities, number of serious injuries, rate of serious injuries, and number of non-motorized fatalities and serious injuries (vulnerable road users.) Emphasis areas include: **Pedestrians and Bicyclists; Young Drivers and Older Drivers; Motorcycles, All-Purpose Vehicles and Snowmachines; Dangerous Driving; Roadways; Speed Management; Vehicle Safety; and Emergency Response.**	The plan provides a wealth of statewide data, trends and emphasis areas related to transportation safety. The framework for actions, responsible agency, performance measures and timeframes for each emphasis area is also an excellent model for CSAP recommendations.
Mat-Su Borough Highway Safety Improvement Program Handbook	MSB	2017	Reduce the number of crashes on borough roads, reduce injuries and save lives.	Reduce the number of crashes on borough roads, reduce injuries and save lives. Takes Alaska DOT&PF's HSIP program one step further in considering public input or addressing high-risk potential crash locations.	Policy focuses on a benefit cost model for countermeasures that reduce crashes (and associated crash costs to society.) However, no dedicated funding exists for the program, and project screening has not happened on a recent or regular basis due to lack of staff resources. Some elements of the HSIP screening process may apply to CSAP implementation projects, however, SS4A has other considerations, including equity. In addition, since 2017 DOT&PF's HSIP program has been modified to evaluate intersections by spots and does not use crash rates.	No program of projects exists currently. However, a plan recommendation could be to bring focus back to this program, and associated funding/resources.
Mat-Su Borough Core Area Comprehensive Plan	MSB	2007	The purpose of the plan is to set out goals and policies to guide the development in the Core Area that will enhance the quality of life and the public health, safety, and welfare.	Implement MSB LRTP goals for transportation	Strategies that serve the transportation safety goal are: Improve Transportation Safety Education; Continue the Safe Routes to School Program; Continue Support of Highway Safety Improvement Program; Develop and Implement Access Development Plans for all Major Collectors and Arterial Roadways within the MSB.	Work with AKDOT&PF, Cities of Palmer & Wasilla to purse funding for a Traffic Safety Signal Management Program. Palmer Wasilla Highway Action Plan. Subdivision Construction Manual Update. Develop Active Transportation Work Plan. Continue Coordination with MSB School District Regarding Safe Routes to School (SRTS). Proactively Support Active Transportation Provisions with Highway Facility Improvements.

MSB CSAP Plans Review						
Plan Title	Plan Ownership	Year Completed	Overarching Goal of Plan	Transportation Safety Related Goals	Key safety related policies/programs/projects	Potential applicability to MSB CSAP
Mat-Su Borough Comprehensive Plan	MSB	2005	Enhance quality of life, improve public health, safety, and welfare. Address borough-wide growth and provide general goals and policy recommendations for future development. The plan addresses these elements: Land use Transportation Public facilities Planning methods Community quality Parks and open space Economy Hazards Implementation	Develop an integrated surface transportation network that facilitates the efficient movement of people, goods, and services throughout the Borough and region. Protect and enhance the public safety, health, and welfare of Borough residents. Enhance the transportation infrastructure to reduce travel times and improve transport efficiencies and safety.	Locate new economic nodes at or near major arterial intersections instead of allowing linear commercial growth along such arterials. Develop an integrated highway and arterial surface transport system. Allow local communities, through local community based plans, to refine and tailor transportation system needs and alternatives for their particular community needs that are consistent with the borough's long range transportation plan and Borough-wide Comprehensive Plan. Develop an effective multi-modal transportation plan that provides recommendations for all modes of transportation including surface, air, waterborne, rail, public transit and trails, pipeline, electrical, and communications. Provide and encourage street and trail connectivity at a regional and local level. Require new developments to integrate street and trail connectivity as a component of their proposal. Develop pedestrian and bicycle linkages between schools, public facilities, neighborhoods, parks and open spaces and population centers where feasible.	Develop pedestrian and bike linkages
City of Houston Comprehensive Plan	City of Houston	2017	The purpose of the plan is to reflect the community's vision for future growth and development changes., to provide direction for development, and validate the community's core values. These include accommodating orderly growth, addressing the need for enhance education, health, and governmental services, promoting local employment and economic opportunity; and maintaining a high quality semi-rural residential environment.	• Increase safety, accessibility, and mobility through much of the city with improvements benefiting all users, including pedestrians, bicyclists, and other non-motorized users, while maintaining community character. • Provide a transportation system that enhances the local economy and quality of life: Minimize neighborhood through-traffic movements; promote positive and attractive design of transportation facilities; develop a multi-modal transportation network; encourage the paving of roads and the increased use of dust control materials. • Develop an integrated roadway network that facilitates the efficient movement of people and goods: Minimizing the number of access points on collector and arterial roads to maximize safety and road capacity; provide a multi-modal transportation system that is safe, effective and meets the needs of all residents;	<u>Parks Highway:</u> •Parks Hwy bypass (grade separated interchange between mile 56 and mile 60) - this project will provide opportunities for a cohesive town center around community assets (Little Susitna River and existing businesses) and help facilitate efficient and safe freight movement. •Upgrade to a 4-lane divided highway between Big Lake Road and the northern boundary of Houston. A divided highway will reduce conflicts between slower moving trucks and faster moving cars and has the potential to greatly reduce severe crashes, such as head-on collisions. • Access Management: limiting the number of intersections with the Parks Hwy and using frontage roads in the existing commercial zone near Armstrong Road. Access points identified for consolidating/rerouting include 1. W Larae Rd/Airolo (align intersections) Dr 2. Corn St (close hwy access and route to Hawk Ln or Delroy Rd) 3. Debra Jean Ln (close hwy access and route to Hawk Ln or Delroy Rd) 4. N Dana Ct to Railroad undercrossing (close hwy and provide frontage roads connecting to repurposed Parks Hwy after bypass construction) • Pedestrian crossings - safer crossings could be encouraged through construction and proper maintenance of surrounding trail networks, directing pedestrians to reduced speed areas of the Parks Hwy or future signalized access points. <u>Local Road Network:</u> Improve neighborhood connectivity	•Signage and wayfinding directing visitors to town center businesses •On/off ramps at existing Parks Highway at either end of bypass • Streetside or other public parking venues in the town center • Access management through intersection and driveway consolidation • Safer pedestrian crossings connecting to trail the trail network and future signalized access points • Preservation of existing formal pathways • ATV Policy adoption to designate facilities for this use type, incorporation of flat bottomed gravel ditches, stabilized shoulders, and trail/road intersections into new road construction.

MSB CSAP Plans Review						
Plan Title	Plan Ownership	Year Completed	Overarching Goal of Plan	Transportation Safety Related Goals	Key safety related policies/programs/projects	Potential applicability to MSB CSAP
				provide for the travel needs of mobility limited residents (young, old, low income, disabled); support continued operation and expansion of local public transportation.• City of Houston's 1999 adopted plan stressed need for emergency access routes and combination fire breaks. Proposed emergency access routes include a connection between Millers Reach Road and the Beaver Lake area and connecting roads north of the Little Susitna River from Armstrong Road to Edgerton Parks Road.	• West of Park Highway: secondary road link to the Beaver Lake area; access around the south side of Morvo Lake; and access to the Middle and High Schools from Delroy Road. • East of Parks Highway: Alternate Cheri Lake access; access to the east of Cheri Lake; completion of a loop around Prator Lake; and a new bridge over the Little Susitna River to connect Armstrong Road tot he Prator Lake area. Non-motorized Users: • Preserve existing formal pathways and add addition pathways along Hawk Lane (btwn Park hwy and Middle/High Schools); Extend Hawk Lane pathway from school campus to Big Beaver Lake and connect with the Big Lake community trail system. • Construct a formal pathway along Kenlar Road connecting the Hawk Lane pathway with the existing pathway adjacent to Big Lake Road. • Construct formal pathway along King Arthur Drive with connection to the existing pathway along the Parks Hwy. • Construct missing links to provide continuous pathways on both sides along the entire Parks Hwy. • construct formal pathway along the Little Susitna River in vicinity of proposed Town Center •Include adjacent pathways wherever feasible in all new construction and upgrade projects for interstate, arterial and collector roads. Off-Road Vehicles: ATVs and snow machines are allowed on City streets and ROW, however these can cause conflicts including invading private property, rutting, and safety concerns at intersections and dust/visibility hazards	
					• Adopt a policy to incorporate off-road vehicle facilities including stabilized shoulders, flat-bottom gravel surfaced ditches, and trail/road intersection considerations when constructing new roadways. • provide designated ATV trails between major ATV destinations, such as frequently visited lakes. Public Transportation: Existing bus service only extends into Houston's southern boundary. • expand bus service to other parts of Houston • Senior Center on Hawk Lane is a potential candidate for bus service • Create a formal, city owned Park-and-Ride lot for people who want to use the bus or carpool to commute to Wasilla or Anchorage • support development of Anchorage to MSB commute rail.	

MSB CSAP Plans Review						
Plan Title	Plan Ownership	Year Completed	Overarching Goal of Plan	Transportation Safety Related Goals	Key safety related policies/programs/projects	Potential applicability to MSB CSAP
City of Palmer Comprehensive Plan	City of Palmer	2006	To provide a method to analyze past development, current issues and community views, and use this information to establish policies guiding future development. Key components of this plan include a broad, long term vision for Palmer's future; policies to guide land use, growth, and development; priorities to improve community facilities and services; and policies to promote economic development, retain community character and protect the natural environment.	GOAL 1: Shape the character and use of the Glenn Highway. • Provide efficient, safe access to Palmer while serving the needs of through traffic. • Maintain the Glenn Highway corridor as an attractive community entry. • Improve pedestrian and vehicular links between east and west sides of the Glenn Highway. • Control access to commercial development along the Glenn Highway. GOAL 2: Improve the Palmer road system to meet anticipated growth. • Identify and prioritize specific roads for improvement. • Identify collector-level streets that are or will be needed to serve future development and traffic. • Identify future road corridors for acquisition of right-of-way GOAL 3: Maintain and improve community sidewalks and trails. • Make it easier to move around town without a car. • Identify and prioritize trails for improvement and future trail corridors for preservation	• Glenn Highway Bypass/Hemmer Road Extension •Proposed Road Improvements include Glenn Hwy (the Glenn Highway should be designated as a four-lane, limited-access, "boulevard-style" arterial with a generous planted median) Bogard Road Extension (Bogard Road is a key Core Area arterial that helps carry east-west traffic that uses the Palmer-Wasilla Highway.) Downtown – East West Connection (Another important road project is to develop a new, improved east-west connection across the railroad in downtown. The most promising route is to connect existing street segments of Dogwood Street to create an urban street running east of Denali Street, across the Alaska Railroad right-of-way.) Felton Extension (The Felton extension would connect Evergreen (Palmer-Wasilla Highway) with W. Arctic Avenue, and be connected to the planned extension of Dogwood. This improvement will create an important, more direct north-south link, reducing travel times and congestion on the Glenn Highway.) • Other Road Connections/Road Projects (Pave all roads within the community with the highest priorities should be streets with the greatest use, particularly in the downtown commercial and mixed use area. Collector streets are needed on an approximate one to one half mile grid consider requiring subdividers to consider the relationship of their developments to adjacent subdivisions.	• Implement identified road projects that will help alleviate congestion • Pave local roads to decrease dust/visibility/asthma issues • require developers to connect subdivision roads to walking and biking trails • implement identified trail and sidewalk missing links, needed improvements • rehabilitate sidewalks and improve sidewalk maintenance • expand transit service with a focus on service to senior centers and vulnerable populations
				GOAL 4: Support expansion and improvement of regional transit service. • Continue to provide and improve transportation services for disabled individuals. • Improve the "MASCOT" transportation service by establishing smaller node routes that are interconnected to reduce overall travel time.	Additional minor road connections needed include connecting the north and south sections of Gulkana Street coincident with the development of adjacent property. Connect subdivisions to existing trails within the community • Implement Proposed Trail Improvements and Proposed Sidewalk Improvements (see map (Figure 3) of proposed trail and sidewalk connections) • Rehabilitate Sidewalks and Improve Sidewalk Maintenance • Expand upon Mat-Su Community Transit (MASCOT) • Increase funding for transit service for The Palmer Senior Citizens Center • Pursue the creation of bus and rail commuter service between the Valley and Anchorage.	
City of Wasilla Comprehensive Plan	City of Wasilla	2011	The Plan is intended to guide the decision-making of the City's elected officials, commissions, and staff regarding future development and community quality of life. It provides a road map for action, with findings and goals that address important community elements.	1) Provide for streets and highways that promote mobility, connectivity and access for both present and future users. 2) Provide a streets and highway network that supports economic development and growth. 3) Support the City as a transportation hub that provides connecting highways, railroad, and expanded air service. 4) Provide a neighborhood street network that enhances the residents' quality of life. 5) Maintain and improve City sidewalks and non-motorized pathways to increase walkability.	• Develop strategies and partnerships to successfully fund regionally important road projects (e.g., STIP identified priority projects) • Update and maintain the City's Streets and Highways Plan. • Set aside funds annually to maintain and improve the existing City roads. • Seek alternatives to expanding and widening the Parks Highway through Downtown to alleviate current and future traffic. • Identify network options and negotiate right-of-way acquisition needed to speed up work on anticipated critical project linkages. •Work toward completing the region's perimeter roads that allow residents north and south of the City to avoid major road networks and remove unnecessary traffic from congested areas. • Minimize driveways and visual clutter within sight distance of intersections. • Work with ARRC to develop and maintain appropriate at-grade railroad crossings and to make improvements that address traffic flow impacts related to the railroad. • Identify ways to improve safety at high accident intersections. • Seek ways to reduce pedestrian and vehicle conflicts and make pedestrian crossings safer. • Require new commercial developments to provide connectivity with adjoining commercial uses.	• strengthen relationship with AKDOT to help plan and fund road improvements • develop perimeter roads that allow city residents to avoid major road networks and decrease congestion • improve pedestrian crossings • require commercial developers to provide access to adjoining commercial uses • develop transportation master plan • develop conceptual city site master plan which includes an element of buffering between non-compatible uses • implement safe routes to school program to identify routes and plan for safety improvements • develop and implement signage and wayfinding that is accessible for multi-modal travel • create and implement a maintenance plan for walkways • encourage sidewalk accessibility and connection to transit stops • enhance ADA accessibility on walkways • implement better lighting on walkways

MSB CSAP Plans Review						
Plan Title	Plan Ownership	Year Completed	Overarching Goal of Plan	Transportation Safety Related Goals	Key safety related policies/programs/projects	Potential applicability to MSB CSAP
					• Ensure future street connectivity for new subdivisions during plat reviews by recommending connections between subdivisions and appropriate roadway alignments. • Consider a Mack Drive with Clapp Road extension, with a major intersection that re-orients and links in Fairview Road for maximum safety and connectivity. • Develop a conceptual site master plan for the transportation node and surrounding lands, which considers compatibility, connectivity, and buffering between non-compatible uses.	
					• Support the public and private sector in establishing viable alternatives to single-occupancy vehicle trips, particularly for commuters. • Where through-traffic problems occur consider traffic calming measures or shifting road use and circulation patterns to address the issue. • Encourage neighborhoods to develop plans and identify neighborhood-specific transportation improvement priorities. • Work with existing schools to identify major pedestrian/bike access routes, and undertake safety and circulation improvements. Use the "Safe Routes to School" program as a potential resource and source of funding. • Require new commercial developments to provide basic pedestrian access to adjacent commercial uses. • Develop signage and safety solutions for road crossings and sidewalks that attract multiple types of users (pedestrians, handicapped persons, bicycles, and ATV's. • Create and implement a maintenance plan for walkways that allows them to be used year-round. • Encourage sidewalk connections to public transit stops. • Create design standards for new sidewalks that require the developer to provide connectivity between uses that are pedestrian friendly. • Ensure that sufficient area for pathways is set aside for future pathways at time of development. • Enhance ADA accessibility on walkways. • Encourage use of low-impact lighting.	
Mat-Su Borough Long Range Transportation Plan	MSB	2017	The stated purpose of the plan is to identify and communicate the MSB's highest transportation priorities. The Plan establishes goals for the MSB transportation system, recommends strategies for all modes of travel, including personal automobiles, bus/transit, bicycles, pedestrians, freight, rail, marine, and aviation. It provides a range of improvements that address mobility, safety, and accessibility needs, and establishes a prioritized, fiscally constrained list of roadway improvements as well as a short term implementation strategy.	Goal 5: Make Transportation Safer; Goal 1: Improve Transportation & Land Use Connection; Goal 3: Improve Connectivity;	Goal 1 strategy: Explore Remote Land Use Access and Infrastructure Issues -noting lack of infrastructure impacts user safety. Goal 3 strategy: Establish Non-Motorized Design Requirements on All Major Collector Roads and Above. Increases access to transit and improves pedestrian safety. Goal 5 strategies: Improve Transportation Safety Education. Continue Safe Routes to School Program. Continue support of Highway Safety Improvement Program. Develop and Implement Access Development Plans for All Major Collectors and Arterial Roadways within the MSB. Knik Goosebak between Parks Hwy and Pt MacKenzie Rd and the Parks Hwy between Wasilla and Big Lake are designated as Highway Safety Corridors. Palmer Wasilla Hwy between Palmer and Wasilla is being considered for Highway Safety Corridor designation. Glenn Hwy Erosion Protection MP 64/64; Parks Hwy/Talkeetna Spur Ped improvements; Palmer Wasilla Hwy widen to 3 lanes; AKDOT&PF MSB Intersection Improvement Program; Parks Hwy. Bridge Replacement Montana Creek and Sheep Creek; Nelson Rd extension to Fairview Loop Rd; Engstrom Road Congestion Relief; Engstrom Rd North extension to Tex Al; Tex Al Rd Upgrade and Extension; Glenn/Parks Interchange Hospital Access Improvements; Ongoing AKDOT&PF Asset Management and Safety Improvement Program; Seldon Rd - Beverly Lake Rd to Pittman Rd; Jensen Rd Extension to Soapstone Rd; Museum Drive Extension west to Vine Rd	Access management, pedestrian improvements, design standards.

MSB CSAP Plans Review						
Plan Title	Plan Ownership	Year Completed	Overarching Goal of Plan	Transportation Safety Related Goals	Key safety related policies/programs/projects	Potential applicability to MSB CSAP
					Katerine Drive Connection to Trunk Rd; Vine Rd Improvements - Hollywood Blvd to Parks Hwy; Wolverine Rd from Wolverine Creek Canyon to approx. Mile 10 (where maintenance ends)	
Mat-Su Borough MPO Self-Assessment	MSB	2016	To help identify the context in which an MPO would operate, the requirements of an MPO if one is established, the financial ramifications on existing staff and project resources, and the pros/cons of having an MPO.	The document is not a plan and does not contain goals, as such. The document explains the MPO structure/organization and compares that with MSB transportation planning and services. The document includes a peer MPO evaluation and more in-depth information about the FMATS (now FAST Planning) and AMATS. The document also includes a "give/gain" grid to help evaluate partnership roles/responsibilities, their contributions and benefits gained from participating in the MPO. The document also assesses the RTPO (Regional Transportation Planning Organization) vs the MPO and determines having both would be duplicative.	The document does not identify specific projects, but explains and evaluates the MPO structure and how it may work for the MSB. The MPO would be required to prepare and maintain a Metropolitan Transportation Plan (MTP) with performance measures and targets. One of the many stated purposes to the MTP is to increase the safety of the transportation system for motorized and non-motorized users.	The document does not include specific projects/locations or countermeasures.
Mat-Su Borough Official Streets & Highways Plan	MSB	2022	To be a planning tool to help decision makers reserve future road corridors and identify possible road network improvements so that when the need arises, reasonable options are still available. The stated goals of the plan are: Link planning to engineering; Provide a plan for development of an appropriate road network; Guide future land use; Preserve safe & efficient travel; Promote economic development; Produce lower cost projects; Extend project design lives; Improve quality of life.	Road network access & connectivity; Protect options for projects beyond 2035; Implements the Long Range Transportation Plan; Not fiscally constrained; Defines functional classes & patterns network design with planning level road alignments; Designs secondary road system network needed to support arterial level Long Range Transportation Plan solutions. Expected Design Features per Functional Class identify design speed, road surface, access, intersection treatments, median treatments, shoulder treatments, pedestrian treatments, and other expectations such as transit stops, mail box pull outs, etc.	Develop policy stating that OS&HP routes and recommendations be incorporated into all aspects of planning, design, project development, and construction within the MSB; Revise the SCM to better align with the OS&HP and FHWA AADT thresholds; Adopt ROW standards for each functional classification for use in plat reviews, setback requirements, and road network development; Draft or revise MSB code to require all streets to conform to the OS&HP; Require Developers to identify the intended use of the property to better plan for trip generation; Require developments to document how traffic will impact the surrounding road network; Require developments with impacts that result in a change of functional class to the immediately adjacent road network as outlined in the OS&HP, change of intersection location, and/or change in OS&HP present a plan for bringing impacted road to the applicable functional classification; Develop policy and plans for access management ; Develop a timeline or triggers for implementing zoning and/or adopting road power; Develop and adopt a Design Criteria Manual which includes standard criteria for the design and construction of each functional class of roads in the OS&HP; Survey existing road designs and compare them to standards of the DCM; Determine locations where road upgrades are needed to conform to standards; Prioritize projects to upgrade existing roads to meet the OS&HP recommendations	Specific projects are not recommended. Many of the recommended policies and standards employ applicable countermeasures, such as controlled intersections, access control management, and pedestrian facilities. Development of a Design Criteria Manual is likely to be a related plan recommendation in the CSAP in implementing Complete Streets principles or employing Proven Safety Countermeasures.
					Prioritize projects to upgrade existing roads to meet the OS&HP recommendations; Conduct corridor management studies.	

MSB CSAP Plans Review						
Plan Title	Plan Ownership	Year Completed	Overarching Goal of Plan	Transportation Safety Related Goals	Key safety related policies/programs/projects	Potential applicability to MSB CSAP
Mat-Su Borough Bicycle and Pedestrian Plan	MSB	2023	**Vision:** The Matanuska-Susitna Borough envisions equitable access to a safe bike and pedestrian transportation network where residents and visitors of all ages and abilities enjoy an improved quality of life through healthier, better-connected communities.	**Plan Goals**: • Inventory and document the bike and pedestrian network to identify gaps and deficiencies. • Review MSB Code, the MSB Subdivision Construction Manual, and MSB Policy to identify potential changes that will help implement the plan's recommendations. • Create a prioritized list of projects to start building out the bike and pedestrian network. • Educate the public on the vision and goals for the BPP. •Solicit public input on the BPP's gap analysis and other findings. • Identify funding mechanisms to help implement the BPP's recommendations.	**Recommended policies**: Implement facility design standards • Implement a Complete Streets Policy • Implement a snow-clearing policy • Implement a general Maintenance Policy • Revise MSB Code to include pedestrian infrastructure when subdivisions are created • Implement a Vision Zero program • Include bicycle and pedestrian plans in the TIP. **Recommended Infrastructure**: Implement SRTS Walk zone inventory for MSB • Separated path along Glenn Hwy (Fish Lake to Chickaloon Branch Rd and Palmer Fishhook Rd and Jonesville Road) •Separated path along Maud Road (Old Glenn to end of paved portion of Maud Rd)...see all projects (pgs. 39-47) • **Recommended Programs:** Convene nonmotorized task force • Conduct annual bicycle/pedestrian counts at key MSB locations • Conduct LOS assessment for bicyclists and pedestrians. • Publish a bicycle and pedestrian map • Conduct ADA assessment in core areas. • Conduct a user conflict study • Develop a wayfinding plan • Conduct a greenbelt pathway reconnaissance and feasibility study. • Develop an interpretive bicycle and pedestrian path to connect historic transportation routes. Include interpretive and wayfinding signage.	Update multi-modal design standards • Complete Streets Policy • All season maintenance policy • Policy to include pedestrian infrastructure in new subdivision developments • Implement separated pathways along key safety corridors • Develop bicycle map • Install wayfinding signage • Crosswalks • Enhanced pedestrian street amenities
Mat-Su Borough Comprehensive Plan Update (in process)	MSB		Help elected officials and borough staff make policy decisions that protect private investments, bolster economic development, and support high-quality public services.	Planning staff are working to develop solutions for connections between platting and classifying roads.	This plan is still in development, but during public outreach, the borough asked about the favorability of the Parks Highway Alternative Corridor (Wasilla Bypass). 79% of respondents were either in favor or neutral to this project.	This plan is still in development, but stakeholders suggested more lighting, crosswalks, and safer routes to school. Some other ideas in the forces and trends report: Updating the Subdivision Construction Manual to include bicycle and pedestrian safety and connectivity.
Mat-Su Borough Coordinated Human Services Transportation Plan Update	MSB	2023	Improve transportation options and access to services for the following target populations: Older adults (65+) Youth (ages 10 to 17) Indigenous people Veterans Individuals with disabilities Individuals living in poverty Individuals with limited English proficiency Households with no vehicles Unhoused people. Aid in the allocation of future funding for transit projects for these populations Identify and prioritize strategies for future implementation in the Borough	Design safe, accessible, and affordable services for borough residents.	Upgrade facilities at bus stops and transfer stations. Further identify public transportation infrastructure needs in the borough.	Lighting
Mat-Su Valley Planning (MVP) MPO Boundary Development Document & Interactive Map	MSB		This document presents a methodology to form the Mat-Su MPO Metropolitan Planning Area (MPA) boundary to be submitted to the Governor for designation as a MPO.	The document is not a plan and does not contain goals, as such.	The document does not identify specific projects. Nor does it include recommended policies, program or projects. It evaluates areas of potential growth and recommends a boundary for the MPA.	

MSB CSAP Plans Review						
Plan Title	Plan Ownership	Year Completed	Overarching Goal of Plan	Transportation Safety Related Goals	Key safety related policies/programs/projects	Potential applicability to MSB CSAP
Mat-Su Borough Transportation Infrastructure Program	MSB	2021 & 2023	A funding plan that focuses on implementing projects identified other plans including the Long Range Transportation Plan, Official Highways and Streets Plan, and Safe Routes to School.	Program of projects that address traffic congestion, connectivity improvements, pedestrian and vehicle safety improvements, and provide more transportation choices for residents. The Borough recognizes the importance of TIP investment due to the fast growing nature of the community.	Example TIP 23 projects include *Inner-Outer Springer Loop Pathway *School Site Traffic and Safety Improvements: Pioneer Peak Elementary *Hemmer Road Extension South. Constructed TIP 21 projects include Nelson Road Pathway, Trunk Road Connector (Katherine Drive) including a separated pathway, and Lucille Street (Seldon to Schrok).	Planned capital projects should be screened out during safety analysis to optimize available funding for SS4A grant opportunities. However, TIP projects that are still in the development phase may qualify for SS4A grant funding, which may free up TIP funding for other project needs in the Borough.
Alaska DOT&PF Statewide Transportation Improvement Program and Draft Amendment #1	DOT&PF	2024	Demonstrates DOT&PF's four year transportation investment plan statewide that is fiscally constrained. Adopts MPO TIPs by reference, except not MVP at this time since they do not yet have a TIP.	Highway, non-motorized and transit investment in planning, design and construction phases across a variety of funding categories and route classifications. The STIP includes an allocation of Highway Safety Improvement Program funding of over $62M in FFY24.	Example projects include: *Bogard Road N. Earl to N. Engstrom*Bogard Road Safety & Capacity Improvements *Fairview Loop Road Rehabilitation and Pathway *Hermon Road Extension (Parks to Palmer-Wasilla) *Hemmer Road Upgrade & Extension *Palmer-Fishhook Separated Pathway (Trunk to Edgerton-Parks) *Parks Highway Big Lake to Houston *Seldon Road Wasilla-Fishhook to Lucille St *Knik-Goose Bay Road Reconstruction	Planned capital projects should be screened out during safety analysis to optimize available funding for SS4A grant opportunities.

Appendix C: Safety Analysis Report

Safety Analysis

MATANUSKA-SUSITNA BOROUGH COMPREHENSIVE SAFETY ACTION PLAN

Introduction

This document summarizes the safety analysis process for the Matanuska-Susitna Borough (MSB) Comprehensive Safety Action Plan (CSAP) conducted under the Safe Streets and Roads for All (SS4A) program. This document describes the data, methodology and considerations used in evaluating crash trends and systemic safety considerations for the Expanded Core Area of the Mat-Su Borough. Ultimately, this analysis was used to fulfill the U.S. Department of Transportation's SS4A program's requirements for a CSAP. The SS4A requirements include analyses of existing conditions, contributing factors, and crash types for different users. A systemic analysis is also required to identify high-risk elements and areas of a road network that may present crash risk even in the absence of crash history.

Crash Data Sources and Overview

A detailed overview of the crash data summary and key trends for this analysis period were provided in the *Existing Conditions Memorandum for the Mat-Su Borough Comprehensive Safety Action Plan* dated November 26, 2024. Michael Baker International, on behalf of the Mat-Su Borough, obtained and analyzed 2018-2022 crash data from an Alaska Department of Transportation & Public Facilities (DOT&PF) database comprising reports submitted by local law enforcement agencies and self-reporting through the Alaska Division of Motor Vehicles. The crash analysis area, including the locations of serious injury and fatal crash locations (hereafter referred to as "serious crashes"), is shown in Figure 1.

Crash analysis was performed with an overall view of crashes and with a separate evaluation focused on Vulnerable Road Users (VRU.) The *2023-2027 Alaska Strategic Highway Safety Plan's Vulnerable Road User Assessment* defines a VRU as anyone who chooses to bike, walk, or roll on a roadway. VRUs can include people in wheelchairs or mobility assistive devices; people on roller skates or skateboards; children playing; or highway workers on foot in work zones. Based on available data, VRUs in this safety analysis are noted as bicyclists or pedestrians.

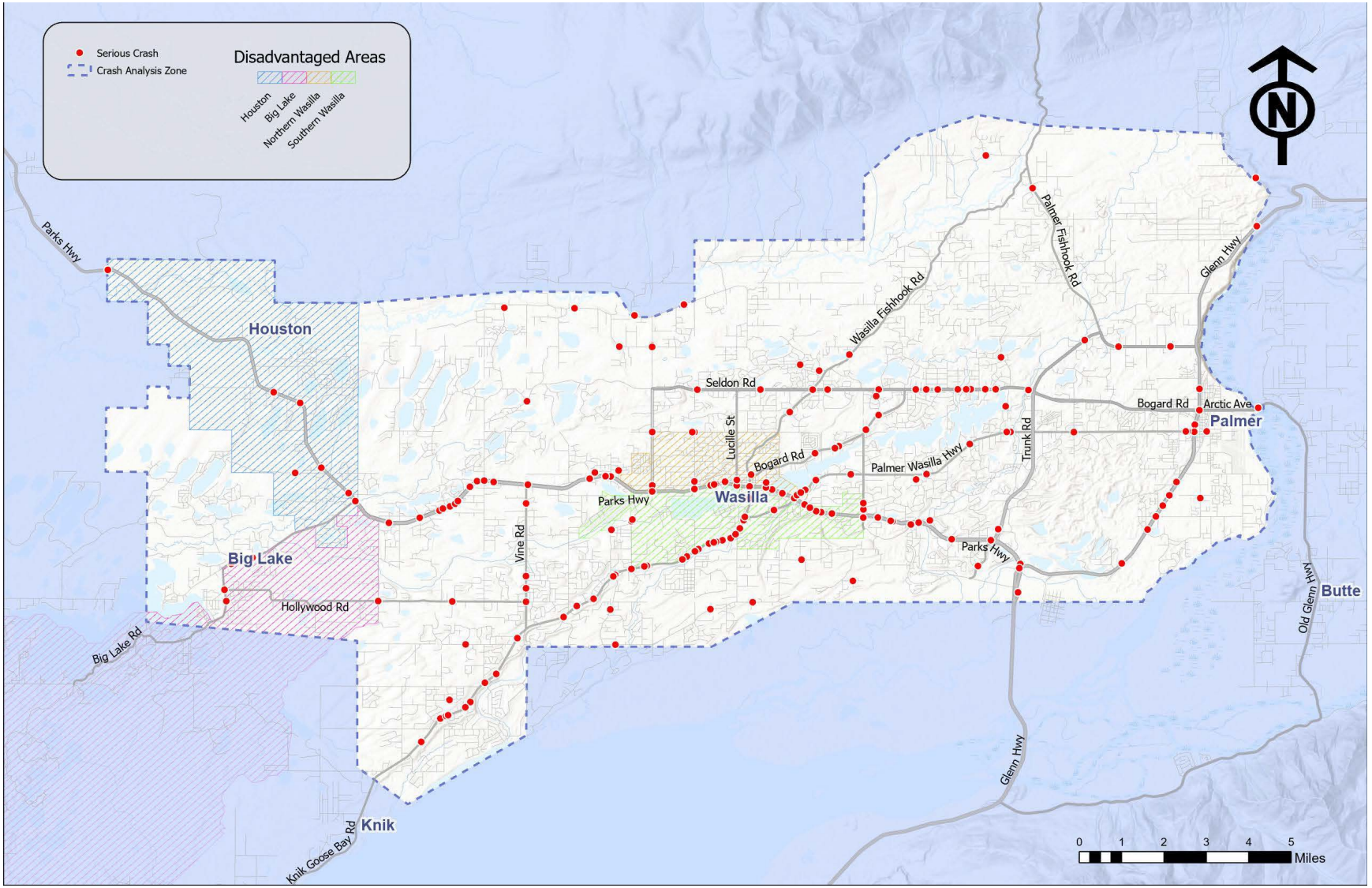

Figure 1: Mat-Su Borough Expanded Core Area Including Disadvantaged Areas and Serious Crashes (2018 – 2022)

Safety Analysis Methodology

For the systemic analysis, several methods were used to consider multiple perspectives of safety issues or potential risk. These analyses established priority safety locations for the Mat-Su Borough Expanded Core Area, and ultimately, were used to recommend improvement strategies and safety projects for the CSAP.

Systemic analysis is a proactive approach that extrapolates crash history to the greater network by identifying locations that have similar context to where fatal and serious injury crashes have happened. This approach looks at crash history on an aggregate basis to identify roadway characteristics of concern, in addition to the locations where serious crashes have happened. By merging adjacent road and intersection features with crash data, relationships can be identified between contextual factors and the likelihood of certain crash types. Systemic improvements then aim to address risk factors before a severe crash is experienced.

Crash and Systemic Analysis

Evaluating Risk Profiles

The Existing Conditions Analysis identified key trends in crashes with two major themes emerging:

- **Speed is a major contributing factor to serious crashes.** Looking at the data multiple ways completes this picture even with variances in crash reports and whether speed-related report fields were completed on the report:
    - A contributing unit's driver speed was marked as "exceeding speed limit" or "too fast for conditions" in 24% of serious crashes. It is not known how completely or accurately these fields are completed but is one indication of a crash occurring due to excessive speed.
    - A contributing unit's action of going straight (implying some loss of control resulting in the crash), accelerating, decelerating, negotiating a curve, or passing/overtaking are believed to be associated with speed. These comprise 72% of serious crashes (Figure 2). The remaining 28% include crash types like turning crashes, which may be speed-related but are not as likely to be as the other actions comprising 72%. In this context, it is not known whether the driver was exceeding the speed limit or driving too fast for conditions, but it is still indicative of speed as a contributing factor to the crash.
- 70% of serious crashes occur on roadways with posted speed limits of 45 mph or higher. As above, this does not mean all drivers were exceeding the posted speed limit or driving too fast for conditions, but it does indicate that the most serious crashes are occurring on higher speed roads where vehicles are presumably traveling at or above 45 mph.
    - Of all VRU crashes, 58% occurred on roads with posted speed limits of 45 mph or more.
    - DOT&PF identified the MSB as the borough (including unorganized boroughs) in the state with the most speed-related traffic fatalities between 2013-2022.[1] While their analysis period includes five additional years and a substantially larger area of the Borough outside the Expanded Core Area, it is still indicative of a regional trend.
    - Higher posted speed is more than just a statistical risk based on the proportion of serious crashes for all users and for VRUs occurring on these roads in the MSB Expanded Core Area. While it is true that many higher speed roads also have higher volumes, therefore presenting a higher risk of all crash types, the probability of a severe crash resulting in serious injury or

[1] https://dot.alaska.gov/stwdplng/hwysafety/data.shtml

death is higher due to the increased kinetic energy involved in crashes at speed. This is true for people in motor vehicles, but especially true for VRUs motorcycles, and ATV riders who do not have the protection of a vehicle around them if a crash happens.

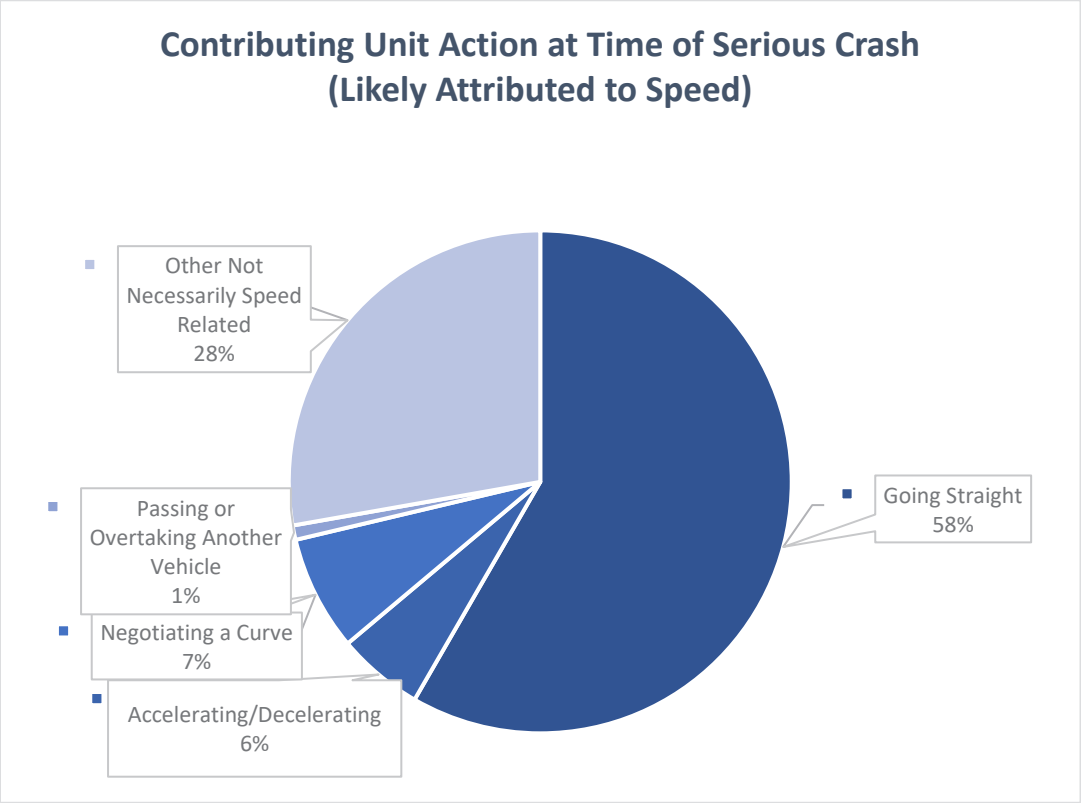

Figure 2: Contributing Unit's Action at Time of Serious Crash

- Most serious crashes are occurring at intersections.
    - Crash reports and geo-located crash locations from crash reports indicate 66% of serious crashes[2] are intersection-related.
- A more comprehensive analysis of intersection and segment locations within 0.03 miles of an intersection revealed that 59% of serious crashes were intersection-related, and most occur at unsignalized intersections (Figure 3). No serious crashes and no VRU crashes were recorded at roundabouts.
    - Angle and rear-end crashes are indicative of intersection crashes and comprised 32% of crash type categories (Figure 4). Other crash types in this category include head-on (15%) and single vehicle run-off-the road (18%). However, it also includes motorcycle, bicycle, and pedestrian as a primary crash type, some or even many of which likely fall into an angle-related crash category.
    - Of all serious VRU crashes, 80% occurred at intersections, and 69% of all VRU crashes occurred at intersections.

[2] As Presented in Existing Conditions Memorandum (dated November 26, 2024) based on crash data. Subsequent analysis adjusted crash locations based on a defined distance of 0.03 miles from an identified intersection. Crash reports may have correlated a crash to an intersection using different criteria (likely, further away from an intersection.)

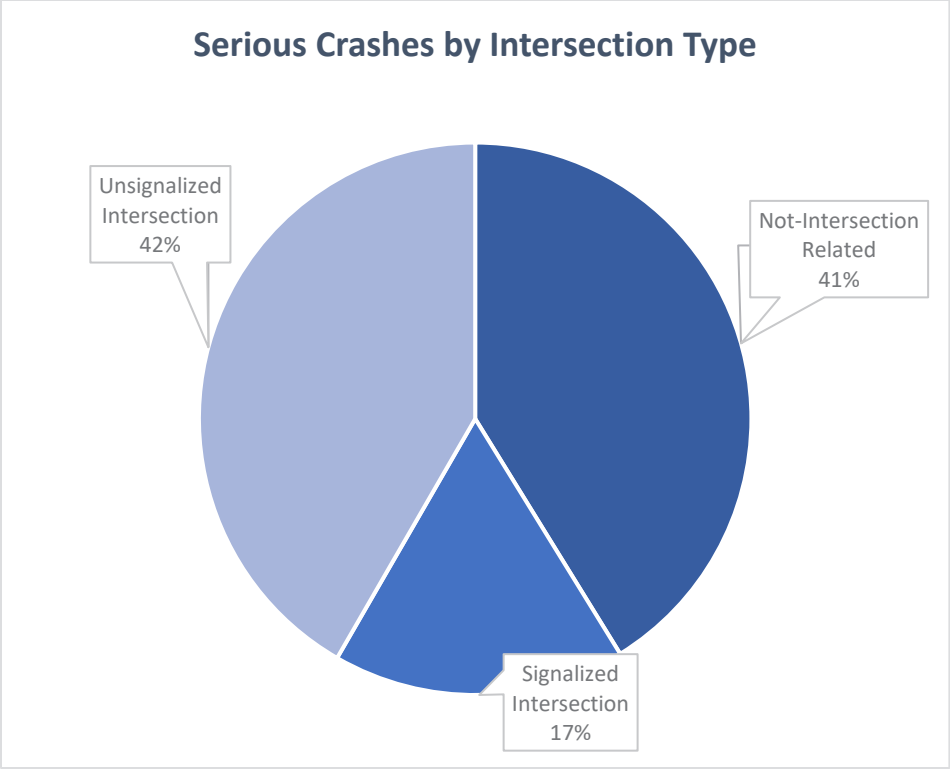

Figure 3: Serious Crashes by Intersection Type

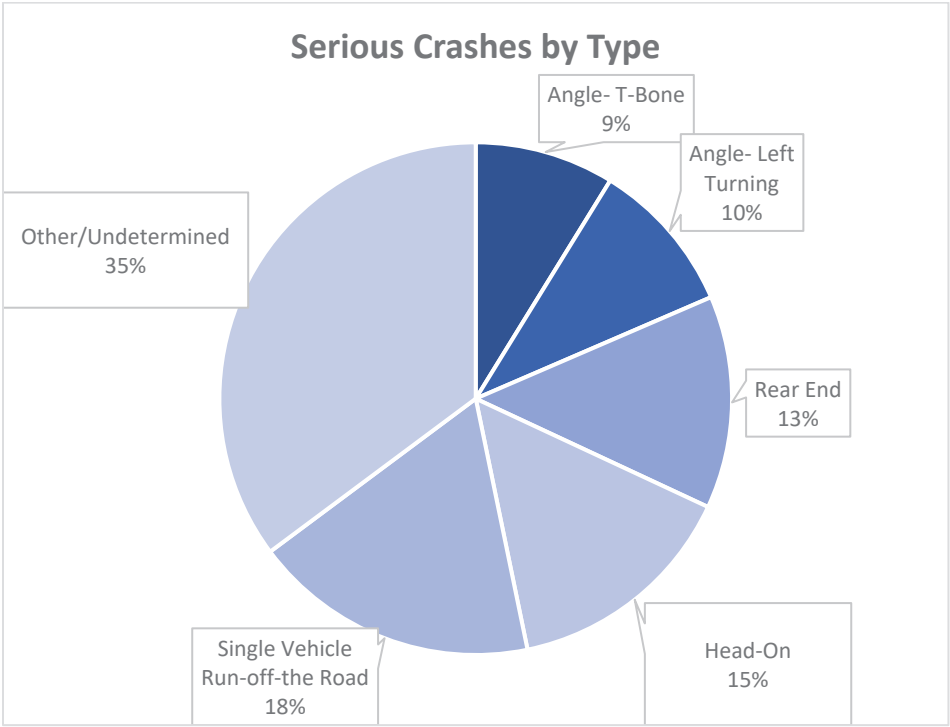

Figure 4: Serious Crashes by Crash Type

Using available data, the following other roadway features or circumstances presenting risks were identified:

- Serious crashes (64%) are most commonly occurring **outside the city limits** of Houston, Palmer and Wasilla (Figure 5). This is recognized as a risk profile due to the geographic expanse this comprises, and because police enforcement outside the cities of Palmer and Wasilla is limited to the resources of the Alaska State Troopers. In addition, emergency medical services response can be more delayed by the longer distances to travel.
- **Roads without a separated path** comprise 58% of all VRU crashes, and 67% of all serious ones. For roads near a path that had VRU crashes (42% of total VRU crashes), 68% were attributed to an intersection crossing, indicating that even when sidewalks or paths are present, intersections present a risk to VRUs.
- VRU crashes most commonly occur on roads functionally classified as **Collectors and Arterial** (60%).
- While serious crashes on roads managed by the Mat-Su Borough are underrepresented and serious crashes on roads managed by the State of Alaska are overrepresented (Figure 6), **local roads still comprise most of the network** (Figure 7), and the Mat-Su Borough manages the majority of all roads in the network (Figure 8). While 10% of serious crashes occurred on local roads, their proportion of the network presents a risk exposure to users.
- Review of serious pedestrian crashes revealed 89% occurred in dark, unlighted conditions. The Mat-Su Borough has records of their road network with lighting, but this is not inclusive of roads where Homeowner Associations may own their own lighting and does not include all illuminated roads owned by the cities and State of Alaska. Therefore, this was not included as a risk profile for identifying these locations; however, lighting was noted as a countermeasure when priority locations emerged.

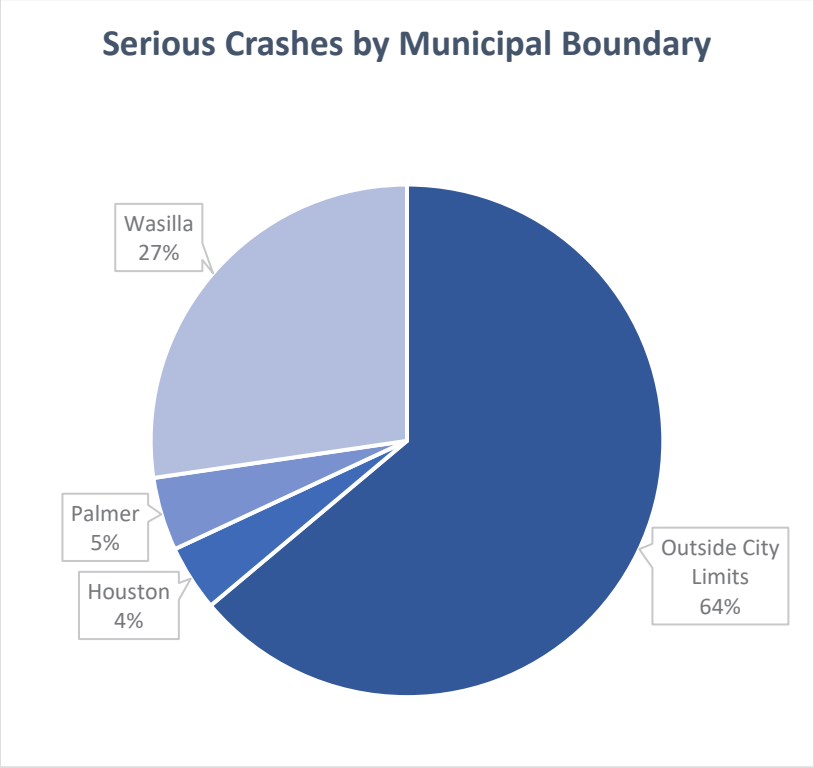

Figure 5: Serious Crashes by Municipal Boundary

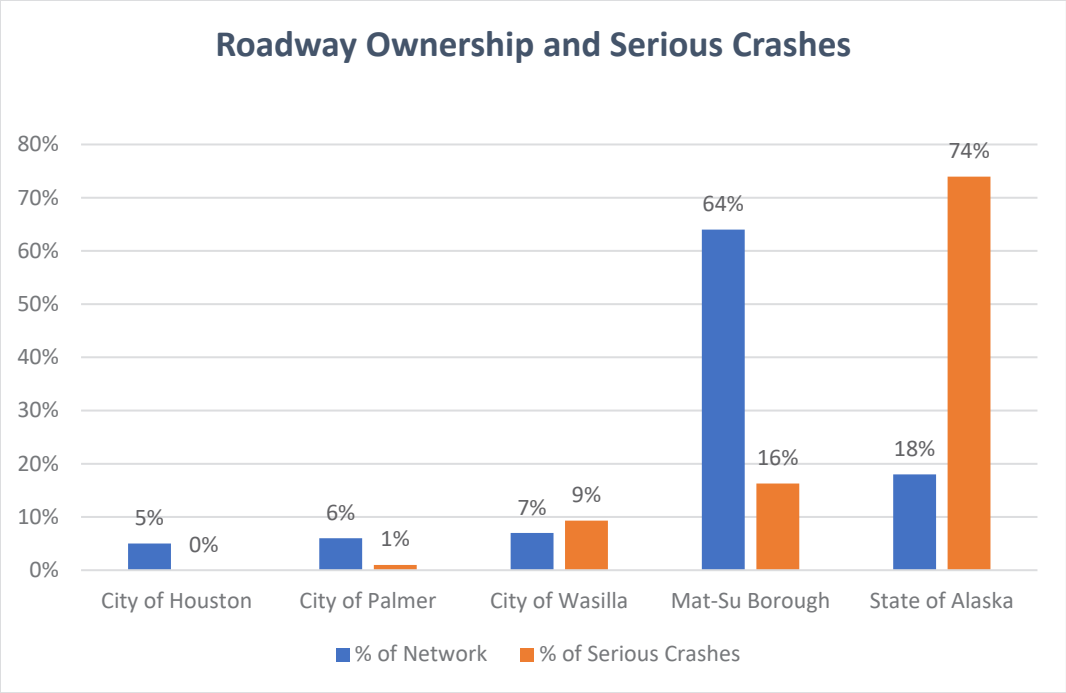

Figure 6: Roadway Ownership and Serious Crash Breakdown by Owner

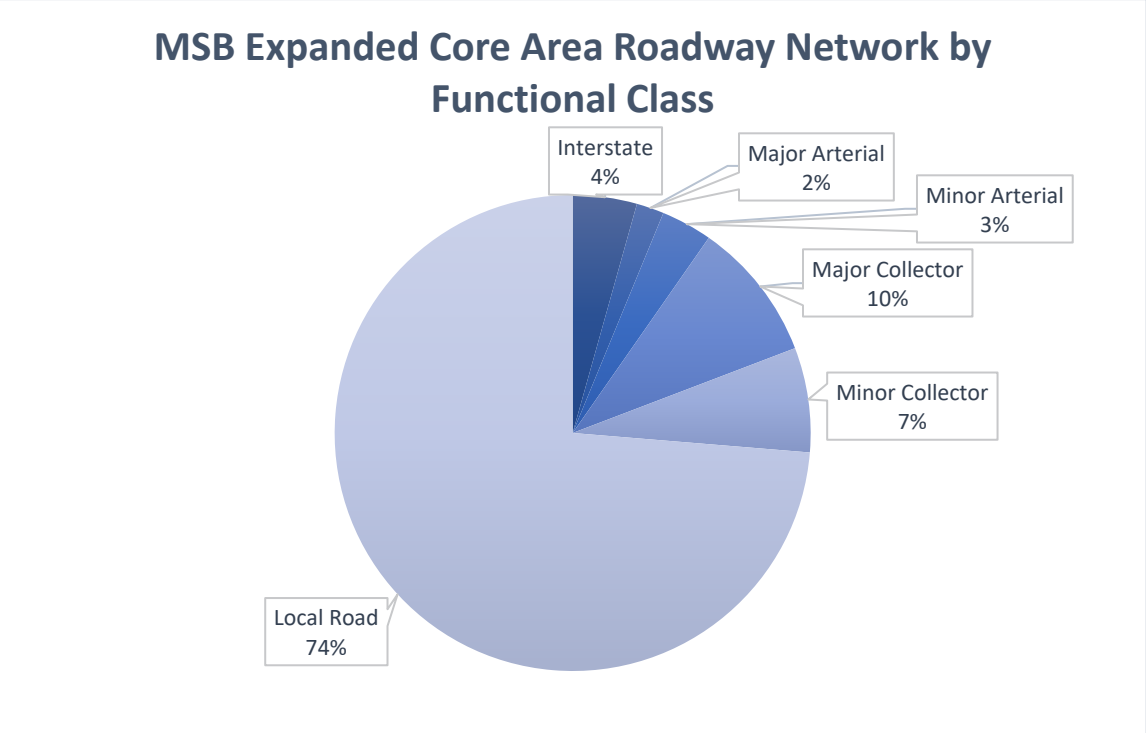

Figure 7: Road Network by Functional Class

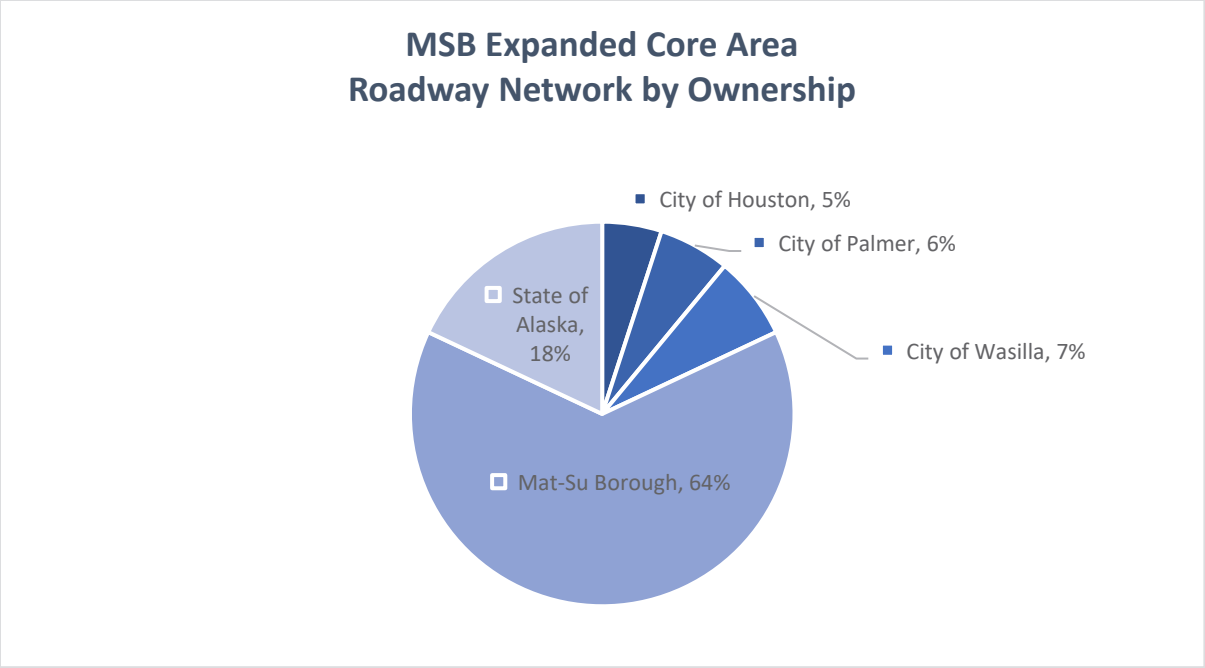

Figure 8: Roadway Network by Owner[3]

The result of this analysis revealed the following Risk Profiles:

Risk Profile for All Serious Injury and Fatal Crashes

- Roads with posted speed limits of 45 mph or higher
- Unsignalized intersections
- Areas outside the city limits of Houston, Palmer or Wasilla

Risk Profile for All Vulnerable Road User Crashes

- Roads with posted speed limits of 45 mph or higher
- No separated pathway
- Any intersection
- Collector and Arterial roads

Identifying Priority Areas

The following steps were taken in the analysis:

1) Priority area scoring criteria was developed to account for the risk factors identified above. These criteria are shown in Table 1 and Table 2, which include crash densities and High Injury Network (HIN) segments that are described in following steps.
2) Segments were created in ArcGIS to identify attributes in Table 1 and Table 2. Intersections were defined as 0.03 miles, or 158 ft from the center of intersecting roadways, and segments were defined as anything not within the intersection zone. The result of this created very short segments to adjust to an attribute change, for example: road sections broke at all intersections, where a speed limit

[3] Based on available data for roadway custodian. MSB GIS data shows 15 miles of private roadway within the Expanded Corea Area (comprising just over 1% of network) which is not included in this breakdown.

changed, where a segment changed within proximity to a VRU destination, or where a municipal or equity boundary changed.

3) Crashes were overlaid onto these segments and intersections and spatially joined. From this, crash densities for segments were established based on the total number of crashes over the length of roadway segment in miles so that relative density (highest, mid, low) could be considered.
4) An overall HIN was identified based on a weighted criteria for crash severity. An HIN for Vulnerable Road Users (VRU) was developed in addition to the overall based on the point locations of VRU crashes. See High Injury Network section that follows.
5) Segments were assigned points based on the criteria in Table 1 and Table 2, resulting in locations for overall priority and VRU priority that were then screened and evaluated for safety countermeasures as explained in Priority Area Scoring.

Table 1: Priority Locations - Overall

Criteria	Points Assigned
Risk Factors Present	5 points – 3 or more factors 3 points – 2 factors 2 points – 1 factor 0 points – no factor
Inclusion on Overall High Injury Network	3 points – On HIN 0 points – Off HIN
Serious Crash Density	3 points – Highest density 2 points –Middle density 1 point – Lowest density 0 points – No serious crashes
Equity	3 points – Within disadvantaged area identified through equity analysis[4]
Community Feedback	3 points – Location noted in community survey three or more times 2 points – Noted two times 1 point – Noted once 0 points – Not noted
Local Road	2 points – Yes 0 points – No

Table 2: Priority Locations - Vulnerable Road Users

Criteria	Points Assigned
VRU Risk Factors Present	5 points – 3 or more factors 3 points – 2 factors 2 points – 1 factor 0 points – no factor
Inclusion on VRU High Injury Network	3 points – On HIN 0 points – Off HIN
Equity	5 points – Within disadvantaged area identified through equity analysis[5]
Community Feedback	3 points – Location noted in community survey three or more times 2 points – Noted two times 1 point – Noted once 0 points – Not noted
Proximity to VRU Destinations (3/4 mile from a school, recreational, community or senior center)	3 points – Three or more 2 points – Two 1 points – One 0 points – None

[4] See Existing Conditions Memorandum dated November 26, 2024
[5] See Existing Conditions Memorandum dated November 26, 2024

Crash Rates

Crash rate calculations reveal the relative safety of a segment or intersection in a way that accounts for exposure data. For example, a crash rate can show if a road with higher traffic volume is relatively safer than a lower volume rural road of the same length, even if it has more crashes. Crash rates (crashes per hundred million vehicle miles traveled) for segments are calculated as:

$$\text{Crash Rate} = \frac{100{,}000{,}000 \times C}{365 \times N \times V \times L}$$

Where C = Total number of crashes in the study period
N = Number of years of data
V = Number of vehicles per day, both directions on segment
L = Length of segment

Intersection crash rates are calculated similarly, but must factor total entering volume of the intersection, and there is no segment length used. Intersection turning movement data was not available and would have to have been estimated by all entering segments' closest available average annual daily traffic counts.

For identifying segment or intersection trends across the network, crash rates are valuable for comparison to similar roadways when those rates are known. Alaska DOT&PF has not had comparable crash rates developed for different road classifications for over a decade and as such has not been using crash rates in their annual Highway Safety Improvement Program project screening. The crash rate calculation above also does not account for severity of the crash, and the focus of SS4A CSAPs is to reduce fatal and serious injury crashes. For these reasons, crash rates were not reviewed as part of the safety analysis for the MSB CSAP. However, a sample of segments (excluding intersections) of varying volume and posted speed limit were calculated as information to demonstrate the variability of crash rates for different road types in in the MSB Expanded Core Area, as shown in Table 3.

Table 3: Crash Rates per Vehicle Miles Traveled (VMT) on Various MSB Expanded Core Area Routes

Segment	Posted Speed limit (mph)	Average Annual Daily Traffic (2022)	Crash Rate per 100M VMT
Palmer-Wasilla Highway, Parks - Hurley Circle	45	13,100	472.3
Lucille St, Spruce to Seldon	35	1410	202.5
Engstrom Rd, Bogard to Southshore	35	2270	127.8
Wasilla-Fishhook Rd, Seldon to E. Lakeview	45	4670	106
Wasilla-Fishhook Rd, E. Lakeview to Pamela	45	4010	87.3
Spruce Ave, Lucas to Lucille	35	2420	82.9
Seldon Rd, Seward-Meridian to Bogard	50	5870	72.5
Spruce Ave, Church to Lucas	35	1570	45.9
Seldon Rd, Wasilla-Fishhook to Seward-Meridian	50	7280	29.4

High Injury Networks

The goal of Mat-Su Borough's CSAP is to provide actionable recommendations to reduce fatal and serious injury crashes for all users. From 2018-2022, there were 159 serious injury crashes and 57 fatal crashes in the Mat-Su Borough Expanded Core Area. HINs are stretches of roadway on a network that have the highest concentration of fatal and serious injury crashes.

Overall HIN

To further examine serious crash trends by location, HINs were created by identifying segments and intersections with a higher density of crashes resulting in injury or death. Minor injury (categorized in the data as "suspected minor injury" or "possible minor injury"), serious injury, and fatal crashes on the network were weighted through a point system to identify the segments with the highest crash densities as the HIN. The point system used was:

- 5 points – fatal crash
- 3 points – serious injury crash
- 1 point – minor injury crash

For serious crashes, 59% were intersection-related. For fatal, serious injury, and minor injury crashes combined, 70% occurred at intersections. Both intersections and segments were included in creating the HIN. Segments and intersections with fewer than six points were removed from the HIN to ensure at least more than one crash with any injury (minor, serious or fatal) contributed to determining the HIN segment. See Figure 9 for a visual depiction of the overall HIN.

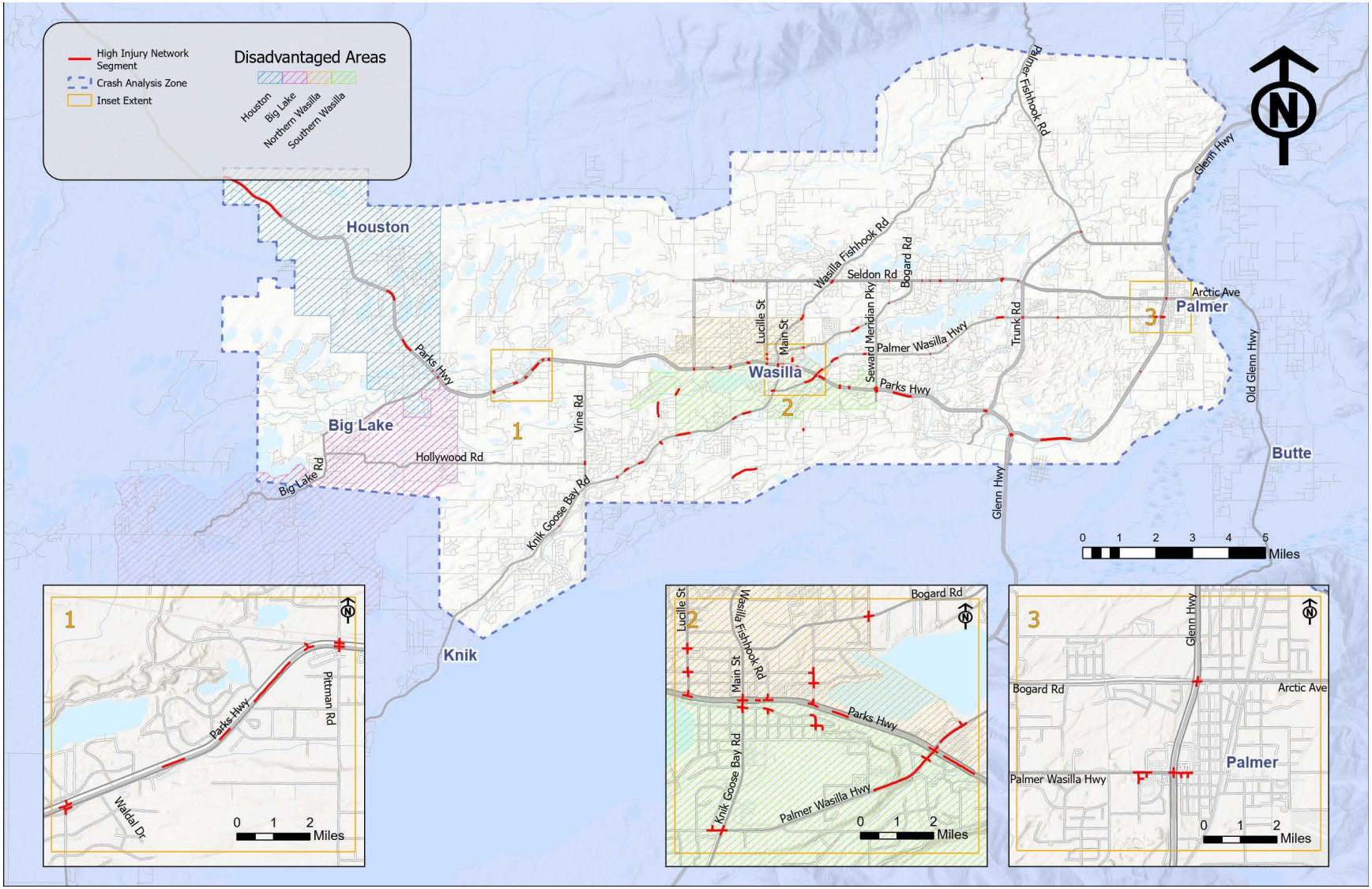

Figure 9: Overall High Injury Network

VRU HIN

The Overall High Injury Network is inclusive of VRU crashes, but a separate VRU HIN was developed to view VRU crashes comprehensively. Due to the low number of VRU crashes (22 bicycle, 30 pedestrian) and the fact that 88% of those (all but six) involved at least a minor injury, every location of a VRU crash was added to the VRU HIN. Figure 10 depicts these locations, with fatal and serious injury crashes denoted as serious crashes.

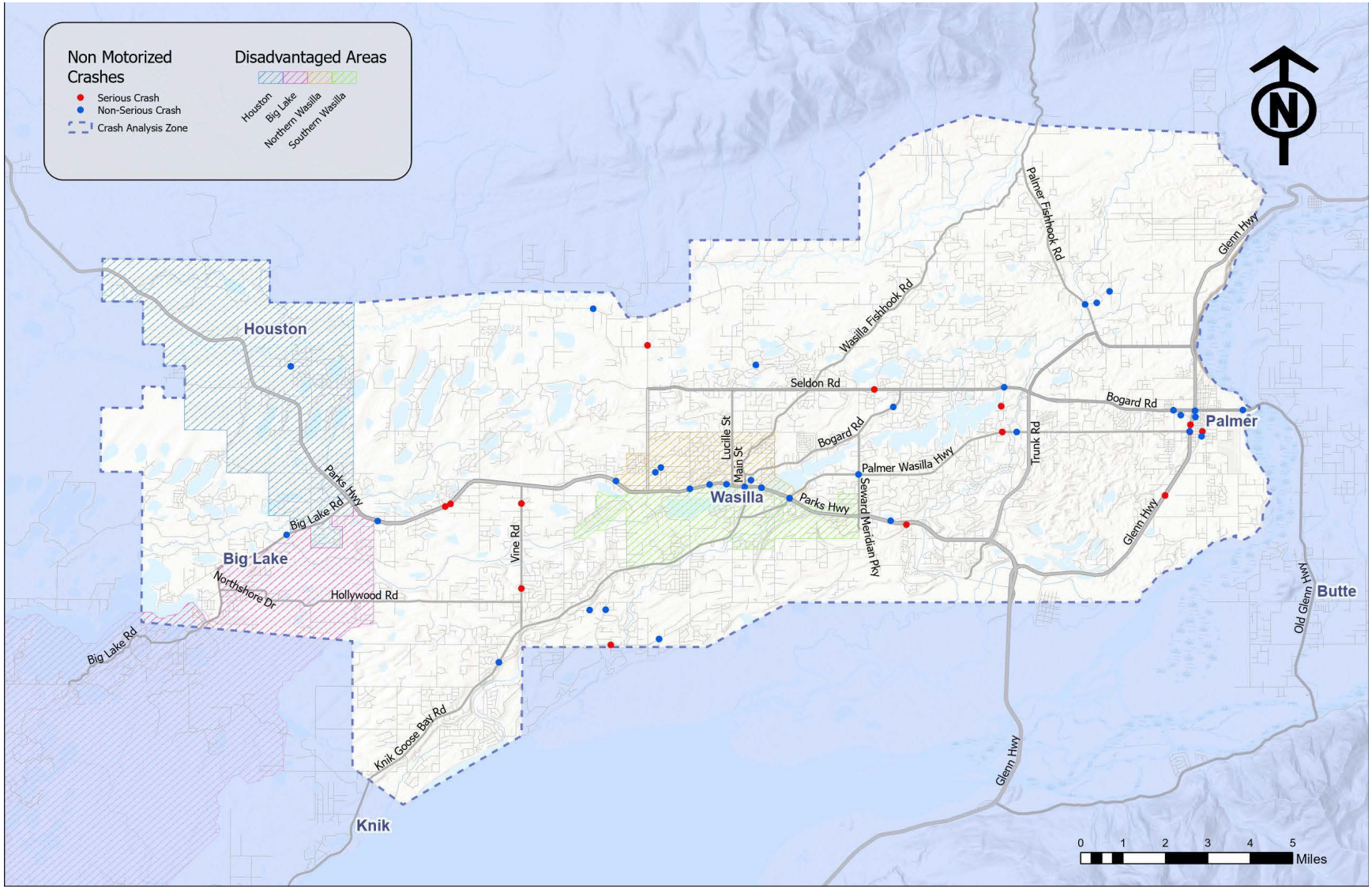

Figure 10: Vulnerable Road User High Injury Network

Priority Area Scoring

Segments were assigned points based on the criteria in Table 1 and Table 2 above, resulting in locations for overall priority and VRU priority to account for different risk profiles and HINs developed for each. The safety analysis was performed with an overall view of corridor improvement rather than select spot improvement to provide a greater benefit to the system and all users. Draft risk profiles, priority area scoring criteria, and recommended priority segments for project recommendations were presented to the MSB Safety Action Plan Team for review and input prior to finalizing the safety analysis.

Priority Area Review and Project Recommendations

The points system developed in Table 1 and Table 2 were developed to identify and prioritize areas that present a risk for serious crashes based on historic data and predictive factors. Historic crashes are important in identifying priority safety areas as they can predict future trends continuing. However, crash records do not account for near misses; areas that may be disproportionately affected by crashes due to socioeconomic (equity) indicators for people less likely to drive a motor vehicle; and insights from members of the community that use different modes of transportation in the network. Crash data may also not be present for some higher-risk areas of the network such as high-speed roads, local roads, and areas more likely to have a presence of VRUs.

The points assignment for the criteria described was completed in ArcGIS to apply scoring weights to reveal priority segments for both overall and VRUs. Each list was referenced for a more comprehensive look at priority locations, though many overlapped. Figure 11 shows the resulting combined priority locations with the highest scores.

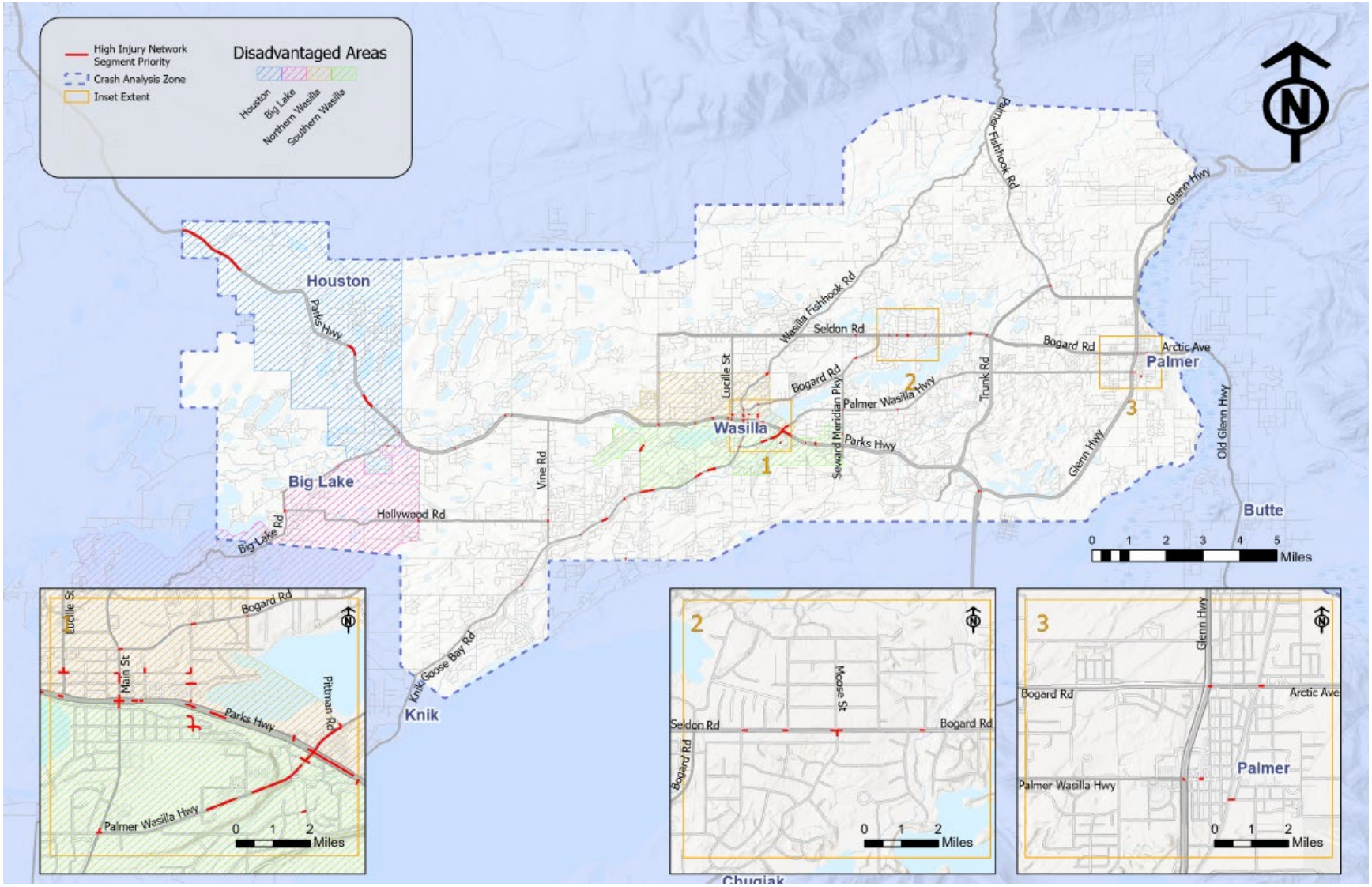

Figure 11: Priority Segments

Segments were reviewed in list format against recently constructed or planned (in the design phase) safety improvements in the vicinity, either through DOT&PF's Statewide Transportation Improvement Program or Mat-Su Borough's Transportation Improvement Program (TIP). If a proposed project had safety elements that were likely to mitigate the concerns in the area, in most cases those locations were not evaluated for recommended projects in the CSAP and noted accordingly. Two exceptions where TIP-funded projects were evaluated and recommended for additional safety improvements are noted below.

The Parks Highway corridor, specifically at the intersection of Palmer-Wasilla Highway, presented the most priority segments. Most of the Palmer-Wasilla segments had apparent influence from the Parks Highway, as did many intersections and frontage roads near it. Specific recommendations were made for the Parks corridor, as spot improvements will have limited effectiveness without a holistic look at the corridor and resulting impacts of access closures. Similarly, Knik-Goose Bay Road generated many priority segments but was not evaluated due to the ongoing reconstruction project.

For the priority segments identified, the adjoining roadway sections within the vicinity, including intersections, were reviewed to provide logical termini for project packaging. Area-wide recommendations were considered for systemic improvements (such as schools and local roads).

Consideration was also given to geographic distribution to provide project recommendations across different areas of the Expanded Core area network, as well as a project readiness consideration. An example of this was 49th State Street, which scored 12 on the VRU priority location list, is in Palmer where not as many priority locations were scoring high, and has a TIP project in development that addresses VRU needs. Another example is Green Forest Drive, a local road where a TIP project is planned to update to modern design standards. These projects were retained as recommendations because:

- Both proposed projects provided geographic variation among higher scoring priority locations;
- Both projects addressed, or with additional recommendations will address currently unmet VRU needs;
- Both projects have initiated design development, making them quicker-build solutions compared to other recommendations;
- As TIP-funded projects through bond packages approved by voters, both already have public support and a considerable proportion of their construction cost secured

The overall priority locations were not evaluated below a score of 9 and VRU priority locations were not evaluated below a score of 12 because at those score cutoffs, 16 priority locations and potential projects had emerged, inclusive of two area wide projects.

Based on this analysis and for reasons described above, Figure 11 should be considered high priority segments and intersections for safety concerns in the Mat-Su Borough Expanded Core Area, even if the CSAP does not make specific project recommendations for all those areas.
The priority area lists are included in Appendix A. Rows highlighted indicate the location was selected for a project recommendation. Project recommendations are included in the Implementation Matrix and will be presented in the draft CSAP

Safety Assessment of Non-Crash Data

Additional factors that exist outside crash data were considered throughout plan development to evaluate elements that may contribute to a higher risk for serious crashes. These factors are described below as they correlate to transportation safety.

Structural Issues and the Built Environment

Land Use and Transportation

Historically, the MSB Expanded Core Area developed to support agricultural and mining activities in Palmer and Wasilla, including the construction of the Alaska Railroad. The construction of the Parks Highway in the 1970s in addition to the rebuilt Glenn Highway around Palmer altered the landscape of the region as it became a major transportation corridor in Alaska.[6] The city of Wasilla grew and expanded immediately adjacent to the Parks Highway, which was designated an Interstate Highway Route in the 1970s and now bisects some of the community. Downtown Wasilla has grown into a thriving network of businesses and some residential units, as well as parks and open space, including access to large retail chain stores, gas stations, restaurants, coffee shops, car dealerships, and small businesses. The Parks Highway sees an average annual 34,000 vehicles per day in areas around Wasilla and serves a variety of local access needs while maintaining its commuter and freight network role as an Interstate. As a result, congestion in and around Wasilla has become a safety concern and point of frustration among community residents and travelers along the Parks Highway. These concerns were reflected in MSB CSAP public comments gathered through a community survey, at pop-up events, public meetings, and steering committee (Safety Action Plan Team) meetings. Options to mitigate congestion in this area are limited in places due to proximity of the Alaska Railroad, limited right-of-way, and potential disruption to existing businesses and established traffic patterns. In addition, north and south Wasilla are identified as areas with high concentrations of disadvantaged populations, exhibiting disproportionate high crash numbers as compared to other areas within study area.[7]

As the MSB continues to grow, especially for the Wasilla area described above, it is important to plan for access management and accessible transit facilities, incorporate adequate roadway lighting, and provide for consistent all-season maintenance. Incorporating Complete Streets elements such as protected, separated facilities for pedestrians, bicyclists, and those with disabilities will further enhance livability and transportation equity for all residents. It will also be important to work collaboratively with developers and business owners to develop policies that promote growth that supports a safe and comfortable transportation network. A table of recommended policies and practices that support Complete Streets development is included in the MSB CSAP, in Chapter 6. Policy and Process Changes. Additionally, action items that support these policies are identified in the Implementation Matrix in Chapter 8. Progress and Transparency.

Transportation Infrastructure

As described in the Existing Conditions Memorandum dated November 26, 2024, there has been considerable investment (over $600M) in transportation safety and operational improvements in the region, but the population growth has generally outpaced the region's ability to keep up with transportation infrastructure needs. With nearly 1,200 miles of roads in the Expanded Core Area, keeping pavement in good condition is a considerable challenge, especially given the temperature extremes

[6] https://www.cityofwasilla.gov/services/departments/museum/wasilla-history
[7] See Existing Conditions Memorandum dated November 26, 2024, Equity Analysis

common to this region. MSB has continued to build new roads or extensions of roads, such as with Seward-Meridian Parkway and Katherine Drive, and where feasible is developing separated pathways adjacent to roads.

Sidewalk facilities are generally limited to Wasilla and Palmer downtown cores, and mid-block crossing opportunities are limited. Continuous roadway lighting is not present on many longer routes outside of the city cores, which is an economical and safety consideration in a northern climate exhibiting long stretches of darkness and low light conditions, as well as higher costs of electricity.

Maintenance

The MSB CSAP community survey, focus groups, and Safety Action Plan Team raised maintenance as a concern for safety and reliable operations particularly for non-motorized facilities. Roads, sidewalks, and paths in MSB are maintained by multiple agencies: MSB through Road Service Areas, City of Houston, City of Palmer, City of Wasilla, and DOT&PF. This is not an unusual circumstance but can result in perceived inconsistences in maintenance practices and/or levels of service for winter maintenance. For most agencies, non-motorized facilities are treated as lower priority in winter while the main routes are cleared. MSB contracts out most of its road and path maintenance and has recently experienced difficulties obtaining quotes from interested contractors to provide snow removal for new routes added to the network. Constraints related to maintenance are multi-faceted and reinforce the importance of multiple jurisdictions coordinating, communicating, and sharing resources where feasible.

Demographics

The MSB experienced a 29% increase in population growth from 2010-2023.[8] MSB's growth in Southcentral Alaska is largely attributed to its feasible commute distance to Anchorage, Alaska's largest city, and lower priced land and housing compared to it.

As of 2023, 14.2% of the population is aged 65 or older, and 25.3% is aged 18 or younger. These proportions are higher than the nearest larger populated areas: Fairbanks and Anchorage. MSB also exceeds these communities in percent of disabled population under the age of 65 at 10.7%, and it is estimated 14.7% of the population is without health insurance. Given this information and assuming continuing growth trends, transportation safety considerations must account for an increasingly older population as residents age in place, as well as the needs of VRUs in the community who may have reduced incomes, and/or lack access to a vehicle, including children and those with disabilities. Access to medical services, growth and expansion of schools, and general community support services can be expected as the spread of ages within the population continues to increase. While other communities in the state are grappling with school closures due to low enrollment and budget reductions, MSB is seeing growth and expansion plans for some area schools, such as with Mat-Su Central School and Academy Charter School. Continued development and facilities with essential services will translate to an increased demand for safe, multi-modal means of transportation to these services.

MSB has a very low population density at 4.3 people per square mile, though the Expanded Core Area is the most densely populated area with an estimated 320 people per square mile. It is estimated that the mean travel time to work for MSB residents is 35 minutes, compared to 19 minutes in Anchorage and Fairbanks. This disparity likely accounts for the percent of MSB residents who commute to Anchorage, and the more outlying areas of MSB that travel into the core area for work or school. The geographic expanse

[8] All statistics cited in this section are from Census.gov data as of July 1, 2023.

of the borough and these longer commute times reinforce the importance of a safe transportation network as more time on the road is more exposure to risk of a crash. High costs of transportation compared to other household expenses, coupled with limited options for non-motorized mobility in the area combine to create multiple barriers to safe, reliable transportation. These barriers, listed in the MSB CSAP Equity Analysis, include the following:

- High cost of transportation (higher than the 90th percentile nationally)
- Lack of transit facilities/routes
- Long commute times to employment and resources
- Limited access to a vehicle
- Vehicle maintenance/insurance/fuel costs (higher than the 90th percentile nationally)
- Lack of safety on roadways (MSB has a higher-than-average rate of motor vehicle fatalities per capita than other areas nationally)
- Lack of safe walking and biking facilities
- Lack of adequate all-season maintenance to keep roads and pathways clear
- Low income to transportation needs cost ratio
- Limited access to transportation options and destinations

The MSB CSAP Equity Analysis recommends implementing infrastructure and services that support safe, multi-modal transportation throughout the Expanded Core Area, but also specifically targeting the areas of Houston, Big Lake, North Wasilla, and South Wasilla. These investments can include the following:

- Expanding local transit operators
- Expanding commuter/service providers like Valley Transit
- Building transit facilities such as bus stops, bus shelters, transit corridors, and park and ride lots
- Investing in protected walking and biking facilities such as sidewalks and separated pathways
- Funding adequate all-season maintenance of existing multi-modal transportation facilities
- Including funding for all-season maintenance in planned transportation infrastructure (new facilities)
- Installing roadway and pedestrian-scale lighting in urban areas
- Retrofitting existing transportation facilities to ensure compliance with the Americans with Disabilities Act (ADA)
- Ensuring that new or planned transportation facilities are ADA compliant
- Encouraging the development of transit supportive corridors that incentivize compact, mixed-use development along commercial nodes and urban centers, affordable housing, and easy access to walking and bicycling facilities
- Closing gaps within the existing transportation networks with new planned infrastructure
- Connecting the on-street transportation network to existing pathways and trails
- Expanding the Safe Routes to School Program to include specific project investment recommendations for school zone improvements

Public Health

Transportation and public health are community building blocks that work hand-in-hand to create livable places that are vibrant, diverse, and economically resilient. Recognizing health vulnerability in populations is an important step towards developing safe transportation networks. Health vulnerability is an assessment of the rates of disease that can be attributed to air, noise, water pollution, and limited mobility conditions due to a lack of safe walking facilities, dependence on a vehicle, and long commute times. In communities that display high scores of health vulnerability (due to any combination of the

above factors), there is a strong prevalence of asthma, cancer, high blood pressure, diabetes, and poor mental health[9].

Limited mobility choices in the MSB Expanded Core area including a lack of safe walking and biking facilities, the absence of an established transit system or transit facilities, and longer than average commute times can result in depressed opportunities for physical activity and subsequent poor health in the form of obesity, heart disease, stroke, and some cancers. Through the public outreach performed during development of the MSB CSAP, many community members expressed feeling unsafe walking and biking in their neighborhoods due to a lack of separated facilities, vehicles moving at high speeds, unsafe driving behaviors, poor lighting, and inadequate winter maintenance on pathways and sidewalks.

In 2010, the Center for Disease Control (CDC) published the following recommendations[10] to improve the health of communities through transportation policy:

1. Promote active transportation
2. Encourage healthy community design (connectivity, bicycle and pedestrian infrastructure, public transit, zoning/land use policy creation)
3. Expand public transportation
4. Reduce injuries associated with motor vehicle crashes
5. Design to minimize harmful health and safety consequences (health impact assessments, safety audits)
6. Require research and surveillance
7. Improve air quality
8. Support professional development and job creation

The MSB CSAP lists policies and practices that will help to implement the above CDC recommendations in Chapter 6. Policy and Process Changes. Additionally, action items that support these policies have been identified in the Implementation Matrix in Chapter 8. Progress and Transparency.

[9] See ETC Explorer Tool metrics for health vulnerability, https://experience.arcgis.com/experience/0920984aa80a4362b8778d779b090723/page/Homepage/ and Equity Analysis in Existing Conditions Memorandum November 26, 2024.
[10] https://www.cdc.gov/transportation/php/about/index.html

Safety Analysis

Overall Segment Priority List

Notes	CSAP Possible Rec	OBJECTID	Functional Class	Route Name	Intersection Type	Pathway	Public Facility	Crash w/ Injury Density	Disadvantaged Area	Community Responses	City Boundary	HIN	Equity Score	Community Feedback Score	Fatal & Serious Injury Crashes	Crash Density Actual	Total RFScore Actual	Public Facility within 3/4 mile	Local Road?	Total Score
West of Palmer-Wasilla	Parks corridor access study, evaluate closing direct access at gas station (currently right in, right out or RI/RO and in area of influence of signal). Accessible Pedestrian Signals, Leading Pedestrian Interval and pedestrian refuge for wide intersection legs	1398	Interstate	Parks Highway SB Matsu	Signalized	Yes	No	548	Yes	13	Wasilla	3	3	3	3	3	1	Yes	0	14
Project - Greyling to Grumman	Skip	2911	Minor Arterial	Bogard Road	Unsignalized	No	No	94	No	6	Not in a City Bou	3	0	3	2	2	3	Yes	0	13
Parks influence (north), intersection with frontage road to Lowe's	Consider full or partial median closure (RI/RO), signal access at Hermon. Needs evaluation to impacts to network and whether Hermon project fixes issue.	19543	Local	Alpine Street	Unsignalized	No	No	914	Yes	1	Wasilla	3	3	1	2	2	1	Yes	2	13
Project Trunk to Engstrom	Skip	7276	Minor Arterial	Bogard Road	Unsignalized	No	No	99	No	3	Not in a City Bou	3	0	3	1	1	3	Yes	0	12
West of Crusey, near McDonald's.	Add sidewalk on Westpoint and crosswalks at intersection with Crusey. Crusey has sidewalk both sides	7676	Local	Westpoint Drive	Unsignalized	Yes	No	146	Yes	1	Wasilla	3	3	1	1	1	1	Yes	2	12
Near Trunk/Fishhhook Trunk Roundabout, path project	Skip	1672	Minor Arterial	Palmer-Fishhook Road	Unsignalized	No	No	212	No	10	Not in a City Bou	3	0	3		0	3	No	0	11
East of Palmer-Wasilla, west of frontage road at Sportsman's Warehouse	Consider restricting Parks access to Target center/Financial Drive	4517	Interstate	Parks Highway SB Matsu	Not an intersection	Yes	No	50	Yes	5	Wasilla	3	3	3		0	1	Yes	0	11
East of Main	Parks corridor access study. Accessible Pedestrian Signals, Leading Pedestrian Interval and pedestrian refuge for wide intersection (check Main St design)	5991	Interstate	Parks Highway SB Matsu	Signalized	Yes	No		Yes	9	Wasilla	3	3	3		0	1	Yes	0	11
East of Engstrom, project	Skip	7278	Minor Arterial	Bogard Road	Unsignalized	No	No		No	26	Not in a City Bou	3	0	3		0	3	Yes	0	11
Near Seldon - see community feedback	Look at intersection improvements- roundabout, lighting?	9083	Major Collector	Church Road	Unsignalized	Yes	No	695	No	4	Not in a City Bou	3	0	3		0	3	No	0	11
North of Parks	Skip	11068	Principal Arterial	Palmer/Wasilla Highway	Signalized	Yes	No		Yes	5	Wasilla	3	3	3		0	1	Yes	0	11
Near Engstrom, PJ	Skip	11307	Minor Arterial	Bogard Road	Unsignalized	No	No	163	No	67	Not in a City Bou	3	0	3		0	3	Yes	0	11
Between Susitna & Spruce on Wasilla Fishhook, near Spruce/Peck roundabout project	Skip	12802	Local	Spruce Avenue	Unsignalized	No	No		Yes		Not in a City Bou	3	3	0		0	2	No	2	11
South of Parks/Parks influence	Parks corridor rec	15100	Principal Arterial	Palmer/Wasilla Highway	Signalized	Yes	No	53	Yes	3	Wasilla	3	3	3		0	1	Yes	0	11
Near Moose, Cottonwood, Greyling-Grumman PJ	Skip	16384	Minor Arterial	Bogard Road	Unsignalized	No	No	160	No	2	Not in a City Bou	3	0	2	1	1	3	Yes	0	11
Parks influence (north), intersection with frontage road to Lowe's	Possibly systemic low-cost countermeasures for stop controlled intersection. This road does not appear to serve high pedestrian network, but a path exists along Sun Mountain (frontage road.)	18359	Local	Alpine Street	Unsignalized	Yes	No	57	Yes	1	Wasilla	3	3	1		0	1	Yes	2	11
Near Alpine East of S. Hermon	Parks corridor rec	18365	Interstate	Parks Highway SB Matsu	Unsignalized	No	No	134	Yes	1	Wasilla	3	3	1	1	1	2	Yes	0	11
W of Big Lake Road, probably not an issue since 2020 project	Skip but look at intersection rec	19348	Interstate	Parks Highway	Signalized	Yes	No	89	Yes	1	Houston	3	3	1	2	2	1	No	0	11
Parks influence (north), intersection with frontage road to Lowe's	Consider full or partial median closure (right in/right out), signal access at Hermon. Needs evaluation to impacts to network.	19542	Local	Alpine Street	Unsignalized	Yes	No		Yes	1	Wasilla	3	3	1		0	1	Yes	2	11
South of Hollywood, roundabout PJ	Skip	21653	Minor Arterial	VINE ROAD	Unsignalized	No	No	34	No	3	Not in a City Bou	3	0	3		0	3	Yes	0	11
West of Green Forest/Engstrom, PJ	Skip	22159	Minor Arterial	Bogard Road	Unsignalized	No	No	122	No	4	Not in a City Bou	3	0	3		0	3	Yes	0	11
KGB project, on HIN	Skip	22831	Principal Arterial	Knik-Goose Bay Road	Not an intersection	Yes	No	32	Yes		Wasilla	3	3	0	4	3	1	Yes	0	11
Other side of Moose, Cottonwood, Greyling to Grumman PJ	Skip	23840	Minor Arterial	Bogard Road	Unsignalized	No	No	33	No	2	Not in a City Bou	3	0	2	1	1	3	Yes	0	11
West of Tait, no project except Tait Drive Rehab, see community feedback. Project gap from	Right and especially left turn lanes at Tait, potentially lighting. No path on Bogard.	29498	Minor Arterial	Bogard Road	Unsignalized	No	Yes	128	No	2	Not in a City Bou	3	0	2	1	1	3	Yes	0	11
Near Big Lake Road	Skip, project built median/frontage, path, crashes older prior to Parks project	455	Interstate	Parks Highway	Unsignalized	Yes	No	66	Yes		Houston	3	3	0	1	1	3	Yes	0	10
North of Hollywood, roundabout PJ	Skip	1075	Minor Arterial	VINE ROAD	Unsignalized	No	No	68	No		Not in a City Bou	3	0	0	2	2	3	Yes	0	10
Intersection with KGB	Skip	1623	Local	Riley Avenue	Signalized	Yes	No	605	Yes		Wasilla	3	3	0	2	2	0	Yes	2	10
East access from Parks	Left in on west leg, RI/RO on east leg. This segment is where median is. Defer to Parks corridor access study	2658	Local	Bella Way	Unsignalized	Yes	No	29	Yes	3	Wasilla	0	3	3		0	1	Yes	2	10
Between MP 59-60, Houston to Willow project	Skip	2797	Interstate	Parks Highway	Not an intersection	Yes	No	1	Yes	1	Houston	3	3	1	1	1	1	Yes	0	10
Near Spruce/Peck Roundabout, PJ	Skip, near intersection/roundabout	3050	Local	Spruce Avenue	Unsignalized	No	No		Yes		Wasilla	3	3	0		0	1	No	2	10
Intersection with Parks; median closure in 2020 PJ	Skip	4050	Local	Meadow Lakes Road	Unsignalized	No	No	87	No		Not in a City Bou	3	0	0	2	2	2	Yes	2	10
	Skip	4836	Principal Arterial	Knik-Goose Bay Road	Unsignalized	Yes	No	320	No		Not in a City Bou	3	0	0	2	2	3	No	0	10
	Parks corridor	5217	Interstate	Parks Highway SB Matsu	Unsignalized	Yes	No	178	Yes	1	Wasilla	3	3	1		0	2	Yes	0	10
	Skip	6485	Principal Arterial	Knik-Goose Bay Road	Signalized	Yes	No	33	Yes	1	Wasilla	3	3	1	1	1	1	Yes	0	10
East of Lowe's/Crusey	May be equity anomoly (Wasilla Lake)	6544	Local	Westpoint Drive	Unsignalized	Yes	No		Yes		Wasilla	3	3	0		0	1	Yes	2	10
East of Lowe's/Crusey	May be equity anomoly (Wasilla Lake)	6545	Local	Westpoint Drive	Unsignalized	No	No		Yes		Wasilla	3	3	0		0	1	Yes	2	10
West of Crusey, near McDonald's. No sidewalk on Westpoint and no crosswalk on Westpoint or Crusey. Crusey has sidewalk both sides	See 7676	7675	Local	Westpoint Drive	Unsignalized	No	No		Yes		Wasilla	3	3	0		0	1	Yes	2	10
	Parks corridor	8019	Interstate	Parks Highway SB Matsu	Not an intersection	No	Yes	61	Yes	1	Wasilla	3	3	1	1	1	1	Yes	0	10
	Parks corridor	8360	Interstate	Parks Highway	Unsignalized	No	No		Yes	1	Wasilla	3	3	1		0	2	Yes	0	10
North of Parks/Parks influence	Parks corridor	9150	Major Collector	Church Road	Signalized	Yes	No		Yes	2	Wasilla	3	3	2		0	1	Yes	0	10
North of Mack Drive	Slight downgrade, curve delineation, illumination (has path and shoulders)	13968	Local	Clapp Street	Not an intersection	Yes	No	18	Yes		Wasilla	3	3	0	2	2	0	Yes	2	10
West of Tait, no project except Tait Drive Rehab, see community feedback	Project gap between Wasilla-Fishhook and Bogard on Seldon. Right and left turn lanes? No path on Seldon	14241	Minor Arterial	East Seldon Extension/Bogard Extension	Unsignalized	No	No	130	No	1	Not in a City Bou	3	0	1	1	1	3	Yes	0	10
East of Lucille	Sidewalks both sides and TWLTL. Midblock crossings or Lucille intersection enhancements? Consider corridor on Lucille or Swanson for similar.	15511	Local	Swanson Avenue	Unsignalized	No	No	33	Yes		Wasilla	3	3	0		0	1	Yes	2	10
	Skip, project	16205	Principal Arterial	Knik-Goose Bay Road	Not an intersection	Yes	No	29	No	2	Not in a City Bou	3	0	2	2	2	2	No	0	10
	Parks corridor	16600	Interstate	Parks Highway	Unsignalized	Yes	No	133	No		Not in a City Bou	3	0	0	2	2	3	No	0	10
	Skip, project	16964	Principal Arterial	Knik-Goose Bay Road	Not an intersection	Yes	No	14	Yes		Wasilla	3	3	0	2	2	1	No	0	10

Safety Analysis

Overall Segment Priority List

Notes	CSAP Possible Rec	OBJECTID	Functional Class	Route Name	Intersection Type	Pathway	Public Facility	Crash w/ Injury Density	Disadvantaged Area	Community Responses	City Boundary	HIN	Equity Score	Community Feedback Score	Fatal & Serious Injury Crashes	Crash Density Actual	Total RFScore Actual	Public Facility within 3/4 mile	Local Road?	Total Score
North of Sun Mountain/Frontage road (Lowe's)	Consider full or partial median closure (RI/RO), signal access at Hermon. Needs evaluation to impacts to network and whether Hermon project fixes issue.	18358	Local	Alpine Street	Unsignalized	No	No		Yes		Wasilla	3	3	0		0	1	Yes	2	10
Church and Spruce	Skip, HSIP/flashing beacon project bidding	18592	Major Collector	Church Road	Unsignalized	Yes	No	305	Yes		Wasilla	3	3	0	1	1	2	Yes	0	10
West of Canter circle	Check Fairview project	18899	Major Collector	Fairview Loop Road	Unsignalized	No	No	66	No		Not in a City Bou	3	0	0	2	2	3	No	0	10
At Parks intersection	Parks corridor rec, look at intersection rec	19203	Principal Arterial	Main Street	Signalized	Yes	No	602	Yes	4	Wasilla	3	3	3	1	1	0	Yes	0	10
	Parks corridor	19722	Interstate	Parks Highway	Not an intersection	Yes	No	14	Yes	1	Houston	3	3	1	1	1	1	Yes	0	10
	Parks corridor	23213	Interstate	Parks Highway	Signalized	Yes	No	399	Yes		Wasilla	3	3	0	2	2	1	Yes	0	10
	Skip	25069	Principal Arterial	Knik-Goose Bay Road	Unsignalized	No	No	607	No	1	Not in a City Bou	3	0	1	1	1	3	Yes	0	10
West of Greyling	Check Bogard Safety & Capacity Imp project	25431	Minor Arterial	Bogard Road	Unsignalized	No	No	99	No		Not in a City Bou	3	0	0	2	2	3	Yes	0	10
West of Crusey	Path both sides, Skip (data error)	25594	Local	Swanson Avenue	Unsignalized	No	No		Yes		Wasilla	3	3	0		0	1	Yes	2	10
West of Crusey	Path both sides, Skip (data error)	25595	Local	Swanson Avenue	Unsignalized	Yes	No	90	Yes		Wasilla	3	3	0		0	1	Yes	2	10
Between Ashmore and Bogard (this section of Bogard is on new Bogard Capacity project.) Also roundabout project coming/Engstrom	Possible fit for completing match project for TIP 23 project	25852	Local	Green Forest Drive	Unsignalized	No	No		No	2	Not in a City Bou	3	0	2		0	2	Yes	2	10
West of Lucille	Sidewalks both sides and TWLTL. Midblock crossings or Lucille intersection enhancements? Consider corridor on Lucille or Swanson for similar.	29661	Local	Swanson Avenue	Unsignalized	No	No	34	Yes		Wasilla	3	3	0		0	1	Yes	2	10
Intersection with Parks	Parks corridor rec, look at intersection rec	31253	Major Collector	Church Road	Signalized	Yes	No	479	Yes		Wasilla	3	3	0	2	2	1	Yes	0	10
Parks SB offramp to Glenn/Palmer	Access controlled off-ramp. Possible new lighting, but sight distance appears good.	731	Interstate	Parks SB Off-Ramp (Glenn N	Unsignalized	No	No	20	No		Not in a City Bou	3	0	0	1	1	3	Yes	0	9
West of Financial Drive, Parks influence	Skip	1029	Principal Arterial	Palmer/Wasilla Highway	Not an intersection	Yes	No	25	Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
At Johnson's Road	Check TIP24 project/intersection improvements: lighting, right/left turn lane, intersection warning	1241	Major Collector	Hollywood Road	Unsignalized	No	No	100	Yes		Not in a City Bou	0	3	0	1	1	3	No	0	9
	Parks corridor	1698	Interstate	Parks Highway SB Matsu	Unsignalized	No	No	54	No		Not in a City Bou	3	0	0	1	1	3	Yes	0	9
	Parks corridor	2316	Interstate	Parks Highway SB Matsu	Signalized	No	No	32	Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
	Parks corridor	2421	Interstate	Parks Highway SB Matsu	Signalized	Yes	No	451	Yes		Wasilla	3	3	0	1	1	1	Yes	0	9
Intersection with KGB	Skip	3058	Local	Dewlap Circle	Unsignalized	Yes	No	222	No		Not in a City Bou	3	0	0	1	1	2	No	2	9
At Hollywood Int, STIP Project	Skip but check if Big Lake project addressing	3177	Minor Arterial	Big Lake Road	Unsignalized	Yes	No	56	Yes		Not in a City Bou	0	3	0	1	1	3	Yes	0	9
At intersection with Green Forest Dr (east side)	See 25852	3335	Local	Ashmore Avenue	Unsignalized	No	No		No	1	Not in a City Bou	3	0	1		0	2	Yes	2	9
Glenn/Parks interchange	See 731	3838	Interstate	Glenn Highway	Unsignalized	No	No		No	1	Not in a City Bou	3	0	1		0	3	Yes	0	9
	Parks corridor	4515	Interstate	Parks Highway SB Matsu	Signalized	Yes	No	90	Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
	Parks corridor	4528	Interstate	Parks Highway	Signalized	Yes	No	113	Yes		Wasilla	3	3	0	1	1	1	Yes	0	9
	Parks corridor	4850	Interstate	Parks Highway SB Matsu	Signalized	Yes	No		Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
	Parks corridor	5219	Interstate	Parks Highway SB Matsu	Signalized	Yes	No	87	Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
Near Parks	Parks corridor	5480	Minor Arterial	Seward Meridian Parkway	Unsignalized	Yes	No	33	Yes		Not in a City Bou	0	3	0	1	1	3	Yes	0	9
KGB Project, on HIN	Skip	5518	Principal Arterial	Knik-Goose Bay Road	Unsignalized	Yes	No		No	1	Not in a City Bou	3	0	1		0	3	No	0	9
	Parks corridor	5966	Interstate	Parks Highway	Signalized	Yes	No	90	Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
At intersection with Shotgun Dr	Consider intersection warning, turn lanes, illumination. Preservation project advertising April 2025	6254	Minor Arterial	Big Lake Road	Unsignalized	Yes	No	73	Yes		Not in a City Bou	0	3	0	1	1	3	No	0	9
At intersection with Bogard	Skip, part of intersection improvements	6263	Minor Collector	Engstrom Road	Unsignalized	No	No		No	18	Not in a City Bou	3	0	3		0	2	Yes	0	9
At N. Skip Circle	Two way center left turn lane just added, skip	6796	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	Yes	No	124	No		Not in a City Bou	3	0	0	1	1	3	No	0	9
At KGB	Skip, recent project	7136	Principal Arterial	Palmer/Wasilla Highway	Signalized	No	No	81	Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
At intersection with Peck, no project	See 29498	7720	Minor Arterial	Bogard Road	Signalized	Yes	No		Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
	Parks corridor	7767	Interstate	Parks Highway SB Matsu	Signalized	Yes	No	194	Yes		Wasilla	3	3	0	1	1	1	Yes	0	9
West of Peck	Skip, roundabout project	7837	Minor Arterial	Wasilla/Fishhook Road	Unsignalized	Yes	No	101	Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
At Hollywood & Int with Johnsons Road	See 1241. Check Johnsons Road TIP project if addressing intersection. Possible lighting, right/left turn lane. Or roundabout for overall speed calming on Hollywood.	7859	Local	Andrea Drive	Unsignalized	No	No		Yes	1	Not in a City Bou	0	3	1		0	2	No	2	9
	Parks corridor	8014	Interstate	Parks Highway SB Matsu	Signalized	Yes	No	70	Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
South of Parks/ Lucas Road Int, at RR tracks	Parks corridor	10498	Local	Hallea Lane	Signalized	No	No	77	Yes		Wasilla	3	3	0	1	1	0	Yes	2	9
South of Parks, intersection	Parks corridor	10812	Minor Arterial	Seward Meridian Parkway	Signalized	No	No	130	Yes		Wasilla	3	3	0	1	1	1	No	0	9
Near Hurley, Parks influence	Skip	11064	Principal Arterial	Palmer/Wasilla Highway	Signalized	Yes	No	197	Yes		Wasilla	3	3	0	1	1	1	Yes	0	9
Near Hurley, Parks influence	Skip	11065	Principal Arterial	Palmer/Wasilla Highway	Not an intersection	Yes	No	32	Yes		Wasilla	3	3	0	1	1	1	Yes	0	9
First left turn coming south on Big Lake Rd from Parks	Consider intersection warning, left turn lane, illumination. Preservation project advertising April 2025	11483	Local	Padre Pio Road	Unsignalized	No	No		Yes	1	Not in a City Bou	0	3	1		0	2	No	2	9
West of Fishhook, roundabout project	Skip	12233	Major Collector	Spruce Avenue	Unsignalized	Yes	No	287	Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
North leg at Spruce, roundabout project	Skip	14147	Minor Arterial	Wasilla/Fishhook Road	Unsignalized	Yes	No		Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
Parks	Parks influence, skip	15101	Principal Arterial	Palmer/Wasilla Highway	Signalized	No	No		Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
	Skip	15296	Principal Arterial	Knik-Goose Bay Road	Signalized	Yes	No	201	Yes	4	Wasilla	3	3	3		0	0	Yes	0	9
North of Parks,	Parks corridor	15905	Local	Weber Drive	Signalized	Yes	No	181	Yes		Wasilla	3	3	0	1	1	0	Yes	2	9
Parks	Parks influence, skip	16005	Major Collector	Sun Mountain Avenue	Unsignalized	Yes	No		Yes	1	Wasilla	3	3	1		0	1	Yes	0	9
Near Birch Lake Dr	See 6254/11483	17123	Minor Arterial	Big Lake Road	Unsignalized	Yes	No		Yes	1	Not in a City Bou	0	3	1		0	3	No	0	9
Bogard Greyling to Grumman project	Parks	17832	Interstate	Parks Highway SB Matsu	Signalized	Yes	Yes		No	4	Not in a City Bou	3	0	3		0	2	Yes	0	9
Bogard Greyling to Grumman project	Skip	18137	Minor Arterial	Bogard Road	Unsignalized	No	No	60	No		Not in a City Bou	3	0	0	1	1	3	Yes	0	9
Bogard Greyling to Grumman project	Traffic calming in residential neighborhood?	19494	Local	Cottonwood Loop	Unsignalized	No	No		No	1	Not in a City Bou	3	0	1		0	2	Yes	2	9

Safety Analysis

VRU Segment Priority List

Notes	CSAP Possible Rec	OBJECTID	Functional Class	Route Name	Intersection Type	Pathway	Public Facility	Crash w/ Injury Density	DisadvantagedArea	City Boundary	Community Feedback Score	HIN Non-Motorized	TotalRFScoreActual	Proximity to VRU Dest Score	Public Facility within 3/4 mile	Equity Score Bike Ped	Priority Non-Motorized Total Score
North of Parks/influence		11068	Principal Arterial	Palmer/Wasilla Highway	Signalized	Yes	No		Yes	Wasilla	3	3	1	3	Yes	5	19
South of Parks/Parks influence		15100	Principal Arterial	Palmer/Wasilla Highway	Signalized	Yes	No	53	Yes	Wasilla	3	3	1	3	Yes	5	19
North of Parks/influence		11066	Principal Arterial	Palmer/Wasilla Highway	Not an intersection	No	No	95	Yes	Wasilla	1	3	1	3	Yes	5	17
South of Parks/influence		15101	Principal Arterial	Palmer/Wasilla Highway	Signalized	No	No		Yes	Wasilla	1	3	1	3	Yes	5	17
East of P-W		4516	Interstate	Parks Highway SB Matsu	Not an intersection	Yes	No	63	Yes	Wasilla	3	3	1	3	Yes	5	16
Parks		11067	Principal Arterial	Palmer/Wasilla Highway	Signalized	No	No	173	Yes	Wasilla	0	3	1	3	Yes	5	16
Parks		15098	Principal Arterial	Palmer/Wasilla Highway	Signalized	Yes	No		Yes	Wasilla	0	3	1	3	Yes	5	16
Parks		15099	Principal Arterial	Palmer/Wasilla Highway	Signalized	No	No		Yes	Wasilla	0	3	1	3	Yes	5	16
Off KGB, on Main St project	Possible rec for marked crosswalk at KGB. Mat-Su Central School relocating, so skip	22020	Minor Collector	Railroad Avenue	Signalized	No	No		Yes	Wasilla	0	3	0	3	Yes	5	16
Parks frontage	Skip	1027	Principal Arterial	Palmer/Wasilla Highway	Signalized	No	No		Yes	Wasilla	0	3	1	3	Yes	4	15
at Seward-Meridian	Project, skip	1098	Principal Arterial	Palmer/Wasilla Highway	Signalized	No	No	67	No	Not in a City Bou	3	0	2	3	Yes	4	15
East of Tait, no project except Tait Rehab	See same rec for 29498	1858	Minor Arterial	Bogard Road	Unsignalized	No	Yes		No	Not in a City Bou	3	0	3	3	Yes	4	15
Between Trinity and Apalachian, north of Hollywood, no project	Path, intersection improvements	2838	Minor Arterial	VINE ROAD	Unsignalized	No	No	34	No	Not in a City Bou	0	3	3	3	Yes	4	15
Parks	Skip	4515	Interstate	Parks Highway SB Matsu	Signalized	Yes	No	90	Yes	Wasilla	1	3	1	3	Yes	5	15
Parks	Skip	8014	Interstate	Parks Highway SB Matsu	Signalized	Yes	No	70	Yes	Wasilla	1	3	1	3	Yes	5	15
Main St project	Skip	12532	Principal Arterial	Main Street	Unsignalized	No	No	18	Yes	Wasilla	2	0	1	3	Yes	5	15
Parks	Skip	23056	Local	Financial Drive	Signalized	No	No	61	Yes	Wasilla	1	3	0	3	Yes	5	15
At Palmer-Wasilla	Skip	1375	Major Collector	West Evergreen Avenue	Signalized	No	No		No	Palmer	0	3	0	3	Yes	3	14
Arctic Avenue	Crosswalks/paths	2392	Minor Arterial	Old Glenn @ Palmer	Unsignalized	No	Yes		No	Palmer	3	0	1	3	Yes	3	14
Arctic Avenue	Crosswalks/paths	2793	Minor Arterial	Old Glenn @ Palmer	Signalized	No	Yes	41	No	Palmer	3	0	0	3	Yes	3	14
Near N. Caribou, PJ	Skip	2911	Minor Arterial	Bogard Road	Unsignalized	No	No	94	No	Not in a City Bou	3	0	3	2	Yes	4	14
	Skip	4108	Interstate	Parks Highway	Signalized	Yes	No	66	Yes	Wasilla	0	3	1	3	Yes	5	14
	Skip	5991	Interstate	Parks Highway SB Matsu	Signalized	Yes	No		Yes	Wasilla	3	0	1	3	Yes	5	14
	Project, skip	6485	Principal Arterial	Knik-Goose Bay Road	Signalized	Yes	No	33	Yes	Wasilla	1	0	1	3	Yes	5	14
East of Wasilla St, Main St PJ	Skip	6997	Local	Susitna Avenue	Signalized	No	No		Yes	Wasilla	0	3	0	3	Yes	5	14
At KGB	Skip	7136	Principal Arterial	Palmer/Wasilla Highway	Signalized	No	No	81	Yes	Wasilla	1	0	1	3	Yes	5	14
South of Susitna Ave, check Main St PJ	Skip	7602	Local	South Susitna Avenue	Signalized	No	No		Yes	Wasilla	0	3	0	3	Yes	5	14
Near Peck	Project recommended in overall	7720	Minor Arterial	Bogard Road	Signalized	Yes	No		Yes	Wasilla	1	0	1	3	Yes	5	14
	Skip	7765	Interstate	Parks Highway SB Matsu	Unsignalized	Yes	No	80	Yes	Wasilla	0	3	2	3	Yes	5	14
	Skip	8015	Interstate	Parks Highway SB Matsu	Signalized	Yes	Yes		Yes	Wasilla	0	3	1	3	Yes	5	14
	Skip	9134	Principal Arterial	Knik-Goose Bay Road	Signalized	Yes	No	31	Yes	Wasilla	1	0	1	3	Yes	5	14
At Parks	Skip	9150	Major Collector	Church Road	Signalized	Yes	No		Yes	Wasilla	2	0	1	2	Yes	5	14
Main St project	Skip	15127	Local	Yenlo Street	Unsignalized	No	No	33	Yes	Wasilla	0	3	1	3	Yes	5	14
	Skip	15296	Principal Arterial	Knik-Goose Bay Road	Signalized	Yes	No	201	Yes	Wasilla	3	0	0	3	Yes	5	14
Near Parks	Overlap with Crusey/Westpoint rec.	17026	Minor Arterial	Crusey Street	Signalized	Yes	No	218	Yes	Wasilla	0	3	0	3	Yes	5	14
Main St project	Skip	19203	Principal Arterial	Main Street	Signalized	Yes	No	602	Yes	Wasilla	3	0	0	3	Yes	5	14
Main St project	Skip	19204	Principal Arterial	Main Street	Signalized	No	No		Yes	Wasilla	1	0	0	3	Yes	5	14
West of Crusey	Near Wasilla High School, path?	21644	Minor Arterial	Bogard Road	Signalized	Yes	Yes		Yes	Wasilla	1	0	1	3	Yes	5	14
		22836	Principal Arterial	Knik-Goose Bay Road	Signalized	Yes	No		Yes	Wasilla	1	0	1	3	Yes	5	14
Main St project	Mat-Su Central school moving	23344	Local	Wasilla Street	Signalized	No	No		Yes	Wasilla	0	3	0	3	Yes	5	14
		24219	Interstate	Parks Highway SB Matsu	Signalized	Yes	No	138	Yes	Wasilla	0	3	1	3	Yes	5	14
		24343	Principal Arterial	Palmer/Wasilla Highway	Not an intersection	No	No	6	Yes	Wasilla	1	0	1	3	Yes	5	14
Parks influence		24604	Local	Financial Drive	Signalized	No	No		Yes	Wasilla	0	3	0	3	Yes	5	14
East of Main/Wasilla-Fishhook, Main St PJ		26368	Minor Arterial	Bogard Road	Signalized	Yes	No		Yes	Wasilla	1	0	1	3	Yes	5	14
		26646	Interstate	Glenn Highway	Signalized	No	No	158	No	Palmer	3	3	1	3	Yes		14
Main St project	Skip	27163	Local	Susitna Avenue	Signalized	No	No		Yes	Wasilla	0	3	0	3	Yes	5	14
		29065	Major Collector	Hollywood Road	Unsignalized	No	No		Yes	Not in a City Bou	1	0	2	3	Yes	5	14
		29126	Principal Arterial	Palmer/Wasilla Highway	Signalized	No	No	730	No	Palmer	3	3	1	3	Yes		14
	Project recommended in overall	29600	Major Collector	Big Lake Road	Unsignalized	Yes	No		Yes	Not in a City Bou	1	0	3	3	Yes	5	14
Main St project	Skip	30974	Local	Wasilla Street	Signalized	No	No		Yes	Wasilla	0	3	0	3	Yes	5	14
Separated path project area	Skip	1722	Minor Collector	Outer Springer Loop	Unsignalized	No	No		No	Palmer	2	0	1	3	Yes	3	13
		1857	Minor Arterial	Bogard Road	Unsignalized	No	No		No	Not in a City Bou	1	0	3	3	Yes	4	13
Arctic Ave west of Denali		2389	Minor Arterial	Old Glenn @ Palmer	Unsignalized	No	No		No	Palmer	2	0	1	3	Yes	3	13
		3177	Minor Arterial	Big Lake Road	Unsignalized	Yes	No	56	Yes	Not in a City Bou	0	0	3	3	Yes	5	13
		3689	Major Collector	Hollywood Road	Unsignalized	No	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		3868	Interstate	Parks Highway	Signalized	Yes	No		Yes	Wasilla	0	3	0	3	Yes	5	13
	Path for Houston High	4109	Minor Collector	Hawk Lane	Unsignalized	No	Yes		Yes	Houston	0	0	1	3	Yes	5	13
		4112	Minor Collector	Hawk Lane	Unsignalized	No	No		Yes	Houston	0	0	1	3	Yes	5	13
		4234	Minor Collector	King Arthur Drive	Unsignalized	No	No		Yes	Houston	1	0	1	2	Yes	5	13
Main St project	Skip	4247	Minor Collector	Railroad Avenue	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
Main St project	Skip	4248	Minor Collector	Railroad Avenue	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		4517	Interstate	Parks Highway SB Matsu	Not an intersection	Yes	No	50	Yes	Wasilla	3	0	1	3	Yes	5	13
Main St project	Skip	4585	Minor Arterial	Yenlo Street	Signalized	No	No		Yes	Wasilla	0	0	0	3	Yes	5	13
Main St project	Skip	4587	Minor Arterial	Yenlo Street	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13

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VRU Segment Priority List

Notes	CSAP Possible Rec	OBJECTID	Functional Class	Route Name	Intersection Type	Pathway	Public Facility	Crash w/ Injury Density	DisadvantagedArea	City Boundary	Community Feedback Score	HIN Non-Motorized	TotalRFSceActual	Proximity to VRU Dest Score	Public Facility within 3/4 mile	Equity Score Bike Ped	Priority Non-Motorized Total Score
		5354	Minor Collector	Hawk Lane	Unsignalized	No	Yes		Yes	Houston	0	0	1	3	Yes	5	13
		5482	Minor Arterial	Seward Meridian Parkway	Unsignalized	Yes	No		Yes	Not in a City Bou	0	0	3	3	Yes	5	13
		6481	Principal Arterial	Knik-Goose Bay Road	Unsignalized	Yes	No	34	Yes	Wasilla	0	0	2	3	Yes	5	13
		6484	Principal Arterial	Knik-Goose Bay Road	Not an intersection	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
At reconstructed Glenn section		6827	Major Collector	West Evergreen Avenue	Signalized	No	No	24	No	Palmer	2	3	0	3	Yes		13
		7130	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	Yes	Yes	42	Yes	Wasilla	0	0	2	3	Yes	5	13
		7131	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	No	Yes		Yes	Wasilla	0	0	2	3	Yes	5	13
		7132	Principal Arterial	Palmer/Wasilla Highway	Not an intersection	No	Yes		Yes	Wasilla	0	0	1	3	Yes	5	13
		7133	Principal Arterial	Palmer/Wasilla Highway	Not an intersection	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		7134	Principal Arterial	Palmer/Wasilla Highway	Signalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		7135	Principal Arterial	Palmer/Wasilla Highway	Signalized	Yes	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		7137	Principal Arterial	Palmer/Wasilla Highway	Signalized	Yes	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		7635	Principal Arterial	Knik-Goose Bay Road	Signalized	Yes	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		8039	Principal Arterial	Knik-Goose Bay Road	Signalized	Yes	No	36	Yes	Wasilla	0	0	1	3	Yes	5	13
		8040	Principal Arterial	Knik-Goose Bay Road	Signalized	Yes	Yes		Yes	Wasilla	0	0	1	3	Yes	5	13
		8997	Major Collector	Hollywood Road	Unsignalized	No	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		8999	Major Collector	Hollywood Road	Unsignalized	No	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		9137	Principal Arterial	Knik-Goose Bay Road	Not an intersection	No	No	28	Yes	Wasilla	0	0	1	3	Yes	5	13
		9138	Principal Arterial	Knik-Goose Bay Road	Unsignalized	Yes	No		Yes	Wasilla	0	0	2	3	Yes	5	13
At Parks Intersection, Houston to Willow project		9736	Minor Collector	Armstrong Road	Unsignalized	No	Yes	107	Yes	Houston	0	0	1	3	Yes	5	13
At Parks Intersection, Houston to Willow project		9738	Minor Collector	Armstrong Road	Unsignalized	No	Yes		Yes	Houston	0	0	1	3	Yes	5	13
		9898	Minor Arterial	Big Lake Roundabout	Roundabout	No	No		Yes	Not in a City Bou	0	0	1	3	Yes	5	13
		10162	Principal Arterial	Palmer/Wasilla Highway	Signalized	Yes	No	67	Yes	Wasilla	0	0	1	3	Yes	5	13
		10833	Major Collector	Big Lake Road	Unsignalized	Yes	Yes		Yes	Not in a City Bou	0	0	3	3	Yes	5	13
		10834	Major Collector	Big Lake Road	Unsignalized	Yes	Yes		Yes	Not in a City Bou	0	0	3	3	Yes	5	13
		10835	Major Collector	Big Lake Road	Unsignalized	No	Yes		Yes	Not in a City Bou	0	0	3	3	Yes	5	13
		11064	Principal Arterial	Palmer/Wasilla Highway	Signalized	Yes	No	197	Yes	Wasilla	0	0	1	3	Yes	5	13
		13000	Interstate	Parks Highway SB Matsu	Unsignalized	No	No		Yes	Wasilla	0	0	2	3	Yes	5	13
		14941	Minor Collector	Railroad Avenue	Signalized	No	No		Yes	Wasilla	0	0	0	3	Yes	5	13
		14942	Minor Collector	Railroad Avenue	Signalized	No	Yes		Yes	Wasilla	0	0	0	3	Yes	5	13
		14944	Minor Collector	Railroad Avenue	Unsignalized	No	Yes		Yes	Wasilla	0	0	1	3	Yes	5	13
		15528	Minor Arterial	Big Lake Road	Unsignalized	No	No		Yes	Not in a City Bou	0	0	3	3	Yes	5	13
		15529	Minor Arterial	Big Lake Road	Not an intersection	No	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		15531	Minor Arterial	Big Lake Road	Roundabout	Yes	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
Main St project	Skip	15617	Principal Arterial	Main Street	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
At Parks		15905	Local	Weber Drive	Signalized	Yes	No	181	Yes	Wasilla	0	3	0	3	Yes	5	13
		15922	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	Yes	No		Yes	Wasilla	0	0	2	3	Yes	5	13
		15923	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	No	No		Yes	Wasilla	0	0	2	3	Yes	5	13
		15924	Principal Arterial	Palmer/Wasilla Highway	Not an intersection	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		15925	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	No	No		Yes	Wasilla	0	0	2	3	Yes	5	13
		15926	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	Yes	No		Yes	Wasilla	0	0	2	3	Yes	5	13
		16241	Minor Arterial	Big Lake Road	Roundabout	Yes	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		16363	Minor Collector	Railroad Avenue	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		16365	Minor Collector	Railroad Avenue	Signalized	No	No		Yes	Wasilla	0	0	0	3	Yes	5	13
		16366	Minor Collector	Railroad Avenue	Signalized	Yes	No		Yes	Wasilla	2	0	0	3	Yes	5	13
		16500	Minor Collector	Railroad Avenue	Signalized	No	No		Yes	Wasilla	0	0	0	3	Yes	5	13
		16502	Minor Collector	Railroad Avenue	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		16656	Principal Arterial	Knik-Goose Bay Road	Signalized	Yes	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		16657	Principal Arterial	Knik-Goose Bay Road	Signalized	Yes	No	68	Yes	Wasilla	0	0	1	3	Yes	5	13
		16660	Principal Arterial	Knik-Goose Bay Road	Not an intersection	No	No	15	Yes	Wasilla	0	0	1	3	Yes	5	13
		16910	Interstate	Parks Highway	Unsignalized	No	No		Yes	Houston	0	0	2	3	Yes	5	13
		17946	Minor Arterial	Bogard Road	Signalized	Yes	No	261	Yes	Wasilla	0	0	1	3	Yes	5	13
		17948	Minor Arterial	Bogard Road	Unsignalized	Yes	No	33	Yes	Wasilla	0	0	2	3	Yes	5	13
		18748	Minor Collector	Railroad Avenue	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		18750	Minor Collector	Railroad Avenue	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		18807	Minor Arterial	Bogard Road	Signalized	Yes	Yes	168	Yes	Wasilla	0	0	1	3	Yes	5	13
		18809	Minor Arterial	Bogard Road	Not an intersection	No	Yes		Yes	Wasilla	0	0	1	3	Yes	5	13
		18811	Minor Arterial	Bogard Road	Not an intersection	No	Yes		Yes	Wasilla	0	0	1	3	Yes	5	13
		18812	Minor Arterial	Bogard Road	Unsignalized	No	Yes		Yes	Wasilla	0	0	2	3	Yes	5	13
		19206	Principal Arterial	Main Street	Unsignalized	No	No	33	Yes	Wasilla	0	0	1	3	Yes	5	13
		19503	Major Collector	Big Lake Road	Unsignalized	No	Yes		Yes	Not in a City Bou	0	0	3	3	Yes	5	13
		19504	Major Collector	Big Lake Road	Not an intersection	No	Yes		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		19990	Minor Arterial	Lucille Street	Signalized	No	No	122	Yes	Wasilla	0	0	0	3	Yes	5	13
		19992	Minor Arterial	Lucille Street	Unsignalized	No	No	33	Yes	Wasilla	0	0	1	3	Yes	5	13
At KGB		20296	Major Collector	Fern Street	Signalized	No	No		Yes	Wasilla	0	0	0	3	Yes	5	13
		20515	Principal Arterial	Knik-Goose Bay Road	Unsignalized	Yes	No	33	Yes	Wasilla	0	0	2	3	Yes	5	13
At Hawk Lane		20878	Minor Collector	Kenlar Road	Unsignalized	No	Yes		Yes	Houston	0	0	1	3	Yes	5	13

Safety Analysis

VRU Segment Priority List

Notes	CSAP Possible Rec	OBJECTID	Functional Class	Route Name	Intersection Type	Pathway	Public Facility	Crash w/ Injury Density	DisadvantagedArea	City Boundary	Community Feedback Score	HIN Non-Motorized	TotalRFScoreActual	Proximity to VRU Dest Score	Public Facility within 3/4 mile	Equity Score Bike Ped	Priority Non-Motorized Total Score
At Hawk Lane		20880	Minor Collector	Kenlar Road	Unsignalized	No	Yes		Yes	Houston	0	0	1	3	Yes	5	13
		21358	Minor Arterial	Bogard Road	Unsignalized	No	Yes		Yes	Wasilla	0	0	2	3	Yes	5	13
		21359	Minor Arterial	Bogard Road	Not an intersection	No	Yes	13	Yes	Wasilla	0	0	1	3	Yes	5	13
		21360	Minor Arterial	Bogard Road	Not an intersection	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		21361	Minor Arterial	Bogard Road	Signalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		21417	Principal Arterial	Knik-Goose Bay Road	Unsignalized	Yes	No	30	Yes	Wasilla	0	0	2	3	Yes	5	13
		21604	Minor Arterial	Big Lake Road	Unsignalized	No	No	58	Yes	Not in a City Bou	0	3	3		No	5	13
		21642	Minor Arterial	Bogard Road	Unsignalized	Yes	Yes	34	Yes	Wasilla	0	0	2	3	Yes	5	13
		21966	Principal Arterial	Main Street	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		21968	Principal Arterial	Main Street	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		22017	Minor Collector	Railroad Avenue	Unsignalized	No	Yes		Yes	Wasilla	0	0	1	3	Yes	5	13
		22835	Principal Arterial	Knik-Goose Bay Road	Not an intersection	No	No	15	Yes	Wasilla	0	0	1	3	Yes	5	13
		22968	Minor Arterial	Big Lake Road	Roundabout	Yes	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		23363	Principal Arterial	Knik-Goose Bay Road	Unsignalized	Yes	No		Yes	Wasilla	0	0	2	3	Yes	5	13
		23825	Major Collector	Hollywood Road	Unsignalized	No	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		23827	Major Collector	Hollywood Road	Unsignalized	No	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		24341	Principal Arterial	Palmer/Wasilla Highway	Signalized	Yes	No	35	Yes	Wasilla	0	0	1	3	Yes	5	13
		24344	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	No	No		Yes	Wasilla	0	0	2	3	Yes	5	13
		24345	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	Yes	No		Yes	Wasilla	0	0	2	3	Yes	5	13
		24676	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	Yes	No	43	Yes	Wasilla	0	0	2	3	Yes	5	13
		24677	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	No	No		Yes	Wasilla	0	0	2	3	Yes	5	13
		24678	Principal Arterial	Palmer/Wasilla Highway	Not an intersection	No	No	15	Yes	Wasilla	0	0	1	3	Yes	5	13
		24679	Principal Arterial	Palmer/Wasilla Highway	Not an intersection	No	Yes		Yes	Wasilla	0	0	1	3	Yes	5	13
		24680	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	No	Yes		Yes	Wasilla	0	0	2	3	Yes	5	13
		24681	Principal Arterial	Palmer/Wasilla Highway	Unsignalized	Yes	Yes		Yes	Wasilla	0	0	2	3	Yes	5	13
		25005	Minor Collector	Kenlar Road	Unsignalized	No	Yes		Yes	Houston	0	0	1	3	Yes	5	13
		25685	Minor Collector	King Arthur Drive	Unsignalized	No	No		Yes	Houston	0	0	1	3	Yes	5	13
		26109	Major Collector	Nelson Avenue	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		26365	Minor Arterial	Bogard Road	Signalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		26366	Minor Arterial	Bogard Road	Not an intersection	No	No	48	Yes	Wasilla	0	0	1	3	Yes	5	13
		26367	Minor Arterial	Bogard Road	Signalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		26647	Major Collector	Hollywood Road	Unsignalized	No	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		26649	Major Collector	Hollywood Road	Unsignalized	No	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		26870	Minor Arterial	Big Lake Road	Roundabout	Yes	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		28190	Local	Swanson Avenue	Unsignalized	No	No	35	Yes	Wasilla	2	0	1	3	Yes	5	13
		28582	Major Collector	Hollywood Road	Unsignalized	No	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		28584	Major Collector	Hollywood Road	Unsignalized	No	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
		28788	Minor Arterial	Bogard Road	Unsignalized	Yes	No		Yes	Wasilla	0	0	2	3	Yes	5	13
		28789	Minor Arterial	Bogard Road	Unsignalized	Yes	Yes		Yes	Wasilla	0	0	2	3	Yes	5	13
		28791	Minor Arterial	Bogard Road	Unsignalized	Yes	Yes		Yes	Wasilla	0	0	2	3	Yes	5	13
		29056	Minor Collector	Railroad Avenue	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		29058	Minor Collector	Railroad Avenue	Signalized	No	No		Yes	Wasilla	0	0	0	3	Yes	5	13
		29063	Major Collector	Hollywood Road	Unsignalized	No	No		Yes	Not in a City Bou	0	0	2	3	Yes	5	13
At Swanson		29482	Minor Arterial	Lucille Street	Unsignalized	No	No	135	Yes	Wasilla	0	0	1	3	Yes	5	13
At Swanson		29484	Minor Arterial	Lucille Street	Signalized	No	No		Yes	Wasilla	0	0	0	3	Yes	5	13
		29603	Major Collector	Big Lake Road	Unsignalized	Yes	Yes		Yes	Not in a City Bou	0	0	3	3	Yes	5	13
		29604	Major Collector	Big Lake Road	Unsignalized	Yes	No		Yes	Not in a City Bou	0	0	3	3	Yes	5	13
		29760	Minor Arterial	Lucille Street	Unsignalized	No	No		Yes	Wasilla	0	0	1	3	Yes	5	13
		29762	Minor Arterial	Lucille Street	Unsignalized	No	No	66	Yes	Wasilla	0	0	1	3	Yes	5	13
		30841	Minor Collector	Hawk Lane	Unsignalized	No	No		Yes	Houston	0	0	1	3	Yes	5	13
		31416	Major Collector	Big Lake Road	Unsignalized	Yes	No		Yes	Not in a City Bou	0	0	3	3	Yes	5	13
		31418	Major Collector	Big Lake Road	Unsignalized	Yes	No		Yes	Not in a City Bou	0	0	3	3	Yes	5	13
		31419	Major Collector	Big Lake Road	Unsignalized	Yes	Yes		Yes	Not in a City Bou	0	0	3	3	Yes	5	13
TIP project planned, project underway and mostly funded		269	Major Collector	49th State Street	Signalized	No	No		No	Not in a City Bou	0	0	3	3	Yes	4	12
		271	Major Collector	49th State Street	Unsignalized	No	No		No	Not in a City Bou	0	0	5	3	Yes	4	12

Appendix D: Safety Toolkit

Mat-Su Borough Safety Toolkit

Introduction

This safety toolkit features design treatments known to reduce crashes involving people driving, walking, bicycling, or rolling (using a wheelchair or other mobility assistive devices) It is intended as a guideline for roadway engineers, transportation planners, and other agency officials to aid decision-making during the planning and design of roadway improvement projects. This toolkit is not an all-inclusive list, and other treatments may be relevant and applicable for safety improvements.

For each countermeasure, recommended locations for treatment, considerations for implementation, and a relative cost range are provided, along with relevant references for more background. These treatments were primarily selected from FHWA's Proven Safety Countermeasures as appropriate for Mat-Su Borough's roads.

It is important to understand that there are a variety of types of speed, volume and context for Mat-Su's roads, and not all treatments are appropriate for every road or circumstance. To achieve the principle of redundancy in the Safe System Approach, multiple treatments should be considered for each location or corridor as appropriate. Where applicable, some treatments are denoted as recommended as a systemic improvement. Systemic safety countermeasures are treatments that should be applied on all roads across a region regardless of the road's crash history.

Relative cost ranges are provided, but costs will vary based on scale of application and other circumstances. For example, installing crosswalk visibility enhancements may be low cost for one location, but moderate cost if applied to multiple locations. In that case, the total project cost will be higher, but the cost per location would likely be less. In the same example, adding lighting to the intersection will add more cost. Cost ranges provided are offered in the context of low, medium, moderate, or high in consideration of typical capital improvement project budgets. Additional maintenance cost considerations are not included and should be considered as appropriate for the jurisdiction, particularly for new facilities such as sidewalks, separated pathways, or new lighting.

$ **Cost:** Low	**Less than $150K**
$ $ **Cost:** Medium	**$150K - $500K**
$ $ $ **Cost:** Moderate	**$500K-$1M**
$ $ $ $ **Cost:** High	**$1+M**

MAT-SU BOROUGH SAFE STREETS FOR ALL

Appropriate Speed Limits for All Road Users

Speed is a leading contributing factor to many fatal and serious injury crashes. The faster a vehicle is traveling the more likely that motorists, and especially vulnerable road users are to be seriously injured or killed in a crash. The Mat-Su Borough has the authority to control speed limits on its roads.

Where can this be implemented?

All Mat-Su Borough managed roads, emphasis on roads with vulnerable road users.

Things to keep in mind

- Simply setting a new speed limit might not be enough to get drivers to adhere to posted limits. Consider other speed management solutions like traffic calming, self-enforcing roadways, and other strategies.
- Non-statutory limits must be set in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), however FHWA also encourages the use of speed limit setting tools (see "Resources").
- Consider how the newly posted speed limits will be enforced. Some areas have utilized a phased approach to change speed limits incrementally to avoid shocking drivers.
- The Mat-Su Borough may not have the designated authority to set non-statutory speed limits on roads in the area that are under another agency's jurisdiction, for example, State of Alaska roads. Additional collaboration may be necessary.

Resources

- https://highways.dot.gov/sites/fhwa.dot.gov/files/Safe_System_Approach_for_Speed_Management.pdf
- https://safety.fhwa.dot.gov/uslimits/
- http://www.trb.org/Main/Blurbs/182038.aspx

Speed Feedback Signs

Speed feedback signs incorporate radar detection to communicate a driver's speed compared to the posted speed limit. A flashing indication is given when they are over the speed limit.

Where can this be implemented?

Locations of known speed issues, or areas where a speed limit is changing, such as ahead of school zones or within a city center.

Cost: Both are low cost

Things to keep in mind

- Speed feedback signs need a power source, but solar power is an option.
- Over time, their effectiveness may wear for regular drivers who grow accustomed to their presence. Still, studies show most sites decrease mean speed and show a 3 mph reduction in 85th percentile speed.[1]
- Install in accordance with the MUTCD.

Resources

- https://highways.dot.gov/safety/speed-management/methods-and-practices-setting-speed-limits-

[1] https://highways.dot.gov/public-roads/marchapril-2016/spotlighting-speed-feedback-signs

Speed Safety Cameras

As discussed under "Appropriate Speed Limits for All Road Users," setting appropriate speeds can help increase the chance for all users, but especially vulnerable road users, to survive a vehicle collision. However, simply setting new speed limits often isn't enough to change driver behavior. Speed safety cameras (SSCs) can help enforce speed limits and alter driver behavior. SSCs detect speeding and capture photo evidence of the violation.

Where can this be implemented?

All roads, consider conducting an analysis of speed-related crashes to identify locations. Decide if it's best to use a fixed unit at one location, a point-to-point unit to measure average speed over a certain distance, or a mobile unit at different locations.

Things to keep in mind

- Public perception and education about SSCs will be critical to consider if they are implemented. An SSC program would be the first in the state which is sure to garner attention. Some jurisdictions have implemented on a pilot basis to show the extent of a speeding problem. Others have implemented trials in locations the public will be more accepting of, such as in school zones.
- Currently there are no state laws prohibiting SSC use, nor are there laws permitting SSC use.

Resources

- https://highways.dot.gov/sites/fhwa.dot.gov/files/Speed%20Safety%20Camera%20Program%20Planning%20and%20Operations%20Guide%202023.pdf
- https://highways.dot.gov/safety/proven-safety-countermeasures/speed-safety-cameras

Other Speed Management Tactics

Narrow Travel Lanes

On roads with striping, narrowing travel lanes makes drivers feel more constrained and may encourage slower speeds due to perceived lack of margin. Using a "road diet" concept, leftover space can be provided for bicyclists and pedestrians. Standard lane widths are 12-ft but can be as narrow as 9-ft on low volume rural local roads (AASHTO GB7, 2018, Table 5-5).

Cost: Low if re-striping only

Mini Roundabouts

These can lower speeds at minor intersections and provide improved bicycle and pedestrian crossing opportunities. Due to their smaller size, they can often be installed without major impact to roadway footprint.

Cost: Medium

- https://nacto.org/docs/usdg/fhwa-mini-roundabouts-technical-report.pdf
- https://toolkits.ite.org/uiig/treatments/62%20Mini-Roundabout.pdf
- https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer/module-3-part-1#3.8

Speed Humps

These are elongated mounds in the roadway that extend across the travel lanes and cause driver discomfort over certain speeds, encouraging motorists to slow down before encountering them. **Speed tables** function similarly but extend longitudinally in the direction of travel and allow for slightly faster speeds than a speed hump.

Cost: Low

- https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer/module-3-part-2#3.10
- https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer/module-3-part-2#3.12

Optical Speed Bars

Optical speed bars or speed reduction markings are transverse pavement markings that are spaced at gradually decreasing distances to increase a driver's perception of speed and prompt them to slow down. For greatest effectiveness, these should be used in conjunction with other warning devices, and sparingly in a region where slow speeds are more urgently needed, such as ahead of horizontal curves.

Cost: Low

- https://toolkits.ite.org/uiig/treatments/36%20Speed%20Reduction%20Markings.pdf

Other General Speed Management Resources

- https://safety.fhwa.dot.gov/local_rural/training/fhwasa010413spmgmt/speedmanagementguide.pdf

Bicycle Lanes

These facilities make space for bicyclists and alert motorists to anticipate the presence of bicycles adjacent to the travel lane, improving safety for bicyclists.

Where can this be implemented?

In areas where local land use suggests multiple modes may be using the roadway.

Things to keep in mind

- Existing shoulders of adequate width[2] generally serve the same function as a separate bicycle lane, but adding stripes and signs provide more emphasis to motorists.
- More separation from travel lanes is needed as speeds (>30 mph) and volumes (>3000 vehicles/day) increase.
- Accommodation through intersections needs to be considered to give cyclists space as right-turn lanes separate from through lanes.

Resources

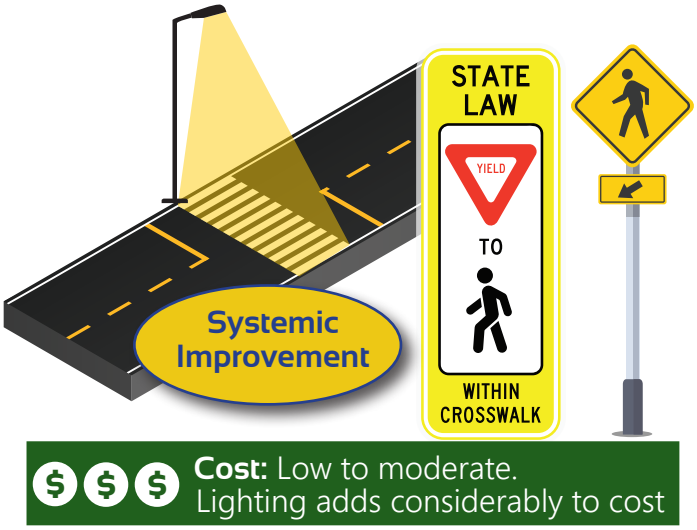
- https://highways.dot.gov/safety/proven-safety-countermeasures/bicycle-lanes

Crosswalk Visibility Enhancements

These enhancements include ladder-style crosswalks, enhanced signs and markings, and improved lighting at crosswalks to make the crosswalk more visible to approaching motorists.

Where can this be implemented?

Focus on uncontrolled intersections and mid-block crossings in areas that connect key pedestrian generators. They can be used on any classification of roadway.



Things to keep in mind

In school zones, accompany with appropriate school zone markings and signs. Ensure spacing of crosswalks is appropriate in higher-density pedestrian areas, as appropriate for the context, to avoid pedestrians crossing mid-block where motorists may be less likely to anticipate them. Design in conjunction with Americans with Disabilities Act requirements for curb ramps.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/crosswalk-visibility-enhancements

[2] See AASHTO's Guide for Development of Bicycle Facilities, 2012

Leading Pedestrian Invervals

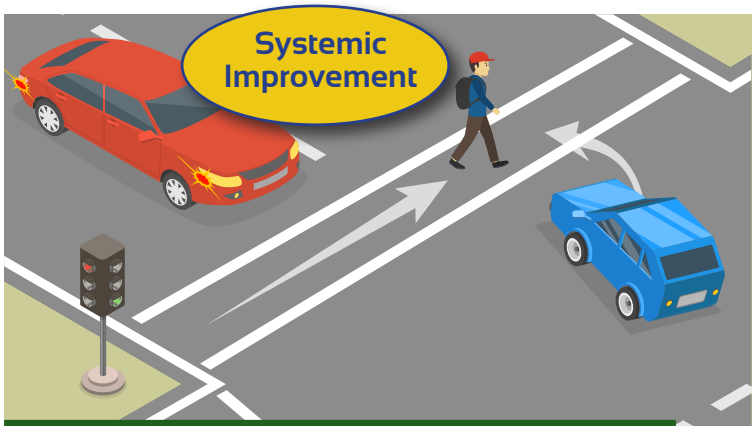
A leading pedestrian interval gives pedestrians the opportunity to enter the crosswalk at an intersection 3 to 7 seconds before vehicles are given a green indication, improving their visibility in the crosswalk before turning vehicles approach the crosswalk.

Where can this be implemented?

At any signalized intersection, particularly ones with higher turning volumes.

Things to keep in mind

Implementation requires adjusting signal timing. Longer lead times of up to 10 seconds may be appropriate in higher density pedestrian corridors. The new MUTCD (11th Edition, 2023) requires installation in conjunction with Accessible Pedestrian Signals (APS), which are required under Public Right-of-Way Accessibility Guidelines: https://www.access-board.gov/prowag/



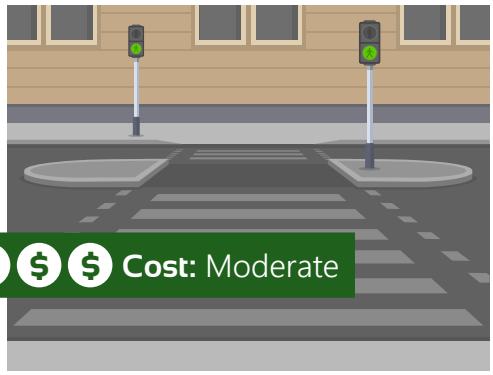
$ $ $ **Cost:** Low to moderate depending on contractor or agency installation for APS equipment and extent of intersections where deployed. Consider suggesting as an eligible systemic safety improvement in the next round of DOT&PF Highway Safety Improvement Program nominations.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/leading-pedestrian-interval

Medians & Pedestrian Refuge Islands

Pedestrian refuge islands are curbed sections in the center of a roadway that separate opposing directions of general-purpose lanes. They provide a space for pedestrians crossing the street to cross one direction of traffic at a time, with a place to wait in the median.



$ $ $ **Cost:** Moderate

Where can this be implemented?

Consider in urban or suburban roadways where speeds are 35 mph or higher and volumes 9,000 vehicles per day or more, but are still effective at lower volume crossings. They should especially be considered on wide, multi-lane intersections to give pedestrians more time to make their crossing in stages. Segments such as the Parks Highway should consider them in situations where signal timing may not afford pedestrians with mobility impairments enough time to safely cross.

Things to keep in mind

For pedestrian comfort, refuges should be four to eight feet wide.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/medians-and-pedestrian-refuge-islands-urban-and-suburban-areas
- https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/crosswalks-and-crossings/pedestrian-safety-islands/

Rectangular Rapid Flashing Beacons

These pedestrian-activated flashing beacons increase awareness of pedestrian crossings at uncontrolled marked crosswalks by providing pedestrian activated (as needed) beacons.

Where can this be implemented?

Mid-block crossings on roads with speeds of 40-mph or less that have high pedestrian activity, such as near schools or other vulnerable road user destinations.

Things to keep in mind

- Implement in accordance with the MUTCD.
- Do not install at stop- or yield-controlled intersections, and reserve for the highest activity pedestrian areas so as not to diminish effectiveness.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/rectangular-rapid-flashing-beacons-rrfb

Walkways & Shared Use Paths

Sidewalks and shared-use paths separate non-motorized users from the roadway.

Where can this be implemented?

Any roadway where vulnerable road users are anticipated, ranging from residential local roads to higher speed arterials. Risk to vulnerable road users without a separated facility increases as vehicle volume and speeds increase.

Things to keep in mind

- Separated facilities may introduce new right-of-way or utility impacts.
- Due to differences in speed, combining pedestrians and bicycles on the same facility may not always be desirable depending on context and mix of use in the area.
- Intersections with driveways and side streets need to be considered in design.

Resources

AASHTO's Guide for the Planning, Design of Pedestrian Facilities, 2021, AASHTO's Guide for Development of Bicycle Facilities, 2012, https://highways.dot.gov/safety/proven-safety-countermeasures/walkways

Road Diets (Roadway Reconfiguration)

Road diets convert four-lane roadways to three-lane, or three-lane roadways to two-lane depending on context and capacity, and apply the space previously used by vehicles for bicycle and pedestrian accommodations. Some roads constructed decades ago may no longer need all the vehicular lanes considering shifts in transportation modes and build-outs of other road networks.

Where can this be implemented?

Roadway corridors where capacity needs have diminished due to build-out of other roads in the network, or a shift in transportation modes has decreased traffic.

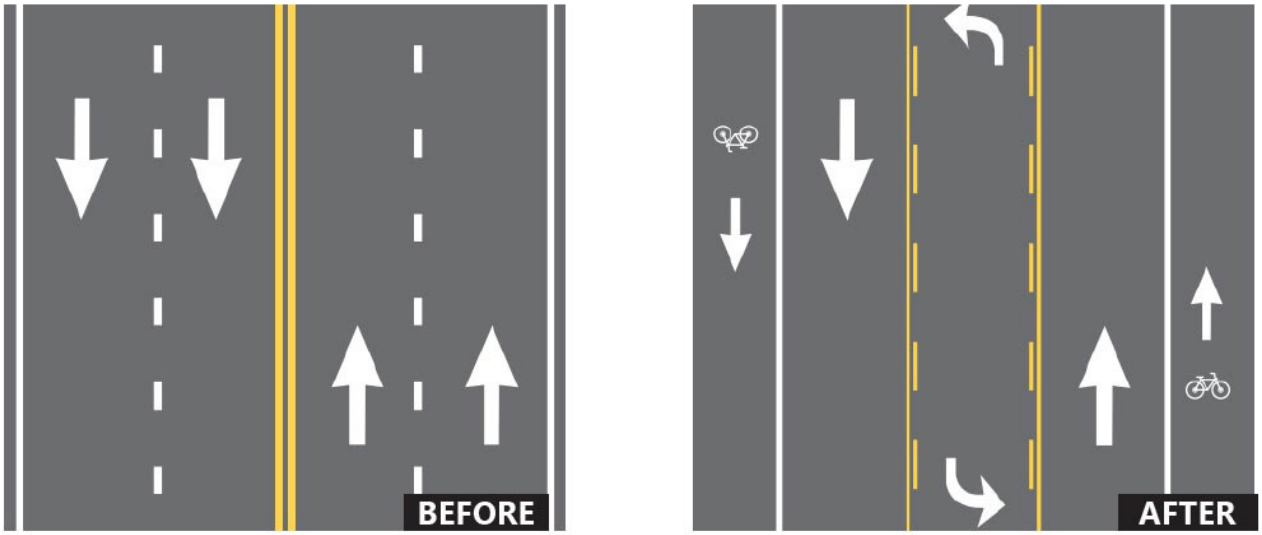
Things to keep in mind

- Traffic analysis should be conducted to ensure road reconfiguration does not unacceptably degrade operations (capacity) in a reasonably forecasted design year.
- Implementation should accompany advance public outreach to communicate these findings.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/road-diets-roadway-reconfiguration

Image Credit: FHWA



$ $ $ **Cost:** Low to moderate. Depending on on extent of re-striping (low cost) or if sidewalk facilities are widened (medium to moderate).

Enhanced Delineation for Horizontal Curves

Improves conspicuity of horizontal curves and enhance advanced warning to prevent run-off-the-road crashes on high-speed roadways. Includes installing delineators, chevron signs, larger fluorescent and/or retroreflective sign panels, dynamic curve warning signs including speed radar feedback signs, and in-lane curve warning through pavement markings.

Where can this be implemented?

Roadways with horizontal curves with or without a roadway departure crash history and independent of degree of curvature. Consideration should be given for frequency of curves relative to driver expectancy, roadway speed, and presence of lighting.

Things to keep in mind

- Install features ahead of and through curves as appropriate and in accordance with the MUTCD.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/enhanced-delineation-horizontal-curves

Roadside Design Improvements at Curves

These improvements provide additional clear zone through slope flattening and/or shoulder widening on roads near horizontal curves to provide a more traversable or recoverable area for vehicles that leave the roadway. Where clear zone may not be cost-effective to achieve and a curve hazard is present based on risk analysis, evaluate installing roadside barriers such as concrete barrier or metal-beam guardrail.

Where can this be implemented?

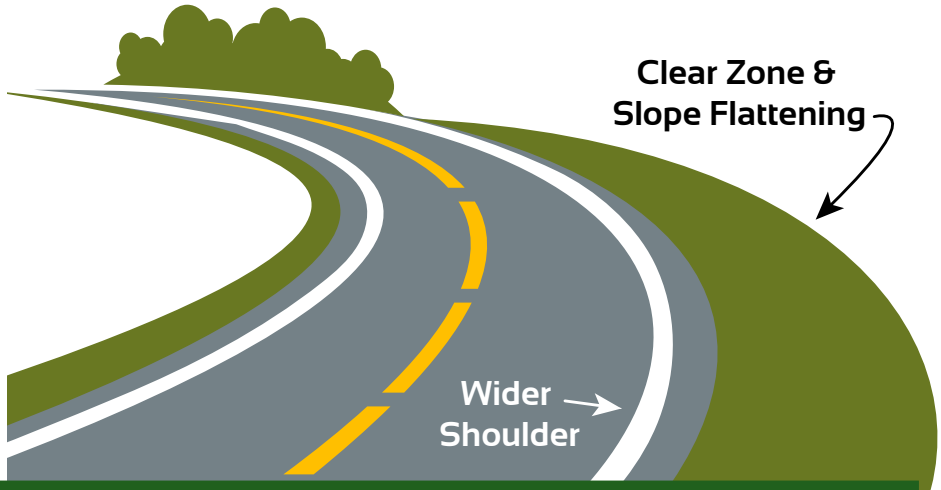
Roads with history of road crashes in horizontal curves. Consider on rural high speed (40 mph or greater) roadways independent of crash history.

Things to keep in mind

Design roadside safety features, barrier length of need and clear zone in accordance with adopted agency standards.

Resources

AASHTO's Roadside Design Guide, 2012 with errata, https://highways.dot.gov/safety/proven-safety-countermeasures/roadside-design-improvements-curves



$$$ **Cost:** Low to moderate. Depends on extent of earthwork or roadside barrier

Wider Edge Lines

Wider edge lines stripe 6-inch roadway edge lines instead of the standard 4-inch edge line (or fog line) to emphasize the roadway edge. They enhance the visibility of travel lane boundaries compared to traditional edge lines and increase driver's perception of the location of the edge of the travel lane.

Where can this be implemented?

Any roadway as a systemic improvement, but especially beneficial when risks for roadway departure crashes are present, such as on two-lane rural roads, roads with no lighting, roads with limited or no shoulder, and roads with a presence of more horizontal curves.

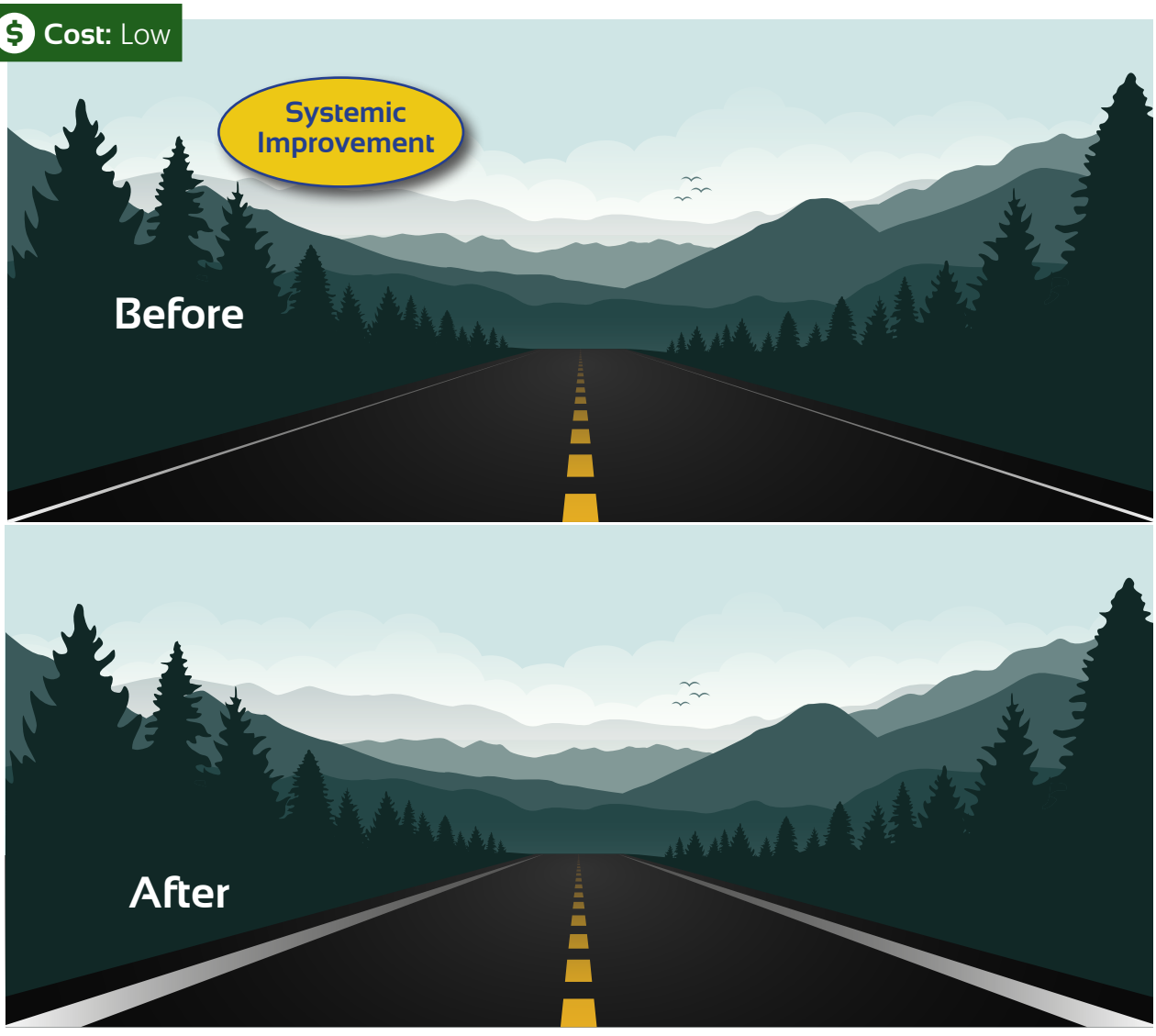
Things to keep in mind

- Install in accordance with the MUTCD.
- Consider implementing as part of normal roadway striping maintenance, and in conjunction with higher-durability striping (methyl methacrylate) on larger capital projects.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/wider-edge-lines

Cost: Low



Longitudinal Rumble Strips and Stripes

Rumble strips are milled or raised elements on the pavement that create vibration and sound when driven over by a motor vehicle to alert a driver they have traveled outside of the lane or roadway. They can be installed on the shoulder, edge line, or on the center line of an undivided roadway. Rumble stripes are edge line or center line rumble strips where the pavement marking is placed over the rumble strip. This can increase the visibility and durability of the pavement marking during wet, nighttime conditions, and can improve the durability of the marking on roads with snowplowing operations.

Where can this be implemented?

High-speed and especially rural roadways, roadways with a history of run-off the road or head-on crashes.

Things to keep in mind

- Milled rumble strips are most common in Alaska due to difficulties raised features present during snow removal.
- Milling is not recommended if a roadway is frequently patched with asphalt, or is has gravel, chip seal, or high float aggregate surface.
- In residential areas and areas with more turning traffic to driveways or approach roads, consider use of mumble strips to reduce noise impacts.
- Consider bicycle traffic using a shoulder with a milled rumble strip to ensure they have adequate remaining space and are not forced to ride on the milled sections.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/longitudinal-rumble-strips-and-stripes-two-lane-roads
- https://dot.alaska.gov/stwddes/dcstraffic/rumble/rumble_faqs-temp.shtml#rumble_question13
- https://dot.alaska.gov/stwddes/dcspubs/assets/pdf/directives/09/071309_rumble_strip_pol.pdf
- https://www.dot.state.mn.us/trafficeng/safety/rumble/index.html

Safety Edge℠

SafetyEdge℠ technology shapes the edge of the pavement at approximately 30 degrees from the pavement cross slope during the paving process, eliminating the vertical drop-off at the pavement edge and increasing the potential that a departing vehicle can safely return to the roadway.

Where can this be implemented?

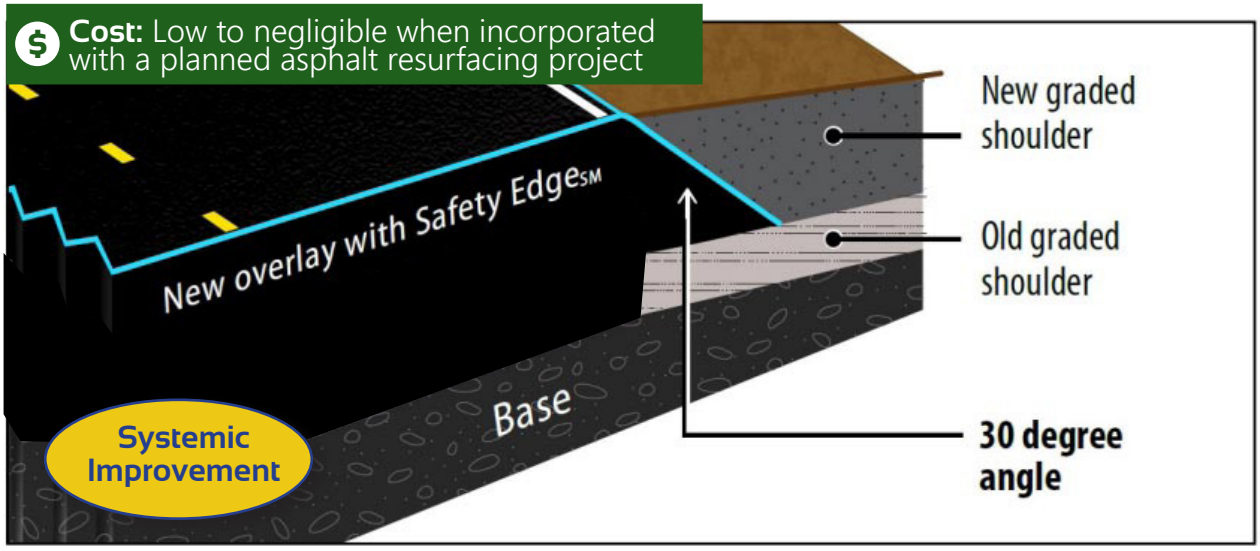
Any roadway with asphalt surfacing, but particularly effective for high-speed rural roadways where run-off-the road crashes are more common.

Things to keep in mind

Can provide an additional benefit of improved pavement durability by reducing edge raveling of asphalt.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/safetyedgesm



Cross section view of an overlay with the Safety Edge℠

Image credit: FHWA-SA-17-044

Dedicated Left- and Right Turn Lanes at Intersections

Auxiliary lanes, or turn lanes, separate stopped or turning traffic from through-traffic movements at the approaches to intersections to help reduce turning related crashes.

Where can this be implemented?

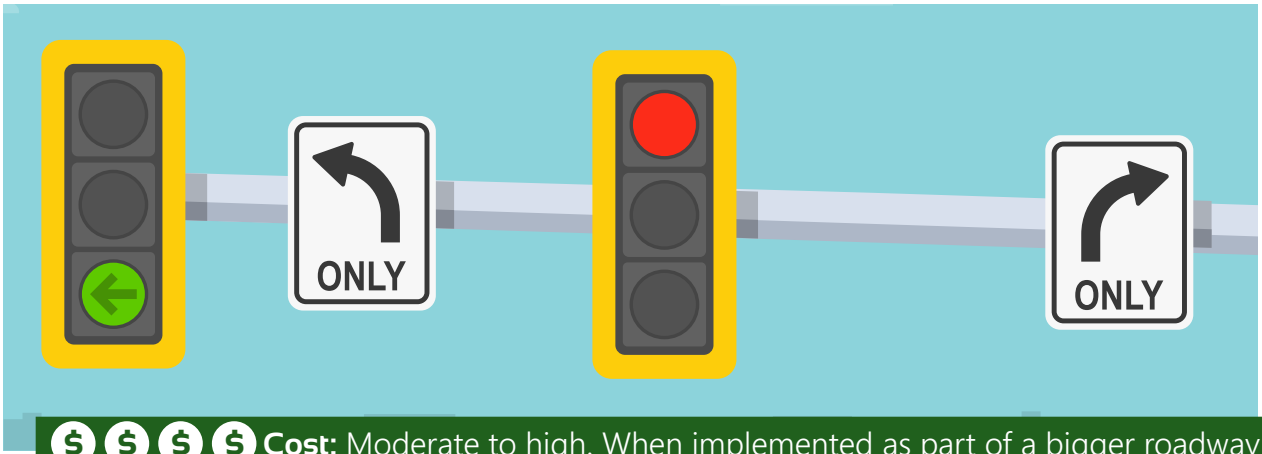
On the major road approach of three- or four-leg intersections where higher turning volumes exist, especially as speed and volume increases on the major road.

Things to keep in mind

- Design turn lanes with sufficient deceleration length for the speed of the approach road, and with adequate storage based on anticipated queued traffic.
- Due to cost and potential right of way impacts, it is impractical to install turn lanes at every intersection, so guidelines for warranting conditions[3] are used by most transportation agencies.
- If installing turn lanes in areas where design guidance would not typically recommend, it is suggested to document the reasoning, particularly if other contextual factors[4] led to the decision.
- Consider the need to add highway lighting in conjunction with turn lanes, and consider where their installation may increase the distance over which pedestrians have to cross the major approach roadway.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/dedicated-left-and-right-turn-lanes-intersections



$$$$ **Cost:** Moderate to high. When implemented as part of a bigger roadway paving project, costs will be lower than as stand-alone projects. Left-turn lanes will generally cost more due to extent of roadway impacts.

[3] AASHTO's A Policy on Geometric Design of Highways and Streets, 2018, Tables 9-24 and 9-26 for left turns is guidance used by Alaska DOT&PF. For right turn lane warrants, see NCHRP Report 279, Figure 4-23, 1985, referenced by the Alaska Highway Preconstruction Manual.

[4] https://dot.alaska.gov/nreg/precon/Design_Directives/ See 19-02, Turn Lanes for examples of roadway context considerations.

Corridor Access Management

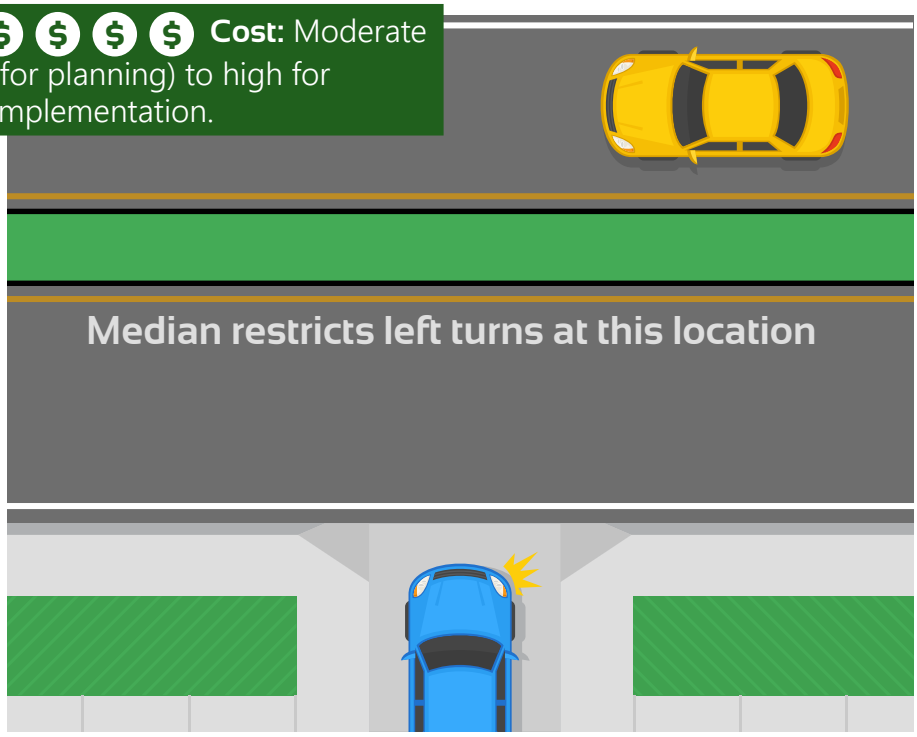
Access management refers to the design, implementation, and control of entry and exit points along a roadway. This includes intersections with other roads and driveways. Careful access management along a corridor enhances safety for all modes, can facilitate walking and biking, and reduces congestion and delay. Implementation tactics, combined with a development management policy include:

- Reducing or consolidating access points (driveways)
- Managing spacing of future driveways to limit density and reduce conflicts
- Implementing raised medians to reduce left turning and cross-traffic conflicts
- Implementing roundabouts or intersections designed reduce to left-turn conflicts (such as restricted crossing U-turns, also known as RCUTs, or median U-turns, also known MUTs).
- Providing auxiliary turn lanes with adequate deceleration and storage
- Developing frontage or backage off-arterial roads (one way or two way) that are lower speed and keep local traffic off the main higher speed artery

Where can this be implemented?

Access management principles should be considered on all roadways, as even low-volume, local roads can benefit, for example, from reducing frequency of driveways. As traffic volumes and access demand increase through surrounding development, the need for access management becomes more critical. Local examples of the need for access management include the Parks Highway corridor through Wasilla, and the Seldon-Bogard corridor.

$ $ $ $ Cost: Moderate (for planning) to high for implementation.



Things to keep in mind

Access management should be accompanied by a sound public involvement approach, as changes to access and adverse travel can be alarming to businesses. Access management principles should be incorporated into standards for roadway design projects and for developer activities.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/corridor-access-management
- https://safety.fhwa.dot.gov/intersection/cam/fhwasa15005.pdf
- FHWA's "Safe Access is Good for Business" brochure (recommend conducting web search)

Roundabouts

Modern roundabouts are circular intersections that safely and efficiently move traffic. They are designed to reduce conflict points and control speeds through an intersection, thereby reducing the frequency and severity of crashes. Converting a two-way stop controlled intersection to a roundabout can reduce fatal and serious injury crashes by up to 82%, and by 78% when converting a traffic signal to a roundabout[5]. Pedestrian crossing safety can be improved over a two-way stop controlled intersection by allowing stages of crossing through all channelized approaches to the roundabout.

$ $ $ $ **Cost:** High

Where can this be implemented?

Four-way stop-controlled, two-way stop controlled, and signal controlled intersections, especially to mitigate angle crashes.

Things to keep in mind

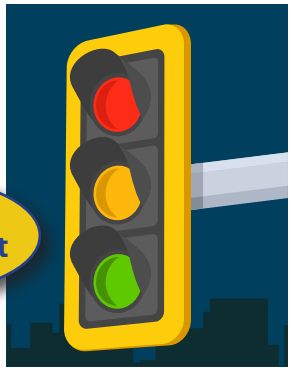
- Circulation needs to accommodate the design vehicle, so consideration needs to be given to expected freight vehicles and movements.
- A traffic study needs to evaluate whether single-lane or multi-lane roundabouts are necessary to handle capacity for the future design year.
- Roundabouts can improve crossing opportunities for vulnerable road users (VRUs) by allowing crossing in shorter stages than a traditional or signalized intersection. Approach design needs to consider sight distance for these VRUs

Resources

- https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer/module-3-part-2#3.9

Backplates with Retroreflective Borders

Retroreflective borders of one to three inches are applied to the border of a signal backplate, promoting traffic signal visibility, conspicuity, and orientation for older drivers, and color vision deficient drivers, and all drivers in the dark.



Systemic Improvement

Where can this be implemented?

Any traffic signal.

Things to keep in mind

- Install in accordance with MUTCD.
- Louvered (slatted) backplates may be more desirable in high-wind environments like Mat-Su, as has been done at select locations in Anchorage.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/backplates-retroreflective-borders

$ **Cost:** Low, estimated at $200 per signal face during a new installation based on recent installation costs in Fairbanks. Could be incorporated into any new traffic signal project or as part of traffic signal systemic upgrade eligible under DOT&PF's Highway Safety Improvement Program.

[5] https://highways.dot.gov/safety/proven-safety-countermeasures/roundabouts

Transverse Rumble Strips

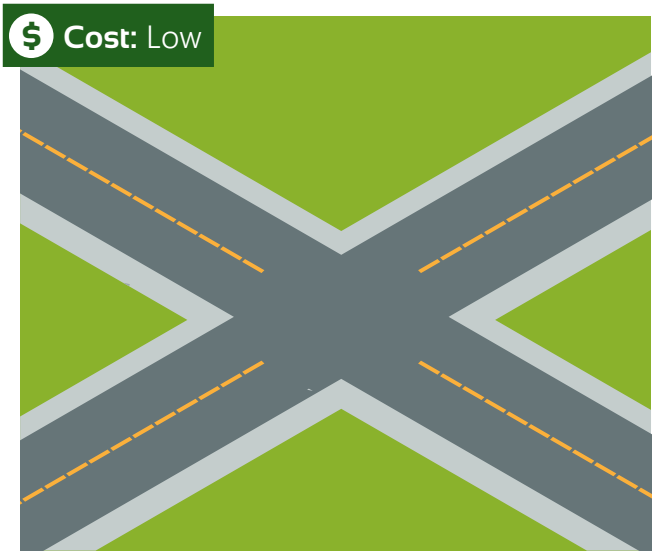
Transverse rumble strips alert drivers to a need to slow down or a stop condition ahead that may not be anticipated. They are placed in the travel lane perpendicular to the direction of travel to warn drivers and are milled in the pavement similar to longitudinal rumble strips.

Where can this be implemented?

Unsignalized intersection approaches, especially with a history of vehicles running stop signs. Transverse rumbles are not typically used to reduce roadway departure crashes.

Things to keep in mind

- Milling is not recommended if a roadway is frequently patched with asphalt, or is has gravel, chip seal, or high float aggregate surface.
- Over time drivers may adjust their lane placement to avoid driving over the transverse rumbles, but this is still achieving the desired effect if the driver has awareness of the condition the rumbles are there to provide warning for.



Resources

- Search this countermeasure at https://cmfclearinghouse.fhwa.dot.gov/index.php
- https://mnltap.umn.edu/ltapnews/2023/september/transverserumble

Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections

This is a systemic intersection improvement that includes enhanced signing and pavement markings within a corridor or across a jurisdiction. The goal is to increase driver awareness and recognition of the potential to encounter a pedestrian or other VRUs at these locations. Features include oversizing stop signs, adding retroreflective sheeting to sign posts, double (both sides of roadway) stop signs or intersection warning signs, and stop bars.

Where can this be implemented?

Any stop-controlled intersection.

Things to keep in mind

Rural areas with lack of highway lighting may particularly benefit from these low-cost improvements.

Resources

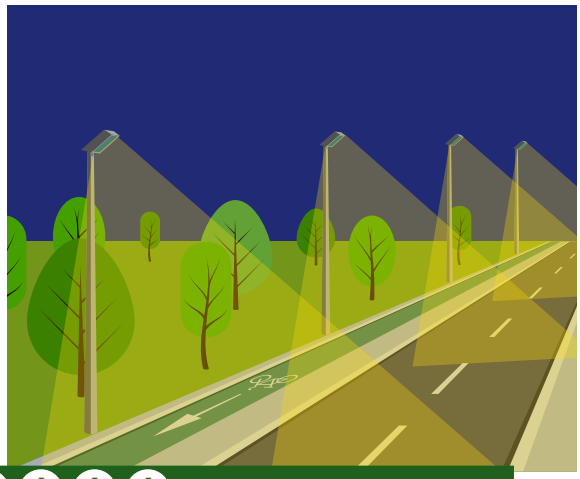
- https://highways.dot.gov/safety/proven-safety-countermeasures/systemic-application-multiple-low-cost-countermeasures-stop

Cost: Low

Systemic Improvement

Lighting

Roadway lighting helps mitigate nighttime crashes occurring in the dark by helping drivers see hazards or changing road conditions. It provides additional benefits to safety and security of vulnerable road users who travel along and across roadways.



Where can this be implemented?

Lighting can be implemented at spot locations, such as intersections or pedestrian crossings, or continuously along a corridor. It should be considered especially in locations with a history of nighttime crashes.

Things to keep in mind

- Even with improvements to energy consumption with use of LED fixtures, highway lighting adds to electricity costs for the operating agency.
- Light poles must also be provided on break-away bases to maintain crashworthiness, and as a consequence, can add other maintenance burdens.
- Pedestrian light poles are generally shorter and lower in cost but more closely spaced.

Resources

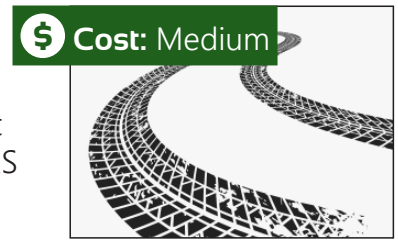
- https://highways.dot.gov/safety/proven-safety-countermeasures/lighting
- https://highways.dot.gov/safety/other/fhwa-lighting-handbook-2023
- https://highways.dot.gov/safety/other/visibility/roadway-lighting-resources (Note, Alaska DOT&PF uses ANSI/IES RP-8-22, which can be found at that site)

High Friction Surface Treatment

High friction surface treatment consists of a durable layer of polish-resistant aggregate over a thermosetting polymer resin binder that locks aggregate into place to improve friction or skid resistance.

Where can this be implemented?

Any location where vehicle traction is anticipated to be of concern such as: horizontal curves, approaches to intersections, approaches to crosswalks, or through roundabouts. Apply to existing pavement or to new pavement in these locations where anecdotal or crash data indicates difficulty with vehicle traction.



Things to keep in mind

- Some applications have not been successful in Alaska, but it has been used with success recently in Fairbanks at the GARS intersection, Chena Hot Springs Roundabouts and on fully superelevated curves on Badger Road.
- DOT&PF's evaluation of Anchorage (and two in Mat-Su) applications in 2016 indicated that studded tire, snow plowing, and high traffic volumes reduce the friction considerably within three years. Consideration should be given for the value offered if friction is expected to erode in a short time.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/pavement-friction-management
- https://dot.alaska.gov/stwddes/research/assets/pdf/000S-882-a.pdf

Local Road Safety Plans

Local Road Safety Plans provide a framework for identifying and prioritizing safety improvements on local roads. These plans are tailored to the specific needs of the local area, and can result in a prioritized list of issues, risks, actions and improvements to reduce fatal and serious injury crashes.

Where can this be implemented?

Across a jurisdiction or in a subregion of a large jurisdiction.

Things to keep in mind

Areas like the Mat-Su Expanded Core Area with a Comprehensive Safety Action Plan may already have many tools applicable to local roads, but a focused Local Road Safety Plan would focus only on local roads.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/local-road-safety-plans

Road Safety Audit

Road Safety Audits are conducted by multi-discipline teams of independent reviewers to consider all road user needs for a given corridor. These audits generate a formal report and require a response from the agency for whom the audit is being conducted.

Where can this be implemented?

Consider Road Safety Audits at the outset of a new project design for an independent evaluation or as part of planning effort for roads with known capital project needs.

Things to keep in mind

Road Safety Audits can focus on any or all of the following users: motorized users, bicyclists, pedestrians, wheelchair users or those who use a mobility-assistive device, or motorcyclists.

Resources

- https://highways.dot.gov/safety/proven-safety-countermeasures/road-safety-audit

$ Cost: Both are low cost

Separate ATV Users With Their Own Trail or Facility

All-terrain vehicles (ATVs, also interchangeably referred to as all off-road vehicles or all-purpose vehicles) and snowmachines are used as a mode of transportation and for recreation throughout the Mat-Su Borough Expanded Core Area. A separate trail or facility such as a flat-bottom ditch can provide a space for ATV use and remove user conflicts on separated pathways, where motor vehicles are prohibited by law, and on the roadway. In the MSB, some off-road vehicles are the same size, or larger, than street legal vehicles and should be considered in the width of the trail.

Where can this be implemented?

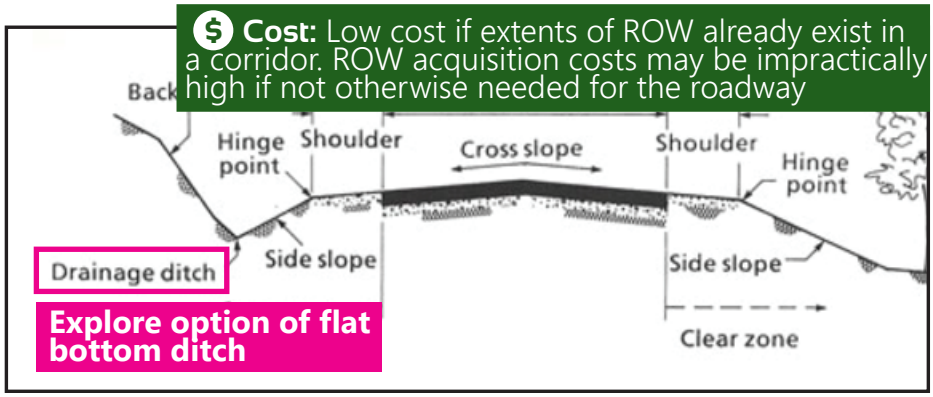
It is recommended to plan for ATV trail space when considering widening of a corridor along with roadway embankment and utility needs.

Things to keep in mind

- Driveways and intersections still present a conflict for ATV and snowmachines who may operate on or along the roadway. Their presence should be anticipated on most Mat-Su roads even if a specific space isn't designated, so intersection sight distance principles at these locations still apply to them.
- If designing a space for ATVs, consider potential conflicts with overhead utility guy wires or ground pedestals.

Resources

- https://www.fhwa.dot.gov/environment/recreational_trails/publications/conflicts_on_multiple_use_trails/conflicts03.cfm#way



Install "NO MOTOR VEHICLES" Signs Along Separated Pathways

Snowmachines and ATVs are prohibited on sidewalks or locations intended for pedestrian or non-motorized traffic.[6] The presence of these regulatory signs promote compliance, especially for younger riders who may not be aware of the law.

Where can this be implemented?

Periodically along a separated path, especially near intersection approaches or other places riders may be inclined to enter the path.

Things to keep in mind

These should be part of any capital project addressing signs in a corridor with a separated path.

Resources

MUTCD and Alaska Sign Design Specifications

[6] Alaska Administrative Code 02.455(g)

Appendix E: Meeting Notes and Public Involvement Documentation

MAT-SU BOROUGH
SAFE STREETS FOR ALL

SAPT Meeting #1 – Sign-In Sheet

Matanuska-Susitna Borough | Michael Baker International | R&M Consultants | Fehr & Peers
Thursday, July 25, 2024 (11:30 a.m. – 1 p.m.)
Mat-Su College Library

Name	Organization	Email
Todd Moehring	AST	todd.moehring@alaska.gov
Rusty Belenger	MSBSD	rusty.belenger@matsuk12.us
Julie Spackman	MSB	julie.spackman@matsugov.us
Kim Sollien	MVP for Transportation	kim.sollien@fastplanning.us
Jamie Taylor	MSB	jamie.taylor@matsugov.us
Avry Antonio	MSB	Avry.Antonio@matsugov.us
TRACEY LOSCAR	MSB	TRACEY.LOSCAR@MATSUGOV.US

SAPT Meeting #1 – Minutes

Matanuska-Susitna Borough | Michael Baker International |R&M Consultants| Fehr & Peers

Thursday, July 25, 2024 (11:30 a.m. – 1 p.m.)

Mat-Su College Library and Virtually on ZOOM

Attendees

a. Todd Moehring (Alaska State Troopers)
b. Rusty Belanger (MSB School District)
c. Julie Spackman (MSB Planning)
d. Kim Sollien (Mat-Su Valley Planning)
e. Tracey Loscar (MSB Emergency Services)
f. Jamie Taylor (MSB Public Works)
g. Avry Antonio (MSB Public Works)
h. Adam Bradway (Alaska Department of Transportation)
i. Karin McGillivray (MBI)
j. Joni Wilm (MBI)
k. Alex Hutcheson (MBI)
l. Beth McKibben (R&M Consultants)

Agenda

a. Welcome and Introductions
    i. Joni introduced the project and introduced the project team and their roles.
b. SAPT Role
    ii. Joni discussed roles of the SAPT, including providing technical oversight during plan development, providing insight into specific transportation safety issues in the Mat-Su Borough, and helping to promote the plan and increase outreach capabilities through their representative agencies. She presented a graphic showing the plan timeline and four scheduled SAPT meetings.
c. Overview, Outcomes and Schedules
    iii. Joni presented the plan overview including a map of the MSB Expanded Core Area, a brief background of the Safe Streets and Roads for All (SS4A) program, Safety Action Plan Components, SS4A Grant Opportunities, MSB Crash data (2013-2022), and the Plan schedule.
d. Safe Systems Approach
    iv. Joni gave a brief overview of the Safe Systems Approach, including the core elements and principles. She highlighted two examples of Safe Systems approaches in Alaska with the Alaska Strategic Highway Safety Plan and the AMATS Safety Plan.

e. Next Steps

v. Joni explained next steps and upcoming opportunities for participation in the Plan. These included upcoming focus group meetings (TBD), the second virtual public workshop (September), the three in-person open houses (winter 2024), several August Mat-Su Borough Agency meetings (Transportation Advisory Board, MVP Technical and Policy Boards, Local Road Service Area Advisory Board and the Mat-Su Borough Planning Commission). She also talked about three pop-up events scheduled for August including Friday Fling in Palmer, the Houston Founder's Day, and the Wasilla Farmer's Market. She encouraged attendees to visit the project website, take the safety survey, and help promote the survey through their respective agencies.

f. Group Questions

vi. The meeting moved into group questions to answer the following:

1. What is working to improve transportation safety in the Mat-Su Borough?
2. What is not working to improve transportation safety in the Mat-Su Borough?
3. What ideas (programs/policies) do you have to improve transportation safety?

What is working to improve transportation safety in the MSB.

- **Julie -** The MSB Safe Routes to Schools (SRTS) plan is being implemented. Information is being distributed throughout the community. Better/safer routes and street crossings have been identified. The program could be better with more funding. This program may be eligible for supplemental planning grant money. Separated paths generally improve safety. Need more follow up (data collection) to know if SRTS is working. This year they are advertising the recommended routes to the elementary schools – release being timed to just before school starts.
- **Brad** – MSB had a web page (Problem Reporter) where people can identify transportation/road issues. Many of the complaints that are logged are about speeding. The MSB follows up to see if the road identified as having a speeding problem has speed limit signs. If not, signs are posted.
- **Brad** - Many MSB roads are constructed with a flat bottom ditch parallel to the roadway (primary use is drainage) for ATVs to drive, which helps to keep ATVS off the roadways and improved pedestrian ways (wide shoulders/sidewalks/separated pathways)
- **Rusty -** MSB -has good data and staff.
- **Jamie** - There have been many recent bond packages for building new roads/alternative routes. This improves transportation safety by providing people with updated information so they can take different roads to avoid bad intersections/dangerous roads.
- **Brad** – There could be more coordination with developers to make sure the public has adequate space to walk – wide shoulders/sidewalk which leaves people walking in travel way. Also, there is a need for turning lanes.

What is NOT working to improve transportation safety in the MSB?

- **Brad -** Need for wider shoulders, turning lanes, lighting. More education for pedestrians for dressing appropriately to be seen, especially in the dark and during the winter.
- **Rusty -** Subdivisions are not installing safe areas for children to wait for the school bus.
- **Julie -** Vehicles queue up waiting for bus which creates problems at intersections. Vehicles backing up in streets during school pick up/drop off. School site design for buses not private individual vehicles. Fewer busses and more individual drop offs post pandemic.
- **Todd** – ATVs on roadways and pedestrian pathways
- **Kim** - MSB need to do better job of educating policy/decision makers (if they don't ask staff can't inform) There is a need to strengthen relationship – acknowledge staff are subject matter experts. The subdivision and road construction requirements need to be changed to require improvements because this is the least expensive way to improve safety because government won't have to pay for it.
- **Adam** – Driver behavior. People still drive the same as when there wasn't as many vehicles on the road. Drivers need to drive for the current conditions. Additionally, infrastructure hasn't caught up to the traffic volume (center turn lane on Parks example). Speed and driver behavior – MSB needs more enforcement. Borough doesn't have police force to do enforcement. Winter maintenance -need more snow clearing -especially for bike and ped routes.
- **Jamie** –turn lane methodology language is outdated. Would like to see updated language for when turn lanes are warranted/required. The plan should identify more current methodologies. Can/will the plan identify specific changes to code? Specific recommended changes would be helpful to MSB staff. Other plans make vague recommendations which makes it challenging to implement.
- **Kim** - Stop using "recommendation" in the Pre-Construction Manual. The manual should say this is how it must be done (shall not should).
- **Julie -** In other places the property owner is required to clear sidewalk in front of their property.
- **Rusty** - Areas where we want transit should have safe stops and safe parking to encourage transit use.
- **Brad -** The Parent Teacher Association in Fairbanks used to provide reflective stripes to be sewn onto jackets/backpacks. MSB could do more low-cost things like this.
- **Tracey -** The plan needs to recognize motorcycle safety. There are a lot of recreational riders during the good weather months.

What ideas (programs/policies) do you have to improve transportation safety?

- **Brad** – Transitioning from signals to roundabouts -what are the actual numbers? There appears to be fewer fatalities. Some type of performance measure could help with educating the public on whether these are working and should be included in the plan.

Live Mapping Exercise

The group moved into a mapping exercise to identify:

- Where are your 5 biggest transportation safety concerns in the Mat-Su Borough expanded core area?
- Please describe your concern. Examples (unsafe road design/unsafe intersections/unsafe speed/enforcement needed, etc.)

- Results from this live mapping exercise will be uploaded onto the Experience Builder platform and integrated into overall responses from the community.

Mapping results will be uploaded onto project website.

The meeting adjourned at approximately 1:15pm.

MAT-SU BOROUGH
SAFE STREETS FOR ALL

SAPT Meeting #2 – Sign-In Sheet

Matanuska-Susitna Borough | Michael Baker International | R&M Consultants | Fehr & Peers
Wednesday, October 2nd, 2024 (11am-1pm)
Mat-Su College Library

Name	Email
Joni Wilm	joni.wilm@mbakerintl.com
Jamie Taylor	jamie.taylor@matsugov.us
Julie Spackman	julie.spackman@matsugov.us
Kam McGillivray	kmcgillivray@mbakerintl.com
Kim Sollien	kim.sollien@fastplanning.us?
Adam Bradley	adam.bradley@alaska.gov
Todd Moehring	todd.moehring@alaska.gov

SAPT Meeting #2 – Minutes

Matanuska-Susitna Borough | Michael Baker International |R&M Consultants| Fehr & Peers
Wednesday, October 3, 2024 (11:30 a.m. – 1 p.m.)
Mat-Su College Library and Virtually on ZOOM

Attendees

MSB
Jamie Taylor, Project Manager

Consultants
Joni Wilm, Project Manager, MBI
Malia Walters MBI
Alex Hutcheson, MBI
Karin McGillivray, MBI
Beth McKibben, R&M

SAPT Members
Tracey Loscar, MSB EMS
Rusty Belanger, MSB SD
Tom Morgan
Adam Bradway, AKDOT
Julie Spackman MSB Planning
Kim Sollien MSB MPO

Agenda

1. Introductions
2. Meeting goals
3. Survey results analysis
4. Collect feedback on survey results
5. Promote Virtual Public Workshop 2

Survey Results

- 912 responses
- Open June 26-Sept 13 on website (promoted on MSB Facebook and reached to community Facebook groups.
- Paper surveys -Houston City Hall, Wasilla Museum Visitors Center, Wasilla Public Library, Palmer Public Library, Palmer Museum Visitor Center, and various community events.

- Wilm provided overview of survey demographic responses.
- Wilm presented survey response summaries.

Collect committee feedback on findings?

To collect SAPT feedback on survey and survey responses a series of menti.com exercises (polls) were completed. The questions are summarized below. Responses for open ended questions are generally summarized.

Menti questions 1 & 2:
Feasibility of set of solutions (high to low):

1. all season maintenance of sidewalks
2. safe conveniently located sidewalks
3. off street multi use paths
4. Better lighting
5. more destinations w/in walking distance.

What are the biggest barriers to the above listed solutions? Open ended response.

1. Funding
2. Budget, buy in, and common sense
3. Land use patterns create ingrained issues and increased infrastructure costs
4. All season maintenance is costly
5. Intersections are already congested

Menti questions 3 & 4:
Feasibility set of solutions (high to low)

1. Off street multi-use paths
2. More marked crossing opportunities
3. All season maintenance of paths/bike lanes
4. Better visibility between drivers and people on bikes at intersections
5. Better lighting

What are biggest barriers to above listed solutions? Open ended response.

1. Maintenance costs
2. Funding -need to find a way to prioritize
3. Funding
4. Cost, education; political support that prioritizes biking as valued means of transportation
5. Funding
6. Struggle sharing if multi-user.

Menti questions 5 & 6:

How much do these priorities for investment resonate with you? (high to low)

1. Better winter maintenance of roads and sidewalks
2. Strong traffic enforcement for speeding, impaired driving, and distracted driving
3. Redesigning and reconstructing roads to increase safety for everyone
4. Adding and maintaining sidewalks
5. Adding to and maintaining the trail network

Open response – did we miss any investment priorities?

1. Further public educations/community education and awareness
2. Separated pathways/widen shoulders
3. School zone safety higher priority
4. Connect gaps in existing networks; access management
5. Partnership w/public health to prevent impaired driving
6. Implement safe routes to schools.
7. Incidents including wildlife and how they can be reduced/avoided

Hutcheson presented crash data and dashboard.
SAPT asked where does data come from? AKDOT 2018-2022.
Comment – accidents just off the roadway is not collected.

Wilm opened discussion about crash data. Does anything about the crash data surprise the SAPT or is there any other information they would like to see?

- Good data – will inform action plan.
- Survey responses don't always "match" the data. Disconnect and should be looked at some more. Straight line crashes not surprising – lots of rear end accidents, maybe due to texting or not paying attention. Is data about distracted driving available? And maybe we didn't look at (distracted driving). Response – data not available. Additionally, most data is self-reported and its expected that distracted driving wouldn't be self-reported.
- Would like to see data associated with insurance company data. Insurance rates are high in AK and maybe insurance companies have more robust data. Will investigate it but we anticipate insurance companies will not want to share their data.
- Noted that one way to get policy makers on board is to explain how recommendations can save money.
- Look at crash conditions/types and contributing factors around crashes w/in one mile of a school.
- Looking at impairment mass campaign may not be affective as a more focused campaign focused on treatment. How much does improper passing contribute to accidents?

Wilm asked group what bold commitment they want to make toward reducing roadway KSI crashes.

Recommending goal of 3.5% annual reduction in KSIs. Is this ambitious enough? Too ambitious?

SAPT asked will SS4A implementation funding be withheld if goals not met? Answer – no. SS4 wants plan to have goal and metrics for tracking progress.

SAPT asked about State goals(metrics) for safety? Noting that MPOs must adopt state targets. Maybe the CSAP targets should align with state targets? Joni will send a clarifying email to SAPT to better explain the 3.5 % reduction goal.

SAPT would like to know if they select strategy "a" we can expect X reduction in KSIs. Do not feel they have that information now. To provide more detail here: Julie Spackman asked if they commit to specific countermeasures, have those countermeasures been proven in other areas to reduce serious crashes by a consistently measured percentage?

Wilm presented map of upcoming transportation projects that may positively impact crash data (reduce crashes and increase safety). AKDOT has over 30 projects in expanded core area.

Wilm provided overview of next steps. Virtual public workshop 2; Focus Group meetings; SAPT meetings (Nov and Dec). Open house (3).

Hutcheson provided overview of project website and dashboard.

Break out for group activity. Menti for online participation. Posters for in person.

Menti – potential solutions (**bolded** answers were selected). Only one participant was participating online.

1. education (combine countermeasures deployment with promotional)
2. **improved pedestrian crossings**
3. **improved lighting**
4. establish zero vision webpage with continued monitoring by SAPT
5. **enforcement**
6. **policy (design guideline update, speed management, submittal checklist for developers)**
7. **fixed object (pole) removal/relocation**
8. **sidewalks with all season maintenance**
9. **infrastructure**
10. access management
11. high friction surface treatment signs, retroreflective sheeting for curves on roadway
12. **separated pathways with all season maintenance.**

Open response -thoughts/comments to add?

1. Effective and feasible depend on funding.
2. Solutions may require additional staffing.
3. Hiring creates additional challenges if new staff is required.
4. Feasibility studies should account for this.

Drop a pin on # 1 priority location.

1. Bogard corridor
2. KBG/Settlers Bay
3. Parks and Main and surrounding area

Please list any other high priority areas.

1. Downtown Wasilla
2. Colony Way
3. Trunk Rd

How much money would you spend on: (high to low)

1. Post crash care
2. Safe roads
3. General
4. Safe Road Users
5. Safe Vehicles
6. Safe Speeds

Open ended question: Thoughts/comments to add about how to prioritize funding?

1. Other areas outside Alaska have same issues and weather/seasonal challenges.
2. Look to those areas for examples and ideas.
3. However, Alaska factor needs to be added including wildlife.
4. SAPT asked if data was collected on accidents (KSIs) that included wildlife.
5. Yes, dashboard will show number crashes caused by wildlife.

The meeting adjourned at approximately 1:15pm.

MAT-SU BOROUGH
SAFE STREETS FOR ALL

Focus Group Meeting #1 – Sign-In Sheet

Matanuska-Susitna Borough | Michael Baker International |R&M Consultants| Fehr & Peers
Wednesday, November 6, 2024 (11am-12:00pm)
Mat-Su College, Room 205

Name	Email
Rusty Belanger	rusty.belanger@matsuk12.us
Jamie Taylor	jamie.taylor@matsugov.us
Karin McGillivray	kmcgillivray@mbakerintl.
Crystal Smith	Crystal.Smith@matsuk12.us
Heidi Whipple	heidi.whipple@matsugov.us
Julie Spackman	julie.spackman@matsugov.us
MIKE CAMPFIELD	mike.campfield@matsugov.us

Project:	Matanuska Susitna Borough SS4A Comprehensive Safety Action Plan
Meeting Subject:	Safety Action Plan Team Focus Group: School Safety Zone & Safety Campaigns
Meeting Date/ Time:	Wednesday, November 06, 2024 10:00 – 11:00 AM
Location:	Mat-Su College 8295 College Drive, Room FM205 Palmer, AK 99654
Project Staff Attendees:	PROJECT TEAM
	Jamie Taylor, MSB Heidi Whipple, GIS Specialist, MSB Joni Wilm, MBI Sarah Schacher, MBI Karin McGillivray, MBI Beth McKibben, R&M
Attendees **(attended in bold):**	Angela Calcaterra, Wasilla Behavioral Health **Crystal Smith Mat-Su Borough School District** Desire Shepler, Alaska Family Services Erich Schaal City of Wasilla-Public Works Jessie Doherty, Alaska Department of Health Jim Beck, Mat-Su Health Foundation **Julie Spackman, Long Range Planner, MSB Planning** Kim Brown, CSS Early Learning Head Start Lisa Wade, Chickaloon Native Village Transportation Dept Lorea Gudget, Mat-Su Services for Children and Adults Marcia Howell, Center for Safe Alaskans **Mike Campfield MSB Public Works** Nicole Jenkins, Benteh Nuutah Paul Cornils, Alaska Youth and Family Network **Steve "Rusty" Belanger, MSB School District** Sue Brogan, Alaska 211 William Hurr Boys and Girls Club of Mat-Su William Hurr Youth Services of Mat-Su

On Wednesday, November 06, 2024, the MSB SS4A CSAP project team hosted an in person focus group meeting to discuss school safety zones and safety campaigns with the purpose of discussing safety in school zones, to include safety solutions and barriers as well as safety campaign ideas. The meeting was held from 10:00 AM – 11:00 AM at the Mat-Su College Fred Machentanz Building in Wasilla, Alaska. Sarah Schacher from Michael Baker International presented on crash data collected, crash data trends, and safety concerns noted by the public.

The following questions were posed to the focus group with their responses:

1. Which of these solutions is most important to safe school zones?

A. Off-street multi-use paths
B. All season maintenance of paths and bike lanes
C. Improved lighting
D. More marked crossing opportunities
E. Better visibility between drivers and pedestrians/bicyclists

Crossings

- Improve lighting at crossings.
- Little to no lighting around cross walks
- No crossing guards

School Zones

- Inconsistencies in marked crossings
    - Flashing/speed limits not consistent within the school zones
        - The state says if there isn't a crosswalk then a school zone isn't necessary
    - Consistency would improve communication
    - Issue is different road owners
        - State, city, borough
        - DOT has criteria for when you can have a reduced speed zone. If there is no pedestrian facilities, there is no need for a reduced speed (is the thinking) Ex. In Sutton
- Speed zone
    - Speed zones: should be consistent throughout the borough.
    - All elementary schools should probably have lighted school zones and flashing ambers.
        - This is a minimum standard.
        - This might be under revision with ADOT.
        - Push for consistency.

All season maintenance

- Sidewalks
    - Not accessible in wintertime
    - Plowing is periodic.
    - Last year inaccessible the whole winter
- Sidewalks around school
    - Sidewalks around school are maintained well by school custodial staff.
    - Priority on snow days
    - School grounds maintained better than city sidewalks.
    - Fewer schools with sidewalks and pathways, ATV trails are more common
    - Peds use edge of the road vs. ATV trails
        - No lighting
- Pathways
    - DOT M&O - will do roads first vs pathways
    - Usually takes 72-96 hours to plow separated pathways
    - Snow berms can also be an issue
    - Separated lighted pathways preferred

Bus Stops

- Insufficient lighting

- Bus riding is back up to pre-COVID numbers.
- Policy is needed about where school bus will go to pick up kids.
- Committee has done work around trying to map walking routes.
- Policy is needed about where school bus will go to pick up kids.
- District policy on distance a school bus will not pick up:
    - State rule - 1.5 mile, for all ages

Funding

- Low priority in M&O budgets

Congestion

- Issues with queuing - pick up and drop off times
- If we could improve walkability, reduce amount of drivers
- Queuing causes crashes

2. Let's talk about solutions to potential barriers:

A. Campaign to mitigate speeding/distracted driving
B. Increased funding to improve safety in school zones
C. All season maintenance
D. Reducing speed/congestion around schools
E. Encouraging compatible land use development around schools

Campaign

- District has a campaign for "being seen"
    - Thirty second PSA
    - Released in fall during bus safety week (October) when it's beginning to get dark
        - Linked on website and message sent to parents - Communicate it through Blackboard (with parents) and
- Paid advertising.
- Opportunities for PSAs:
    - short videos or online videos
    - work with local radio stations as well as Spotify and Pandora
    - utilize local streaming vs basic network TV
    - Facebook posting
    - Social media, middle schoolers, ad targeted at specific age groups.
        - Ads on YouTube or Hulu

Funding

- Lack of funding is biggest barrier
- Already dipping into general budget by $3M for bussing
- If funding were not an issue:
    - Maintenance would be most effective as well as reduce speed/congestion
    - Distracted driving

Land use development

- Tricky (sub area solutions study) there might be compatible recommendations coming out)
- Depends on school, who owns the property
- land use development vs. redevelopment
    - these would not be triggered until the property was sold.

3. What are some ideas for safety campaigns targeting these groups?

A. Younger drivers (14-25), especially males
B. People who are speeding or engaging in distracted driving.
C. New drivers
D. Schools (students/staff/teachers/parents)
E. Age-appropriate walking/biking guidance
F. Parent education
G. Teachers/staff/bus drivers
H. General population driving through school zones

Distracted driving (issue)

- Texting, Snapchat (females)
- Speeing (males)

Research

- What messages are showing impact?
    - Benefit to "proecting your friend"
    - Car crashes work both ways
    - We think about it from adult brain
    - Brains not fully developed until 25
- Work with PIO
    - Use social media platforms
    - Principal posts, teacher posts, (John Nottestein) MSB School District
- Research shows the most impactful things on teen behavior is parental guidance
- School swag?

Players for carrying campaigns forward could include:

- Mat-Su Health Foundation
- Mat-Su College
- Red Cross
- Central MSB Emergency Services
- Smaller Private Clinics (Healthstone)
- State Troopers
- Click it or Ticket
- PTA/PTO organization
-

Focus Group Meeting #2 – Sign-In Sheet

Matanuska-Susitna Borough | Michael Baker International |R&M Consultants| Fehr & Peers

Wednesday, November 6, 2024 (1:00pm-2:00pm)

Mat-Su College, Room 205

Name	Email
Bobby Rader	brader@cityofwasilla.gov
DAN TUCKER	ANTIQUETUCK@GMAIL.COM
Jamie Taylor	
TRACEY LOSCAR	TRACEY.LOSCAR@MATSUGOV.US.
Shayne La Croix	srlacroix@palmerpolice.com

Project:	Matanuska Susitna Borough SS4A Comprehensive Safety Action Plan
Meeting Subject:	Safety Action Plan Team Focus Group: Enforcement
Meeting Date/ Time:	Wednesday, November 06, 2024 1:00 – 2:00 PM
Location:	Mat-Su College 8295 College Drive, Room FM205 Palmer, AK 99654
Project Staff Attendees:	PROJECT TEAM
	Jamie Taylor, MSB Joni Wilm, MBI Sarah Schacher, MBI Karin McGillivray, MBI Beth McKibben, R&M
Attendees **(attended in bold):**	**Lt. Bobby Rader, Wasilla Police Department** **Commander Shanye LaCroix, City of Palmer** Lt. Mike Lopez, Wasilla Police Department Todd Moehring, Alaska State Troopers **Dan Tucker, MVP Technical Committee** **Tracey Loscar, MSB Emergency Services** Mike Danz, Valley Mountain Bikers and Hikers Dmitri Fonov, MSB Assembly Jared Eison, City of Houston - Public Works

On Wednesday, November 06, 2024, the MSB SS4A CSAP project team hosted an in-person focus group meeting to discuss enforcement challenges, solutions, and actions. The meeting was held from 1:00 PM – 2:00 PM at the Mat-Su College Fred Machentanz Building in Wasilla, Alaska. Sarah Schacher from Michael Baker International presented on crash data collected, crash data trends, and safety concerns noted by the public.

The following questions were posed to the focus group with their responses:

1. What are the biggest challenges to enforcement in MBS:

Staffing

- City of Wasilla to conduct enforcement.
  - Staffing is the biggest challenge.
  - It is not adequate to conduct enforcement, manage calls, rest of borough is just too big to have enforcement make an impact.
- Size of the Borough, difficult to make an impact due to its sheer size.
- Support from Wasilla:
  - Wasilla backs up troopers, but officers do not enforce traffic outside city limits.

    - Same for Palmer and Wasilla
    - Houston lacks a police department.
    - Officers will not go much outside the city limits. Palmer has about a 5-mile grace area outside the city.
- Trail System Complexity:
    - Vehicles can move in many directions, almost hidden.
- Unlicensed Drivers/ATVs
    - Quantifying unlicensed drivers, especially ATVs, is challenging.
    - No licensing required for ATVs.
    - ATVs Enforcement of driver's license regulations, legal knowledge.
    - Age Requirements: sixteen for ATVs on roadways; no age requirement on trails.
    - Regulations on how far off the surface vehicles can be.
    - Shoulders are okay unless impeding traffic.
    - How far off the road surface is considered off the road? If they are not using the lane of travel. If they are right next to the road then they could compromise the safety of the road.

Enforcement Consequences

- Decriminalized infractions lead to citations, but court system overload results in lack of follow-through, leading to high-risk behavior.
- Inconsistent levels of enforcement.
- What comes after the enforcement?
    - They have decriminalized traffic laws, now it is just a citation.
    - When it does become criminal, there is no follow through in the courts there is no consequence.
- How does this translate directly to the crashes?
    - **Community Needs:** Enforcement is a community priority, but smaller agencies give more discretion to officers.
    - **Effective Enforcement:** Highway speeding and targeted enforcement around school zones are more effective.
        - Is there targeted enforcement around school zones? Yes.
    - **Driving in General:** Is there a policy to not pursue ATVs because of safety risk? State has more policies than guidelines.
    - **Repercussions for Criminal Behavior:** Immediate repercussions are important. Big believer in writing tickets when it was clear compliance was not going to be gained. Immediate repercussions for their actions were the best policy.

2. Potential solutions:

Red Light Running/Speed Monitoring

- Implementation and follow-through of technology like citations based on license plate photos.
- School zones might work, construction zone.
    - Subject is a non-starter in the borough.

Insurance Data and Distracted Driving:

- Challenges in identifying distracted driving unless witnessed or admitted.

- Distracted driving: only way is to see it.
- REDDI reports you can report someone who is swerving or driving erratically.

Speed Data Utilization:

- Palmer PD uses speed data to determine enforcement hotspots.
- City of Palmer collects speed data:
  - Break it down by hour: how many vehicles were going the speed limit? Where are the hot spots? Where do we need to do more traffic enforcement?
  - This is helpful, also we have residents do patrol watches for speeding and stop sign violations.
- Conditions:
  - Data on conditions like light and dark periods, and their impact on driving behavior.
  - Passing is a BIG issue. RVs and slower vehicles, passing on the two-lane road, large cause of crashes.

Warning Signs/Signals:

- Effective use of warning signs for speed changes and signals.
- Sign that has speed change flashing.
- Timed flashers. Certain spacing requirements.
- Walk/Do not Walk sign Lights and warning can be beneficial.

Legislative Changes:

- A lot of laws are driver specific; legislature would have to make changes. Also, what is the follow through?

3. What can be done right now to reduce crashes for these groups:

A. Young Drivers (14-25 years old), especially males
B. People involved in crashes related to substance abuse.
C. Motorcyclists
D. ATV riders

Young drivers and motorcyclists:

- Palmer PD offers driver's education through schools, especially before prom season.
- Schools have drivers ed through the school.
  - It used to be required.
  - Job Corps used to offer drivers ed course.
  - Today's 14-year-olds in Alaska have more time in the seat because of ATVs.
  - Every 15 minutes program - done right before prom season.
- Motorcyclists:
  - Visibility issues, reckless driving, and evading officers can be felonies.
  - They are much smaller.
  - The operators are wearing dark clothing; a lot of them drive recklessly; riding sports bikes; people who are buying these bikes are more likely to take risks.

    - less helmet wearing; fast; gravel and sand issues.

Additional Concerns:

- Left-hand turns across highways
    - Big concern; we need hard controls.
    - Turning left cruising on Main Street; suicide lane; people drive down the shoulder.
    - They have a purpose so you can get out of the main lane of travel and make a left turn.
    - Enforcement and education issue.
- Trooper Detachment:
    - Staffing issues and the need for MSB to create its own police force.
    - Resources
        - We do not have enough officers, but from a general overall borough perspective, the troopers can barely keep up with their calls.
        - The Troopers get trained here and then get stationed somewhere else.
        - They do not have enough troopers to do traffic enforcement, it would not be enough even if they were fully staffed.
        - The impetus has been put on the borough to do something.
        - Traffic violations are considered small on the totem pole in the courts.
            - If it is not a misdemeanor or higher, it gets dismissed.
            - They do not have the personnel positions.
- Decommissioning Safety Corridors
    - Joint decisions between DPS and DOT, such as on Parks Hwy near Willow.
    - Old Glenn MP 1-10 coming off the parks to be made a safety corridor.
        - Requested from Mat-Su Borough at the last Assembly meeting.
        - Safety Corridors for the borough.

MAT-SU BOROUGH
SAFE STREETS FOR ALL

Focus Group Meeting #3 – Sign-In Sheet

Matanuska-Susitna Borough | Michael Baker International |R&M Consultants| Fehr & Peers
Wednesday, November 6, 2024 (2:30pm-3:30pm)
Mat-Su College, Room 205

Name	Email
Jamie Taylor	'jamie.taylor@matsugov.us
Adam Bradley	adam.bradley@alaska.gov

Project:	Matanuska Susitna Borough SS4A Comprehensive Safety Action Plan
Meeting Subject:	Safety Action Plan Team Focus Group: Safety Policies
Meeting Date/ Time:	Wednesday, November 06, 2024 2:30 – 3:30 PM
Location:	Mat-Su College 8295 College Drive, Room FM205 Palmer, AK 99654
Project Staff Attendees:	PROJECT TEAM
	Jamie Taylor, MSB Joni Wilm, MBI Sarah Schacher, MBI Karin McGillivray, MBI Beth McKibben, R&M
Attendees **(attended in bold):**	Richard Porter, Knik Tribal Council Dan Tucker, LRSAA Samantha Brown, Alaska Trucking Association Jude Bilafer, City of Palmer - Public Works Crystal Nygard, City of Wasilla-Planning Tani Schoneman, City of Houston - Public Works Tom Adams, MSB Public Works Jennifer Busch, Valley Transit Kelly Crawford, Mat-Su Health Services Taylor Raftery, Mat-Su Parks and Trails **Adam Bradway, ADOT&PF** Kim Sollien, MVP

On Wednesday, November 06, 2024, the MSB SS4A CSAP project team hosted an in-person focus group meeting to discuss safety policy challenges, solutions, and actions. The meeting was held from 2:30 – 3:30 PM at the Mat-Su College Fred Machentanz Building in Wasilla, Alaska. Sarah Schacher from Michael Baker International presented on crash data collected, crash data trends, and safety concerns noted by the public.

The following questions were posed to the focus group with their responses:

1. Which of these solutions is most important to transportation policy?

A. Managing speeds
B. Multi-use paths/separation of users
C. All season maintenance of paths and bike lanes
D. Intersection improvements (turn lanes, lighting, marked crossing opportunities)
E. Something else?

Managing Speeds

- Complete streets approach is useful here:
  - Narrower lanes, using design speeds, giving space for more users to give them a reason for slowing down traffic.
- To ask for speed reduction, you must show how you will get people to reduce the speed.
- Context set speed limits if it's an urban collector.
- Subdivision developers balk at wider shoulders. A lot of things make maintenance more costly or more difficult, so how do we balance that?
- Make drivers drive the roadway the speed you intend them to.

Intersection Improvements

- Intersection crashes – audience could be developers or designers and planners. Guidelines that trigger when you would have to do an analysis.
  - Thresholds for right turn lanes are very high. Raising the threshold of when those requirements are triggered.
    - Raising or lowering the threshold for warranting a turn lane is a good idea.
  - The issue will be to get developers to follow a better than minimum standard. Developers need a flow chart.
- The Mat-Su doesn't pick up incremental development very well.
  - There are TIA requirements but not for subdivisions.
    - No driveway permit required for subdivision, the state will ask the borough for a traffic impact analysis. The borough is like a middleman trying to manage this and it doesn't work very well.
      - A large commercial complex would need a TIA. The state could require it.
    - Mat-Su Borough is grappling with this especially with residential development.
    - Impact fees spread this around more.
      - Stricter TIA requirements.
- Development incentives, economic development incentives, tax reduction, for adding walkable facilities, smaller lots, additional density, greenspace, community water systems are granted ½ acre lot.

Multi-use paths/separation of users.

- Complete streets plan would be the policy for this bullet.
- Borough is more focused on through-put.
- FHWA guide - NACTO.
- Subdivision developers want to build wider shoulders or separated path, but MSB doesn't have design criteria or M&O balk at that - how do they pay for that maintenance?
- Biggest industry here - homebuilding.
- Economic development incentive - a couple "end code" but hasn't been used for subdivision development.

Improving Lighting and More Marked Crossings

- Improved lighting will help.

- All season maintenance does have sidewalks, but they are not accessible.
- Sidewalks around schools are well taken care of by custodians; they do a good job.
- School grounds are taken care of by custodians, this is much better than what is found in the cities.
- Fewer kids walk the 4-wheeler trail as winter goes on. No lighting.
- Not sufficient lighting around school bus stops. There's no lighting on streets. Walking route mapped around schools. Little to no lighting around crosswalks. No crossing guards.
- Policy is needed about where school bus will go to pick up kids.
- If there were separated/lighted pathways that would be better.
- Unmaintained paths are unpredictable.
    - It takes usually (76-92) hours to plow separated pathways.
- Snow berms can also be an issue.
- Marked crossings, there are inconsistencies with what those markings are (flashing/speed limits) not consistent within all the school areas.
    - Need consistent signage.
    - Consistency would improve communication. Inconsistent communication.
    - This is an issue because there are different school road owners.
    - DOT has criteria for when you can have a reduced speed zone.
    - If there are no pedestrian facilities, there is no need for a reduced speed (is the thinking) Ex. In Sutton.
- Congestion and queuing at pick up and drop off at schools
    - Improve the walkability there would be fewer parents who have to drive.
    - Queuing causes crashes.
    - This happens at bus stops as well. Bus numbers are back up to pre-COVID numbers.
- Speed zones: should be consistent throughout the borough. All elementary schools should probably have lighted school zones and flashing ambers. This is a minimum standard. This might be under revision with ADOT. Push for consistency.

2. Solutions to potential barriers:

A. Community buy-in for more funding to improve safety
B. All season maintenance
C. Complete Streets Policy
D. Developer policy for new subdivision roads or impacts to existing roads

Funding

- Federal options, such as discretionary grants and SS4A funds, are available, but capital funds are limited.
    - MSB is limited in its ability to raise funds as a second-class borough.
- A policy decision to dedicate more funding to maintenance is necessary.
- Raising the mill rate or revisiting gas taxes could provide additional funding.
    - This could be revisited as part of the safety plan.
    - Other options:
        - The MVP Complete Streets Policy should be a recommendation.

- RSA models: Consolidating RSAs could create a larger pool of funds, though it may face resistance.

3. What are some ideas for policies that will have a meaningful impact on safety for all road users?

Challenges:

- Implementing policy faces many hurdles. A Complete Streets policy could be beneficial, and better maintenance policies are valuable.
- State law prohibits new RSAs from being established.

Community Involvement:

- Community members often do their own maintenance, which raises liability issues. Programs like Snow Trek (Willow Trail Community) require organized community efforts.
- The borough contracts out most pathway maintenance due to limited in-house staff.
- Community members in KPB do road maintenance through programs like the Legion of Grampies.

Maintenance Costs:

- Notifying facility owners of maintenance costs is important. Service contracts have turnaround times, and AKDOT has levels of service (LOS) and priorities.
- MSB contracts out maintenance yearly but has additional maintenance projects during summer months.

Land Use and Development:

- Connecting land use and development with safety can be more effective. Impact fees should be proportional to the impact of development.
- Developer perspective: It's 35% cheaper to build in the valley, and no permits are required.
- Alaska construction incentive?

Parks:

- Parks do not want to be responsible for maintenance.
- HOAs may take over park maintenance once developed.
- Private gated subdivisions do their own road maintenance but still pay RSA tax.

Impact Fees:

- Jess Hall supports impact fees. Developers' impact on roads is already on the RSA list to be upgraded, but there is no mechanism for pooling funds between entities.

Traffic Calming Policy:

- The Mat-Su Borough needs a traffic calming policy with a rubric to determine when and where it's needed, along with associated capital costs.

Meeting ID	Topic	Host	Email
870 7467 8179	MSB CSAP Safety Analysis - Special Meeting	Michael Baker Intl.	kmcgillivray@mbakerintl.com

Participant	User Email	Location
Adam Bradway (Guest)	adam.bradway@alaska.gov	San Jose (US)
Alex Hutcheson (Guest)	alexander.hutcheson@mbakerintl.com	San Jose (US)
Jamie Taylor (Guest)	jamie.taylor@matsugov.us	Wasilla (US)
Joni Wilm (Guest)	joni.wilm@mbakerintl.com	Anchorage (US)
Julie Spackman (Guest)	julie.spackman@matsugov.us	Wasilla (US)
Michael Baker Intl.	kmcgillivray@mbakerintl.com	Anchorage (US)
Mwasi Mwamba (Guest)	mwasi.mwamba@mbakerintl.com	San Jose (US)
Sarah Schacher (Guest)	sarah.schacher@mbakerintl.com	Anchorage (US)
Todd Moehring (Guest)	todd.moehring@alaska.gov	Seattle (US)
Tracey Loscar (Guest)	tracey.loscar@matsugov.us	Wasilla (US)

Start Time	End Time
11/8/2024 11:51	12:59:02 PM

SAPT Meeting #3 – Minutes

Matanuska-Susitna Borough | Michael Baker International |R&M Consultants| Fehr & Peers
Friday, November 08, 2024 (12:00 p.m. – 1 p.m.)
Virtually on ZOOM

Attendees

MSB
Jamie Taylor, Project Manager

Consultants
Joni Wilm, Project Manager, MBI
Sarah Schacher, Engineer, MBI
Karin McGillivray, MBI
Alex Hutcheson, MBI
Mwasi Mwamba, MBI

SAPT Members
Rusty Belanger, MSB SD
Adam Bradway, DOT&PF
Julie Spackman MSB Planning
Todd Moehring, Alaska State Troopers
Tracey Loscar, MSB EMS

Meeting Purpose

1. To discuss the high injury network for the MSB Expanded Core Area.
2. To walk through the risk factors and criteria our team is using to assess priority locations for safety improvement recommendations in the MSB CSAP.
3. To provide an opportunity to the SAPT to comment on these methods before we proceed to recommend projects and priority locations.

Meeting Summary

On November 8, 2024, the SAPT met to review the methodology included in the Safety Analysis in a special work session. This included an analysis of high injury networks within the MSB Expanded Core

Area, an assessment of priority locations and systematic improvements highlighted in the analysis, and potential countermeasures that respond to safety issues identified. This meeting also included a brief overview of potential projects under consideration for inclusion in the MSB CSAP. MBI Transportation Engineer, Sarah Schacher led the meeting, with a brief introduction given by MBI Planner, Joni Wilm. The purpose of the meeting was to provide an early opportunity to review the above elements and provide comment to the project team before finalizing project selection criteria. SAPT comments included general comments on project selection, inclusion of the Quarter Access Management Plan, coordination with the Alaska DOT Highway Safety Improvement Plan, implementing proposed improvements along Bogard, and other local MSB road projects, inclusion of corridor studies in recommendations, specifics on the Safety Toolkit, including safety campaigns.

MAT-SU BOROUGH
SAFE STREETS FOR ALL

SAPT Meeting #3 – Sign-In Sheet

Matanuska-Susitna Borough | Michael Baker International |R&M Consultants| Fehr & Peers
Wednesday, November 20, 2024 (11:00am-1:00pm)
Mat-Su College, Room 205

Name	Email
Joni Wilm	joni.wilm@mbakerintl.com
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SAPT Meeting #4 – Minutes

Matanuska-Susitna Borough | Michael Baker International |R&M Consultants| Fehr & Peers
Wednesday, November 20, 2024 (11:00 a.m. – 1 p.m.)
Mat-Su College Library and Virtually on ZOOM

Attendees

MSB
Jamie Taylor, Project Manager

Consultants
Joni Wilm, Project Manager, MBI
Sarah Schacher, Engineer, MBI
Karin McGillivray, MBI
Beth McKibben, R&M

SAPT Members
Rusty Belanger, MSB SD
Adam Bradway, DOT&PF
Julie Spackman MSB Planning

Agenda

1. Introductions
2. Meeting Goals
3. Review Project Recommendation Scoring Criteria
4. Review Draft Recommendations & Proposed Countermeasures
5. Feedback from Committee

Meeting Goals

1. Review final scoring criteria for project selection and suggested countermeasures.
2. Review draft recommendations for prioritized projects in the MSB CSAP
3. Provide feedback on draft project recommendations and proposed countermeasures.

Introductions

- Wilm opened the meeting with an overview of what will be covered and what feedback the team is looking for from the Committee. This last SAPT meeting before draft plan is presented to Committee.

Review Project Recommendation Scoring Criteria

- Schacher explained how the draft plan will be organized for recommendations. The goal is to retain flexibility while showing priority locations.

- Reviewed high injury network for vehicles and non-motorized.
- Developed risk factor profiles: speeds over 45 mph, unsignalized intersections; outside city limits; non-motorized not on separated pathway; any intersection; collectors and arterials.

- Draft Priority Area Scoring for all criteria was presented. Includes community feedback score and local road.
- Noted – 75% of crashes are on the Parks Highway.

- Resulted in priority locations for all users, priority locations for non-motorized

Review Draft Recommendations and Proposed Countermeasures

Parks Highway Corridor:

Sarah -Recommend supplemental plan (Corridor Review of Parks Highway for Access)

Can we confirm Church-Seward Meridian end points?

Jamie – everything from Church on has been recently updated and access consolidated where they could so this makes sense.

Brad – west of church, the issues fall off, so this is good. Call out bubble around Palmer/Wasilla Hwy could be extended further.

Sarah - Systemic improvements that can be implemented? Northern region is doing this. This corridor would be a good candidate for this. Palmer/Wasilla Hwy is wide, so putting pedestrian refuges may be helpful (tool) that can be used.

Sarah - Anything that you think public might bring up?

Adam – some systemic improvements will be a balance between cars and people. There will be a reckoning that needs to happen to bring businesses into this to add to the discussion.

Jamie – no right turn on red, could this be a tool?

Julie – this would take a lot of public education.

Jamie - somewhere where there is a lot of pedestrian activity.

Adam - the biggest issue would be enforcement.

Sarah – even if you got 50% compliance that would help.

- **Action items for map:**
  - SAPT suggested expanding the bubble at the intersection w/Palmer/Wasilla Hwy, should bump out at all intersections as well since they are influenced by Parks
  - SAPT noted for intersection improvements impacting signal timing will be a balance between moving vehicles and providing pedestrian safety.

49th State Street Separated Path

Sarah - This one is already in the TIP and the need is straightforward. What is the state of the funding?

Adam - It only has 1 million, so it was undershot. DOT&PF planning to transfer 49th to the MSB.

Jamie – it is at least at 35% design. Cole would know about this.

Sarah-we should get a status.

Julie - asked about separated path.

Jamie - the path will be on the East side, which is also where all the utilities are.

Sarah- is there a need for a mid-block crossing? Is there a need for lighting?

Adam – it's a pretty well-lit area.

Rusty – there is incoming lighting on all driveways, lighting along the roadway, parking lot lighting is on a timer/schedule and the whole parking lot lights up.

- **Action items for map:**
  Proposed crosswalk at southern school driveway, possibly Rectangular Rapid Flashing Beacon (RRFB). Students unlikely to walk up to the roundabout to cross and walk back.

Arctic Avenue Bicycle and Pedestrian Improvements

Adam- the main issue here is crossings.

Julie- the school walking routes committee looked at this recently and they thought crossing along Valley Way would make sense. Gaulkana has a lot of car traffic going to and from during school times.

Adam – this could also have its own supplemental corridor plan as well. We really need to nail down what the answer is. DOT&PF is leaving this up to Palmer since it is a state road going right

through downtown Palmer. Clark-Wolverine to Glenn Hwy would be a good end points for a supplemental planning study.

Julie – portion between Valley Way and the Glenn is an access management nightmare.

Jamie – the light is terrible at Alaska Way, very congested.

Adam – AADT is 12,000 but will continue to grow. There needs to be a reckoning with Palmer on what they want this to be like. One or two intersection treatments would help pedestrian issues, but there needs to be further study on which ones we need to choose.

Sarah – do charter schools get bussing?

Julie -Yes, they do, and they are very popular. Also, MSB has school choice, so you can go wherever you want. Academy Charter planning to expand.

Jamie – large subdivision going in in Butte, who will use this road.

- **Action items for map:**
  Supplemental corridor plan to address access management and multi-modal needs between Glenn Highway and Clark-Wolverine

Big Lake Road Intersection Improvements

Adam – DOT did a pedestrian study for Big Lake road (R&M did the study) check with R&M to find out more about this study.

Adam – there was a larger project at some point.

Sarah – there was a larger STIP project for this area.

- Big Lake Road Intersection Improvements, Parks Highway to Beaver Creek Rd. Current resurfacing project does not include turn lanes or lighting. AKDOT did a pedestrian study for this road and it may have intersection locations. Enhanced lighting and signage, turn lanes.

Bogard Road Intersection Improvements and Separated Path

Sarah – this one has a resurfacing project. The idea is to add a continuous separated path. The bicycle/ped path included a separated path from Seldon to Peck.

Julie – on the south side of Bogard there is no pathway.

Adam – you'll probably get a comment about the mini roundabout. Which intersections are slated for improvements?

Sarah/Jamie – Tate, Williwaw, Copper Creek, Helen.

Adam – there is not a whole lot of development potential in here.

Sarah – this corridor could also benefit from some lighting.

Jamie – there is an unconstructed ROW just east of…there is a project shown for Bogard to ?

Sarah – how to do  people like mini-roundabout?

Jamie – people love it but think it needs to be bigger/upgraded.

Julie -People think it's too small, it feels mini. Some people drive right over it.

Sarah – we could add an upgrade to this roundabout.

Julie – from a pedestrian point of view there might be a design that is more pedestrian/bike friendly. **Sarah** – we are looking long term, and round abouts can outgrow themselves.

Jamie – it was a 4-way stop. Because it's so small, there is a sight issue and maybe it needs to upgraded (validated).

Sarah – there is no harm in putting it in there, it will help it score better for any funding program. We'll include the modern roundabout.

Julie – it is also in the corridor access management plan.

- Bogard Road Intersection Improvements and Separated Path, Seldon Road to Peck Street OR Seldon to Wasilla-Fishhook. Intersection improvements, increased lighting, turn lanes, and separated path. Current resurfacing project does not include lighting, path or turn lanes. SAPT recommends project through to Wasilla-Fishhook due to proximity to schools. SAPT add project (where?) Roundabout.

Clapp Street Curve Delineation and Lighting Improvement

Adam – yes, seems like a good low cost project.

Jamie – the gravel pit is done. She anticipated there will be development of lots that were recently subdivided in the area. Julie – it doesn't look like there are any turn lanes on Mack.

Sarah – there is not a lot of turning activity there.

Julie – if the gravel pit is turning into the subdivision, would there be a benefit to having a turn lane there?

Jamie – not sure this makes sense because there is nothing there right now.

Julie – we don't know what they are actually going to be putting in there.

Jamie – the corner is in RSH27 but then it goes into the city of Wasilla. The site distance at Laurie avenue is not great.

Sarah – do you think lighting would help?

- **Jamie** – not sure. A beef that she has with DOT is that they use stopping site distance instead of intersection site distance. Along Klapp, there are a lot of intersections with very short site distance. It is not comfortable for people. Recommendation to DOT to use intersection for site distance. For a subdivision road this would work better.

Sarah – what do you think of lighting through here?

Julie – as a driver, it always helps to see animals.

Sarah – we could put turn lane recommendations through here too. You could do a little or a fair bit to make things better.

- Clapp Street Curve Delineation and Lighting Improvements, Curtis Menard Sports Center to Laurie Avenue. Brush clearing, curve delineation, increased lighting. SAPT asked if turn lanes were proposed. No, road doesn't have a lot of traffic volume, but can offer as a solution. Gravel pit may benefit from added turn lane. Adding turn lane to nothing might be weird.

East Seldon Road Safety Improvements

Adam – so your recommendations are separated pathway, increased lighting, and add turn lanes? I think these three are all good implementation projects for SS4A.

Jamie – the stretch between Church and Seldon are pretty well connected.

Julie – Schrock goes up in there. An access point up there, there was someone who said that Loon was very narrow.

Adam – this is outside the scope of the access management plan.

Julie – not sure how this applies, but the intersection at Church Road and the intersection by Mat-Su Career Tech (by Seward Meridian).

Adam – this one will get a light.

Jamie – what will STIP project do?

Adam – this will add shoulders and reconstruct. The MSB wants to take this one on by themselves.

Sarah – I think a path an lighting was in there too. Adam – the price included (30 million) taking down curves, adding shoulder.

<u>Seldon Road and Church Road Intersection Improvements</u>

Jamie – bubble should go all the way over to Windy Bottom.

Adam – this has an access management plan already.

Jamie – might use a turn lane at Windy Bottom. Maybe pedestrian scale lighting would be an option?

Sarah – we will take another look at this.

- Seldon Rd and Church Rd Intersection, Roundabout (single lane) OR flashing beacon? Crosswalks, increased lighting. SAPT thinks intersection is good as it is (w/recent improvements). AKDOT noted MHTL that may be developed for housing in future. Suggest pedestrian lighting.

Traffic calming? People are running stop signs because they don't see them. Have tried bigger. Maybe need LED stop signs or rumble strips before stop? Do rumble strips work in winter. They fill up but people seem to still respect them. Solar/battery can work but concerns about liability if not operating and there is an accident.

Seldon Road and Church Road Intersection Improvements

Adam – we can look at HSIP to improve this one.

Sarah – there is a crash pattern, I think this would score well for SS4A.

Jamie - would a four way stop be warranted?

Sarah – it does seem like lighting would be a good solution here.

Jamie – people are running stop sign because they don't see it. Could we do LED signs? Rumble Strips as you approach the intersection? This could be done by the RSA pretty quickly. Might be a good interim solution. There were 5 crashes in 2023 which meets the minimum threshold for a 4-way stop.

Sarah- you could even put-up retro-reflective sheeting

Jamie - this is already installed.

Sarah – will look into this. Julie – they did this in Oregon (rumble strips and LED lighting) and it was very effective.

Jamie - I have solar powered radar signs and they have worked continuously. Is worried about a stop sign and if it stopped working there would be a liability issue. Likes the idea of rumble strips and it wouldn't require any coordination with DOT.

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Green Forest Drive Improvements

Sarah - Attached path (for complete street) and mini roundabout.

Adam - ROW constraints -not space for separated path. Current STIP -upgrade to collector standards.

10-ft lanes does work as traffic calming. Thru traffic to Birch.

Jamie – likes the idea of making this a fully curbed (with sidewalks) we wouldn't need parking lanes. **Sarah** – who is managing this project?

Jamie – talk to Cole.

- Green Forest Drive Improvements, Attached path (for complete street) and mini roundabout. ROW constraints -not space for separated path. Current STIP -upgrade to collector standards. 10-ft lanes does work as traffic calming. Thru traffic to Birch. Likes adding?? To slow people down.

Hollywood Road Safety Improvements

Julie – tomorrow is the school walking route meeting, there is a recommended school crossing between Connie lane and Vine road.

Jamie – there are couple marked crosswalks between Knik and Goose Bay but they are not visible, so they need upgrading.

Julie – when she meets tomorrow, she'll have a bigger discussion and talk about it.

Adam – this would be a very long separated pathway (6 miles) so that would be very expensive.

Sarah – a roundabout at Hollywood and Big Lake seems likely.

Adam – what would our interest be in doing an improvement here. It would be interested to see in terms of prioritizing a project, how much this would rise to the top.

- Hollywood Rd Safety Improvements. Big Lake Rd to Vine Rd. Resurfacing project planned. Big Lake/Hollywood intersection improvements, enhanced curve delineation near transfer station, add separated path Big Lake Rd to Connie Lane, add shoulders Big Lake Rd to Connie, add turn lanes. There are a few marked crosswalks on this road, maybe not safe. Are they located across from school? Roundabout planned for Where?. AKDOT owns this section of road, maybe interested in looking for grant funding.

Swanson Avenue Complete Street

Julie – this more complete street would make it feel more like it was planned.

Jamie – I really like this idea, Swanson avenue is a strange place to do this.

Jamie – there is access to the parks, access to performing arts. Draw some of those attractions out and show people what it might look like.

Sarah – what else is down there (library, restaurants, performing arts center, music in the park) this might be good demonstration project example.

- Swanson Ave- complete street project, parks Hwy to Crusey – install 6-ft sidewalks, remove 2 way center turn lane, retain shoulder/bike lanes, enhanced crosswalks (striping, signage, stop controlled). Discussion about 2-way cycle track vs bike path. Discussion, will complete street bring more businesses (if more walkable?) Doesn't expect proposed changes to impact traffic

flow or delivery vehicles. This may be a good location for a demonstration project to show what a project might look like and allow for buy in. Suggested describing what complete street looks like – how it would function so people can picture what it might be like.

Vine Road Separated Path

Adam – this project was tied to the roundabout, then it fell out of the STIP. In previous conversations with the Borough, there were ROW issues with trying to put a separated path in there. There was some scheme with going through all these neighborhoods to do a pathway. Nothing that money wouldn't help remedy.

- Vine Rd Separate Path (Parks Hwy to Knik-Goosebay Rd. Project fell out of the STIP but may have been added back. Maybe some ROW issues -not enough for separated path.

Westpoint Drive & Crusey Street Pedestrian Improvements

Julie – on school walking routes they identified a crossing on Lakeshore. There are residential areas on the east side that need to get to the school north of the Library.

Adam – would be hesitant to cross Crusey street.

Julie – thinks a signalized crossing is merited.

Adam – the one at Westpoint drive also backs up into traffic as well. There needs to be more discussion about what function Crusey serves. It is 5 lanes.

Adam – I get the need, but question how effective striping changes would be.

Sarah – do we give them a reason to slow down. It might need a RFB.

Jamie – what about an RFB at Swanson? That might work.

Julie – can we make this a pedestrian friendly connector.

Jamie – does Crusey need the center left turn lane? If we removed these, we could add medians (ped refuge).

Adam – I think Crusey is overbuilt.

- Westpoint Dr. and Crusey St Pedestrian Improvements, at intersection and crosswalk at Crusey and Lakeshore Avenue. On southside of Westpoint, new crosswalks, marked crosswalks. Residential areas on east side that need to be able to walk to library and school. Suggested crosswalk WHERE? Roundabout? Park on one side and waterfront on the other side. Pedestrian friendly connected needed between the 2. Tell the story of what it could look like. Does Crusey need 2-way center turn lane? Maybe a road diet on Crusey?

Area-wide Projects

Jamie – we put speed humps on Beverly and after that there was a motorcycle fatality. SRTS plans are all eligible for funding. N. Crusey to Wasilla Fishhook. There is a gap to the west.

Jamie – there is a pathway along parkender? It goes through the woods south of the Wasilla Police, north east corner of Bogard and Wasilla-Fishhook there is a pathway on the northeast corner. Runs on the north side of the church.

Sarah- what is the need? The pathway is more for the schools. We've talked about adding a pathway on the south side of Bogard.

Jamie - will send more notes on this to Sarah tomorrow.

- Areawide school project – Safe Routes to Schools Plan, Equitable Walking Routes to Schools, No Motor Vehicles signs, Local Speed Management Plan – all schools w/in expanded core area. Are there SRTS plans that need updating? MSB is adding schools, need to continually review/update. Candidates for traffic calming that involve physically changing the road in some way, including narrowing lanes and speed feedback signs (examples). Lots of projects in SRTS plan, but funded as …? Path on southside …where? North Wasilla…bogard to Wasilla Highschool. Northside to Wasilla Fishhook. OK to recommend separated path….where? Asked committee to let team know if there are more specific projects to be added for schools.

MSB CSAP Supplemental Planning Meeting Notes Summaries

August 2024

MVP Technical Committee (8/13/24)

12850 Archie Rd, Palmer AK 99645 -Musk Ox Farm

Tuesday, August 13, 2024 – 2 PM to 3:30 PM

Safety Concerns

What:

- ATVs are a safety concern on roadways
- The plan should be more rural focused to reflect the MSB area.
- Unofficial frontage trails/speed/intersections
- Data may not reflect real issues -there are many near misses.
- Under aged users driving ATVs

Where:

- Trunk Rd
- KGB
- Any road w/ATV is a user conflict area.

Local Road Service Area Advisory Board (8/15/24)

Safety Concerns

- Church road and Seldon
- People making a left turn out of Arctic across the parks highway
- Safe walking and bicycle paths, winter maintenance, Butte have family members that live off KGB, would like speed bumps on
- Fairview loop is very long and there are no shoulders
- 2 90-degree corners on Fairview Road and people fly off of the corner right there
- Safety concerns in school zones. A lot of congestion. Residential streets that are designed long and paved.
- Outer and inner Springer loop have no shoulders, and this is a speed concern. Children couldn't walk to the schools in the winter. Academy charter needs a turn lane.
- Career tech has no walking. Seldon is being widened. Seward Meridian is a 3-year project.
- Sheldon past the salvation army, it's a windy road and there is a cut off and people speed through that area. Is there a way to get temporary speed bumps there during the summer months? That is on Lake View Road. It extends to Wasilla Fishhook Rd.
- Any road w/ATV is a user conflict area

MSB Planning Commission (8/19/24) – No comments

MVP Policy Board (8/20/2024) – No comments

North Lakes Community Council (8/29/24)

Safety Concerns

- Enforcement, road design, inadequate road design, high speeds, education, walking and bicycling corridors or lack of such, winter maintenance, roundabout at the intersection of Bogard and Seldon, people don't know how to use that roundabout.
- Backlog of projects because of population growth, issue with current projects, there are pedestrian and bicycle access at the end of the projects, but during project construction it is unsafe to navigate (Seward Meridian), would like to see mid project and pre project approaches address.
- David Wiliker (traffic and safety committee) asphalt quality develops potholes, need higher quality asphalt.
- Road design- some guardrails are in place, there is a specific type of guardrails that are prohibited, we would like to see those guardrails. (Installed near bridges and waterways) All over, typically square shaped with yellow and black.
- When a road project is done, tore up road and redid it thought they were going to do a pedestrian bike path.
- Seeing eye dog user, very concerned about education and design of roundabouts. The crosswalks are right at the entrance to the roundabout, it is very difficult to get across. Design needs to bring crosswalk further away from the circle.

September 2024

Transportation Advisory Board (9/20/24)

Questions by the committee:

- Will ATVs be covered? Our team said they were looking into including ATVs in the crash data analysis.
- Are most accidents on state or borough roads? Team responded that they would be back in the future to present crash data and survey data and we could answer that questions then.

Other items addressed:

- One TAB member said they took the survey but elected to not answer some of the questions and was prevented from completing the survey. She was directed to email the PM (Joni Wilm) with the information she felt was important for the project.
- Another member said he took the survey and there was nothing to prevent him from taking it multiple times. He suggested that be prevented in the future.

- One of the members said he found the dashboard on the project website but couldn't filter to see what crashes were occurring on state roads vs. borough roads. He suggested that as a filter option as well as by accident type.

October 2024

MVP Technical Committee (10/8/24)

Questions by committee:

How would you answer the question indicating that this plan is focused primarily on bicyclists?

Responses:

The MSB CSAP does pay special attention to bicyclists and pedestrians because they are recognized in the Safe Streets for All Program as the most vulnerable road users and the most likely to suffer a serious injury or fatality in a crash. However, this plan is a safety plan for ALL road users and will include the needs of all users in its analysis.

Joint Planning/Assembly (10/8/24)

Matanuska Susitna Borough SS4A Comprehensive Safety Action Plan
Joint Assembly/Planning Commission Meeting
October 8, 2024, at 6:00 PM
Mat-su Borough Assembly Chambers, 350 East Dahlia Avenue, Palmer, AK
Link to agenda and meeting recording

Assembly

Tim Hale	District 1
Stephanie Nowers	District 2
Dee McKee	District 3
Maxwell Sumner	District 4
Bill Gamble	District 5
Dmitri Fonov	District 6
Ron Bernier,	District 7

Planning Commission

Doug Glenn	District 1
Richard Allen	District 2
CJ Koan	District 3
Andrew Shane	District 4
Linn McCabe	District 5
Wilfred Fernandez	District 6
Curt Scoggin	District 7

Mike Brown, Borough Manager to Assembly
This is in planning stages with SS4A – goal is to qualify for future federal dollars for implementation.

Assembly Member Fonov
Concerned about cost $500K. We have a problem (accidents); how are we addressing it?
This isn't the "capital" of walking and biking; they only account for 7% of accidents.
This is a small number in reality for ATV accidents; is there a different agenda for this plan?
Q: Why was this study on biking and walking instead on other things equally?

J. Wilm, A: This study is Safe Streets for All; which includes all modes, not limited to bikes and pedestrians. SS4A wants to make sure the plan addresses bikes and peds, it's for all road users

Assembly Member Fonov
Equal amount of attention should have been brought to ATV users; this is skewed in one direction to focus on certain grants. ATV is an essential mode of transportation. Would have preferred there was equal amount of attention on ATV

Assembly Member Sumner
Q: Where does data come from?
A: DOT, police reports do show up on data, however, some crashes are non-reported.
Q: Do you get data from insurance companies?

Local Road Service Area Advisory Board (LRSAA) (10/17/24)

Questions by committee:

1. Is the crash data reported by the police to DOT&PF crossed checked with EMS reporting?
2. Do all the 82 motorcycle crashes represent people who are properly registered and have a license to operate a motorcycle. There was some thought that maybe some of these were dirt bikes or other ATVs that are operating without a license.

Team response (sent 10/23/24):

1. Is the crash data reported by the police to DOT&PF crossed checked with EMS reporting? We asked MSB Emergency Services' representative on our Safety Action Plan team about whether they had concerns our crash data may not have captured all crashes EMS responded to in the analysis period. Their response was that in almost all cases, if a fire truck or ambulance is responding to a crash, then law enforcement will be involved and complete a crash report. They went on further to say that our crash data may be more comprehensive than what EMS responses would track, since not every crash has an EMS response, and more have a law enforcement only response. Our takeaway from this is that our data is representative of serious injury and fatal crashes in the MSB Expanded Core area—but that is not to say we have captured all crashes, as not every crash results in a crash report. Serious ones are far more likely to, though.

2. Do all the 82 motorcycle crashes represent people who are properly registered and have a license to operate a motorcycle? There was some thought that maybe some of these were dirt bikes or other ATVs that are operating without a license. Our crash data is stripped of personally identifiable information such as driver's license data and vehicle license plates, so we cannot answer questions about licensure However, we think you may be interested in what may be occurring with on-road vs. off-road motorcycles so we looked at that. Of 82 motorcycle crashes, our data says:
    a. 10 involved a motorbike, which we interpret to be an off-road motorcycle, or dirt bikes. The age of drivers involved in these crashes skews to those aged 12-19 which reinforces this belief.
    b. We believe due to age involved (12-15) and location (i.e. on more minor/local roads, not Parks and Glenn Highways) another 4 crashes involved off-road motorcycles. This would bring the total to 14. Seven of those involved a driver under the age of 16 which partially answers your question about licensure. Instructional permits are allowed for drivers aged 14 and 15 but only for less than 50cc engines. It is possible to make off-road motorcycles street-legal with turn signals and license plates, but we don't have that information.
    c. Using that information- 17% of motorcycle crashes we believe involved dirt bikes. Of those dirt bikes, half were unlikely licensed drivers, but we have no way of knowing for certain. It is likely not a lot less but could be more. Also, of those dirt bike crashes, half (7 of 14) resulted in serious injury, but no fatalities.

    Regarding ATVs, those are tracked separately. There were 9 recorded ATV crashes in the analysis period, only one of which was a serious crash (fatality).
    d. Only one serious crash occurred, and it was a fatality on S. Clapp. Alcohol was involved, and the driver hit a guardrail face.

Thanks so much, please let me know if you have any further questions. For more crash details, please visit the project website to view the crash analysis dashboard and participate in the virtual public workshop.

Local Road Service Area Advisory Board (10/17/24)

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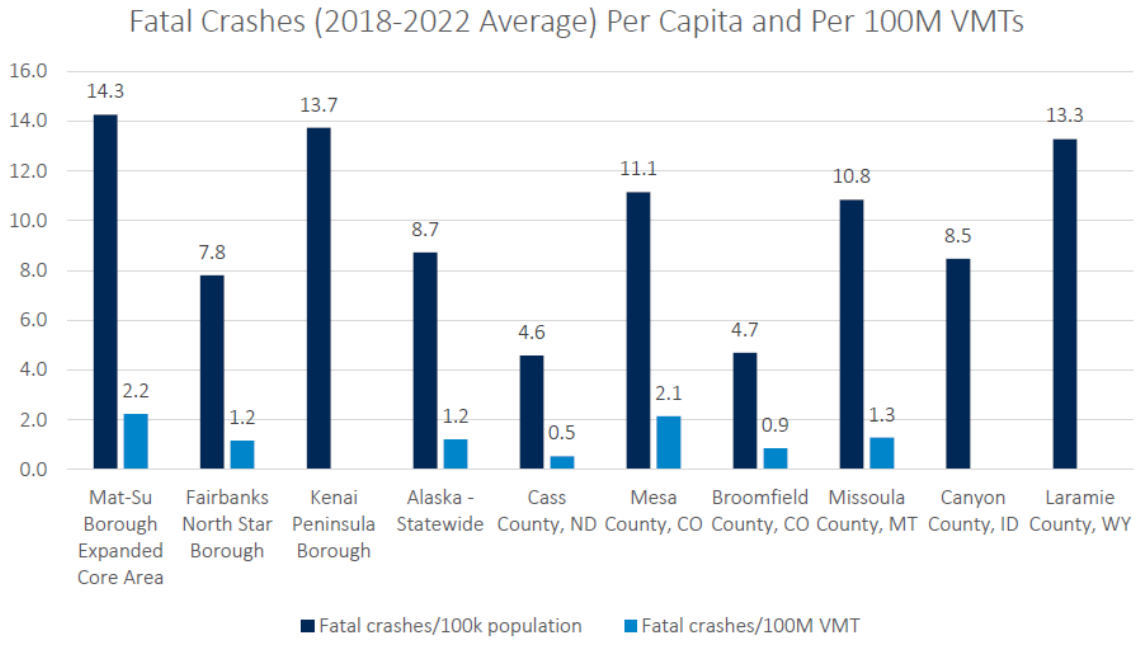
November 2024

MVP Policy Board (11/19/24) – no comments

Transportation Advisory Board (11/15/24) – Joni Wilm gave a presentation updating the TAB on the project status and directing board members to the project website to review the virtual public workshop, crash data dashboard, and talk about next steps. Questions included asking if the crash data could be determined by population or per/capita to show recent population growth. See project team response, below:

Crashes per capita is one way of looking at a crash problem but it's only meaningful if you're comparing it to other communities. The project team looked at the below analysis. These are FATAL crashes only. Crashes by VMT is a better comparison to another community as VMT (vehicle miles traveled) factors in average daily traffic on a network.

A lesser populated area could have more crashes per capita than Mat-Su. 55 fatal crashes in MSB is what we want to decrease, regardless of the rate compared to any other community or per capita, or per VMT.



Appendix F: Public Comments