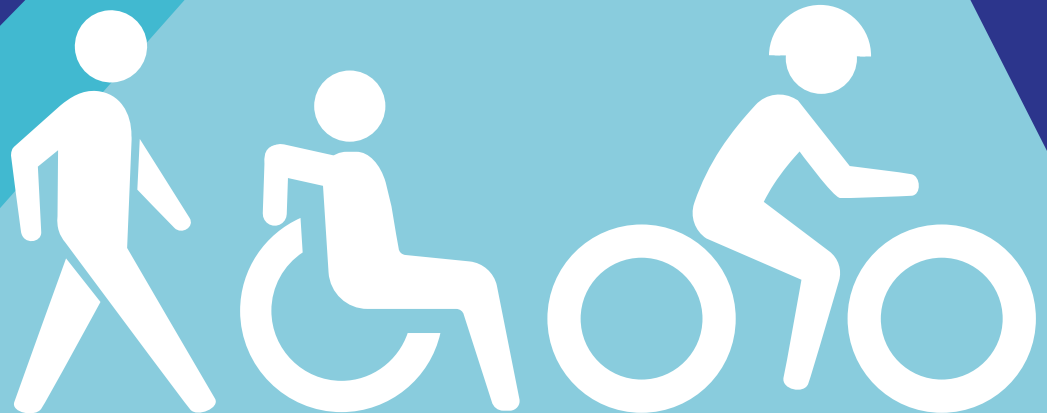


AMATS

# Non-Motorized Plan DRAFT



## ACKNOWLEDGMENTS

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Thank you to the 3,600+ people who participated in this planning process through public comment forms, the online input map, interviews and meetings. Thanks also to the many individuals of the press and those engaged in social media throughout the process.

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# Acronym Glossary

<b>ADHSS</b>	Alaska Department of Health and Social Services
<b>ADOT&amp;PF</b>	Alaska Department of Transportation and Public Facilities
<b>AMATS</b>	Anchorage Metropolitan Area Transportation Solutions
<b>AMATS PL</b>	AMATS Planning Department
<b>AMATS TAP</b>	AMATS Transportation Alternatives Program
<b>AMATS TIP</b>	AMATS Transportation Improvement Program
<b>ATAP</b>	Alaska Temporary Assistance Program
<b>CSS/CSD</b>	Context Sensitive Solutions/Context Sensitive Design
<b>DCM</b>	Municipality of Anchorage Project Management & Engineering Department's Design Criteria Manual
<b>DHHS</b>	United States Department of Health and Human Services
<b>MOA</b>	Municipality of Anchorage
<b>MOA IT</b>	MOA Office of Information Technology
<b>MOA M&amp;O</b>	MOA Maintenance and Operations
<b>MOA OECD</b>	MOA Office of Economic & Community Development
<b>MOA PM&amp;E</b>	MOA Project Management and Engineering
<b>MOA Traffic</b>	MOA Traffic Department



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# EXECUTIVE SUMMARY



# Executive Summary

The Non-Motorized Plan (NMP) provides the vision for a network of facilities for non-motorized travel (walking, biking, rolling, and all winter devices) within the Anchorage Metropolitan Area Transportation Solutions (AMATS) Metropolitan Planning Area that, when implemented, will help residents travel more safely and efficiently in the area without the need of a motor vehicle in all seasons. The NMP merges planning efforts for on-street bicycle facilities, pedestrian sidewalks, and shared use pathways (for walking, biking, and other non-motorized modes) simultaneously. By addressing these topics together, a more comprehensive framework and vision for active transportation in the AMATS Planning area is developed. The 2020 NMP supersedes the existing bicycle, pedestrian and trails plans. It includes a broad overview of trails that will be amended with finer details in 2021, when additional information about trails such as width and pathway quality is available.

## » Chapter 1 – Introduction

Chapter 1 summarizes the vision and goals for this study and provides an overview of the study area, which consists of the entire AMATS Metropolitan Planning Area, as shown in Figure ES.1.

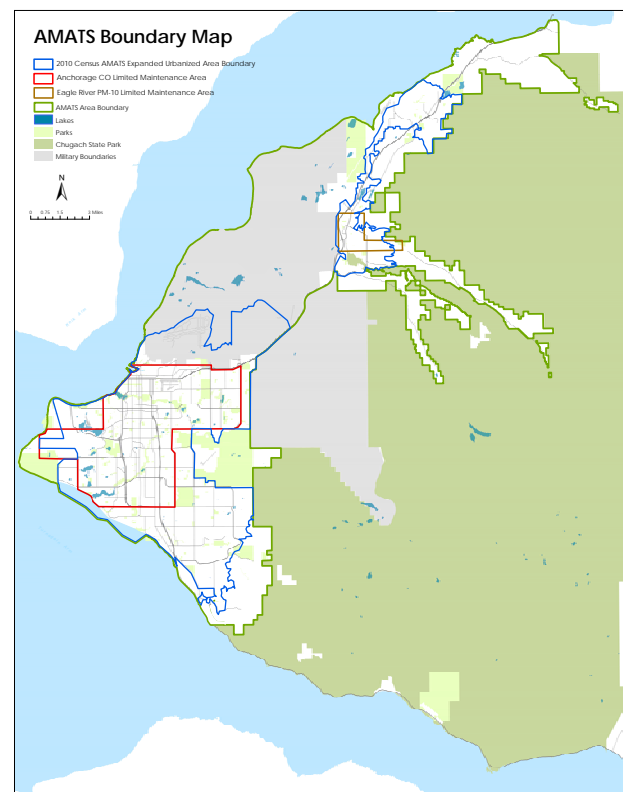
## » Chapter 2 – Existing Conditions

Chapter 2 provides an overview of previous planning efforts as well as a detailed analysis of the existing network, safety, land use, and demographic conditions in order to better understand these efforts as well as identify network opportunities.

## » Chapter 3 – Public Involvement

Chapter 3 summarizes the public outreach conducted as well as the key outcomes from those efforts that guided plan development. Residents, visitors, and other stakeholders were invited to provide feedback through a series of public involvement opportunities, including workshops, presentations, mobile meetings, stakeholder interviews, field data collection, an online community survey, and advisory committees.

Figure ES.1: AMATS Boundary Map



Chapter 4 outlines the proposed non-motorized transportation network for the AMATS Metropolitan Planning Area. The network maps presented in this chapter represent the entire network of if all the projects were to be built.

**PROPOSED BICYCLE NETWORK**

- Enhanced Shared Roadway
- Separated Bikeway
- Shared Use Pathway
- Existing Facilities
- Streets
- Parks
- Military Boundaries

*Disclaimer: Any proposed facility on Port property will be subject to approval by the Port Director, Anchorage Assembly, and appropriate representatives from the Office of Homeland Security prior to implementation.*

0 2 4 MILES

Figure ES.3: Recommended Bicycle and Shared Use Pathway Network  
Chugiak-Eagle River

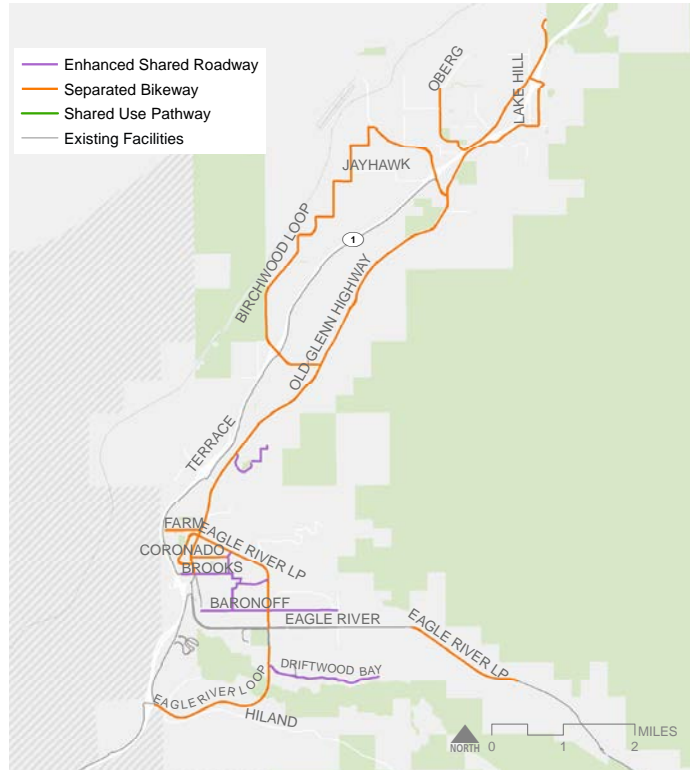


Figure ES.4: Recommended Bicycle and Shared Use Pathway Network  
Downtown

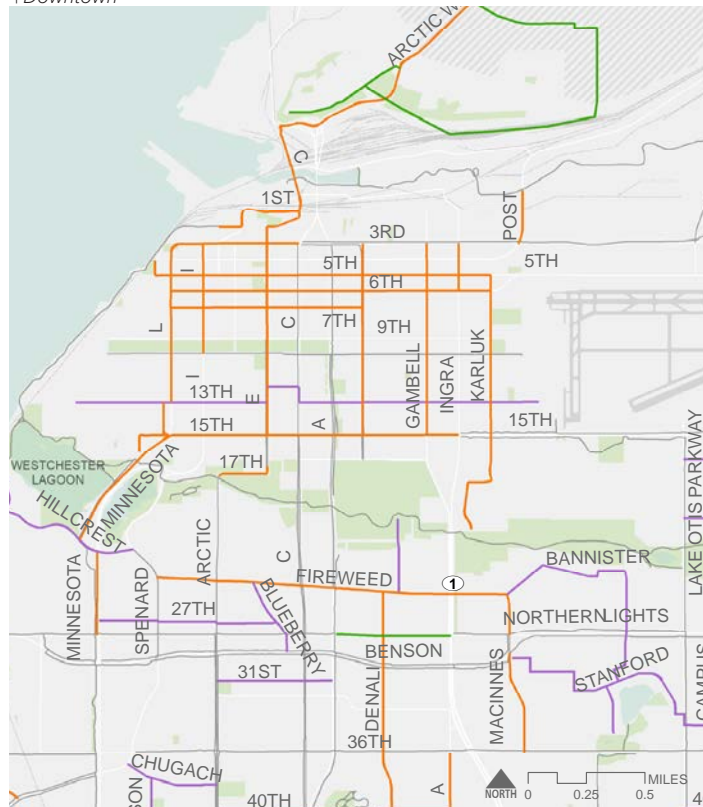


Figure ES.5: Recommended Pedestrian Corridors

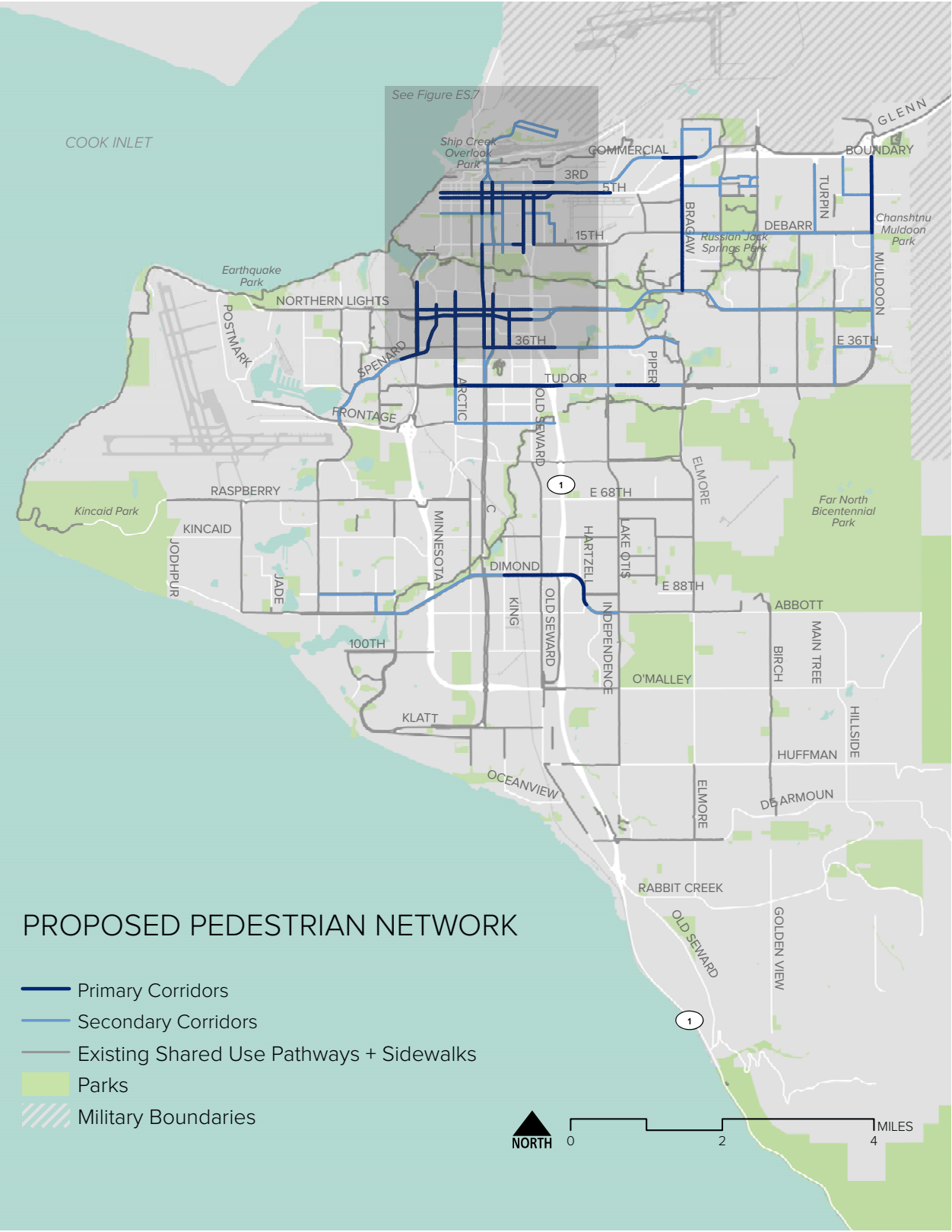
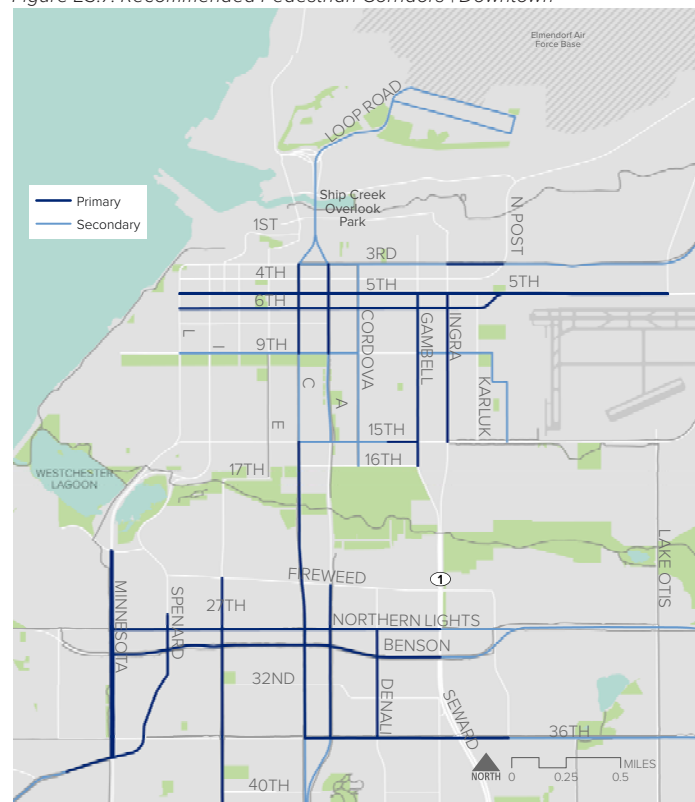


Figure ES.6: Recommended Pedestrian Corridors | Chugiak-Eagle River



Figure ES.7: Recommended Pedestrian Corridors | Downtown





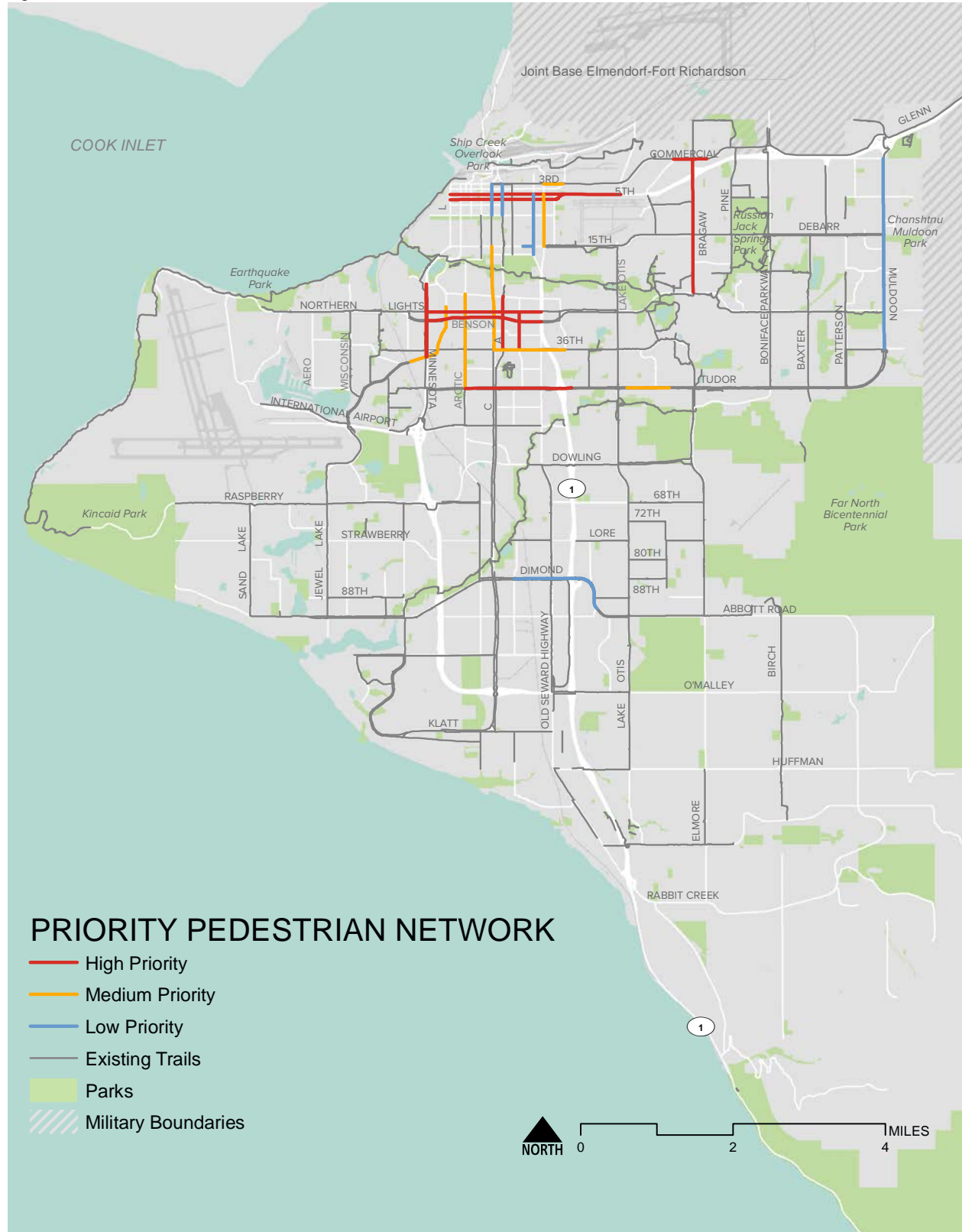
Chapter 5 outlines a prioritization process developed and applied to the entire network of projects presented in Chapter 4. The resulting network maps in Chapter 5 display projects based on three tiers of implementation: short term projects (less than 5 years), mid-term projects (5-to-10 years), and long-term projects (10 years or more).

**PRIORITY BICYCLE NETWORK**

- High Priority
- Medium Priority
- Low Priority
- Existing Facilities
- Parks
- Military Boundaries



Figure 5.4: Prioritized Pedestrian Corridors



## » Chapter 6 – Implementation

Chapter 6 presents preliminary concept-level designs for six specific projects. These projects are examples of a variety of facility types and were selected from the top tier of plan prioritization (see Chapter 5). These project locations include:

- 10th Avenue and Cordova Street Intersection
- Campbell Creek Trail Crossing at Lake Otis Parkway
- Fireweed Lane – Bicycle and Pedestrian Improvements
- 27th Avenue – Bicycle Boulevard
- 40th Avenue – Sidewalk Infill
- Coronado Street – Shared-Use Pathway

## » Chapter 7 – Design Guide

Chapter 7 presents pedestrian and bicycle design best practices to be used as guidelines in the selection, design, and maintenance of bicycle and pedestrian facilities. These guidelines are based on national, state, and local guidance.



Figure ES.9: Example page from Chapter 7 Design Guide

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# CHAPTER

# T



# Introduction

The Non-Motorized Plan (NMP) provides the vision for a network of facilities for non-motorized travel (walking, biking, rolling, and all winter devices) within the Anchorage Metropolitan Area Transportation Solutions (AMATS) Metropolitan Planning Area that when implemented, will help residents travel more safely and efficiently throughout the AMATS Planning area without the need of a motor vehicle in all seasons. The NMP merges planning efforts for on-street bicycle facilities, pedestrian sidewalks, and shared use pathways (for walking, biking, and other non-motorized modes) simultaneously. By addressing these topics together, a more comprehensive framework and vision for active transportation in the AMATS Planning area is developed.

» **Bicycle Network** – This plan focuses specifically on closing gaps in the existing network, providing an on-street network and connecting the existing and planned shared use pathway network to increase the use of existing facilities.

» **Pedestrian Network** – Many roadways in Anchorage already have complete sidewalks or sidepaths this so plan identifies a series of priority corridors to provide flexibility in network implementation over time and improve the focus on safety and connectivity of the network. Detailed recommendations from the previous pedestrian plan are carried forward and supplement priority corridors. Pedestrians are also served by the shared use pathway network visualized on the bicycle network maps.

» **Shared Use Pathway Network** – Shared use pathways are built to accommodate all non-motorized modes of travel and as such are part of both the bicycle network and pedestrian network. This plan provides connections to the existing shared use pathway network, develops off-street shared use pathway connections to link low-stress routes, and defines a primary shared use pathway network that serves both recreation and transportation purposes for all active transportation modes. This network is comprised primarily of fully developed and paved shared use pathways. The variety of shared use pathway types found in Anchorage are described in Chapter 2 of this plan and in the AMATS Design Criteria Manual. Opportunities to address the recreational shared use pathway and trails network are only described briefly in this plan as they are recommended to be addressed comprehensively in a future Recreational Trails Plan process.

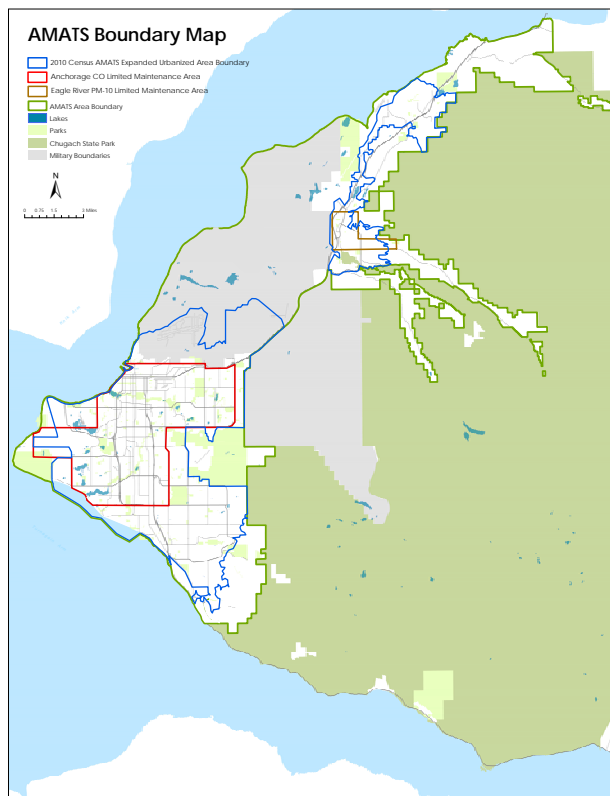
The following plan sections describe the goals and vision for the NMP; explore the current network conditions, including considerations for safety, demand, health, and equity; describe feedback provided through the public involvement process; and recommend prioritized network improvements for a more connected AMATS Planning area.

## 1.1 Plan Setting

The NMP provides guidance for pedestrian and bicycling improvements in the AMATS Metropolitan Planning Area. The planning area, depicted in Figure 1.1, covers the area west of Chugach State Park and Joint Base Elmendorf-Richardson (JBER), the plan also addresses Chugiak-Eagle River, to the northeast of JBER. Throughout the plan, maps depict three areas: the Anchorage Bowl, Chugiak-Eagle River, and a detailed Downtown map. Figure 1.2 demonstrates the sub-area focuses of both Chugiak-Eagle River and Downtown.

The Plan builds on the existing network within the AMATS area and considers the impacts of climate on facility selection, maintenance, and potential user groups.

Figure 1.1: AMATS Boundary Map



## 1.2 Vision and Goals

The vision for the NMP not only guides the planning process but also informs the future of the AMATS Planning area's non-motorized network. The following Vision Statement was developed with input from plan stakeholders, including the Citizen Advisory Group (CAG) and Agency Advisory Group (AAG):

**Anchorage is a world-class northern city that has an integrated network of routes accessible for people of all ages and abilities to walk, roll or glide safely on shared use pathways and streets.**

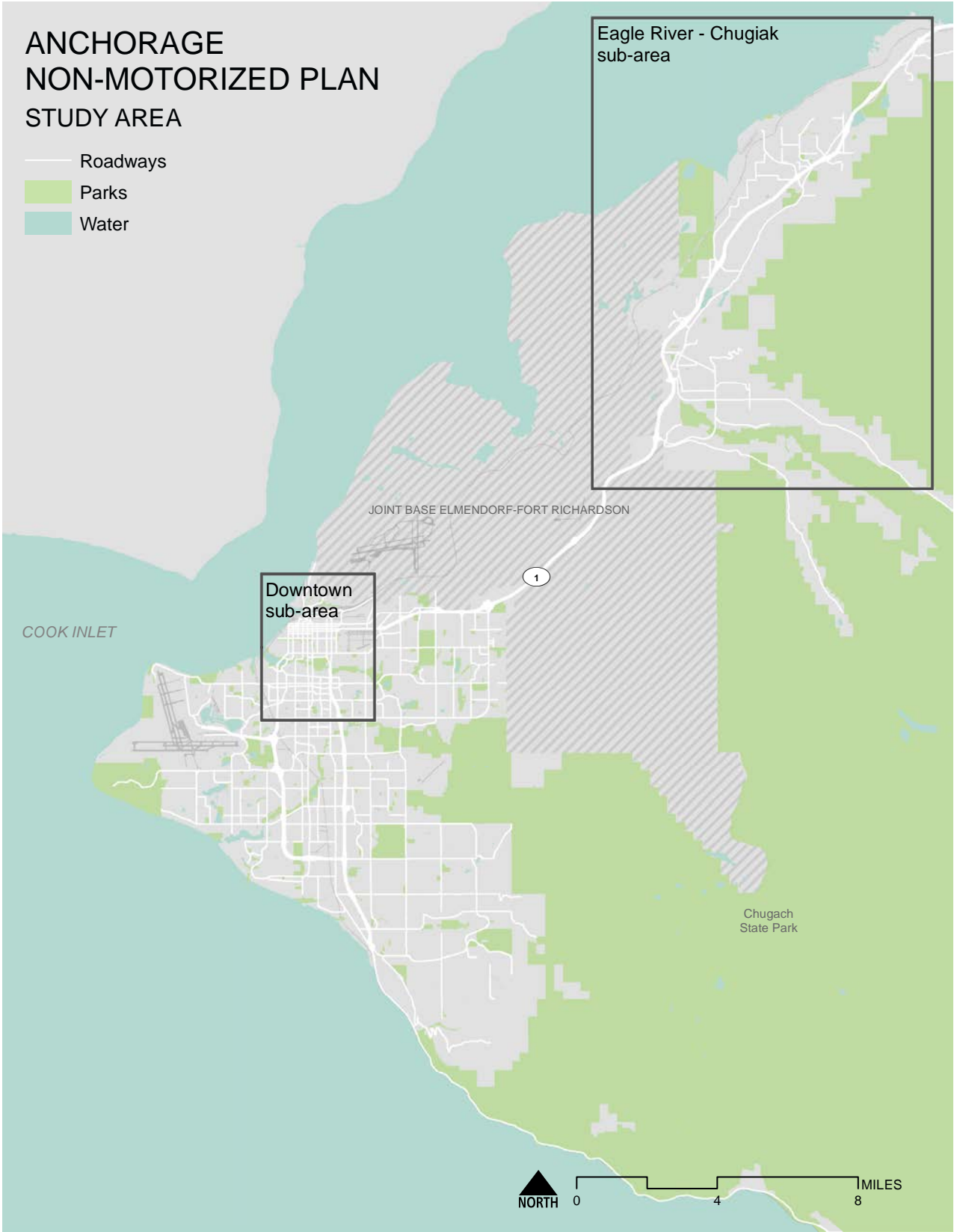
This plan also provides a vision and concept for a complete, connected and continuous non-motorized network. This network is made up of numerous facility types, including the following:

- » **Sidewalks**
- » **Enhanced shared roadway** – Yield roadway, bicycle boulevard
- » **Separated bikeway** – Buffered bicycle lane, protected bicycle lane
- » **Shared use pathway and sidepaths**
- » **Equestrian trails along roadways**
- » **Supplemental bicycle facilities** – Signed route, paved shoulder, advisory shoulder, bicycle lane

See Chapter 7 for descriptions of each of these facility types.

The spine of the network is comprised of paved trails, referred to as shared use pathways in this document, that encircle Anchorage. This spine is supplemented with sidewalks, on-street bikeways and other trail connections. This combined network provides connections between homes and destinations.

Figure 1.2: Study area and areas of focus (shown in black)



To achieve this vision, the following goals and objectives will help guide AMATS in implementing the non-motorized network and associated recommendations. **Goals** describe a desired future condition that is consistent with community ideals;

goals are general and do not have specific dates by which they should be achieved. **Objectives** are specific statements related to a goal that is expressed in measurable terms and may be used to track progress towards plan implementation.

Table 1.1: Plan Goals and Objectives

GOAL 1: INCREASE THE USE OF NON-MOTORIZED SYSTEM		
OBJECTIVES	I	Increase the number of pedestrians and bicyclists using the non-motorized network.
	II	Increase the miles of protected non-motorized facilities including sidewalks, shared use pathways, and trails.
	III	Provide safe opportunities for walking and bicycling by expanding facilities in areas that are deficient.
	IV	Allocate more funding for non-motorized facilities.
	V	Reduce car use on roadways by providing incentives for non-motorized transportation.
GOAL 2: PROMOTE + IMPROVE HEALTH + QUALITY OF LIFE		
OBJECTIVES	I	Improve health through increased everyday activity such as walking, bicycling, skiing and hiking.
	II	Improve livability by providing safer, connected and accessible sidewalks, shared use pathways, bike facilities, and trails for all community members.
	III	Promote active transportation as a community health priority through partnerships with public health agencies.
GOAL 3 : IMPROVE SAFETY + SECURITY		
OBJECTIVES	I	Prioritize bicycle and pedestrian safety in planning and design of roadways and trails.
	II	Improve the non-motorized network to be safe and convenient for people of all ages and abilities.
	III	Aim to reach zero injuries and deaths for non-motorized users on streets and shared use pathways.
	IV	Improve safety and the perception of safety for all modes.
	V	Minimize user conflicts between non-motorized users and vehicles through education, signage and design.
	VI	Identify areas in the network where there are gaps to prioritize these areas of need.
GOAL 4: OPTIMIZE MAINTENANCE FOR ALL SEASONS		
OBJECTIVES	I	Expand and enhance maintenance in all seasons on all facilities, both on roadways and on shared use pathways.
	II	Prioritize winter maintenance on the most traveled routes.
	III	Educate the public on maintenance priorities and their responsibilities.
	IV	Prioritize winter maintenance to improve access to public transportation facilities.
	V	Prioritize winter maintenance on a citywide network of routes for people of all ages and abilities.



GOAL 5 : CONNECT COMMUNITIES THROUGH ALL MODES TO ALL DESTINATIONS		
OBJECTIVES	I	Prioritize making links in the network where there are opportunities to connect to other modes such as public transit.
	II	Provide safer bicycle and pedestrian connections to destinations, such as schools; parks and playgrounds; shopping and employment centers; public facilities; and natural and recreational areas.
	III	Provide an efficient (direct), all season system that connects people to their destinations.
GOAL 6 : MEASURE NON-MOTORIZED USE + ASSETS		
OBJECTIVES	I	Partner with health organizations to develop a set of health metrics to assess overall community health.
	II	Partner with economic development organizations to develop metrics for tracking economic benefits of active transportation through walking, bicycling and hiking.
	III	Track and measure the number of miles traveled on network to provide performance metrics for maintaining and funding expanded facilities.
	IV	Establish and monitor annual counts on routes.
	V	Install network of counters on identified and prioritized routes.
	VI	Use temporary counters before and after projects to assess if improvements lead to increased use.
	VII	Update and maintain inventory database of existing non-motorized facilities.
GOAL 7 : BUILD COMMUNITY THROUGH EDUCATION + INVOLVEMENT		
OBJECTIVES	I	Encourage a culture of respect for walking and bicycling to reduce negative attitudes towards non-motorized users.
	II	Build community support for walking and bicycling through education outreach.
	III	Educate the public on how non-motorized facilities are an economic and health investment in the community and the city.
	IV	Increase the awareness of multiple users types.
	V	Expand programs to teach children how to walk and bike to school safely.
	VI	Define uses to help facilitate user compatibility of shared facilities.
	VII	Educate users on rules and conduct for multi-use or single use facilities for all seasons.
	VIII	Encourage mutual respect between user groups and between non-motorized and motorized users on shared facilities.
	IX	Encourage enthusiasm and excitement about the network and system of non-motorized use through outreach, events, and community activities.
	X	Hire a Vision Zero Coordinator.

# CHAPTER

# 2





# Existing Conditions

The AMATS NMP aims to build on past and current efforts to improve active transportation throughout the area. To better understand these efforts as well as identify network opportunities, a detailed existing conditions assessment was completed. The information presented in the following chapter represents an overview of these efforts as well as a detailed analysis of the existing network, safety, land use, and demographic conditions.

The results of this analysis will form the basis for recommendations presented in Chapters 4, 5 and 6. Details regarding each analysis can be found in the Appendices.

## 2.1 Existing Plan Review

The NMP provides an update to previous non-motorized transportation planning efforts and complements previous and ongoing area plans and comprehensive plans. The NMP builds off of these previous plans, and its recommendations consolidates those found in previous plans. The 2020 NMP will supersede the existing bike, ped and trails plans. It will include a broad overview of trails that will be amended with finer details in 2021, when trail GIS data has been updated and expanded to include new and planned facilities.

To understand the history of non-motorized planning in the AMATS Planning area and improvements in transit, a review of previous plans was completed. The most relevant plans are summarized below. Key themes include a strong desire to increase the number of safe, connected, and accessible bicycling and walking facilities; recommendations for education and encouragement activities; and actions to reduce the perceived barriers to walking and bicycling for transportation.

### ANCHORAGE TRAILS PLAN (1997)

The Trails Plan seeks to establish a shared use pathway network that encourages active transportation and also supports multiple recreational user types. Safety, reducing user conflicts, and improved maintenance were identified by the public as key concerns for the shared use pathways network. The Plan is integrated into the Anchorage Bowl Comprehensive Development and Long-Range Transportation Plans, Chugiak-Eagle River Comprehensive and Transportation Plans, the Turnagain Arm Comprehensive Plan, and the Girdwood Area Plan. The Plan focuses on infrastructure, education, encouragement, and consideration for seasonal needs.

### ANCHORAGE BOWL PARK, NATURAL RESOURCE, AND RECREATION FACILITY PLAN (2006)

This Plan serves as the Parks and Open Space element of the Anchorage 2020 Comprehensive Plan as well as the primary long-range recreation plan for the planning area. Connectivity among recreational areas, including parks, is a primary focus of the Plan, with key recommendations including development of shared use pathways and trails connecting recreational facilities and implementation of pedestrian improvements and bike facilities to and from parks. The Plan summarizes the benefits of quality recreational facilities, and sets a goal for 12.6 miles of shared use pathways and trails per 10,000 population. The Plan found that approximately 50% of Anchorage residents strongly value bicycling on paved shared use pathways, hiking and walking on city trails, and desire to access the city end-to-end via active transportation facilities.



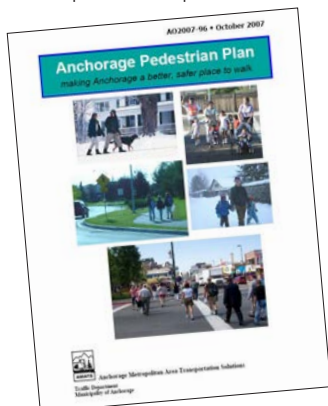
### CHUGIAK-EAGLE RIVER COMPREHENSIVE PLAN (2006)

This Plan offers an assessment of the anticipated growth in the area and establishes goals and strategies to best coordinate the intentions and aspirations of the community. Shared use pathways, trails, and pedestrian improvements, increased

coordination with other infrastructure projects, and improved education and encouragement programs are included in the recommendations for the area comprehensive plan. In addition to a continuous shared use pathway network serving both utilitarian and recreational trips, the Plan promotes the development of a complete network that maximizes safety, reduces reliance on motor vehicles, and improves connections to neighborhoods and transit.

### ANCHORAGE PEDESTRIAN PLAN (2007)

Completed in 2007, this Plan represents the most recent comprehensive pedestrian planning effort for the Planning area. It provides a 20-year framework for improvements to the pedestrian network with the intended goal of increasing pedestrian mode share. The Plan aims to address the needs of all people, and considers facilities adjacent to streets, connections among subdivisions and schools, intersection and crossing improvements, and signage. The Plan acknowledges the impact of development patterns on the pedestrian environment and encourages improving practice to promote pedestrian travel. At the time of the plan, fewer than 13% of roadways within the Anchorage Bowl had sidewalks. This calculation does not include sidepaths. The recommendations for this Plan delineate specific improvements by subarea.



### ANCHORAGE DOWNTOWN PLAN (2007)

The Downtown Plan provides direction and design standards for growing the Downtown area into a vibrant, walkable, mixed-use economic and cultural urban center. A primary goal of the plan is to develop an easily-navigable network of streets that promotes access to Downtown via multiple modes, with pedestrian and transit prioritized for travel within Downtown. Wayfinding, improved management of public right-of-way, lighting, and maintenance are key supporting recommendations for this plan. Further, the plan encourages development of a continuous, safe, and universal access for pedestrian pathways. Street conversions, speed and volume management, and improved crossings are recommended to remove pedestrian barriers throughout Downtown.



### ANCHORAGE BICYCLE PLAN (2010)

Completed in 2010, the Bicycle Plan focuses on providing facilities for transportation purposes and aims to create a connected, comfortable, and safe network that is well-integrated with other modes. Connectivity, safety, and -improved education and encouragement are key focus areas of the Plan.

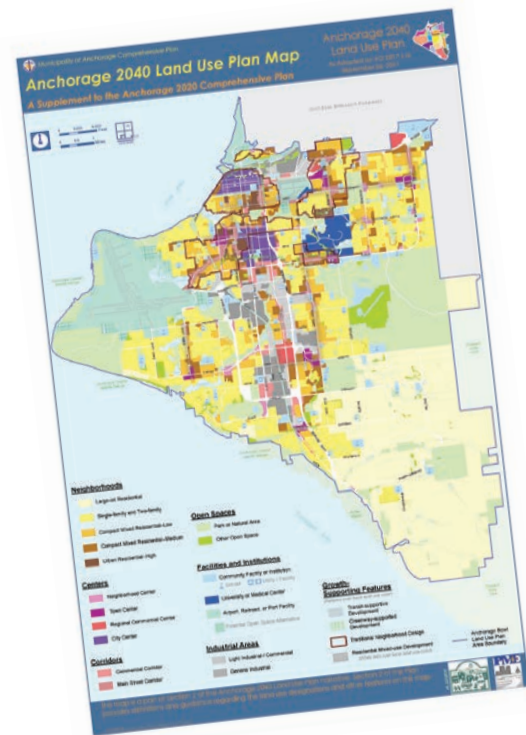
Using a range of data inputs, the Plan recommends over 500 miles of bicycle facilities, including existing infrastructure, but recognizes the financial limitations to implementing the network. To this end, a limited, core network is prioritized for implementation. The Plan also recognizes the important role that education, encouragement, bicycle parking, support facilities, and wayfinding play in promoting a well-used network.

## ANCHORAGE TALKS TRANSIT CHOICES, OUTREACH, AND FUTURE ALTERNATIVES (2016)

Ahead of the launch of the new People Mover in 2017, this visioning exercise assessed the potential demand for transit in the planning area, identified planning area needs and demographics, analyzed trends and peer cities, identified key questions for transit network development, and presented concept alternatives for a new transit system in Anchorage. Current residential density, community need, activity center location, and transit commute rates were considered to determine potential demand. The analysis of transit service outlined different types of transit networks, frequency considerations, existing ridership, and existing cost of operations. The resulting recommendations provide high level network concepts and operations approaches, as opposed to specific routing decisions.

## ANCHORAGE 2040 LAND USE PLAN (2017)

The Anchorage 2040 Land Use Plan was adopted in September 2017 and builds on the framework established by the Anchorage 2020 Comprehensive Plan. It adopted neighborhood, district, and facility plans; and updated analyses regarding population and building needs in the next 25 years. The Plan



provides a land use map, which demonstrates where anticipated growth can occur within the city and future land use designations to accommodate growth. Specifically, it aims to maintain a focus on more compact development around mixed-use centers, and the plan identifies corridors where Greenway-Supported Development (GSD) and Transit-Supportive Development (TSD) should be focused. For example, Lake Otis Parkway is identified for TSD, and Ingra Street as a (GSD). The Plan also includes strategies for realizing the future land uses identified in the plan, including policies and recommended design standards.

## ANCHORAGE VISION ZERO PLAN (2018)

The Anchorage Vision Zero Action Plan was adopted in 2018 and is a three-year guiding document that outlines a strategy to eliminate all traffic fatalities and severe injuries on Anchorage's roadways. A summary of the report and its findings and strategies is provided on page 20 of this report.

## 2.2 Peer City Review

Anchorage faces a unique set of challenges in implementing and increasing use of non-motorized networks. For example, seasonal changes and winter maintenance are potential concerns. To better understand practices in other winter cities and develop recommendations best-suited for Anchorage's climate, the project team reviewed existing practices, policies, and infrastructure in five North American cities that share some similar qualities with Anchorage.

The selected cities include:

- » Madison, Wisconsin
- » Minneapolis, Minnesota
- » Montreal, Quebec
- » Salt Lake City, Utah
- » Calgary, Alberta

Each of these locations is considered a winter city, experiencing significant snowfall, short winter days, and many days below freezing. These conditions provide challenges for non-motorized travel, network development, and especially maintenance. However, several of the cities on this list also have high pedestrian and bicycle mode share despite these conditions (see Table 2.1).

Table 2.1: Peer City Statistics

CITY	POPULATION <sup>1</sup>	ANNUAL SNOWFALL	DAYS BELOW FREEZING	BICYCLE MODE SHARE	PEDESTRIAN MODE SHARE	FULL-TIME DEDICATED STAFF	NACTO MEMBERSHIP	BICYCLE FRIENDLY COMMUNITY STATUS
Anchorage, AK	298,192	75.5"	192	1.5%	3%	1.0 FTE	No	Silver
Madison, WI	252,557	43"	155	6%	8%	1.0 FTE	Affiliate	Platinum
Minneapolis, MN	413,645	45.3"	153	5%	5%	2.0 FTE	Member	Gold
Salt Lake City, UT	193,776	61"	123	4.7%	17%	2.0 FTE	Affiliate	Silver
Calgary, AB	1,139,220	51"	194	2%	--	1.0 FTE	No	N/A
Montreal, QC	1,704,694	82.5"	148	2.5%	5%	No dedicated staff*	International	N/A

\*While there is no dedicated staff in Montreal, all staff have some responsibility for bicycle and pedestrian planning.

Topics assessed fall into five key areas, including:

- » Study Area Setting: Includes consideration of climate, population, existing mode share for walking and bicycling, and agency staff support for non-motorized transportation.
- » Funding Strategies: Review of funding sources currently used by each jurisdiction and recognition of any innovative funding strategies that Anchorage should consider adopting.
- » Maintenance: Considerations for both summer and winter maintenance, including snow clearing policies, maintenance responsibility, and priority for access and improvements.
- » Policies + Programs: Includes consideration of education and encouragement programs, such as Safe Routes to School, as well as Vision Zero policies, bicycle parking programs, and Open Streets events.
- » Shared use pathways: Who are shared use pathways designed for and how are user conflicts addressed?

The best practices and key takeaways for Anchorage helped guide the development of this plan in accordance with the Vision (See Section 1.2).

The review of peer cities suggests that Anchorage can benefit from improving and formalizing policies related to active transportation, including trail user conflicts and procedures for maintenance and snow clearing. The key takeaways for each category are outlined in the Peer Review Key Takeaway summary as follows.



## PEER REVIEW KEY TAKEAWAYS

### Setting

- » Develop full-time agency position dedicated to active transportation issues.
- » Adopt NACTO design guidelines; join NACTO to benefit from member city technical support services.
- » Identify actionable items to achieve Bicycle-Friendly Community Gold rating.

### Funding

- » Explore funding partnerships for projects and programs, such as partnering with health insurance agencies, corporate environmental foundations, or other community grant opportunities.
- » Pursue funding specific to programs, such as Safe Routes to School.

### Maintenance

- » Prioritize clearing of routes that provide access to transit.
- » Develop and share information publicly regarding sidewalk and shared use pathway snow clearing and removal practices.
- » Adopt policies that prioritize snow clearing and removal on active transportation facilities.

### City Policies and Programs

- » Develop and adopt bicycle parking requirements that consider winter conditions and access.
- » Provide dedicated funding for Safe Routes to Schools programs.
- » Implement safety education programs, such as bicycle light and helmet giveaways during Bike Month or other community events.
- » Bike share programs are popular in other winter climate cities; assess the feasibility of bike share programs that function year-round to understand the needs and impacts of an Anchorage program.
- » Activate public spaces through programs such as Open Streets, Play Streets, or parklet pilot programs.

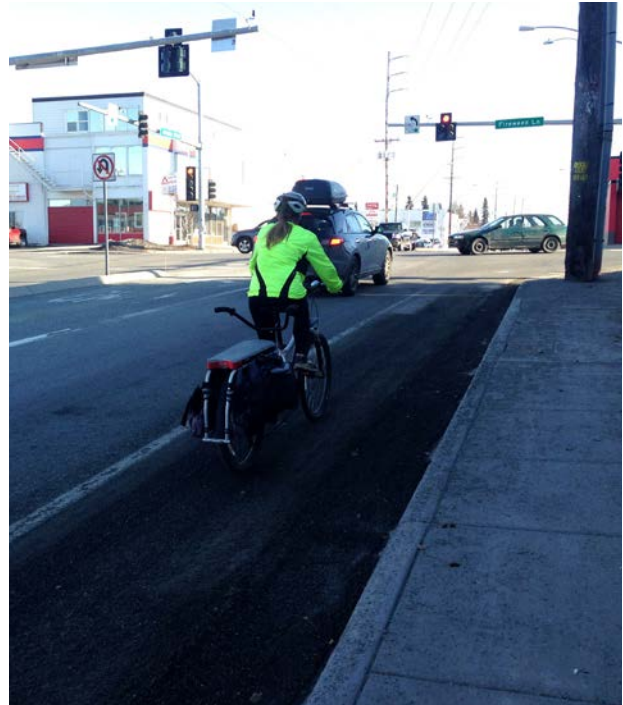
### Shared Use Pathways

- » Develop policies and guidelines regarding shared use pathway conflicts that are sensitive to seasonality.
- » Adopt shared use pathway design guidelines to improve the year-round utility of shared use pathways within Anchorage.
- » Prioritize connections to activity centers and integration with other modes.
- » Improve roadway crossing options when connecting the shared use pathways network.

*Existing shared roadway*



*Existing bike lane*



*Existing Shared Use Pathway*



## 2.3 Network Analysis

To better understand the current service provided by the existing active transportation network, the following section explores a series of analyses that evaluate the existing network quality, collision history, and factors that can inform recommendations for an improved network that meets the needs of AMATS residents.

### EXISTING NETWORK

The AMATS planning area is home to a robust network of shared use pathways, bicycle pathways, and sidewalks. A series of paved shared use pathways and unpaved trails provide opportunities for utilitarian and recreational active travel—walking, biking, ski joring, cross country skiing, fat bicycling and equestrian—and existing connections to the pedestrian and bicycle networks extend the coverage of the network throughout the planning area.

#### Shared Use Pathways

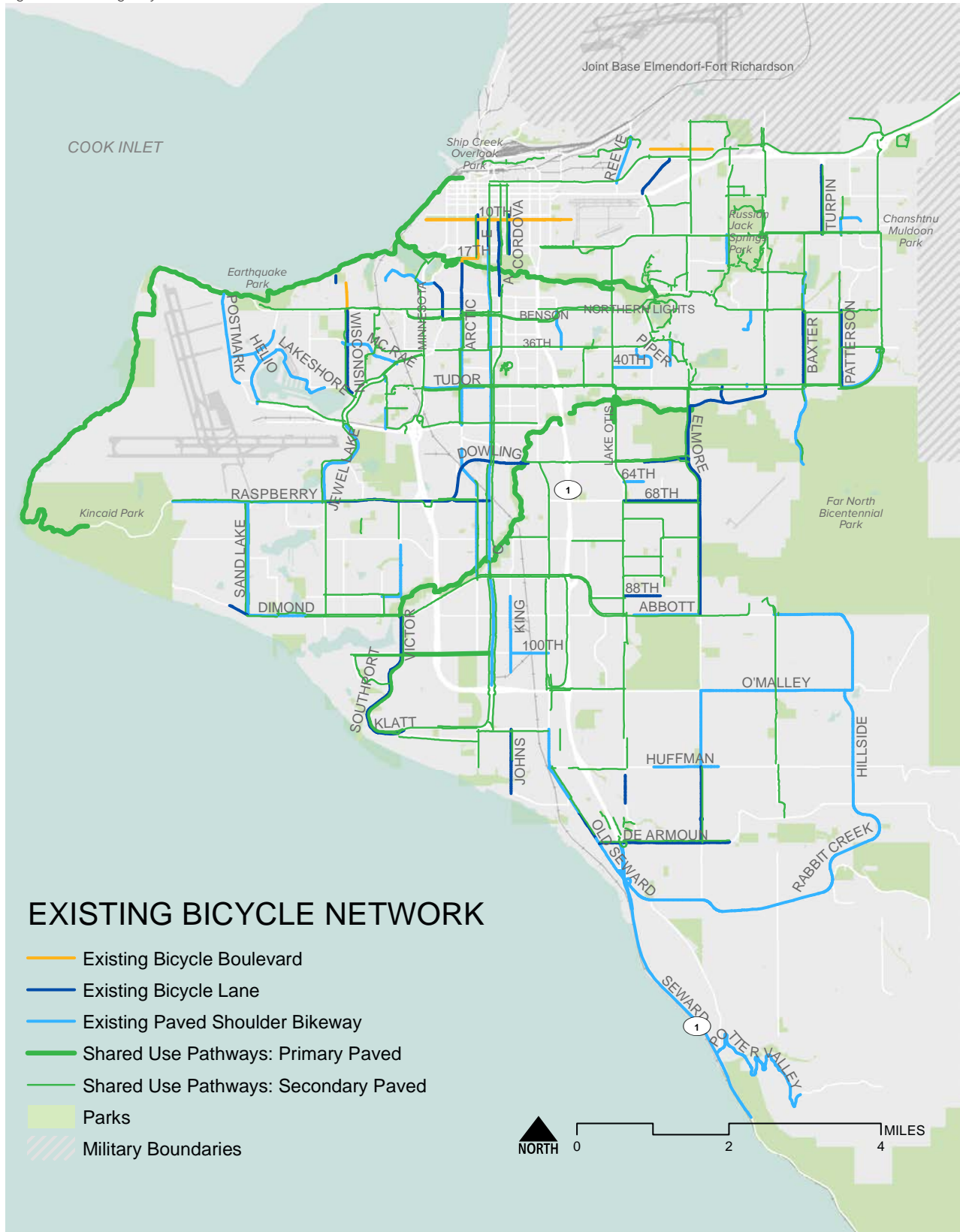
A series of primary paved shared use pathways create a spine network, including the Tony Knowles Coastal Trail, Chester Creek Trail, Campbell Creek Trail, and Glenn Highway Trail. These shared use pathways accommodate a variety of uses and attract users from across the region. This plan addresses two types of secondary paved shared use pathways. The first type, sometimes referred to as sidepaths, are typically located along major arterials, and provide for transportation and utility-focused trips and include limited connections to the primary network. The second type, spur shared

use pathways, are connections of longer shared use pathways to streets, parks or other access points. These spur shared use pathways are integral in contributing to a comfortable and continuous infrastructure network.

Other, unpaved trails provide recreational opportunities across the region; however, these trails are not included in this plan. This plan focuses on paved shared use pathways and utilitarian trips; a forthcoming recreational trails plan will provide the opportunity to improve and expand the soft-surface, recreational trails in the region. The shared use pathway network accommodates pedestrian and bicycle travel, and it is supplemented with sidewalks for pedestrians and bicycle lanes, bicycle boulevards, and paved shoulder bikeways for bicyclists.

When considering winter maintenance procedures, the network for active transportation in winter months is more limited. The MOA Parks and Recreation Department and the Nordic Skiing Association maintain a select number of ski trails and sidewalks throughout Anchorage. From October through May, Street Maintenance provides snow plowing, snow removal, ice prevention, and de-icing on municipal-maintained streets and sidewalks.

Figure 2.1: Existing Bicycle Network

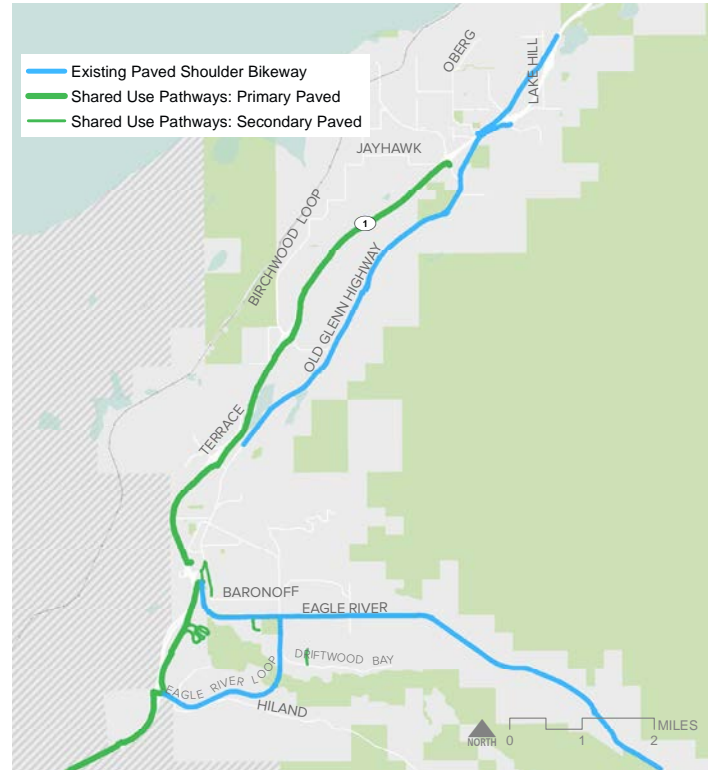




## On-Street Bicycle Facilities

Bicycle lanes and boulevards are limited in length and coverage across the city, but often provide direct connections to the existing shared use pathway network. Paved shoulder bikeways help extend the coverage of the shared use pathway and bicycle lane networks. It is important to note, however, that the municipality's maintenance group has not been directed to nor funded to prioritize bike lanes over shoulders and thus all of these facilities currently serve as snow storage during the winter and as vehicle breakdown lanes.

Figure 2.2: Existing Bicycle Network | Chugiak-Eagle River



### EXISTING BICYCLE FACILITIES

#### BICYCLE LANES

**25.7** MILES

#### BIKEWAY (PAVED SHOULDER)

**71** MILES

#### SIDEPATHS (SECONDARY PAVED SHARED USE PATHWAYS)

**180** MILES

Figure 2.3: Existing Bicycle Network | Downtown

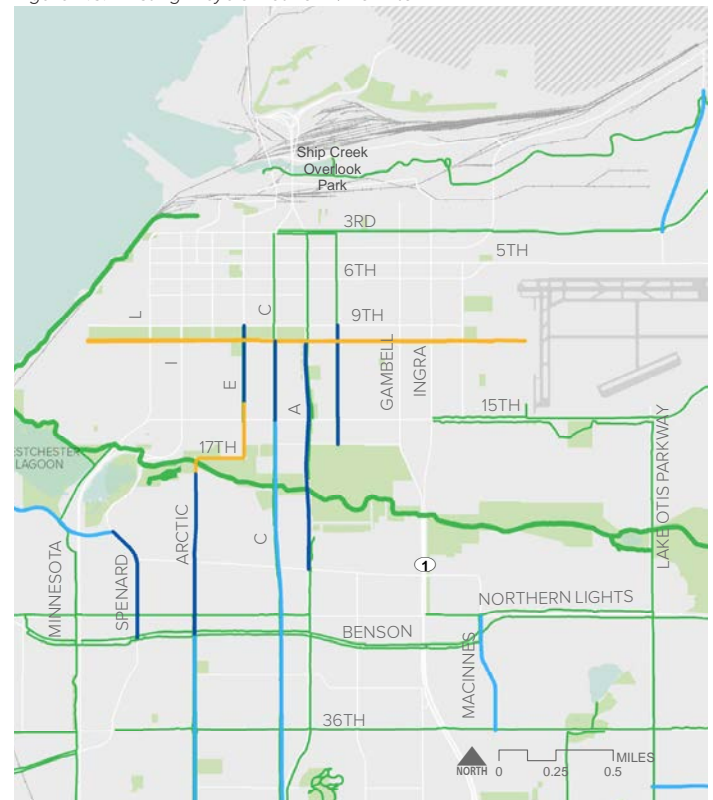
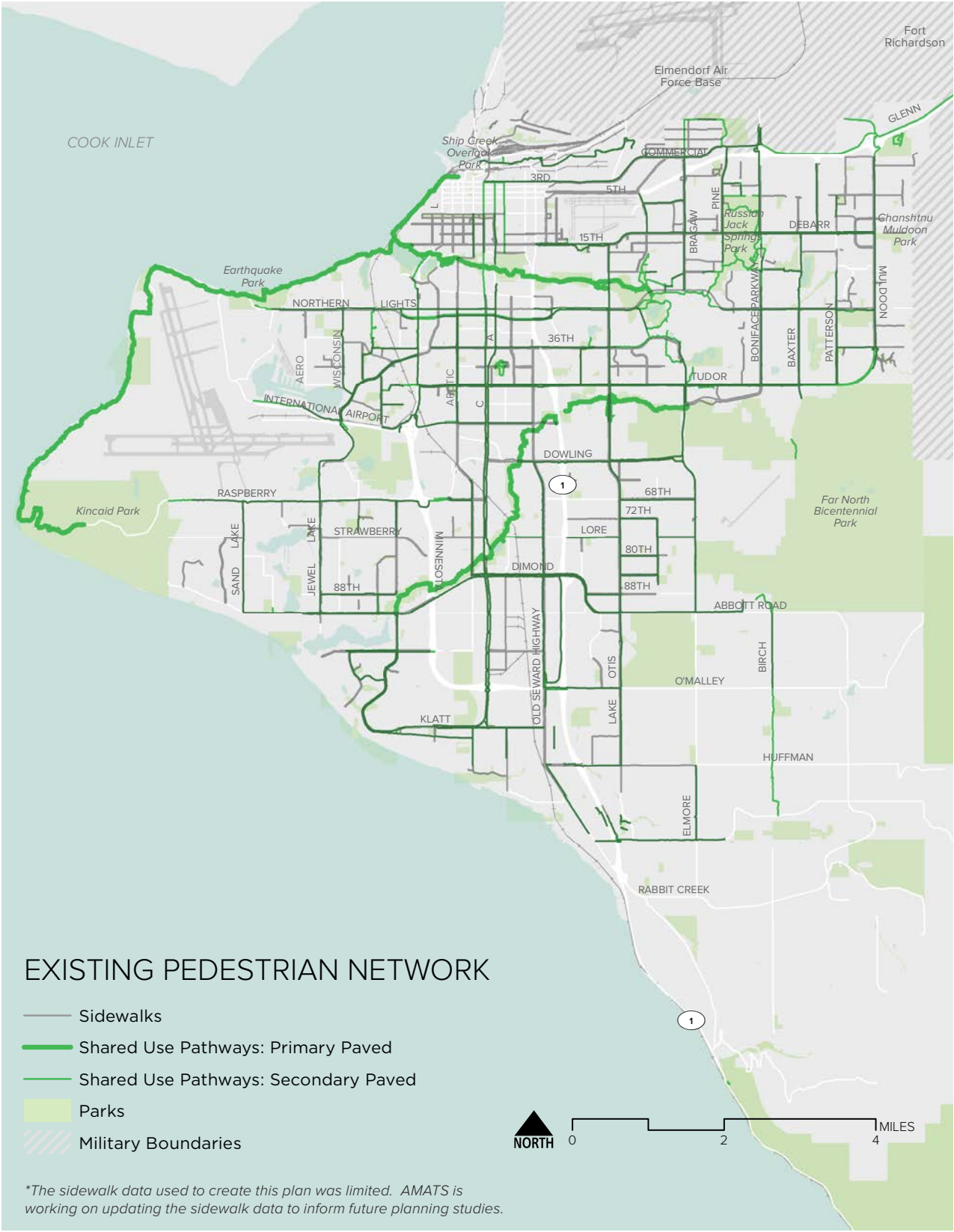


Figure 2.4: Existing Pedestrian Network\*



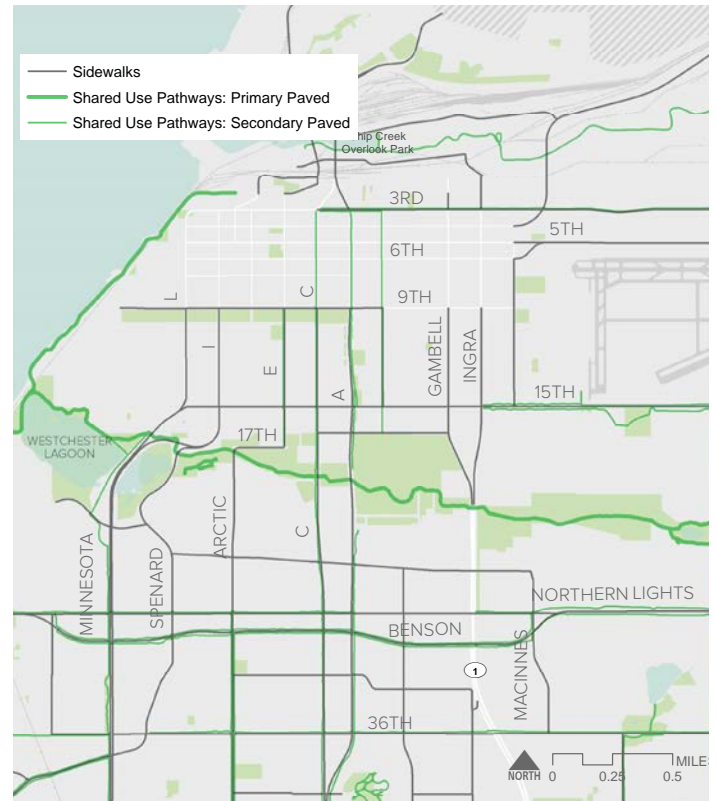
## Sidewalks

The sidewalk network presented in the Existing Pedestrian Network map (Figure 2.4) depicts only a portion of the existing sidewalk network available for pedestrians. The sidewalks included in these figures are those currently maintained by the Municipality of Anchorage and Alaska Department of Transportation & Public Facilities (ADOT&PF). Sidewalk data was unavailable for roadways maintained by other entities at the time of plan development. Sidewalks and/or sidepaths are available along many of the major arterials throughout the municipality and help provide connections to the existing shared use pathway network, destinations such as employment centers and shopping areas, and provide access into neighborhoods across Anchorage. In order to better understand the opportunities and challenges associated with the existing pedestrian network, a more comprehensive review that includes all sidewalk and sidepath segments as well as details regarding width, quality, and separation from roadway could help AMATS assess needed improvements. Further, incorporating detailed information regarding winter maintenance could help AMATS assess needed improvements. Further, incorporating detailed information regarding winter maintenance could assist the Municipality and AMATS in planning for a year-round network that accommodates all modes.

## Shared Use Pathways

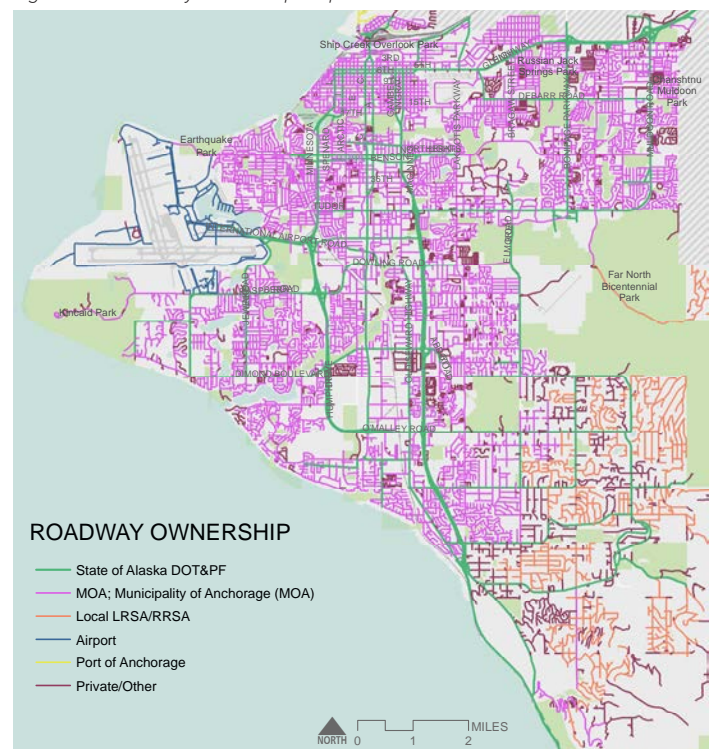
Pedestrians are also served by the network of shared use pathways discussed earlier in this chapter. Though this plan often discusses shared use pathways in context of the bicycle network to avoid repetition it is important to remember that they serve all types of users in all seasons.

Figure 2.5: Existing Pedestrian Network | Downtown\*



\*The sidewalk data used to create this plan was limited. AMATS is working on updating the sidewalk data to inform future planning studies.

Figure 2.6: Roadway Ownership Map





## VISION ZERO ANALYSIS

Vision Zero is “a strategy to eliminate all traffic fatalities and severe injuries while increasing safe, healthy, and equitable transportation for everyone” (MOA Vision Zero). The Anchorage Vision Zero Action Plan, which was finalized in 2018, is its most recent annual review of fatal and severe injury traffic crash trends. A summary of this report is provided here as analysis of the current state of traffic crashes in the AMATS planning area.

**Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all**

(<https://visionzeronetwork.org/about/what-is-vision-zero/>)

### 17,610 people experienced crashes in the past 4 years.

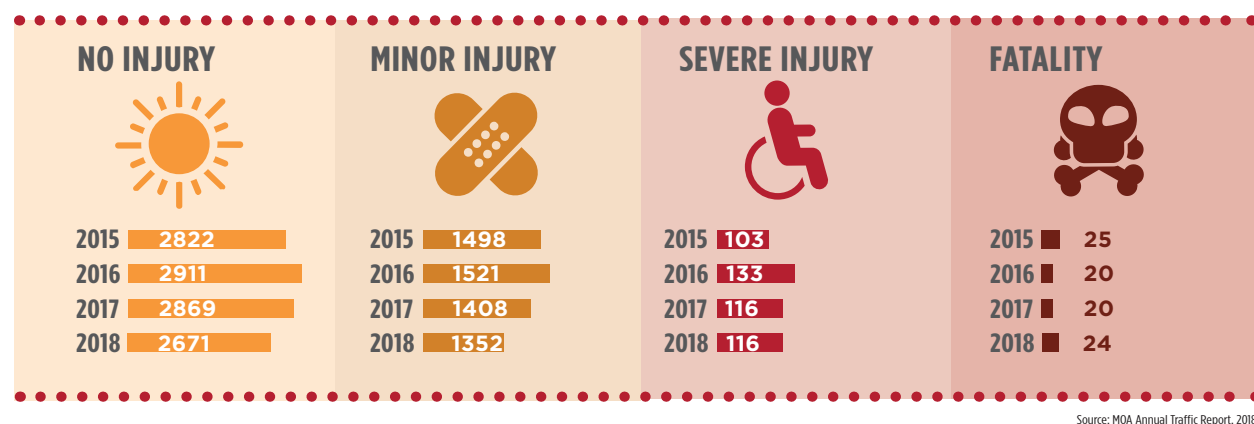


Figure 2.5: 4-Year Crash Summary Statistics, reproduced from the 2018 Anchorage Vision Zero Action Plan

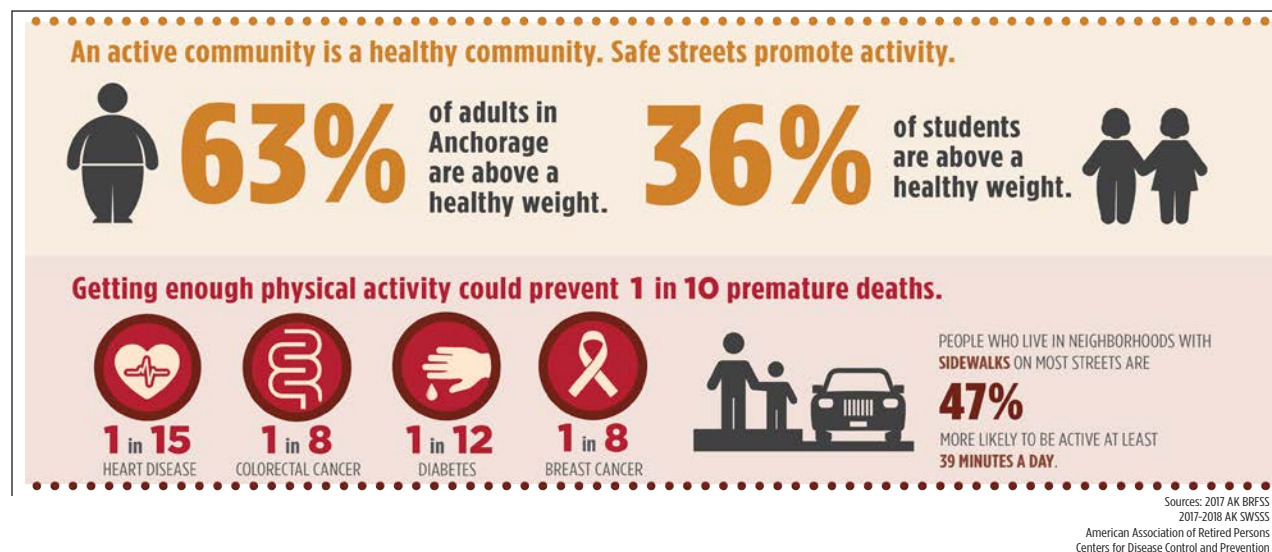


Figure 2.7: Summary health statistics related to active lifestyles, reproduced from the 2018 Anchorage Vision Zero Action Plan



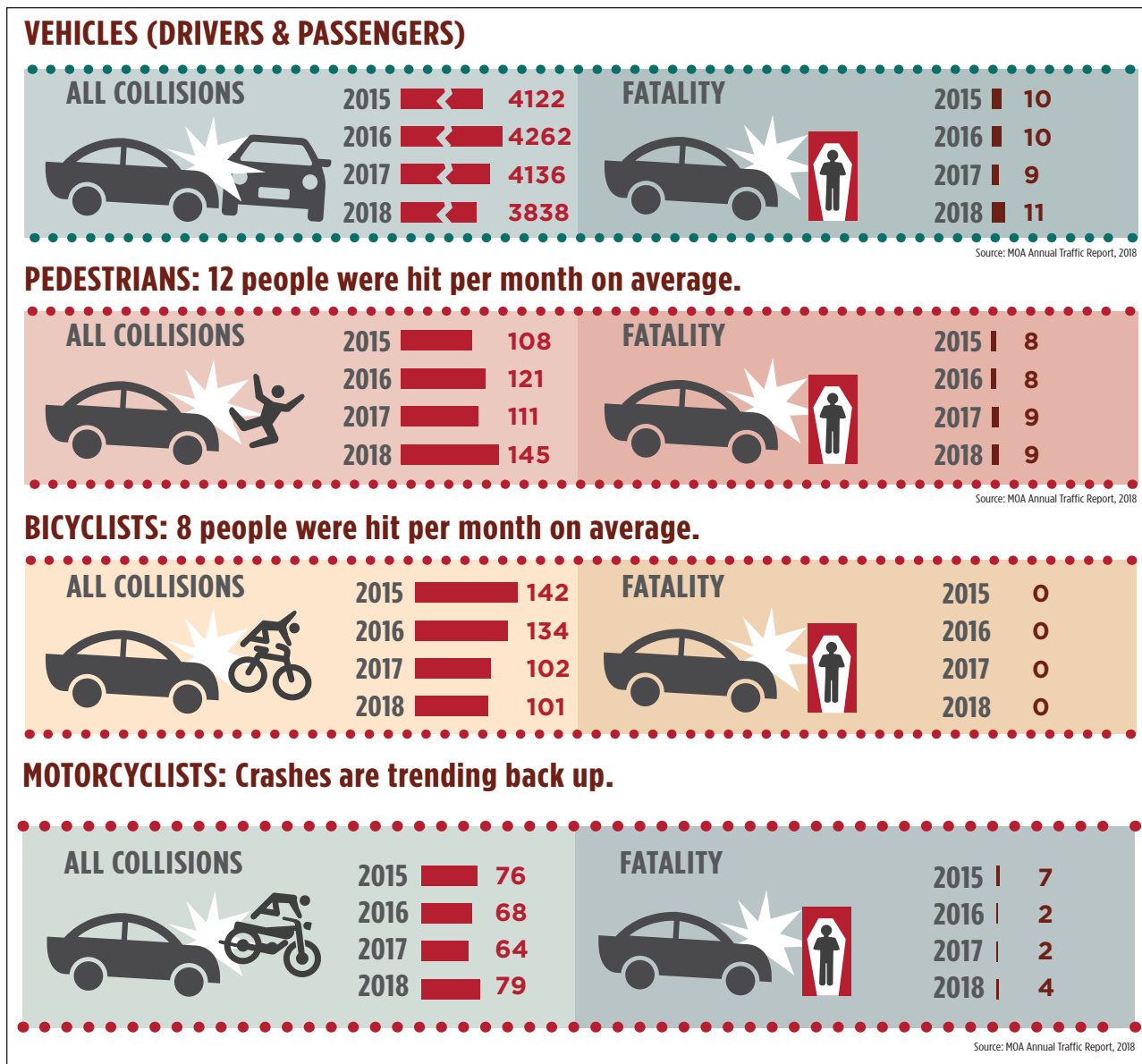


Figure 2.8: 2018 Crash statistics by mode, reproduced from the 2018 Anchorage Vision Zero Action Plan

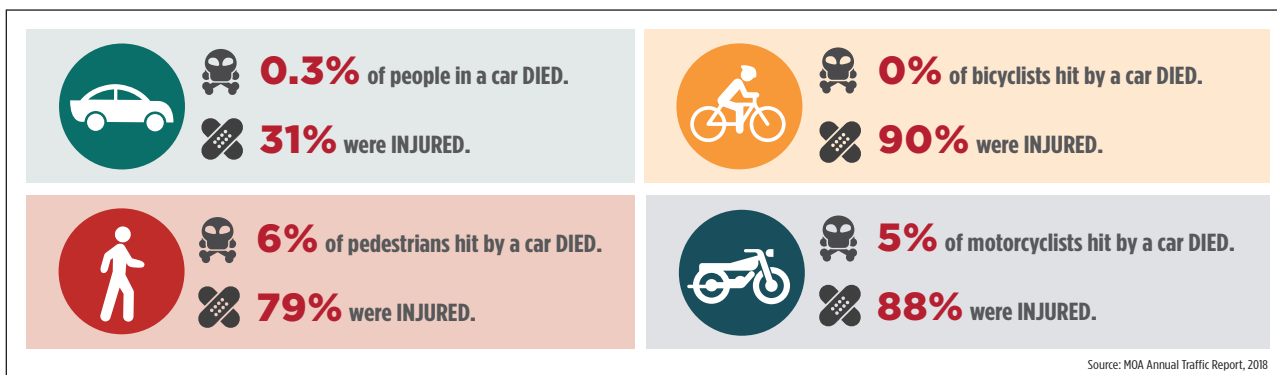


Figure 2.9: Most vulnerable road users, reproduced from the 2018 Anchorage Vision Zero Action Plan

## 2018 fatal & severe crashes: what happened?

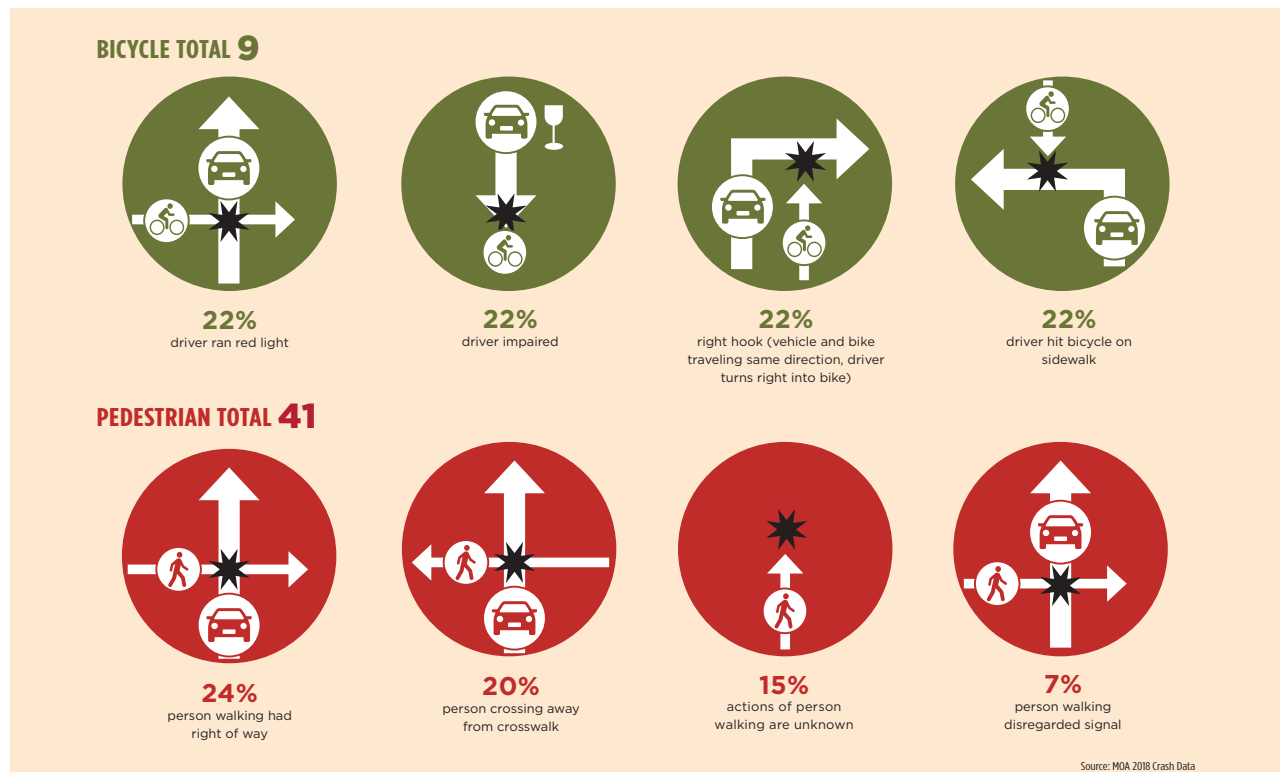


Figure 2.10: 2018 Fatal & Severe crashes: What happened?, reproduced from the 2018 Anchorage Vision Zero Action Plan

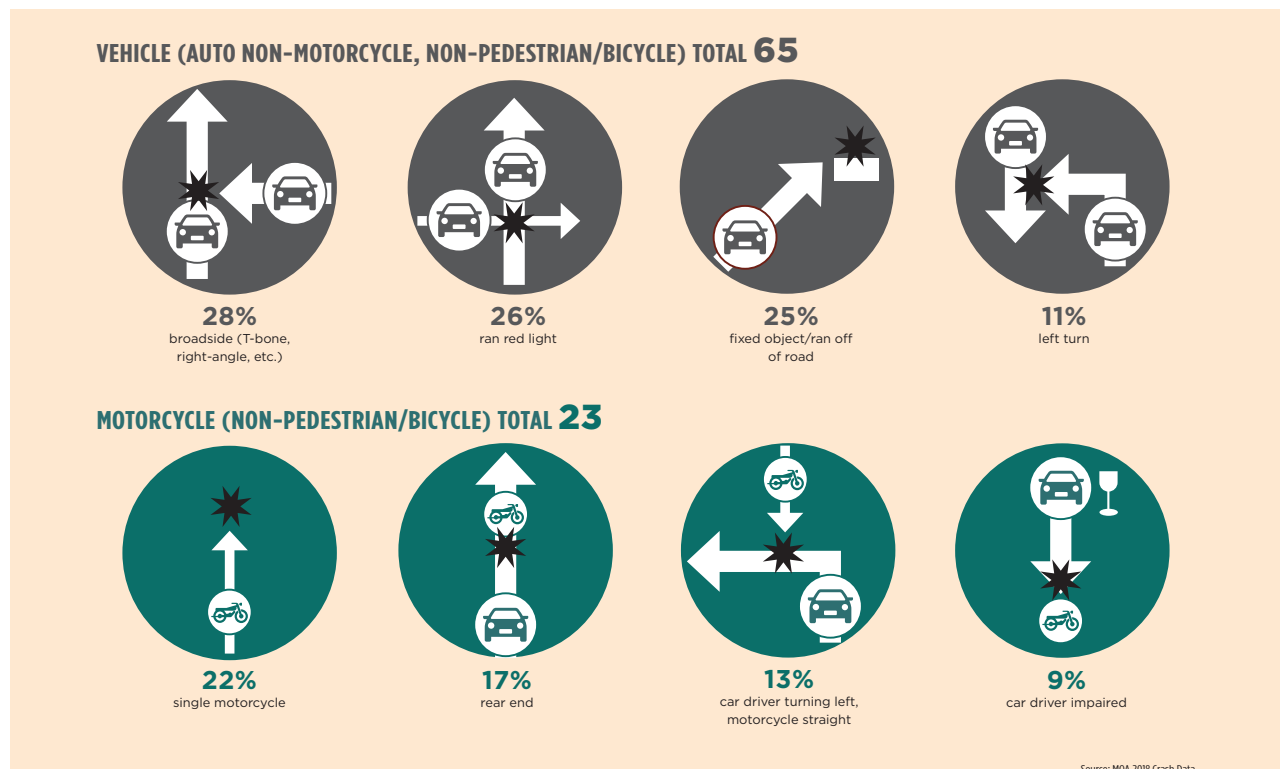


Figure 2.11: 2018 Fatal & severe crashes: What happened?, continued, reproduced from the 2018 Anchorage Vision Zero Action Plan

## High Injury Network

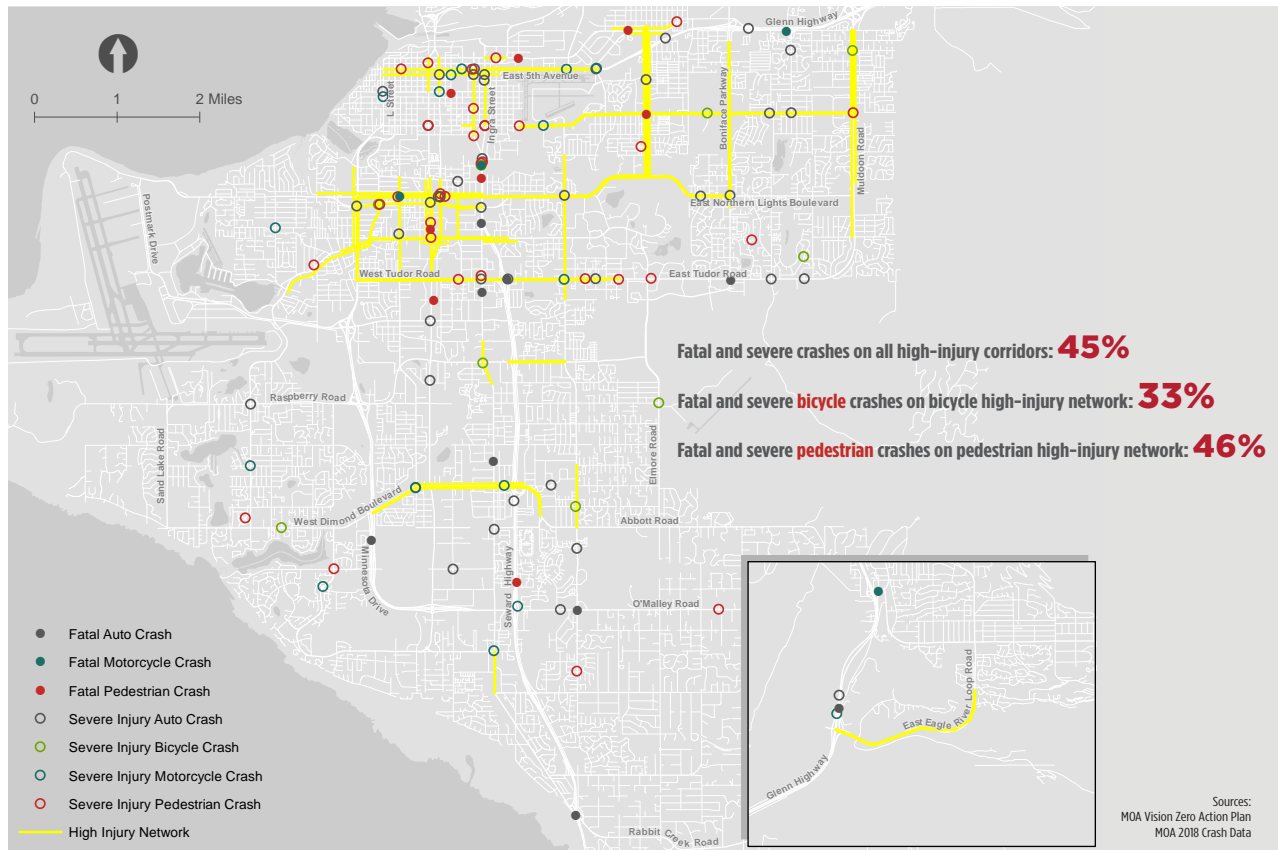
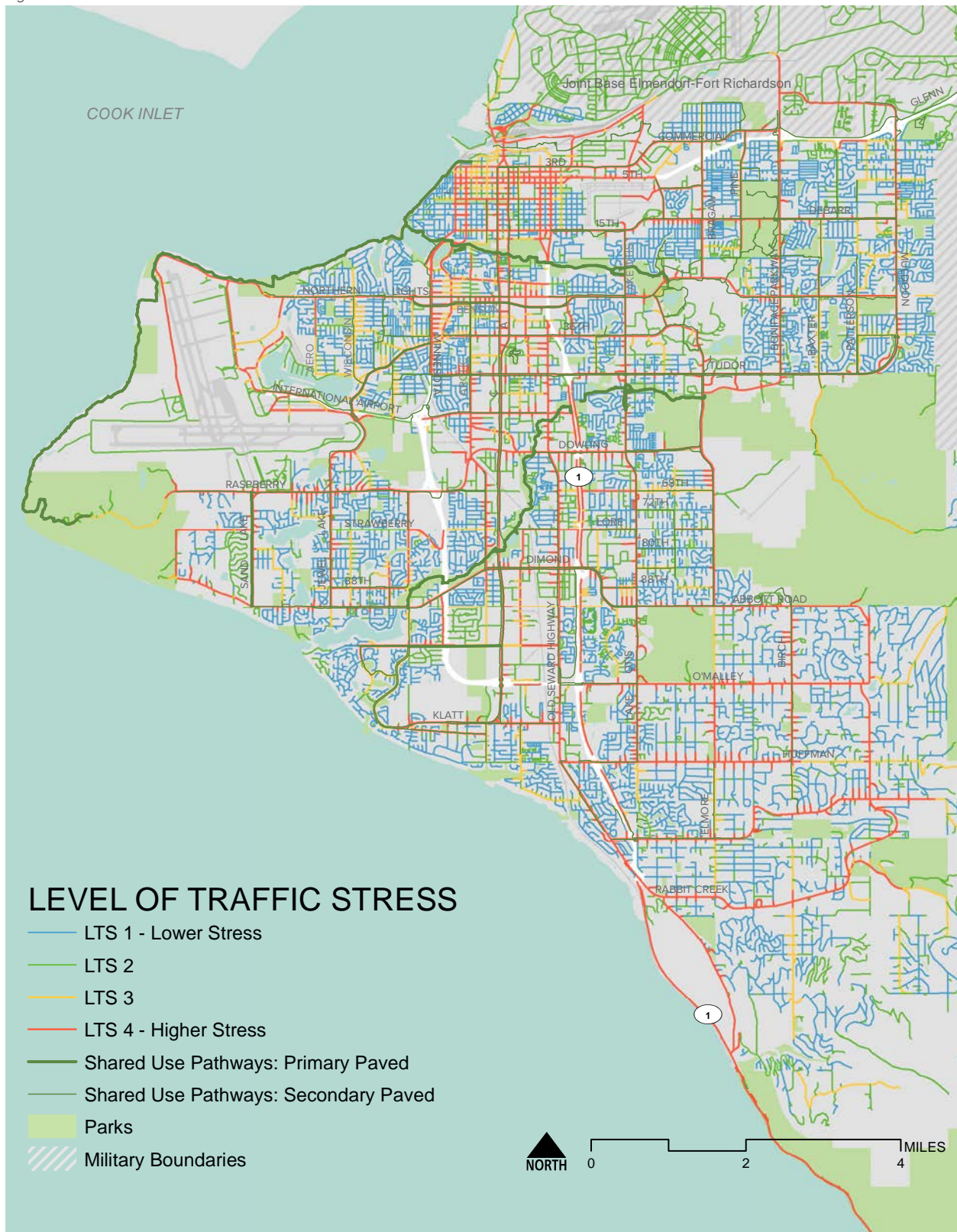


Figure 2.12: High Injury Network map, reproduced from the 2018 Anchorage Vision Zero Action Plan



Figure 2.13: Costs associated with collisions, reproduced from the 2018 Anchorage Vision Zero Action Plan

Figure 2.14: Level of Traffic Stress





## LEVEL OF TRAFFIC STRESS

Specific to bicycle travel, the Level of Traffic Stress (LTS) analysis provides further insight into the current conditions impacting travel throughout the network. The framework can be used to describe the benefits of bicycle infrastructure and demonstrate that some roadways need more intervention than others to provide a truly comfortable experience. Adapted from the 2012 Mineta Transportation Institution Report 11-19: Low-Stress Bicycling and Network Connectivity, the analysis considers the impacts of posted speed limit, street width, and the presence and character of bicycle lanes. The combination of these criteria separates the bicycle network into one of four scores, described as follows.

In general, separated facilities provide more comfortable travel, while roadways without designated facilities, high speeds, and a greater number of travel lanes will be less comfortable.

Neighborhood roadways provide relatively low stress routes for many residents. Higher stress roadways, however, create barriers for travel between these neighborhoods and other low stress areas. When the paved shared use pathway network and roadways designated as bicycle facilities are evaluated together, the level of traffic stress is greatly improved. With sidepaths running alongside many arterials on at least one side of the roadway, these shared use pathways provide lower stress routes for roadways that would otherwise serve as network barriers. In this evaluation, shared use pathways were not included in the LTS analysis, only the roadways themselves. However, the shared use paths are shown on the maps.

For sidepaths, it is important to note that while they run alongside major roadways and cross minor roadways and driveways, bicyclists along these shared use pathways may be impacted by turning movements across the pathway alignment. An important consideration for sidepath design is the safety of bicyclists at roadway and driveway crossings with high numbers of turning movements.

Figure 2.15: Level of Traffic Stress | Chugiak-Eagle River

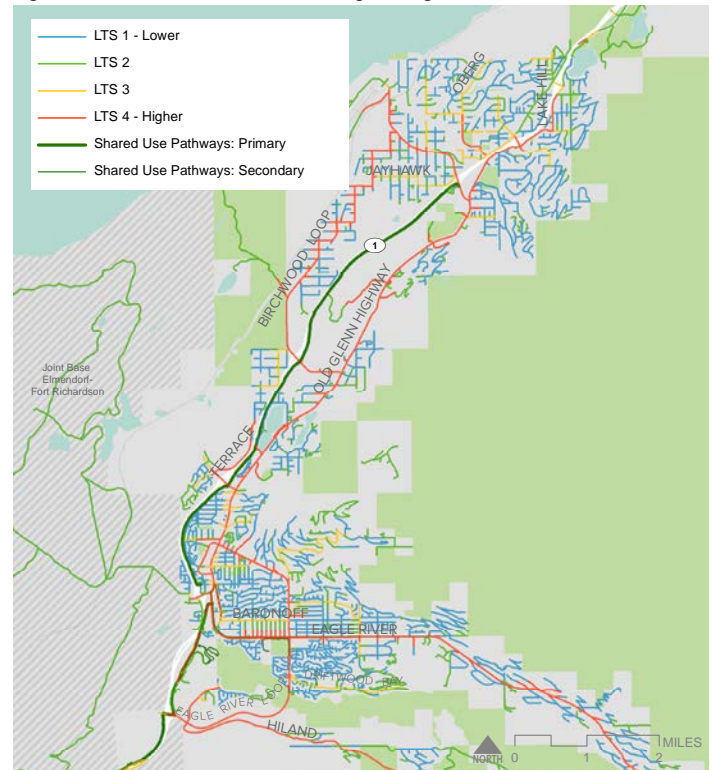


Figure 2.16: Level of Traffic Stress | Downtown

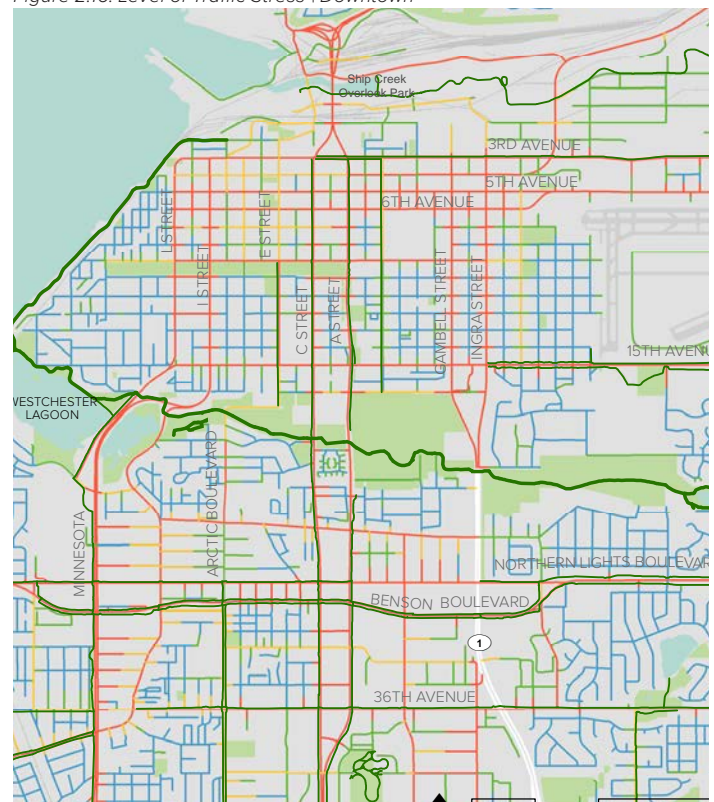
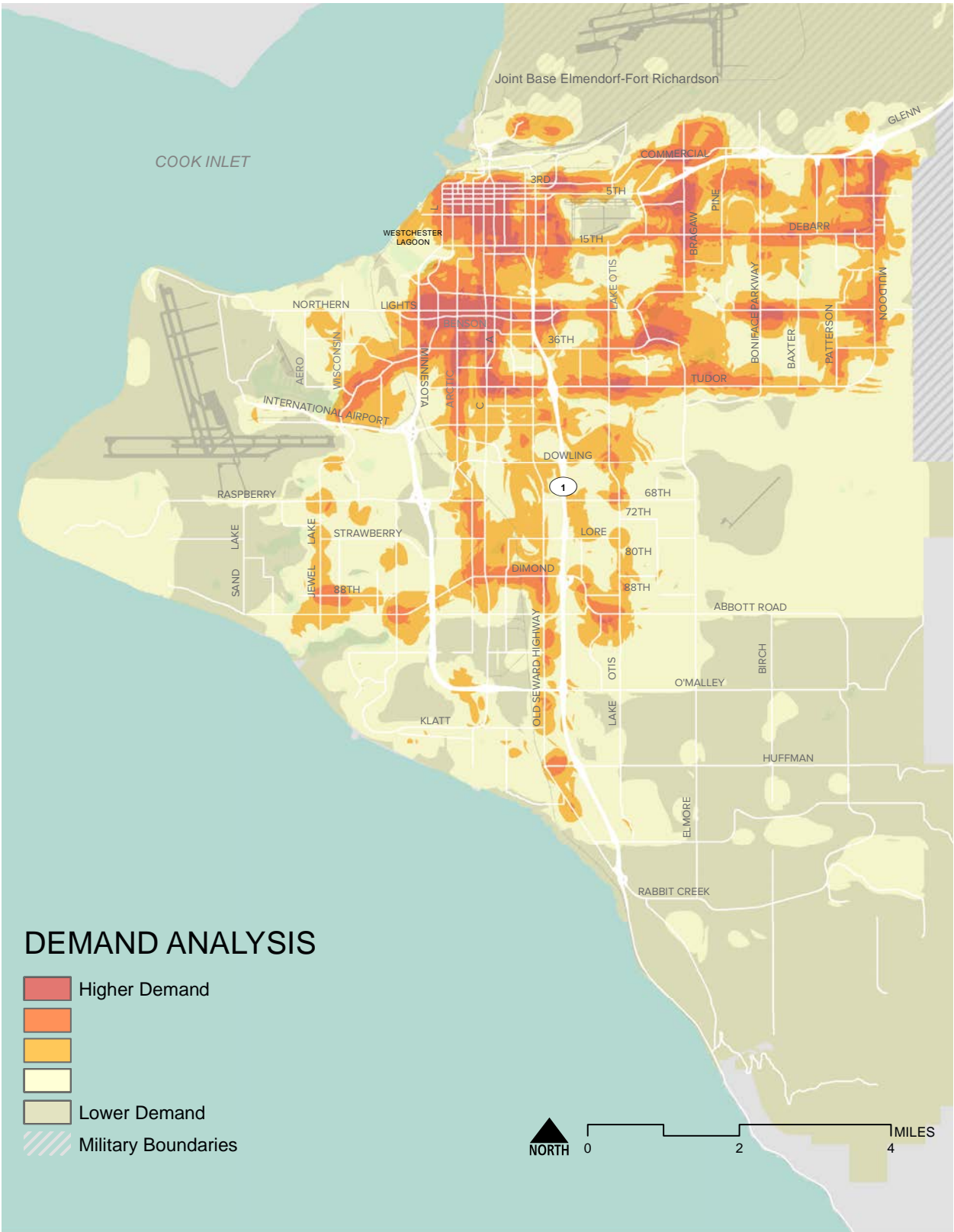


Figure 2.17: Demand Analysis



## DEMAND ANALYSIS

Understanding the potential demand for active transportation facilities can help identify where proposed improvements may have the most impact in a community. Potential demand for walking and bicycling is assessed through evaluation of where people live, work, play, shop, access transit, and go to school. These locations represent trip generators (where a trip begins) and trip attractors (where a trip ends); areas with a higher density of these locations will represent an area of greater potential demand. For this analysis, each category was first assessed on its own; the results were then combined to highlight areas with high potential demand. The composite demand analysis is shown in Figures 2.17 and 2.18.

In general, higher demand is found along major roadways throughout the AMATS Planning area. Other areas, such as Downtown or near Arctic Boulevard, Northern Lights Boulevard, and Benson Boulevard, also show high potential demand. In Chugiak-Eagle River, higher relative demand is found in the vicinity of Old Glenn Highway and Eagle River Road.

When analyzed separately, where people work, shop, and access transit are distributed similarly, with greater concentration seen along major roadway corridors. However, where people go to school, live, and play are distributed with greater density away from major roadway corridors.

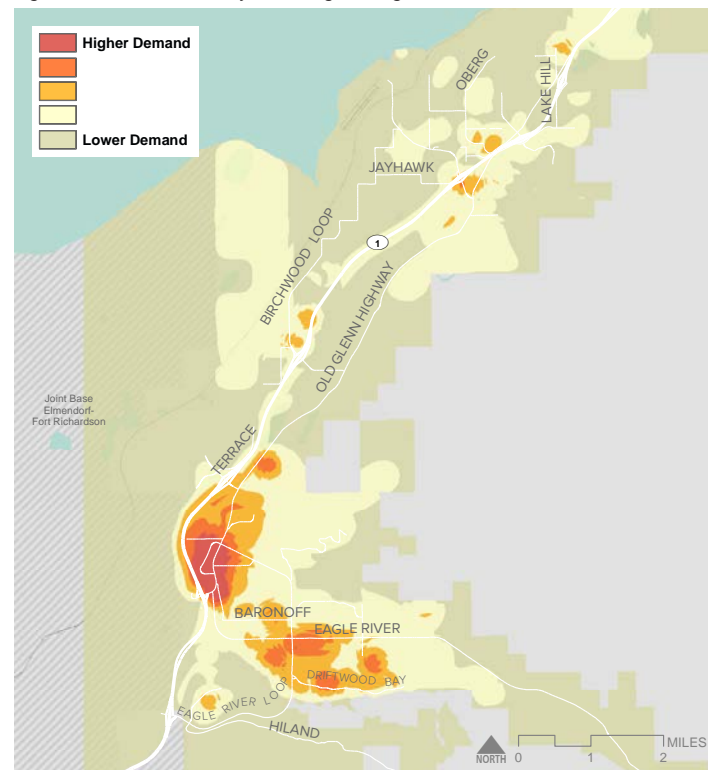
Building on the LTS analysis highlighted in Section 2.3, the accompanying maps consider the relationship of higher stress corridors and areas of high demand. Shown in Figures 2.17 and 2.18, the areas with highest demand generally coincide with higher stress roadways. While several of these corridors, such as Tudor Road, do feature sidepaths, it should be noted that gaps in the sidepath network, alignment along only one side of the roadway, and unsignalized crossings limit the utility and comfort of these facilities.

These findings also need to be considered in relation to future population growth. The 2040 Land Use Plan included a growth analysis that depicts where growth will be accommodated with Transit Supportive Development (TSD) and Greenway Supportive Development (GSD) over the next 20 years. TSDs

are located on corridors where expanded transit service is happening or planned and can support compact, walkable development, including mixed use. Over time, residents and employees in these corridors have greater choices on how to get to home and to other destinations. GSDs are locations where as development occurs, these developments have the opportunity to incorporate open space, creek corridors, and pedestrian routes that can link up to the larger greenway system. Many of these TSD and GSD corridors coincide with the major roadways that are also identified as high-demand corridors; a map is shown on page 10.

Based on these findings, it is important to consider the ways in which bicyclists and pedestrians are able to access centers of high demand in order to promote greater multimodal connectivity. Not only should low-stress facilities be considered in or near these locations, but also careful consideration of crossings is necessary during implementation.

Figure 2.18: Demand Analysis | Chugiak-Eagle River





## 2.4 Health and Equity

Like the built environment indicators evaluated in Section 2.3, demographic indicators help determine where network improvements are needed. In this section, both equity indicators and health outcomes are assessed.

Some people choose to walk, bicycle and take transit, but have other options for their personal mobility, such as driving. For others, walking, bicycling and transit are their only options for transportation. Those who use these modes out of necessity tend to be correspond to lower-income, lower-education, and other at-risk populations described on the facing page. Making improvements for this demographic is critical, since they rely on walking, bicycling and transit to meet their daily needs.

Further, active transportation allows for physical activity to be integrated into a daily routine, thereby reducing the risk of a number of adverse health outcomes. Specifically, physical activity from active transportation is associated with reductions in overweight/obesity, high blood pressure, diabetes, heart disease asthmas, and some cancers. Communities designed to promote safe and connected active transportation are positively associated with greater levels of physical activity among residents and consequently, improved resident health.

### EQUITY

The equity analysis considers demographic factors, that when combined, indicate where there are concentrations of historically vulnerable populations. Active transportation investments in these areas could help alleviate a broader range of issues (access to jobs, education, and healthcare, for example). Further, many of these indicators are also considered social determinants of health and can provide insight

into resident needs when considered in combination with data on health outcomes (see page 33 and 34). This analysis brings attention to neighborhoods or corridors that may be most in need of improvements, and provides a starting point for identifying priority areas.

The equity analysis for the AMATS NMP uses a combination of seven socioeconomic characteristics as indicators to identify vulnerable populations. The indicators include:

- » Age: Individuals under the age of 18 and over the age of 65 are assessed separately within this indicator.
- » Race: This indicator measures the percentage of the population that identifies as non-white.
- » Income: This indicator measures individuals of working age living at or below 200% of the Federal Poverty Level, which is a threshold set by the U.S. Census Bureau and is updated annually.
- » Educational Attainment: This indicator represents the percentage of the population over 25 years of age that does not have a high school diploma or equivalent.
- » Limited English Proficiency (LEP): This indicator measures the percentage of the population that identifies as not speaking English well or at all.
- » Access to a Vehicle: This indicator measures the percentage of households that do not have regular access to a motor vehicle.

Data for each indicator is from the American Community Survey, 2017 5-year Estimates, analyzed at the census tract level.<sup>2</sup> The rationale for each indicator is presented on the following page.



Figure 2.19: Equity Analysis Findings

## AGE



Age: On average, 24% of the population within the AMATS Planning area is under the age of eighteen, and 9% of the population is sixty-five or older. Youth are more highly concentrated in the north and east of the planning area and within Chugiak-Eagle River; while older adults are more highly concentrated in Bayview, Hillside, Rogers Park, Scenic Foothills, and South Addition areas.

## NON-WHITE POPULATION



Race: Approximately 38% of the population is non-white in the AMATS Planning area. The northern and central neighborhoods within the planning area have the highest concentrations of non-white populations.

## INCOME



Income: The mean concentration of households living in poverty is around 24% across all AMATS-area census tracts. The highest concentrations are found near the Mountain View, Fairview, Government Hill, Airport Heights, and Spenard areas, among other northern neighborhoods.

## EDUCATIONAL ATTAINMENT



Educational Attainment: Across all AMATS-area census tracts, a mean value of 8% of residents do not have a high school education. North and central neighborhoods exhibit the highest concentration of this population.

## LIMITED-ENGLISH PROFICIENCY (LEP)



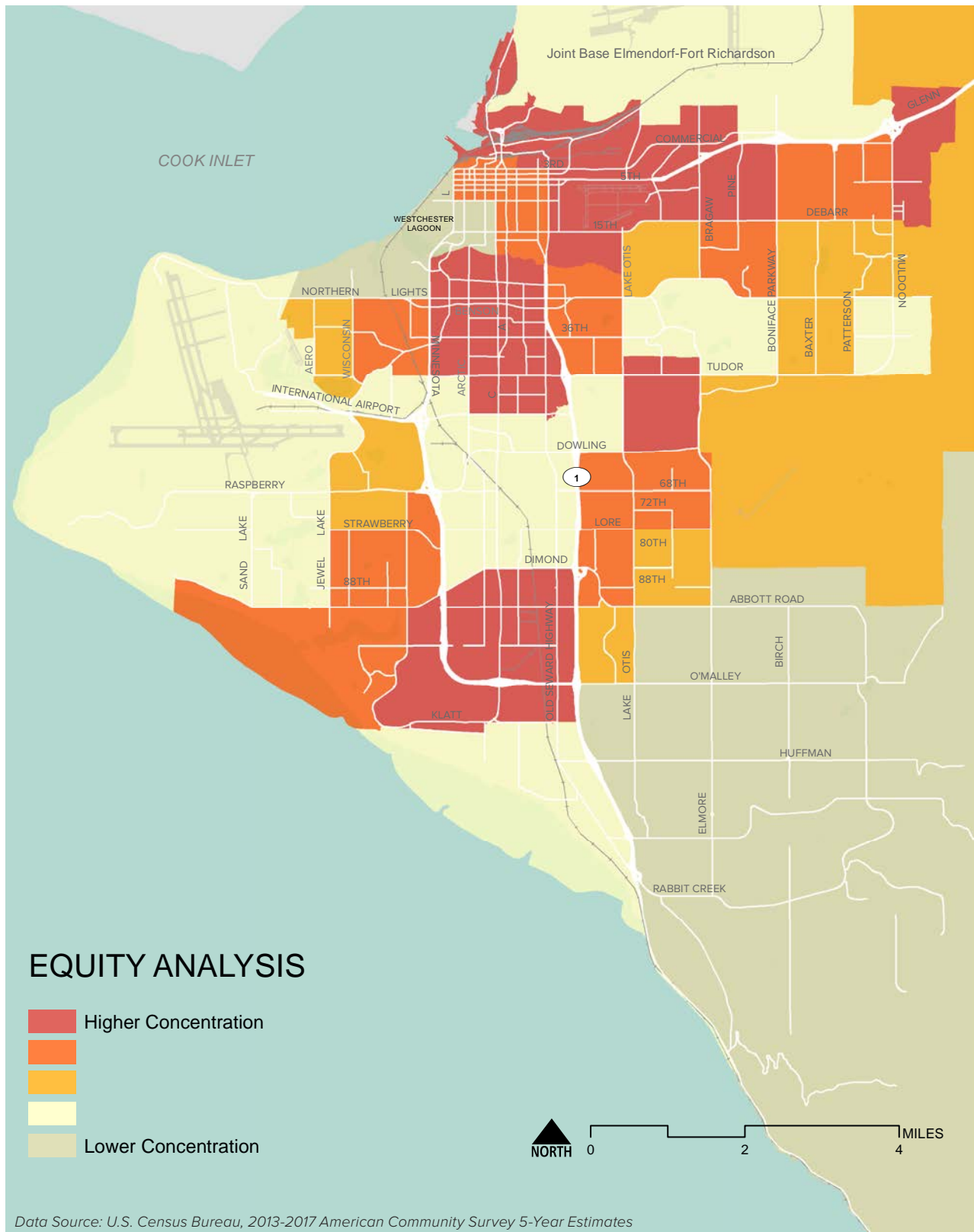
Limited-English Proficiency (LEP): The average concentration of LEP populations is approximately 2% among AMATS-area census tracts. The highest concentrations are found in the Bayshore/Klatt, Abbott Loop, Taku/Campbell, Midtown, Spenard, Mountain View, and Government Hill areas.

## VEHICLE ACCESS



Motor Vehicle Access: Across AMATS-area census tracts, the average rate of population without access to a motor vehicle is 6% (some areas have up to 24% of the population without access). The northern and central neighborhoods have the highest concentration of population without motor vehicle access.

Figure 2.20: Equity Analysis



Figures 2.20, 2.21, and 2.22 display a composite map of the indicators combined. The composite value displayed is the sum of the values from each of the indicators:

- » Age
- » Race
- » Income
- » Educational Attainment
- » Limited English Proficiency (LEP)
- » Access to a Vehicle

Darker census tracts represent areas of higher relative need.<sup>1</sup> Investing in active transportation improvements in these areas has the opportunity to positively impact health and equity outcomes.

Figure 2.21: Equity Analysis | Chugiak-Eagle River

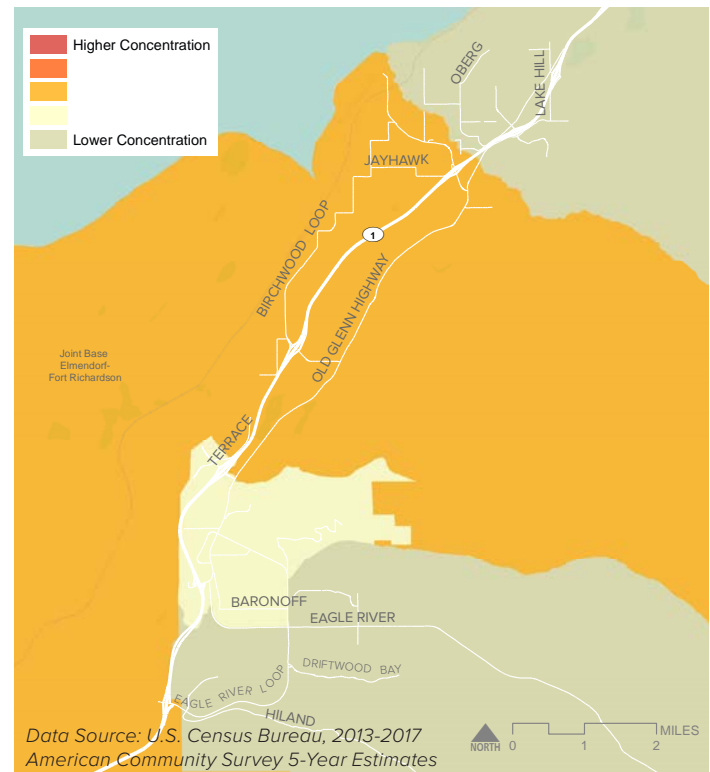
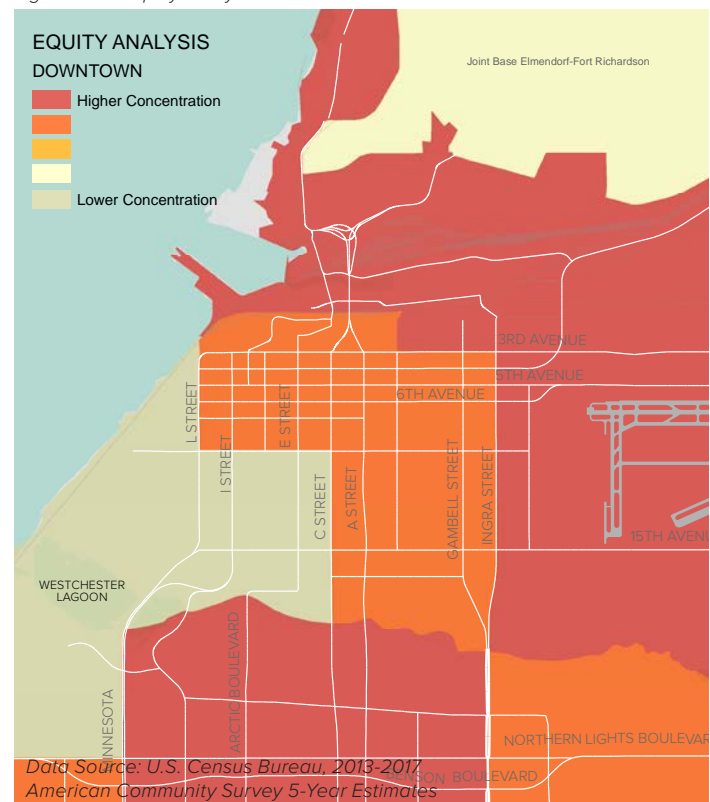


Figure 2.22: Equity Analysis | Downtown



<sup>1</sup> This analysis provides a relative comparison of census block groups. Large census block groups with minimal population density can skew the results of this analysis.

## HEALTH

The health analysis utilizes data available at the census tract level through the Centers for Disease Control and the 500 Cities Project.<sup>3</sup> The seven indicators of health selected correspond to the leading causes of death and disease in Alaska that can also be reduced, relieved, and/or prevented through increased walking and biking. The seven indicators described in detail are as follows:

- » Obesity Prevalence
- » Coronary Heart Disease Prevalence
- » Leisure-Time Physical Activity
- » Cancer Prevalence
- » Diabetes Prevalence
- » Poor Mental Health Prevalence
- » Asthma Prevalence

## FINDINGS

In general, census tracts with more adverse health outcomes and behaviors also have high composite equity scores. Generally in the northern and central parts of the AMATS Planning area, this means that these areas of AMATS are not only experiencing the worst health outcomes in the areas, but they also represent communities with high numbers of disadvantaged and minority populations. Recommendations from this plan explore the ways in which non-motorized improvements can help improve access to services and provide opportunity for physical activity for these residents.



Figure 2.23: Health Indicators

## OBESITY PREVALENCE



**Indicator:** Obesity is associated with a number of serious chronic illnesses and is linked to three of the five leading causes of death in the AMATS Planning area (2013).<sup>4</sup>

**Rationale:** Walking and bicycling for transportation allows residents to incorporate physical activity in their daily routines. Evidence indicates that for every 0.62 miles walked per day, there is an associated 5% reduction in the likelihood of obesity.<sup>5</sup> Within Anchorage, the Government Hill, Mountain View, and areas of the Fairview neighborhoods exhibit the highest rates of obesity.

## CORONARY HEART DISEASE PREVALENCE



**Indicator:** Coronary Heart Disease (CHD) is the second leading cause of death in Alaska and Anchorage.<sup>6,7,8</sup> While genetic factors do play a role in one's risk for CHD, a number of risk factors are highly preventable, including diabetes, overweight/obesity, and physical inactivity.<sup>9</sup>

**Rationale:** Increased walking and bicycling can reduce the prevalence of many of the highly-preventable CHD risk-factors; programs and policies implemented by the planning area can further support increase walking and bicycling. Government Hill, Mountain View, and Downtown neighborhoods exhibit the highest rates of CHD prevalence within the AMATS Planning area; overall, the planning area has a higher prevalence rate than the state (4.2% compared to 2.4%).<sup>10,11</sup>

## LEISURE-TIME PHYSICAL ACTIVITY



**Indicator:** Physical inactivity and sedentary lifestyles contribute to an increased incidence of obesity along with numerous related conditions, such as high blood pressure, heart disease, diabetes, congestive heart failure, stroke, and certain types of cancers.<sup>12,13</sup>

**Rationale:** Active transportation is one of the easiest ways for adults to achieve the Surgeon General's recommended amount of weekly physical activity. Active transportation is more likely to occur when efficient and safe infrastructure, programs, and policies for walking and bicycling are in place. The Government Hill and Mountain View neighborhoods exhibit the highest prevalence of physical inactivity, while the AMATS Planning area as a whole has a prevalence rate of 18.5%.<sup>14,15</sup>

## CANCER PREVALENCE



**Indicator:** Cancer is the leading cause of mortality in Anchorage and Alaska.<sup>16,17</sup> Although the exact cause of most cancers is unknown, certain preventable risk factors have been linked with cancer, including obesity and physical inactivity.<sup>18</sup>

**Rationale:** Increased physical activity may reduce the risk of obesity, which in turn can have an impact on cancer rates. Cancer rates vary across the AMATS Planning area, with higher prevalence in the northwest portion of the area abutting Cook Inlet.<sup>19</sup>

## DIABETES PREVALENCE



**Indicator:** Diabetes is the seventh leading cause of death in Alaska.<sup>20</sup> While genetic factors contribute to one's risk of developing diabetes, there are many preventable factors that can reduce a person's likelihood of developing the disease. These include: overweight/obesity, physical inactivity, high blood pressure, and abnormal cholesterol.<sup>21, 22, 23</sup>

**Rationale:** Improving the safety, access, and availability of active transportation infrastructure, policy, and programming can provide opportunities for increase physical activity and an associated reduced risk for diabetes. Within the AMATS Planning area, the northern area of Anchorage exhibited the highest prevalence rates.<sup>24</sup>

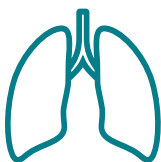
## POOR MENTAL HEALTH PREVALENCE



**Indicator:** Individuals who report 14 or more days per month of poor mental health illuminates where individuals experience chronic and sometimes severe mental health issues. Creating more livable, healthy, and well-connected communities has a direct impact on many of the factors that can help mitigate mental illness.

**Rationale:** Promoting increased bicycle and pedestrian activity is directly related to improved mental health and fitness. One study found that bicycling improves self-confidence, tolerance to stress, and overall well-being; while another study indicates that 30 minutes of daily moderate intensity physical activity at least three days a week is associated with reduced anxiety, depression, and improved self-esteem.<sup>25, 26</sup> The northern area of Anchorage has the highest prevalence of poor mental health within the AMATS Planning area.<sup>27</sup> Seasonal Attention Deficit Disorder (SADD) is a contributor to depression in northern climates. Besides using artificial means to address SADD, outdoor activities such as walking, biking and exercise help alleviate the effects of SADD.

## ASTHMA PREVALENCE



**Indicator:** Chronic lower respiratory disease, inclusive of asthma, is the fourth leading cause of death in Alaska and the fifth leading cause in Anchorage.<sup>28,29</sup> Air pollution is a well-established trigger for asthma.

**Rationale:** Improved active transportation infrastructure and access, as well as separated and non-motorized facilities have been shown to reduce the amount and exposure to air pollutants from motor vehicles. The highest prevalence rates of asthma are found in the northern portion of the Planning area.<sup>30</sup> Wood burning, second-hand smoke, and airtight housing for energy efficiency, are also contributors to asthma.

## CHAPTER 2 ENDNOTES

1 United States populations sourced from the American Community Survey 2016 1-year estimates. Canadian populations are sourced from the Canadian Census 2016 Census Profiles.

2 United States Census Bureau, 2013-2017 American Community Survey 5-Year Estimates.

3 500 Cities Project, Division of Population Health, National Center for Chronic Disease Prevention and Health Promotion <https://www.cdc.gov/500cities/index.htm>, accessed (insert date)

4 Centers for Disease Control and Prevention. (2017). Leading Causes of Death. Retrieved from <http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>. The Alaska Bureau of Vital Statistics. (2015). Top Five Leading Causes of Death for Anchorage. Retrieved from: [http://dhss.alaska.gov/dph/VitalStats/Documents/stats/death\\_statistics/leading\\_causes\\_census/body3.html](http://dhss.alaska.gov/dph/VitalStats/Documents/stats/death_statistics/leading_causes_census/body3.html)

5 America Walks. (2017). Health Benefits of Walking. Retrieved from <http://americawalks.org/learning-center/benefits-of-walking-2/health/>.

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7 Alaska Department of Public Health. (2017). Leading Causes of Death in Alaska, 2015. Retrieved from [http://dhss.alaska.gov/dph/VitalStats/Documents/PDFs/LeadingCausesofDeath\\_2015.pdf](http://dhss.alaska.gov/dph/VitalStats/Documents/PDFs/LeadingCausesofDeath_2015.pdf).

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# CHAPTER

# 3

## Public Involvement

A series of public involvement opportunities helped shape the development of the AMATS NMP. The following section summarizes the types of outreach conducted as well as the key outcomes that guided plan development.

Residents, visitors, and other stakeholders were invited to provide feedback through a variety of formats, including workshops, presentations, mobile meetings, stakeholder interviews, field data collection, and an online community survey.

An agency advisory group (AAG) and community advisory group (CAG) provided additional oversight throughout the process by reviewing key deliverables, informing plan goals and objectives, and guiding the regulatory and implementation component of the plan.

## 3.1 Field Data Collection + Community Input Map

To start this effort, a public data collection event held during plan kick-off asked residents to capture points of interest and identify travel barriers as they walked and biked along six of the area's shared use pathways that were targeted for data collection (see Figure 3.1).

A project website provided general information for the plan, including an overview of the plan purpose, key documents, timeline, and contact information. Additionally, an online map (see Figure 3.2) asked residents and stakeholders to draw in routes they liked and disliked; identify point barriers to current non-motorized travel; highlight safety concerns; and locate destinations of particular interest. Figure 3.3 shows those results.

Walk Audit



## COMMUNITY ENGAGEMENT TIMELINE

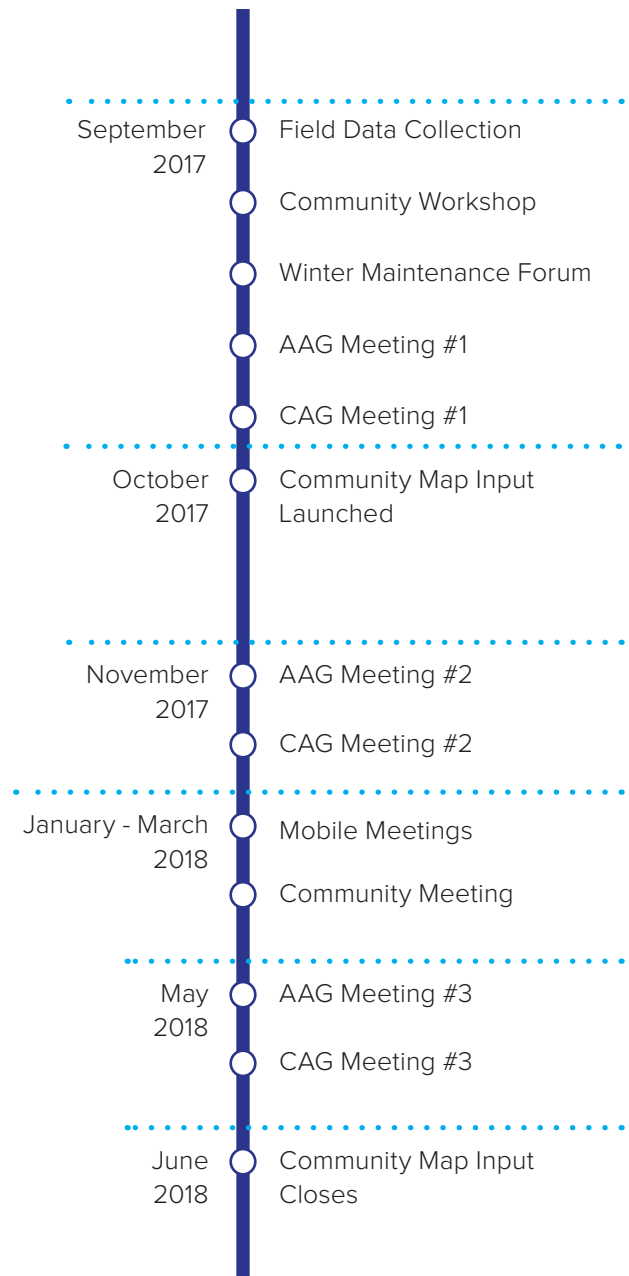




Figure 3.1: Shared Use Pathways Targeted for Data Collection

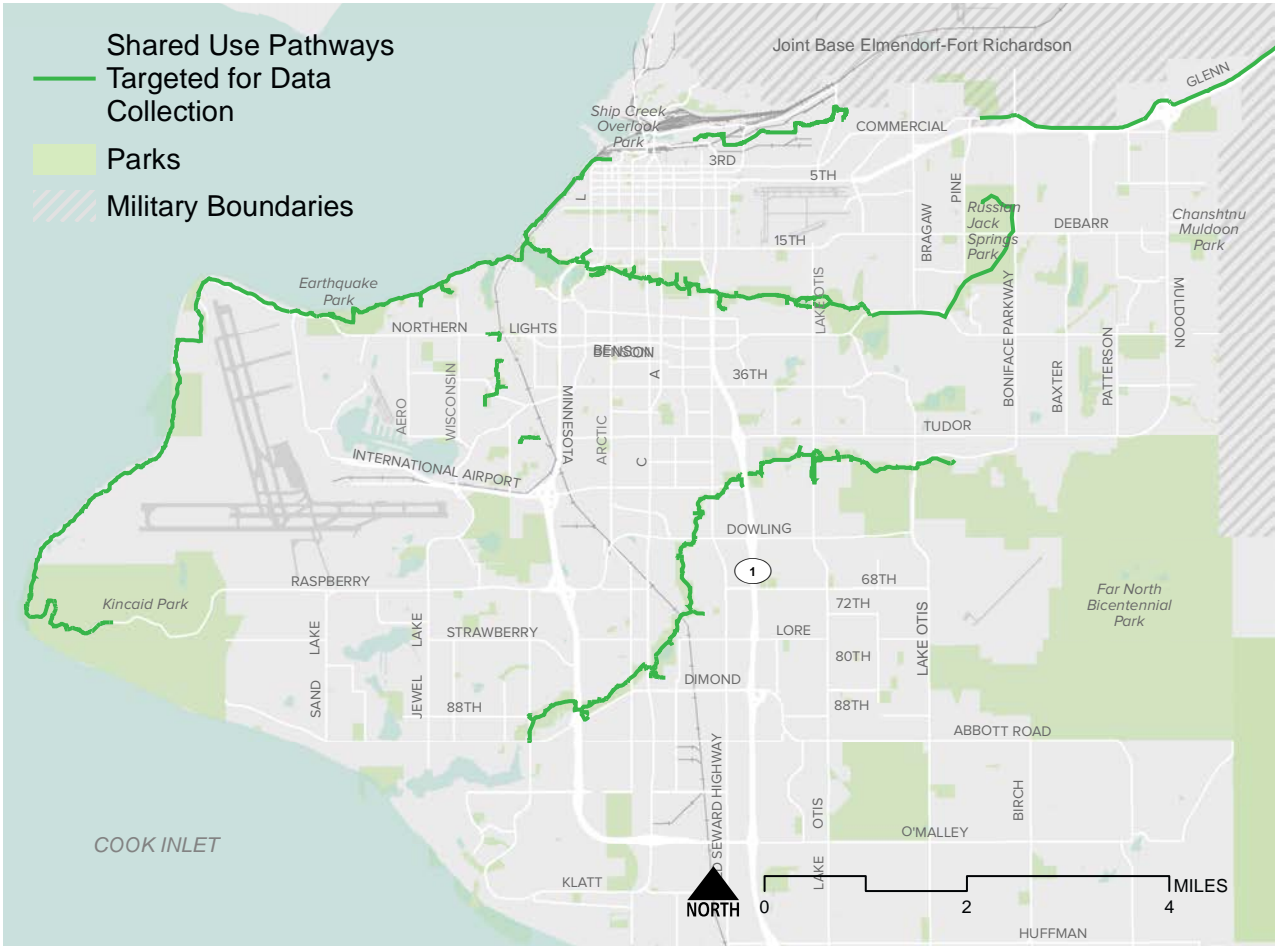


Figure 3.2: Online interactive map

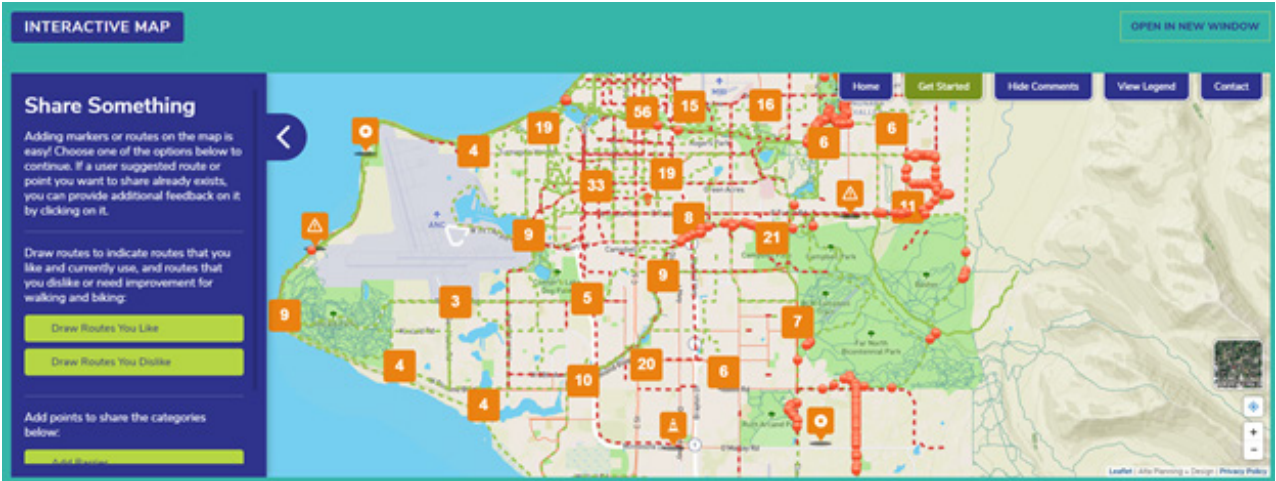
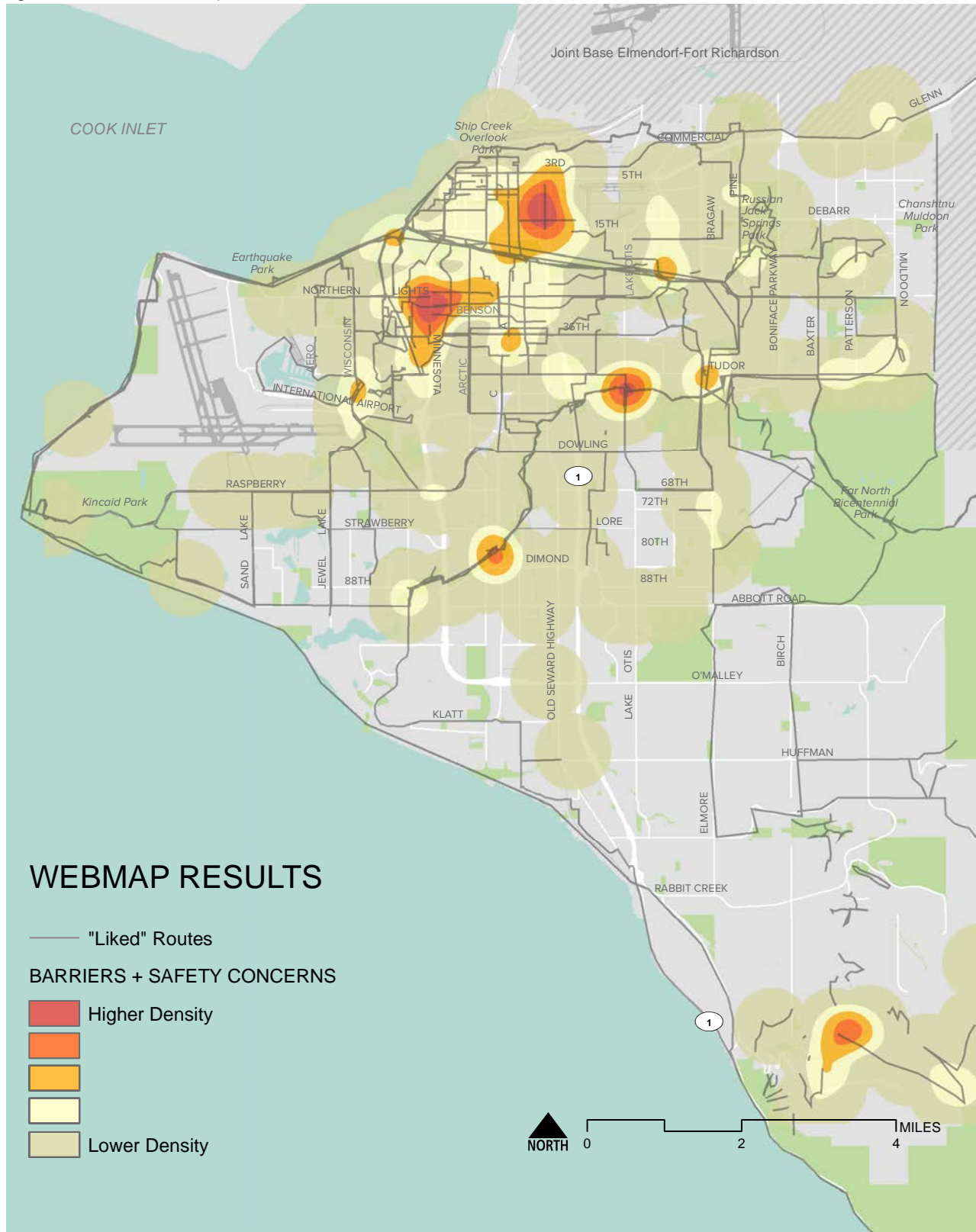


Figure 3.3: Results from webmap





Residents received a flier on how to use their mobile device for data collection and then they were invited to collect data as a group via an organized ride or individually. Over 15 volunteers joined the planning team during the data collection event.

Overall, the webmap was open for comment from November 2017 to June 2018. During this time, over 200 spot and corridor locations for recommended improvements were identified.

Frequent topics addressed by residents include the following:

» **Personal Safety:** Needed safety improvements along primary shared use pathways within the AMATS Planning area. Lighting, sight-lines, and general personal security were frequently noted.

» **Missing Connections:** Several routes were identified as routes that residents preferred to use but are currently lacking infrastructure that facilitates travel among destinations.

» **Safety:** Crossings and lack of facilities were noted as key concerns related to traveling safely across the network.

» **Connectivity and Access:** Clearly defining how and where to access shared use pathways through public right-of-way can encourage use of the shared use pathway system and support connections among facility types.

The results from this webmap helped inform project selection and prioritization; see Chapter 4 and 5 for more details.

NOMO Bike Tour



## 3.2 Open House/Community Workshop

A community workshop was held at the project kick-off. This workshop provided residents the opportunity to learn about project progress, engage with project staff, and provide comments on plan progress and direction.

In addition to boards and presentations, Community Workshop #1 included a community bicycle tour, which highlighted current infrastructure and potential design solutions for improving safety, connectivity, and accessibility across the network. A full meeting summary is available in the Appendix.

A general summary of findings includes the following:

» When asked to describe a vision of non-motorized Anchorage in three words, frequent answers included ‘connected’, ‘safe’ and ‘stress-free.’ These results are reported more completely in Table 3.1, below.

» Connections to shared use pathways and year-round accessibility for non-motorized transportation were listed as primary goals in mapping exercises.

» Frequently requested areas of improvement included on-street linkages to shared use pathways, connections to downtown and across the city and investment in intersection improvements.

Table 3.1: Workshop Feedback

WALKING & BIKING CONCEPTS	MOST IMPORTANT	SOMEWHAT IMPORTANT	LEAST IMPORTANT
<b>5 E's</b> – holistic approach that includes education, encouragement, engineering, enforcement and evaluation	3	10	0
<b>All Ages and Abilities</b> – providing infrastructure that is appropriate for people of all ages and abilities	7	6	0
<b>Safety</b> – safety from motor vehicles, as well as crime	15	0	0
<b>Connectivity</b> – making sure that getting from place to place is easy and convenient	17	1	0
<b>Directed Funding</b> – providing infrastructure while being respectful of project cost and budget constraints	3	11	0



Open House



Open House



Open House



### 3.3 Advisory Committees

The project included both a Citizens Advisory Group (CAG) and Agency Advisory Group (AAG). These meetings served to provide guidance on the overall plan development and direction for areas of additional focus. CAG Meetings are summarized below. Details of all meetings can be found in Appendix A2.

• **Meeting 2, November 2017.** This meeting presented the results of preliminary data gathering and analysis to the CAG for comment including findings from demand, health, equity analysis and community mapping conducted in September. Key feedback from this meeting included:

- » Recognition that the CAG and the AAG had aligning goals in terms of plan vision and goals
- » The plan should be diverse, coordinated, implementable, and create a world class city
- » Recognition that increasing the use of non-motorized facilities will also require a culture shift

• **Meeting 1, September 2017.** This meeting included an introduction to the plan context, the project team and previous planning efforts. The discussion included an overview of the planning effort, scope and schedule and anticipated goals of the stakeholder advisory committee. Attendees were then asked to help define the plan in terms of aspirations, success and obstacles. The following key themes were identified:

- » Aspirations: Network connections, enhancing interagency collaboration, forward-thinking and synergistic
- » Success: Increasing mode share, focus on public health, recognition of Anchorage as a leader in providing non-motorized transportation
- » Obstacles: Limitations in funding and maintenance of new types of infrastructure, momentum

Advisory Committee



Visioning Exercise Results



## AAG MEETINGS

The AAG meetings followed the same schedule and format as the CAG. Convening this group allowed cooperation and conversations about active transportation across departments. Throughout the course of the project the AAG provided guidance on major components of the plan including vision goals and objectives; peer cities selection; public engagement strategy; network recommendations, design guidance and project prioritization.

**Meeting 3, May 2018.** The focus of this meeting was a presentation of the final needs assessment and preliminary plan recommendations for consideration by the group. Key points of discussion included:

- » The need for more separated bicycle facilities along major roadways
- » The relatively high demand for walking and bicycling in midtown, downtown and along east-west and north-south corridors
- » The need for a comprehensive approach to network design
- » A desire for demonstration projects
- » A prioritized project list that reflects demand and maintenance of facilities (meeting notes are included in Appendix A2)

## 3.4 Mobile Meetings

In order to reach people less likely to engage on the Non-motorized plan, a series of mobile meetings were conducted in early 2018:

- » 2/8, Anchorage Transportation Fair (tabling, no formal presentation)
- » 2/14, Anchorage Senior Activity Center (tabling, no formal presentation)
- » 3/8, Anchorage Parks and Recreation Commission
- » 3/12, Eagle River/Chugiak Parks and Recreation Board
- » 3/13, Anchorage ADA Commission
- » 3/15, Anchorage Equal Rights Commission
- » 3/22, Anchorage Youth Advisory Commission
- » 4/12, Public Transit Advisory Board
- » 4/20, Alaska Nations Reentry Group

These meetings included a short presentation on vision, goals, and a short-written activity with 6 open-ended questions regarding how people move around the Anchorage Bowl, barriers to non-motorized transportation, possible solutions, and prioritizing the project goals.

When asked about barriers and solutions to active transportation in the AMATS Planning area, the following topics were identified:

- » More non-motorized transportation infrastructure
- » Improved maintenance of existing infrastructure
- » Increased safety and feelings of safety on shared use pathways
- » Better winter sidewalk maintenance and prioritization of snow removal
- » Better first and last mile connectivity to transit
- » Increased connectivity of non-motorized transportation infrastructure

A more detailed summary is included in the Appendix.



## 3.5 Winter Maintenance Forum

In September 2017, a winter maintenance forum was conducted to share information on winter maintenance practices, operations and challenges. The forum included presentations from agency operations including maintenance and operations from the MOA, AKDOT, and MOA Park Operations, case study presentations from three winter cities, summarized in the Appendix. The group then discussed what is currently working well in the AMATS Planning area:

- » Communication and collaboration are occurring between the city and state agencies.
- » There is increasing awareness of the need for winter maintenance of non-motorized infrastructure.
- » Anchorage is used to dealing with snow events.
- » Currently, major roads are plowed quickly, there is a desire to improve snow clearing practices.
- » Skilled workers are available to complete maintenance work when resources are available.

The following ideas were presented as potential ways to improve winter maintenance in the AMATS Planning area:

- » Communication could be improved so that design and maintenance are better aligned as projects are brought on line.
- » Identifying snow plowing priorities will improve function of the overall transportation system; cities should play an active role in shaping priorities and seek support from top public officials.
- » Purchase more right-of-way for snow storage as a long-term, network-based initiative.
- » Innovative methods should be investigated with an intent to increase the efficiency of plowing efforts.
- » Identify new sources of funding for winter infrastructure maintenance.



## CHAPTER

# 4



# Network Development

The following chapter outlines the proposed non-motorized transportation network for the AMATS Metropolitan Planning Area. Based on the goals and vision stated in Chapter 1, the proposed network aims to provide connected facilities for non-motorized users in the AMATS Planning area.

The recommendations were developed through an iterative process involving municipal staff, advisory group members, and the project team. These recommendations build on the previous bicycle, pedestrian and trails plans and consider the analysis discussed in Chapter 2 to create a network that reflects both past planning efforts and a new understanding of community wants and needs. The initial network recommendations were informed by the results of public engagement and the existing conditions analysis. The networks presented here represent the entire network if all the projects were to be built; example projects for implementation are defined in Chapter 6.

## 4.1 Bicycle Network

### APPROACH

The bicycle network recommendations include both on-street and off-street facilities and build on the existing shared use pathway and sidepath network throughout the planning area. The network aims to provide connected, low-stress travel and includes upgrades to existing facilities. For example, paved-shoulder bikeways currently exist along routes that provide vital connections among destinations and existing facilities. To reflect the role of these links in the network, the recommendations presented here include formalizing these routes into designated bicycle routes offering greater separation from motor vehicles. The bicycle facility type shown on the map should be considered a recommended starting place. The ultimate bicycle facility type should be determined during conceptual development.

Facility recommendations focus on the following types:

» **Enhanced Shared Roadway:** Located on local roadways, enhanced shared roadways include yield roadways and bicycle boulevards. This plan seeks to be visionary while balancing the needs of all roadway users. In places where implementation of enhanced shared roadways may require traffic calming to reduce motor vehicle volumes, traffic



*Bicycle boulevard in Anchorage, AK*

studies will be performed in partnership with the Traffic Department to demonstrate the need for any increased maintenance elements. An iterative process of traffic study, implementation of minimal necessary traffic calming elements, and further monitoring should be followed to ensure enhancements result in improved safety and bicycling.

- **Yield roadway-** A yield roadway is designed to serve pedestrians, bicyclists, and motor vehicle traffic in the same slow-speed travel area.
- **Bicycle boulevard-** Bicycle boulevards provide comfortable and attractive places to ride a bicycle or walk for people of all ages and abilities using minor street design modifications including wayfinding signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow through movements of bicyclists while discouraging similar through-trips by non-local motorized traffic.

» **Separated Bikeway:** Located along major roadways, these facilities may reflect either a sidepath or physically separated bike lanes. It is understood that major roadways provide for the most direct, continuous path of travel in many locations, and these recommendations focus on improving these corridors for bicycle use.

» **Shared use pathways:** Located in areas without existing right-of-way, shared use pathways provide for connections among existing and/or proposed facilities where the roadway grid does not support direct travel. Shared use pathways recommendations are primarily located through parks or other open spaces; they are considered Class V under the forthcoming PM&E Design Criteria Manual. It is understood that shared use pathway segments will also accommodate pedestrian travel.



Figure 4.1: Recommended Bicycle Network

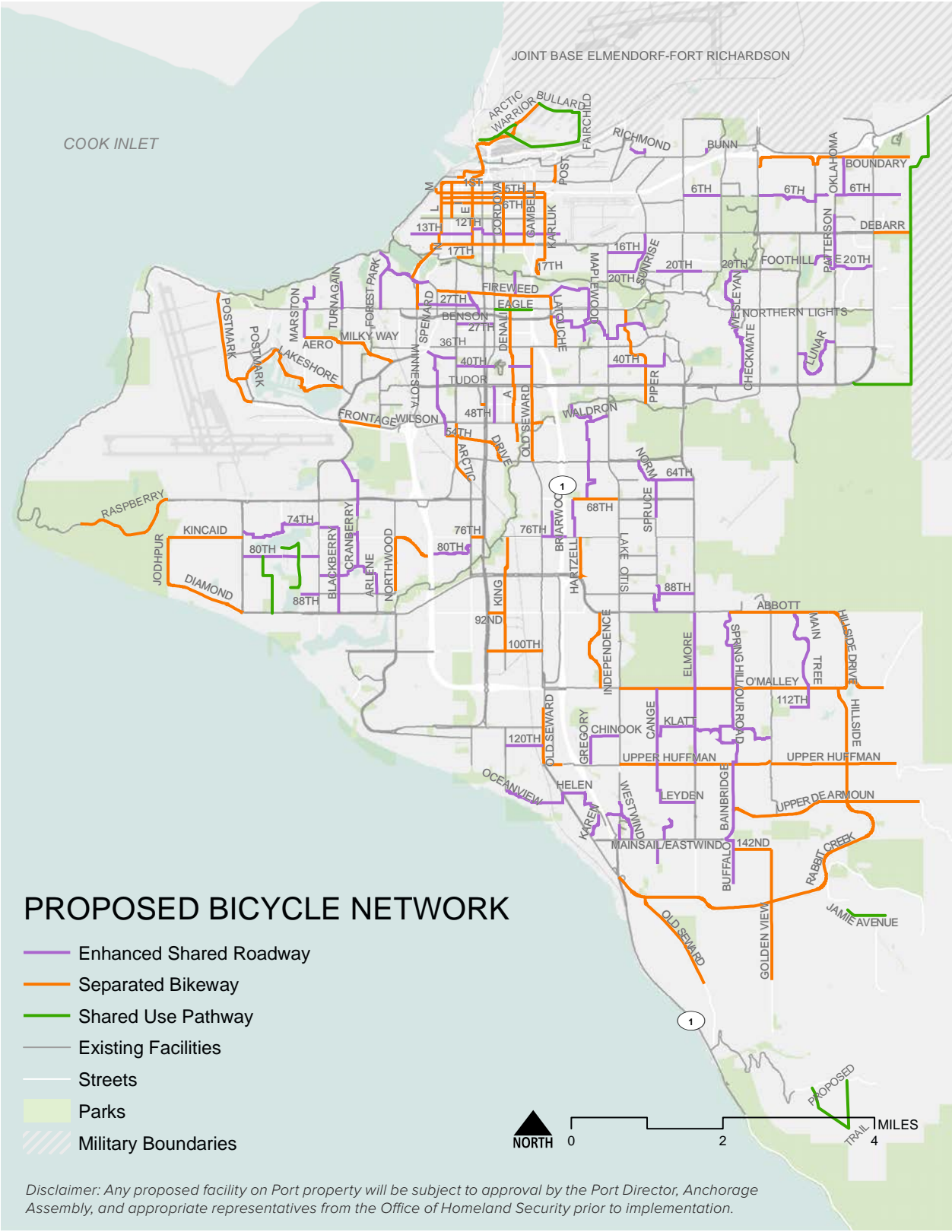


Figure 4.2: Recommended Bicycle Network | Chugiak-Eagle River

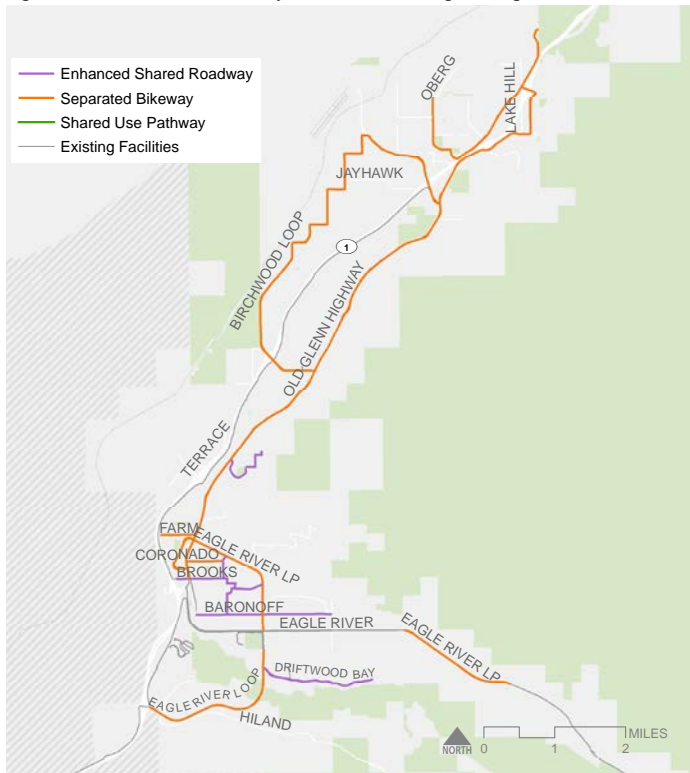
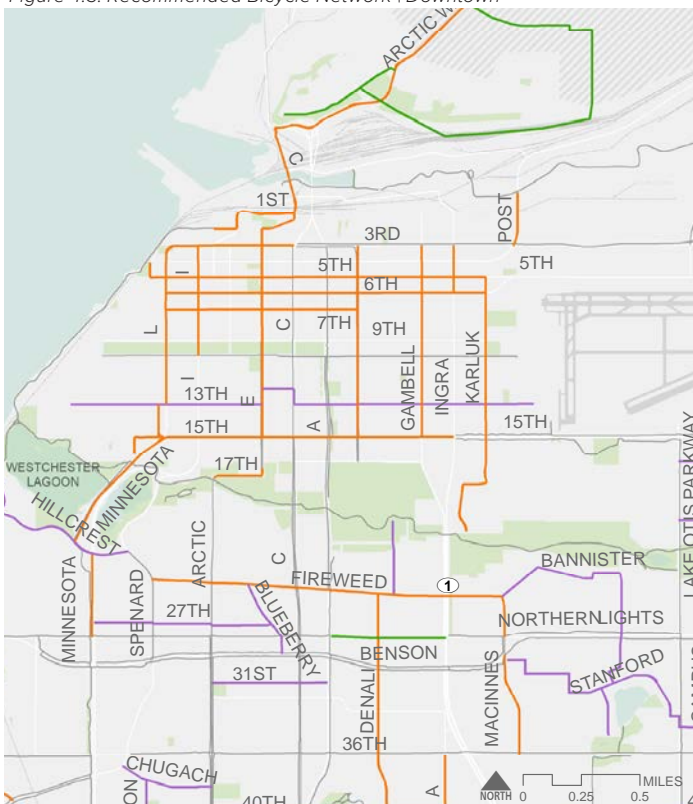


Figure 4.3: Recommended Bicycle Network | Downtown



Details of the design considerations for each of the above outlined facility types can be found in Chapter 7, including a chart of and methods for selecting the appropriate bicycle facility.

The Recommended Bicycle Network map (Figure 4.1) reflects the proposed bicycle network. For further detail regarding example projects and implementation, please see Chapter 5.

## METHODOLOGY

Bicycle facility recommendations were determined based on the existing conditions analysis and needs assessment. Gaps in the existing arterial network were filled first, while a secondary network of enhanced separated bikeways was also identified to provide connections throughout neighborhoods. Where applicable, recommendations were compared to proposed projects from previous planning efforts and refined to incorporate the previous recommendation. In some cases, however, it should be noted that previous recommendations may not have supported the network vision for this plan; for this reason, previous recommendations were evaluated with the lens of this plan's goals, vision, and existing conditions analysis. Projects that were not identified in this plan, but were identified in previous planning efforts should be considered to be included in the forthcoming trails plan.

Bike network recommendations were assigned a general facility type based on corridor conditions and a final facility type will be selected during corridor design. For example the plan might recommend a separated bikeway but not specify a protected bike lane or sidepath. During the design phase, a sidepath might be selected as the best facility type in order to serve multiple types of active transportation users. Similarly, an enhanced shared roadway might be assigned in a corridor

*Disclaimer: Any proposed facility on Port property will be subject to approval by the Port Director, Anchorage Assembly, and appropriate representatives from the Office of Homeland Security prior to implementation.*

## 4.2 Pedestrian Network

### APPROACH

The pedestrian network recommendations include the shared use pathway and sidepath network recommendations as described in the bicycle network section. In addition, the pedestrian network recommendations include identified corridors where improvements to pedestrian facilities can have the greatest impact, and the plan recognizes the 2007 Pedestrian Plan as a primary resource for identifying the type of facility (e.g., sidewalk or sidepath) that has been recommended for a given corridor.

Previous planning efforts within the AMATS planning area have developed a list of specific project locations and recommended improvements. Through experience, AMATS has found that while these recommendations provide clear direction, over time they can become limiting. Conditions change over the life of a plan, initial funding scope can change significantly over time, best practices in infrastructure design may be updated, and demand patterns may change in response to growth.

Further, data availability limits the ability to comprehensively address issues such as sidewalk gaps and spot improvements.

For these reasons, this plan does not attempt to update every recommendation for the entire pedestrian network; rather it recognizes the 2007 Pedestrian Plan as the foundation for the pedestrian network recommendations (see pages 86-96 for pedestrian project list) and identifies key corridors where pedestrian improvements may have the greatest impact. A key corridor represents an area where pedestrian demand is high and improvements along the identified roadway or parallel routes should be made to create a quality pedestrian network that connects to destinations. This plan can be used to better direct project funding based on need and overall network benefit. By identifying corridors of need, the plan provides flexibility during the engineering and design phase where the most appropriate facility type for a given corridor can be identified.

It should be noted, however, that in many locations throughout the AMATS Planning area, routing options are limited due to the roadway configuration: the nearest parallel route may require significant out-of-direction travel for pedestrians and limit access to commercial centers and other services. While this plan aims to provide flexibility in project implementation, it is recommended that the selected corridors be given preference for implementation. Detailed, area specific recommendations from the previous pedestrian plan have been retained and are carried forward on pages 86-96 and can be consulted as a starting point for projects along priority corridors or other spot improvements that can be completed over time.

### METHODOLOGY

Pedestrian corridors were selected based on the following criteria:

- » Vision Zero High Injury Network, as identified in the concurrent Vision Zero planning process
- » Areas of High Demand, representing the top two tiers of composite demand analysis completed as part of this plan
- » Areas of High Need, representing the top tiers of the composite equity analysis completed as part of this plan; this captures the top two groupings of the composite score
- » Proximity to transit stop locations and pedestrian-focused public input were also used to further refine the corridor recommendations. Transit stop locations were a component of the Demand Analysis. Details of this analysis, as well as the criteria list above, can be found in Chapter 2.

Selected corridors are classified into two categories.

**Primary Corridors** represent roadways that fall within areas of high demand and high equity need, or are identified as high collision corridors; they represent the greatest potential to positively impact the pedestrian network. **Secondary Corridors** are roadways that fall within only one of the criteria but

also provide access to transit, close gaps between primary corridors, or were identified through public input.

Within Chugiak-Eagle River, no Vision Zero High Collision Corridors were identified, and no area falls within the threshold of equity need. For this reason, only secondary corridors were identified based on demand, existing shared use pathway connections, and in some locations, connections to schools.

## CONSIDERATIONS FOR CORRIDOR SELECTION

Selection of the precise alignment of an improvement within the corridor should be based on a number of considerations. The selected corridor should provide a continuous path of travel with connections to destinations, improved safety, and where possible, maximum separation from motor vehicles. The selected alignment should consider these elements—and others—in combination with each other and with existing movement patterns. The list on page 58 provides some considerations for selecting an alignment within a corridor if the proposed alignment is not feasible at the time of implementation.

The Anchorage Pedestrian Plan of 2007 can be used as a primary resource for identifying the type of facility (e.g., sidewalk or sidepath) that is recommended for a given corridor. However, the recommended facility type can and should be

updated according to current conditions and best practices, which may have changed since the 2007 plan. The specific improvement along a selected corridor should be selected based on the context of the corridor, presence of a bicycle network recommendation, existing gaps, and particular safety considerations at that location. See Chapter 7 for facility options, including design considerations to facilitate winter maintenance.

The Recommended Pedestrian Network map shows the selected corridors for pedestrian improvement. Project implementation should focus on the best route along or adjacent to these corridors to provide for safe, connected pedestrian travel.

### Considerations for Project Selection

The design guidelines, in Chapter 7, as well as the PM&E Design Criteria Manual and the DOT&PF Preconstruction Manual, provide a starting point for the type of improvements that can be completed for each corridor. Anticipated projects include sidewalk or sidepath infill, sidepath or sidewalk repair and curb ramp and other crossing improvements. Recommendations from the previous pedestrian plan, included in Appendix A.1, can also be used as a starting point. Within a corridor, high priority areas include access points to community destinations, commercial areas, transit stops and trail heads.



Figure 4.4: Recommended Pedestrian Network

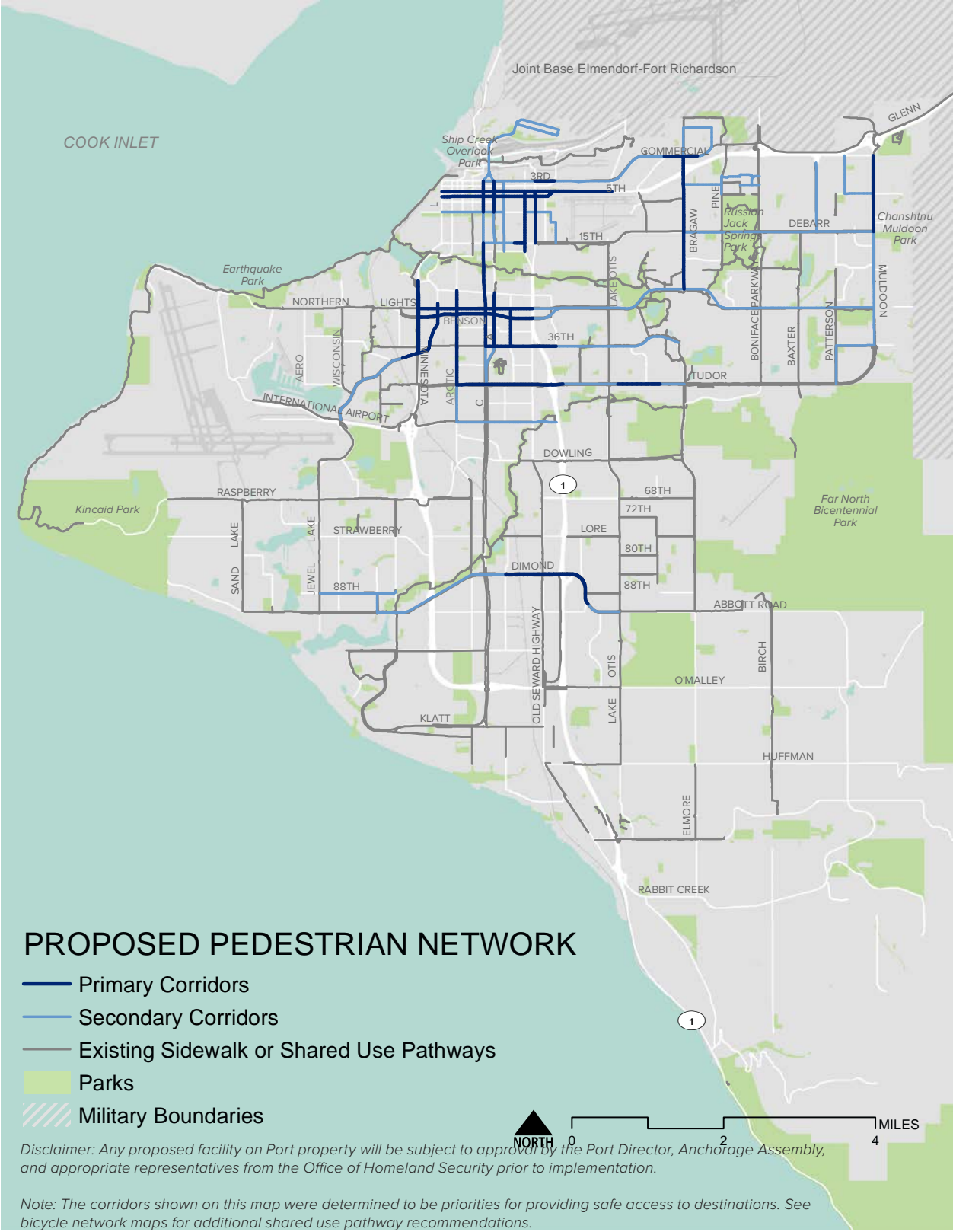
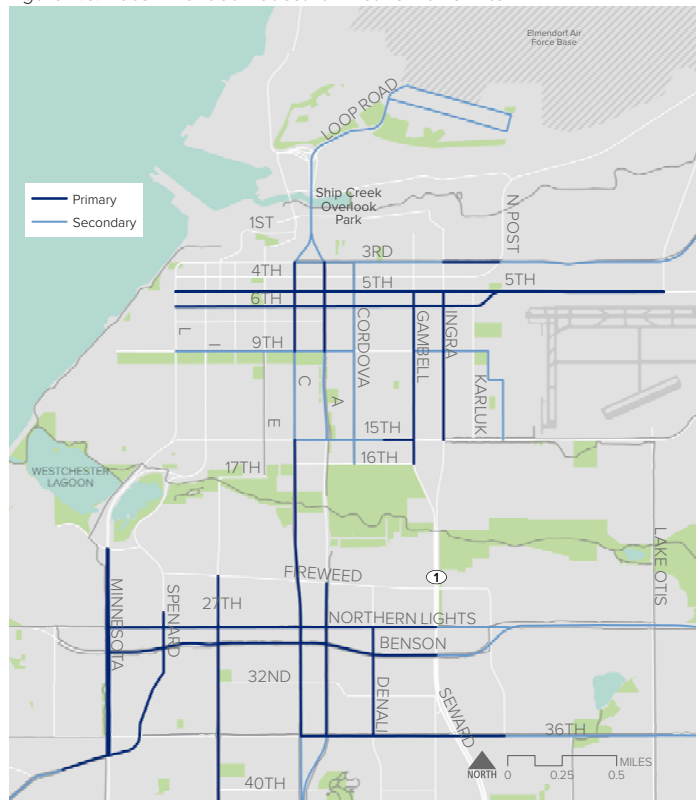


Figure 4.5: Recommended Pedestrian Network | Chugiak-Eagle River



Figure 4.6: Recommended Pedestrian Network | Downtown



### Safety

» Can project selection help remedy an existing safety concern through improved sidewalks, enhanced signage and lighting, gap closure, or improved connectivity? Evaluate collision locations, frequency of collisions, and the High-Injury Network. The Vision Zero plan contains additional detail on recommended countermeasures designed to improve safety.

### Connectivity

» Does the alignment provide opportunity to connect directly to destinations, including schools, parks, commercial districts, and employment centers?

### Network Completeness

» Does the alignment connect to existing facilities and lend to a complete network?

### Improved Comfort

» Does the alignment provide for increased separation from motor vehicles?

### Seasonality

» Does the alignment provide for safe, efficient pedestrian travel during all seasons? How does the alignment correspond with existing snow clearance schedules or agreements? Priority should be given to alignments that facilitate pedestrian travel across seasons.

*Note: The corridors shown on these maps were determined to be priorities for providing safe access to destinations. See bicycle network maps for additional shared use pathway recommendations.*

*Disclaimer: Any proposed facility on Port property will be subject to approval by the Port Director, Anchorage Assembly, and appropriate representatives from the Office of Homeland Security prior to implementation.*

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# CHAPTER

# 5



# Prioritization

The recommended networks presented in Chapter 4 represent a comprehensive network approach consisting of 169.2 miles of bicycle facilities and shared use pathways, and 62.6 miles of pedestrian corridors. Implementation of these facilities over time will lead to a more comfortable, connected network that facilitates non-motorized travel across the planning area. However, this network also represents a significant investment in infrastructure. To help AMATS determine project priority that will support methodological growth of the network over time while implementing facilities where they are needed most, a detailed prioritization matrix was developed.

The following chapter outlines the prioritization process developed for the NMP. The process reflects not only the NMP goals and objectives, but also builds on input from agency staff and advisory groups, current best practices in the field, and needs identified through public engagement. The resulting networks display projects based on three tiers of implementation: short term projects (less than 5 years), mid-term projects (5-to-10 years), and long-term projects (10 years or more).

## 5.1 Prioritization Criteria

The matrix, shown in Table 5.1, outlines the process for determining recommendation priority. These criteria are derived from the project goals and vision, including connections to key destinations, filling key network gaps, and building on previous planning efforts and public support.

For each criterion, projects are generally assigned a score of high (5), medium (3), or low (1). A composite priority measure will be developed based on the sum of all six factors. Total scores falling within the top third will be considered high priority projects; total scores falling in the lower third will be considered low priority projects; and scores falling in the middle third will be considered medium priority.

With the exception of two criteria, these measures apply to both bicycle and pedestrian projects. However, Gap Closure and Previous Support apply only to the bicycle recommendations. Due to limitations in datasets reflecting both the sidewalk network and previous recommendations for pedestrians, these measures are not applicable to the pedestrian network.

PEDESTRIAN CORRIDOR RECOMMENDATIONS

PRIMARY PEDESTRIAN CORRIDOR

23.6 MILES

SECONDARY PEDESTRIAN CORRIDOR

39.02 MILES

SHARED USE PATHWAY (TRAIL TYPE V)

31.85 MILES

BICYCLE CORRIDOR RECOMMENDATIONS

ENHANCED SHARED ROADWAY

57.98 MILES

SEPARATED BIKEWAY

79.38 MILES

SHARED USE PATHWAY (TRAIL TYPE V)

31.85 MILES

NOMO Bike Tour



NOMO Bike Tour



NOMO Bike Tour



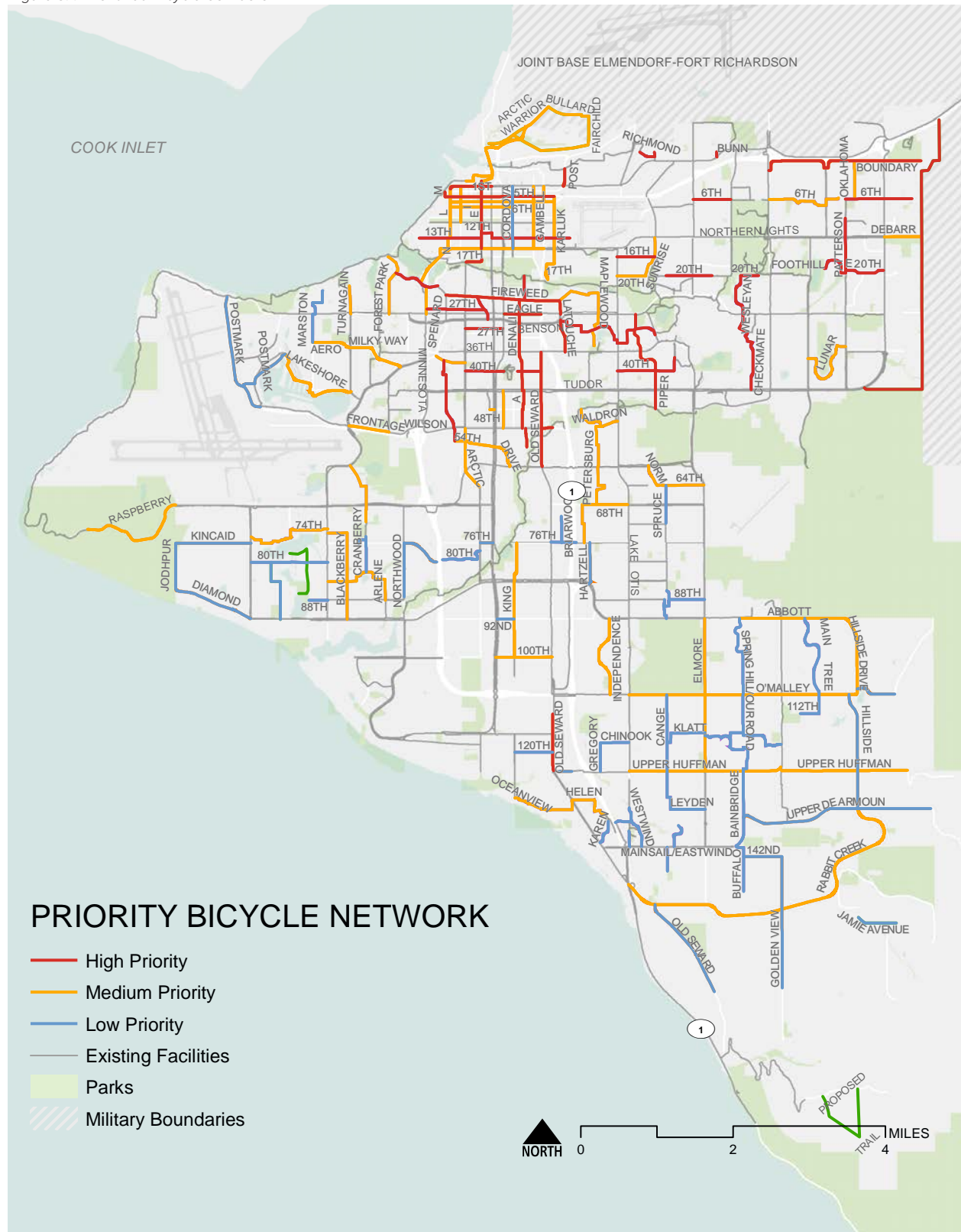
Table 5.1: Prioritization Criteria Matrix

CRITERIA	DESCRIPTION	SOURCE	CONDITION	SCORE
CONNECTIVITY	Project provides improved connectivity within high demand areas and/or to parks and schools (K-12). A overall score is created based on the sum of scores for each DEMAND, PARKS, and SCHOOL. Scores within the top third will be considered HIGH priority; scores in the middle third will be considered MEDIUM priority; scores in the bottom third will be considered LOW priority.	DEMAND	Project is located within ¼ mile of a high demand area.	HIGH (5)
			Project is located within ½ mile of a high demand area.	MEDIUM (3)
			Project is not located in a high demand area.	LOW (1)
		SCHOOLS	Project is located within ¼ mile of a school.	HIGH (5)
			Project is located within ½ mile of a school.	MEDIUM (3)
			Project is not located in close proximity to a school.	LOW (1)
		PARKS	Project is located within 1/4 mile of a park.	MEDIUM (3)
			Project is not located in close proximity to a park.	LOW (1)
HEALTH + EQUITY	Active transportation improvements provide the opportunity to positively impact access to basic needs and offer opportunities for improving health outcomes. Projects improving access for populations within equity focus areas, as defined through this plan, are awarded a higher score.	Composite Equity Analysis, Health Analysis (see Chapter 2)	Project is located within the top quantile of composite equity focus areas.	HIGH (5)
			Project is located in the second quantile of equity focus areas.	MEDIUM (3)
			Project is not located within the top two quantiles of equity focus areas.	LOW (1)
GAP CLOSURE (Bicycle/Shared use pathway Corridor Level only)	Projects closes a gap in the existing network, either connecting to existing facilities or extending the length of an existing facility. This criterion applies only to the bicycle and shared use pathway networks as comprehensive sidewalk data is not available.		Project connects two existing facilities	HIGH (5)
			Project connects to an existing facility, extending the network.	MEDIUM (3)
			Project does not extend the existing network.	LOW (1)



CRITERIA	DESCRIPTION	SOURCE	CONDITION	SCORE
SAFETY	The projects proposed as part of this plan have the opportunity to improve the safety of bicyclists and pedestrians within the planning area. Projects that are located along high crash corridors (as defined by the concurrent Vision Zero planning process) should be considered higher priority in terms of their ability to positive impact safety for active transportation.	Vision Zero High Crash Corridors (provided by Kittleson). High crash corridors are defined separately for pedestrians and bicycles.	Project is located along a corridor identified as a high crash corridor.	HIGH (5)
			Project creates a parallel route within ¼ mile of a high crash corridor.	MEDIUM (3)
			Project is not located along a high crash corridor.	LOW (1)
PREVIOUS SUPPORT (Bicycle/Shared use pathways Only)	Previous planning efforts have proposed a wide range of facilities. While new opportunities exist to expand the network, it is important to recognize and build on the work of previous planning efforts to establish a functional bicycle network.	<p>Plan review, including plans listed in Chapter 2 and the following:</p> <ul style="list-style-type: none"> <li>•2035 Metropolitan Transportation Plan</li> <li>•AMATS Northern Lights/ Benson Blvd Pedestrian Safety Study</li> <li>•West Anchorage District Plan</li> <li>•Government Hill Neighborhood Plan</li> <li>•Mountain View Neighborhood Plan</li> <li>•Hillside District Plan</li> <li>•2040 Land Use Plan</li> <li>•Spenard Corridor Plan</li> <li>•Fairview Neighborhood Plan</li> </ul>	Project appears in previous plans.	LOW (1)
PUBLIC SUPPORT	A public engagement map provided citizens the opportunity to comment on existing conditions, preferred routes, and other barriers to safe non-motorized travel. The results of this map have been used to inform the recommendations of this plan. Further, recommendations consistent with this input will be prioritized.	Public Comment Map Results	Project is located along a corridor identified as a preferred route in the public comment map.	MEDIUM (3)
			Project is not located along a corridor identified as a referred route in the public comment map.	LOW (1)

*Figure 5.1: Prioritized Bicycle Corridors*

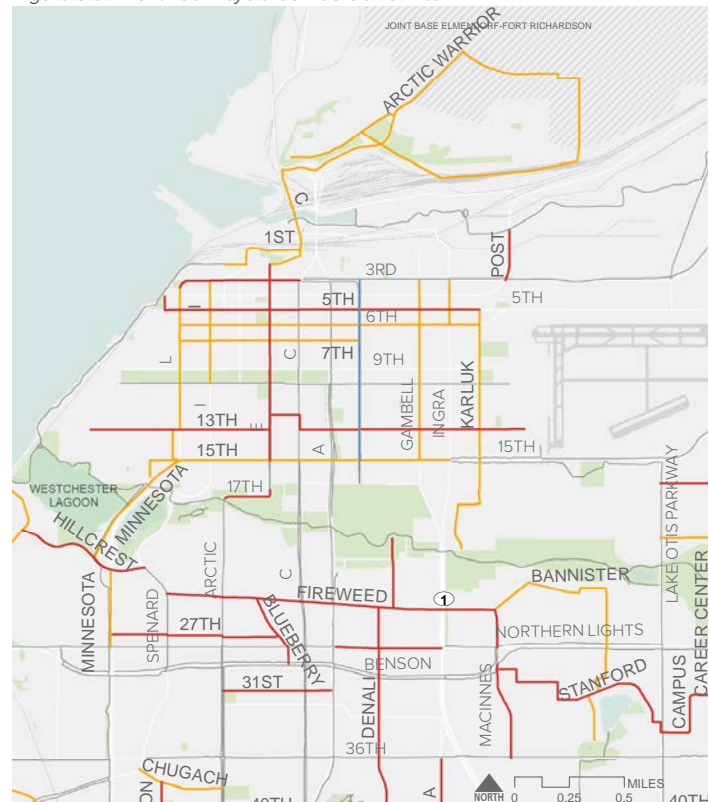


The Prioritized Bicycle Corridors, Prioritized Bicycle Corridors Chugiak-Eagle River, and Prioritized Bicycle Corridor Downtown maps (Figures 5.1, 5.2, and 5.3) reflect the results of the prioritization process. Projects are separated into high, medium, and low priorities. High priority projects should be considered in the next 1-to-5 years, as funding becomes available, and represent projects that can have the greatest impact on network quality. A listing of all projects organized by priority—high, medium, or low—is provided in Table 5.2 (see page 70).

Figure 5.2: Prioritized Bicycle Corridors | Chugiak-Eagle River

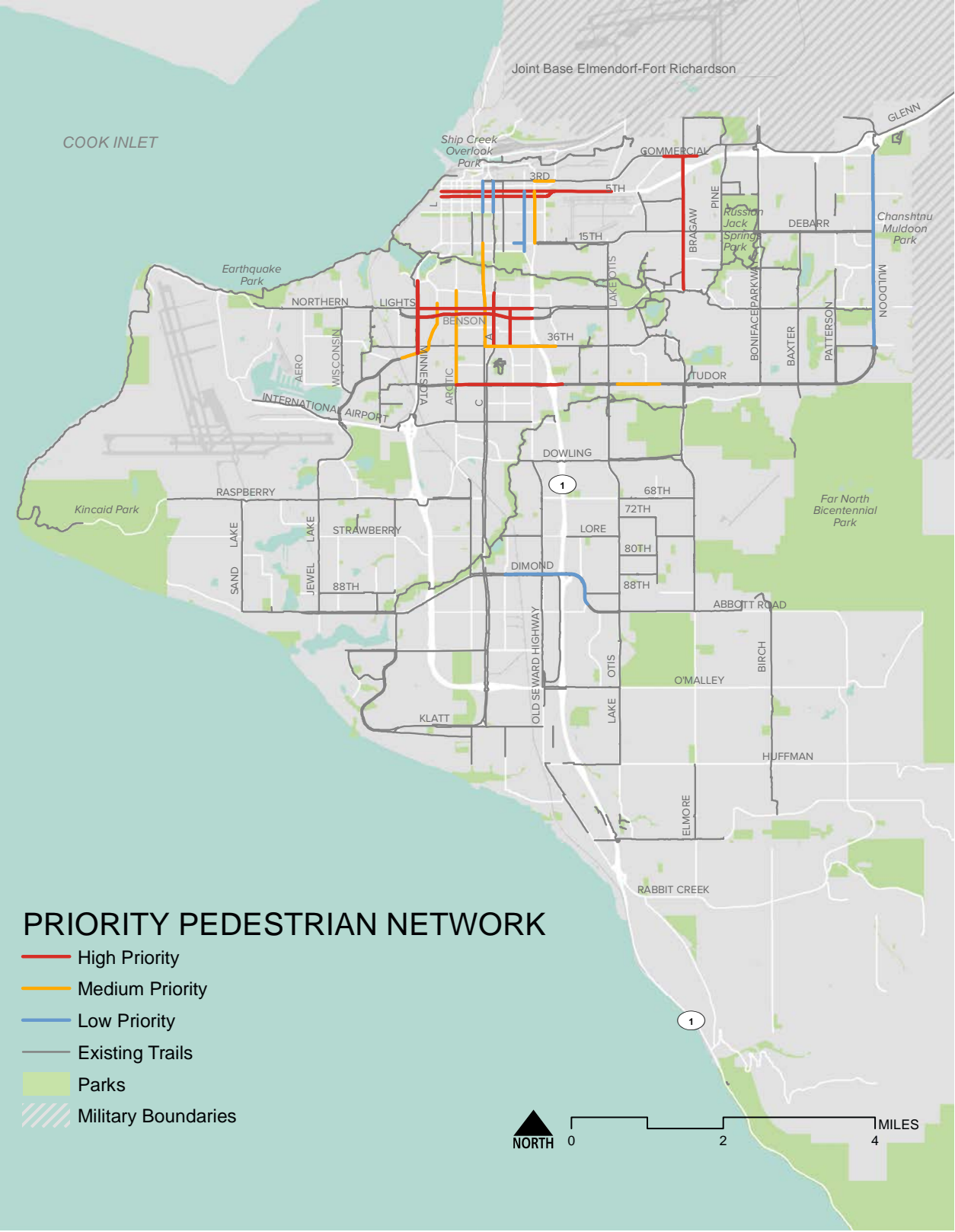


Figure 5.3: Prioritized Bicycle Corridors | Downtown



*Disclaimer: Any proposed facility on Port property will be subject to approval by the Port Director, Anchorage Assembly, and appropriate representatives from the Office of Homeland Security prior to implementation.*

Figure 5.4: Prioritized Pedestrian Corridors





The pedestrian prioritization (see Figures 5.4, 5.5) represents only those corridors identified as Primary. As noted previously, Primary Corridors represent roadways that fall within areas of high demand and high equity need, or are identified as high collision corridors; they represent the greatest potential to positively impact the pedestrian network. While all Primary Corridors receive a high prioritization score,

ranking these projects in relation to each other provides a better understanding of how to approach implementation of the Primary Corridors. A listing of all projects organized by priority—high medium, or low—is provided in Table 5.3 (see page 84). A list of priority pedestrian projects from the 2007 Anchorage Pedestrian Plan is provided in Table 5.4 (see page 86)

Figure 5.5: Prioritized Pedestrian Corridors | Downtown

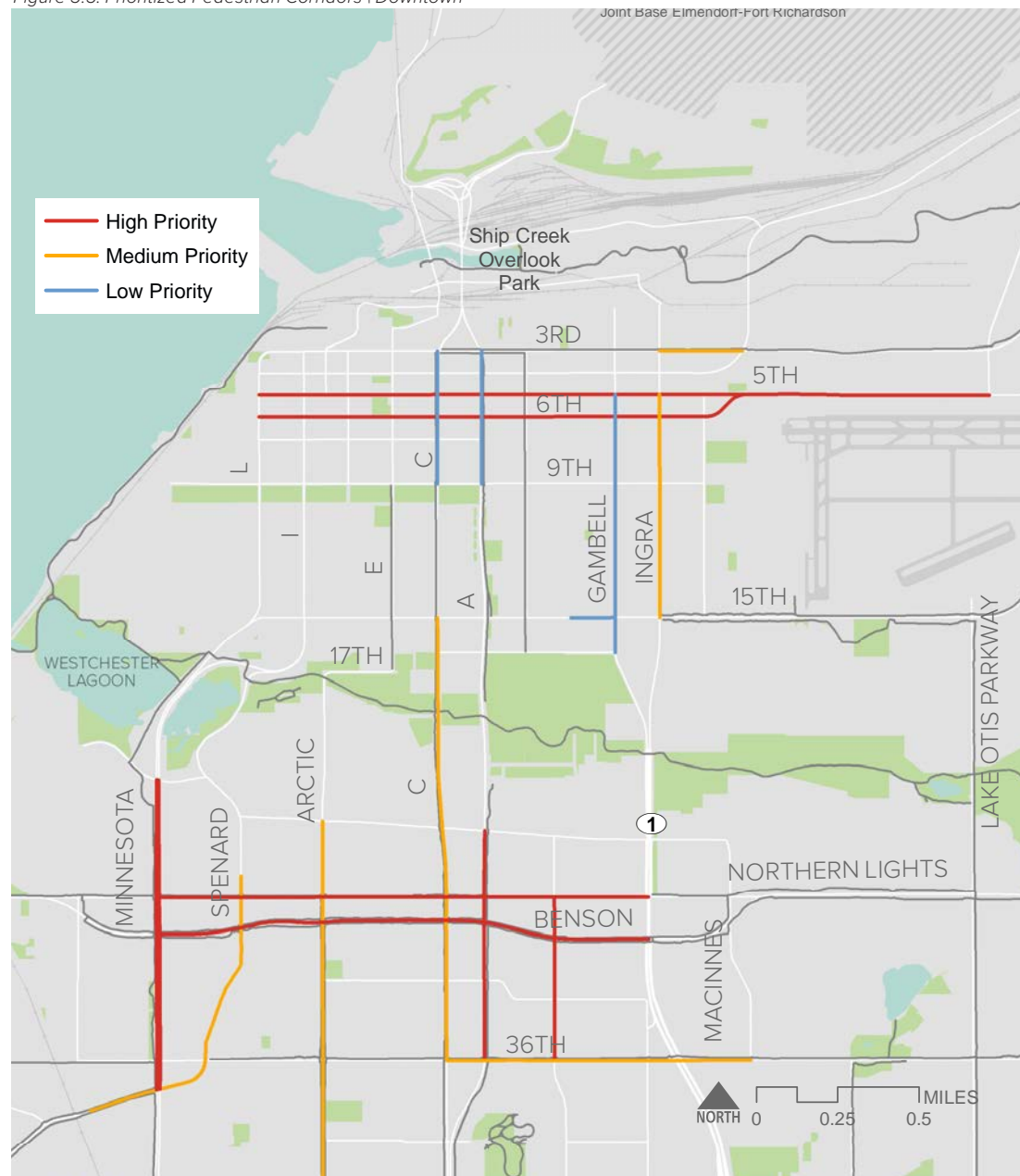


Table 5.2: Bicycle Projects\*

LENGTH (MILES)	CORRIDOR / STREET NAME	FACILITY TYPE	CORRIDOR TO	CORRIDOR FROM	
0.14	12th	Enhanced Shared Roadway	C Street	E Street	
1.02	13th	Enhanced Shared Roadway	Nelchina Street	C Street	
0.82	13th	Enhanced Shared Roadway	E Street	S Street	
0.5	16th	Enhanced Shared Roadway	Sunrise Drive	Lake Otis Parkway	
0.23	17th	Separated Bikeway	Arctic Boulevard	E Street	
0.6	20th	Enhanced Shared Roadway	Russian Jack Spur Elementary school access gate	Rosemary Street	
0.23	20th	Enhanced Shared Roadway	Wesleyan Drive	Russian Jack Park Trails	
0.76	27th	Enhanced Shared Roadway	Blueberry Road	Minnesota Drive	
0.5	31st	Enhanced Shared Roadway	A Street	Arctic Boulevard	
0.56	3rd	Separated Bikeway	C Street	L Street	
0.82	40th	Enhanced Shared Roadway	Old Seward Highway	Arctic Boulevard	
0.78	40th	Enhanced Shared Roadway	Wellness Street	Lake Otis Parkway	
0.16	40th Ave/Wilson	Enhanced Shared Roadway	Harrison Street	Chugach Way	
0.05	41st	Enhanced Shared Roadway	Harrison Street	Wilson Street	
1.43	5th	Separated Bikeway	Karluk Street	M Street	
0.88	6th	Enhanced Shared Roadway	Cherry Street	Patterson Street	
0.5	6th	Enhanced Shared Roadway	Pine Street	Bragaw Street	
2.52	Birchwood Loop	Separated Bikeway	Old Glenn Highway	Hidden Hill Court	
1.54	Birchwood Loop	Separated Bikeway	Old Glenn Highway	Old Glenn Highway	
2.51	Birchwood Loop	Separated Bikeway	Old Glenn Highway	Birchwood Spur Road	
0.34	Blueberry	Enhanced Shared Roadway	West Fireweed Lane	West Benson Boulevard	
2.23	Boundary	Separated Bikeway	Unnamed Road	Boniface Parkway	
0.07	Bunn	Enhanced Shared Roadway	Peterkin Avenue	Mountain View Drive	
0.07	C	Enhanced Shared Roadway	13th Avenue	12th Avenue	
1.39	Career Center/Seawolf/ Piper	Separated Bikeway	East 48th Avenue	East Northern Lights Boulevard	
1.97	Denali	Separated Bikeway	East International Airport Road	East Fireweed Lane	
0.89	E	Separated Bikeway	West 15th Avenue	West 2nd Avenue	
0.52	E 20th	Enhanced Shared Roadway	Muldoon Road	Patterson Street	

\*Separated bikeway can include on-street bike lanes as are existing on Spenard Rd. between 30th Ave. and Hillcrest Dr.

	PRIORITY	PREVIOUS PLAN 1	PREVIOUS PLAN 2	PREVIOUS PLAN 3	PREVIOUS PLAN 4
	High				
	High	Anchorage Downtown Plan	Anchorage Bike Plan 2010		
	High	Anchorage Downtown Plan	Anchorage Bike Plan 2010		
	High				
	High				
	High		Anchorage Bike Plan		
	High				
	High		Anchorage Bike Plan 2010		
	High		Anchorage Bike Plan 2010		
	High	Anchorage Downtown Plan	Anchorage Bike Plan 2010		
	High				
	High				
	High				
	High				
	High				
	High				
	High				
	High	Anchorage Bike Plan 2010	Eagle River Central Business District and Residential Core Circulation Study		
	High				
	High	Anchorage Bike Plan 2010	Eagle River Central Business District and Residential Core Circulation Study		
	High				
	High	East Anchorage District Plan	Anchorage Bike Plan 2010	Anchorage 2020	
	High	Mountainview Neighborhood Plan	Anchorage Bike Plan 2010		
	High				
	High				
	High				
	High	Anchorage Downtown Plan	Anchorage Bike Plan 2010		
	High	East Anchorage District Plan	Anchorage Bike Plan 2010	Anchorage 2020	

Table 5.2: Bicycle Projects (con't)

LENGTH (MILES)	CORRIDOR / STREET NAME	FACILITY TYPE	CORRIDOR TO	CORRIDOR FROM	
0.32	Eagle	Enhanced Shared Roadway	East Fireweed Lane	Chester Creek Trail	
2.38	Eagle River Loop	Separated Bikeway	Frontage Road	VFW Road	
2.63	Eagle River Loop	Separated Bikeway	Eagle River Road	Old Glenn Highway	
1.5	Fireweed	Separated Bikeway	Latouche Street	Spenard Road	
0.42	Foothill	Enhanced Shared Roadway	Sherwood Avenue	Cheney Lake Park	
0.53	Frontage	Separated Bikeway	Northwood Drive	Spenard Road	
0.04	Harrison	Enhanced Shared Roadway	West 41st Avenue	Wilson Street	
0.62	Hillcrest	Enhanced Shared Roadway	Spenard Road	Forest Park Drive	
0.62	Latouche	Separated Bikeway	East 36th Avenue	Fireweed Lane	
0.06	M	Separated Bikeway	5th Avenue	Elderberry Park	
0.06	Meyer	Enhanced Shared Roadway	Peterkin Avenue	Richmond Avenue	
0.97	Mills/Newcomb/ Checkmate	Enhanced Shared Roadway	East Tudor Road	Wesleyan Drive	
0.48	Northern Lights	Shared Use Pathway	Seward Highway	A Street Trail	
1.65	Old Seward	Separated Bikeway	East Dowling Road	East 36th Avenue	
0.75	Old Seward	Separated Bikeway	Huffman Road	O'Malley Centre Drive	
0.72	Patterson	Enhanced Shared Roadway	Sherwood Ave	East 10th Avenue	
0.23	Post	Separated Bikeway	East 3rd Avenue	Viking Drive	
4.48	Proposed Trail	Shared Use Pathway	East Tudor Road	Glenn Highway	
1.7	Redwood/Zarvis/ Wentworth/Stanford/ Campus/Mallard	Enhanced Shared Roadway	Alumni Drive	Latouche Street	
0.21	Richmond	Enhanced Shared Roadway	Meyer Street	Ship Creek Multi-use Trail	
0.06	Sherwood	Enhanced Shared Roadway	Foothill Drive	Patterson Street	
0.07	UAA	Enhanced Shared Roadway	Alumni Drive	Mallard Lane	
0.18	Wellness	Enhanced Shared Roadway	Health Drive	East 40th Avenue	
0.77	Wesleyan	Enhanced Shared Roadway	E 20th Avenue	Mills Drive	
0.9	Wilson/Cambridge/ Cope	Enhanced Shared Roadway	West 41st Avenue	West 54th Avenue	
0.75	100th	Separated Bikeway	Old Seward Highway	Minnesota Drive	
1.26	15th	Separated Bikeway	Ingra Street	Minnesota Drive	
0.12	15th	Separated Bikeway	N Street	L Street	
0.1	17th	Separated Bikeway	Juneau Drive	Karluk Street	



	PRIORITY	PREVIOUS PLAN 1	PREVIOUS PLAN 2	PREVIOUS PLAN 3	PREVIOUS PLAN 4
	High				
	High	Anchorage Bike Plan 2010	Eagle River Central Business District and Residential Core Circulation Study		
	High	Anchorage Bike Plan 2010	Eagle River Central Business District and Residential Core Circulation Study		
	High	Spenard Corridor Plan	2035 Metropolitan Transportation Plan	Anchorage 2020	
	High	East Anchorage District Plan	Anchorage Bike Plan 2010	Anchorage 2020	
	High	2035 Metropolitan Transportation Plan	Anchorage 2020	West Anchorage District Plan	
	High				
	High		Anchorage Bike Plan 2010		
	High		Anchorage Bike Plan 2010		
	High				
	High	Mountainview Neighborhood Plan	Anchorage Bike Plan 2010		
	High				
	High		Anchorage Bike Plan 2010		
	High		Anchorage Bike Plan 2010		
	High	Hillside District Plan	Anchorage Bike Plan 2010		
	High	East Anchorage District Plan	Anchorage Bike Plan 2010	Anchorage 2020	
	High	Anchorage Bike Plan 2010	2035 Metropolitan Transportation Plan		
	High	East Anchorage District Plan	Anchorage Bike Plan 2010	Anchorage 2020	
	High				
	High	Mountainview Neighborhood Plan	Anchorage Bike Plan 2010		
	High				
	High				
	High				
	High				
	High				
	Medium				
	Medium				
	Medium				
	Medium				

Table 5.2: Bicycle Projects (con't)

LENGTH (MILES)	CORRIDOR / STREET NAME	FACILITY TYPE	CORRIDOR TO	CORRIDOR FROM	
0.1	1st	Separated Bikeway	C Street	H Street	
0.38	20th	Enhanced Shared Roadway	Sunrise Drive	Lake Otis Parkway	
0.15	2nd	Separated Bikeway	North C Street	E Street	
0.06	48th	Separated Bikeway	C Street	Business Park Boulevard	
0.62	64th	Enhanced Shared Roadway	Elmore Road	Norm Drive	
0.6	68th	Separated Bikeway	Lake Otis Parkway	Meadow Street	
1.37	6th	Separated Bikeway	Karluk Street	L Street	
1.05	6th	Enhanced Shared Roadway	120 Feet West of Fredricks Drive	Boniface Parkway	
0.25	74th	Enhanced Shared Roadway	Blackberry Street	Jewel Lake Road	
0.82	7th	Separated Bikeway	Cordova Street	L Street	
0.38	84th	Enhanced Shared Roadway	Dewberry Street	Jewel Lake Road	
0.5	A	Enhanced Shared Roadway	East International Airport Road	West Tudor Road	
1.31	Abbott	Separated Bikeway	Sahalee Drive	Hilltop Ski Area Road	
0.25	Airport Heights	Enhanced Shared Roadway	DeBarr Road	East 16th Avenue	
0.83	Arctic	Separated Bikeway	Arctic Spur Road	West International Airport Road	
1.11	Arctic Warrior/Loop	Separated Bikeway	Ocean Dock Road	Bullard Avenue	
0.28	Arlene	Enhanced Shared Roadway	West 84th Avenue	West 88th Avenue	
0.57	Bannister/24th	Enhanced Shared Roadway	Maplewood Street	Latouche Street	
1.93	Baranoff Avenue/ Citation	Enhanced Shared Roadway	Old Eagle River Road	Eagle River Lane	
1.14	Blackberry	Enhanced Shared Roadway	West Dimond Boulevard	West 74th Avenue	
1.38	Brooks/Monte/Fireball/ Katlain/Kantshna	Enhanced Shared Roadway	East Eagle River Loop Road	Brooks Loop	
0.58	Bullard Avenue	Shared Use Pathway	Arctic Warrior Drive	Fairchild Avenue	
0.41	C/Ocean Dock	Separated Bikeway	West Loop Road	West 1st Avenue	
0.44	Cache/Bartlett	Enhanced Shared Roadway	Campbell Creek Trail	Waldron Drive	
0.32	Christensen/1st	Separated Bikeway	North C Street	West 2nd Avenue	
0.4	Chugach	Enhanced Shared Roadway	Arctic Boulevard	Spennard Road	
0.85	Collins/Cranberry	Enhanced Shared Roadway	West 71st Avenue	Jewel Lake Road	
0.49	DeBarr	Separated Bikeway	Proposed Trail	Muldoon Road	
0.07	Dewberry	Enhanced Shared Roadway	West 84th Avenue	Pleasant Drive	
1.69	Eagle River	Separated Bikeway	O'Reidner Road	Mile Hi Avenue	
2	Elmore	Enhanced Shared Roadway	Huffman Road	Abbott Road	
0.31	Fairchild	Shared Use Pathway	2nd Street	Bullard Avenue	
0.5	Farm	Separated Bikeway	Old Glenn Highway	Breckenridge Drive	
0.85	Forest Park	Enhanced Shared Roadway	West Northern Lights Boulevard	Unnamed Road	

	PRIORITY	PREVIOUS PLAN 1	PREVIOUS PLAN 2	PREVIOUS PLAN 3	PREVIOUS PLAN 4
	Medium				
	Medium				
	Medium				
	Medium				
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	Medium				
	Medium	Hillside District Plan	Anchorage Bike Plan 2010		
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	Medium				
	Medium	Government Hill Neighborhood Plan	Anchorage Bike Plan 2010	Anchorage 2020	
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	Medium	Hillside District Plan	Anchorage Bike Plan 2010		
	Medium	Government Hill Neighborhood Plan	Anchorage Bike Plan 2010	Anchorage 2020	
	Medium	Anchorage Bike Plan 2010	Eagle River Central Business District and Residential Core Circulation Study		
	Medium		Anchorage Bike Plan 2010		

Table 5.2: Bicycle Projects (con't)

LENGTH (MILES)	CORRIDOR / STREET NAME	FACILITY TYPE	CORRIDOR TO	CORRIDOR FROM	
0.82	Gambell	Separated Bikeway	East 15th Avenue	East 3rd Avenue	
0.5	Gorsuch	Separated Bikeway	Homestead Road	Mount Eklutna Drive	
1.07	Hampton/Lunar/Ryan	Enhanced Shared Roadway	Patterson Street	Baxter Road	
0.53	Harvard/Hollywood	Shared Use Pathway	Delaney Street	Arctic Warrior Drive	
1.53	High View/Oceanview/ Brandon/Helen/ Hamilton	Enhanced Shared Roadway	Hamilton Park	Johns Road	
1.12	Hillside Drive	Separated Bikeway	O'Malley Road	Hilltop Ski Area Road	
0.47	I	Separated Bikeway	West 10th Avenue	West 3rd Avenue	
1.1	Independence	Separated Bikeway	O'Malley Road	Abbott Road	
0.2	Ingra	Separated Bikeway	East 6th Avenue	East 3rd Avenue	
0.15	Inlet	Separated Bikeway	West 15th Avenue	West 13th Avenue	
0.21	Juneau	Separated Bikeway	East 20th Avenue	East 17th Avenue	
0.88	Karluk	Separated Bikeway	East 20th Avenue	East 5th Avenue	
1.51	King	Separated Bikeway	East 100th Avenue	East 76th Avenue	
0.65	L	Separated Bikeway	West 13th Avenue	West 3rd Avenue	
0.4	Lake Hill	Separated Bikeway	Monte Road	Old Glenn Highway	
1.29	Lakeshore	Separated Bikeway	Wisconsin Street	Lakeshore Drive	
1.22	Little Tree/Petersburg/ Askeland	Enhanced Shared Roadway	East 68th Avenue	Waldron Drive	
0.71	Maplewood/Drake/ Stanford/Princeton	Enhanced Shared Roadway	Princeton Way	East 24th Avenue	
0.52	Meadow	Enhanced Shared Roadway	Lore Road	East 68th Avenue	
1.27	Milky Way/35th/McRae	Separated Bikeway	Spenard Road	Aero Avenue	
0.36	Minnesota	Separated Bikeway	West Northern Lights Boulevard	Hillcrest Drive	
0.6	Minnesota SB off Hillcrest	Separated Bikeway	Hillcrest Drive	West 15th Avenue	
0.08	N	Separated Bikeway	Virginia Court	West 15th Avenue	
0.29	Norm	Enhanced Shared Roadway	East 64th Avenue	East Dowling Road	
0.5	Oklahoma	Enhanced Shared Roadway	East 6th Avenue	Boundary Avenue	
3.4	Old Glenn	Separated Bikeway	Powerline Road (existing trail)	Deer Park Drive	
6.7	Old Glenn Highway	Separated Bikeway	Monte Road	Birchwood Loop Road	
1.76	Old Glenn Highway/ Eastside Drive	Separated Bikeway	Birchwood Loop Road	Gorsuch Street	
2.99	O'Malley	Separated Bikeway	Hillside Drive	Lake Otis Parkway	
0.46	Pleasant/84th Street	Enhanced Shared Roadway	Arlene Street	Dewberry Street	
0.91	Potter/54th Drive	Separated Bikeway	East Dowling Road	Cope Street	
1.11	Proposed Trail	Shared Use Pathway	East Harvard Avenue	2nd Street	



	PRIORITY	PREVIOUS PLAN 1	PREVIOUS PLAN 2	PREVIOUS PLAN 3	PREVIOUS PLAN 4
	Medium				
	Medium				
	Medium				
	Medium	Government Hill Neighborhood Plan	Anchorage Bike Plan 2010	Anchorage 2020	
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	Medium				
	Medium	Anchorage Bike Plan 2010	Eagle River Central Business District and Residential Core Circulation Study		
	Medium				
	Medium				
	Medium	Hillside District Plan	Anchorage Bike Plan 2010		
	Medium				
	Medium				
	Medium	Government Hill Neighborhood Plan	Anchorage Bike Plan 2010	Anchorage 2020	

Table 5.2: Bicycle Projects (con't)

LENGTH (MILES)	CORRIDOR / STREET NAME	FACILITY TYPE	CORRIDOR TO	CORRIDOR FROM	
4.6	Rabbit Creek	Separated Bikeway	Upper De Armoun Road	Seward Highway	
1.51	Raspberry	Separated Bikeway	Beer Can Lake Road	Kincaid Ski Trails - Margaux's Lighted	
0.29	Sunrise	Enhanced Shared Roadway	East 16th Avenue	East 20th Avenue	
0.37	Turnagain	Enhanced Shared Roadway	West Northern Lights Boulevard	Illiamna Avenue	
3.66	Upper Huffman	Separated Bikeway	Toilsome Hill Drive	Lake Otis Parkway	
0.3	Waldron	Enhanced Shared Roadway	Little Tree Street	Lake Otis Parkway	
1.2	Wandering/Kincaid/Sportsman/Sandy Beach/Caravelle	Enhanced Shared Roadway	Jewel Lake Road	Sand lake Road	
1.69	112th/Ridgecrest/Main Tree	Enhanced Shared Roadway	Rockridge Drive	Abbott Road	
0.5	120th	Enhanced Shared Roadway	Old Seward Highway	Johns Road	
0.5	142nd	Separated Bikeway	Golden View Drive	Buffalo Street	
0.16	76th	Separated Bikeway	C Street	Arctic Boulevard	
0.33	76th	Enhanced Shared Roadway	Lore Road	Old Seward Highway	
0.97	80th	Enhanced Shared Roadway	Jewel Lake Road	Sand Lake Road	
0.47	80th	Enhanced Shared Roadway	West 80th Avenue	Stanley Drive	
0.25	88th	Enhanced Shared Roadway	Jewel Lake Road	Gloralee Street	
0.47	88th	Enhanced Shared Roadway	Elmore Road	Spruce Brook Street	
0.22	92nd	Separated Bikeway	King Street	C Street	
0.37	Aero	Enhanced Shared Roadway	Milky Way Drive	West Northern Lights Boulevard	
0.09	Aircraft	Separated Bikeway	Lakeshore Drive	Tom Wardleigh Drive	
0.62	Barr Road/East Klatt Road	Enhanced Shared Roadway	Elmore Road	Cange Street	
0.35	Briarwood	Enhanced Shared Roadway	East 76th Avenue	East 70th Avenue	
1.7	Buffalo Street/Bainbridge	Enhanced Shared Roadway	Manytell Avenue	Huffman Road	
0.07	Campbell Creek Trail Overcrossing		Lake Otis Parkway	Lake Otis Parkway	
0.46	Chain of Rock/Kahiltna/Kantishna	Enhanced Shared Roadway	Baronoff Avenue	Sanctuary Drive	
0.37	Chinook	Enhanced Shared Roadway	Lake Otis Parkway	Gregory Road	
0.13	Clay Products	Enhanced Shared Roadway	Telequana Drive	Marston Drive	
0.82	Cordova	Separated Bikeway	East 15th Avenue	East 3rd Avenue	
0.5	Coronado	Separated Bikeway	Loop Road Spur	Old Glenn Highway	
0.47	Cranberry	Enhanced Shared Roadway	Pleasant Drive	Gladys Wood Trail	
1.63	Driftwood Bay	Enhanced Shared Roadway	Icefall Drive	East Eagle River Loop Road	

[illegible]

Table 5.2: Bicycle Projects (con't)

LENGTH (MILES)	CORRIDOR / STREET NAME	FACILITY TYPE	CORRIDOR TO	CORRIDOR FROM	
0.36	Echo/Loop Road Spar	Enhanced Shared Roadway	Monte Road	North Eagle River Loop Road	
0.88	Endicott/84th/Jade	Shared Use Pathway	West Dimond Boulevard	West 80th Avenue	
1.72	Golden View	Separated Bikeway	Bulgaria Drive	East 142nd Street	
0.37	Gregory	Enhanced Shared Roadway	Chinook Avenue	Huffman Road	
0.95	Harry McDonald/ Mendenhall/Muldrow/ Knob Hill	Enhanced Shared Roadway	Fish Hatchery Road	Old Glenn Highway	
0.56	Hartzell	Separated Bikeway	Abbott Road	Lore Road	
1.53	Hillside	Separated Bikeway	De Armoun Road	O'Malley Road	
0.16	Huffman	Separated Bikeway	Brandon Street	Industry Way	
0.53	Jamie Avenue	Shared Use Pathway	Heights Hill Road	Hillside Drive	
1.69	Jodhpur/Dimond	Separated Bikeway	Sand Lake Road	Kincaid Road	
0.33	Karen	Enhanced Shared Roadway	Old Seward Highway	Hamilton Park	
0.99	Kincaid	Separated Bikeway	Sand Lake Road	Jodhpur Street	
0.21	Lake Otis	Enhanced Shared Roadway	De Armoun Road	Rabbit Creek Park Trail	
0.5	Lakeshore	Separated Bikeway	Lakeshore Drive	Aircraft Drive	
2	Leyden/Cange	Enhanced Shared Roadway	Elmore Road	O'Malley Road	
0.1	Linden	Enhanced Shared Roadway	Shady Birch Place	Cranberry Street	
0.55	Little Brook/Spruce Brook Street	Enhanced Shared Roadway	Abbott Road	Spruce Street Trail	
0.7	Mainsail/Eastwind	Enhanced Shared Roadway	De Armoun Road	South Anchorage High School Entrance (path)	
0.16	Marston	Enhanced Shared Roadway	Clay Products Drive	Pete's Place	
0.03	Northern Lights	Enhanced Shared Roadway	Aero Avenue	Telequana Drive	
0.71	Northwood	Separated Bikeway	West 88th Avenue	Strawberry Road	
1.41	Old Seward	Separated Bikeway	730 Feet South of Tideview Drive	Rabbit Creek Road	
0.58	Passage/Firmline/ Wilderness/Jumar	Enhanced Shared Roadway	Elmore Road	Our Road	
1.62	Postmark	Separated Bikeway	Heliport Place	Point Woronzof Drive	
0.04	Shady Birch	Enhanced Shared Roadway	Linden Drive	Strawberry Road	
1.76	Spring Hill/Our Road	Enhanced Shared Roadway	Whispering Spruce Drive	Abbott Road	
0.5	Spruce	Enhanced Shared Roadway	East 72nd Avenue	East 64th Avenue	
0.17	Stanley/Rappe Court	Enhanced Shared Roadway	Stanley Drive	Arctic Boulevard	
0.52	Strawberry	Separated Bikeway	Minnesota SB off Strawberry	Northwood Street	
0.17	Telequana	Enhanced Shared Roadway	West Northern Lights Boulevard	Clay Products Drive	
0.17	Tom Wardleigh	Separated Bikeway	Aircraft Drive	Postmark Drive	
0.22	Tradewind	Enhanced Shared Roadway	Westwind Drive	Brayton Drive	
2.55	Upper De Armoun	Separated Bikeway	Canyon Road	Bainbridge Road	
0.53	Upper O'Malley	Separated Bikeway	Prospect Drive	Hillside Drive	



Table 5.3: Priority Pedestrian Corridors\*

[illegible]

Table 5.2: Bicycle Projects (con't)

LENGTH (MILES)	CORRIDOR / STREET NAME	FACILITY TYPE	CORRIDOR TO	CORRIDOR FROM	
0.58	Westwind	Enhanced Shared Roadway	De Armoun Road	Legacy Drive	
0.62	Whispering Spruce	Enhanced Shared Roadway	Our Road	Birch Road	
0.75	Wilderness/Talus/ Huffman	Enhanced Shared Roadway	Huffman Road	Outcrop Lane	

	PRIORITY	PREVIOUS PLAN 1	PREVIOUS PLAN 2	PREVIOUS PLAN 3	PREVIOUS PLAN 4
	Low				
	Low				
	Low				

Table 5.3: Priority Pedestrian Corridors

CORRIDOR STREET NAME	CORRIDOR TO	CORRIDOR FROM	LENGTH (MI)	PRIORITY
3rd Avenue	Post Road	Ingra Street	0.25	Medium
5th Avenue	Reeve Circle	L Street	2.24	High
6th Avenue	East 5th Avenue	L Street	1.52	High
15th Avenue	Gambell Street	Eagle Street	0.14	Low
36th Avenue	Latouche Street	C Street	0.93	Medium
A Street	West 9th Avenue	West #rd Avenue	0.41	Low
A Street	East 36th Avenue	West Fireweed Lane	0.70	High
Arctic Boulevard	West Tudor Road	West Fireweed Lane	1.24	Medium
Benson Boulevard	Seward Highway	Minnesota Drive	1.51	High
Bragaw Street	East Northern Lights Boulevard	Mountain View Drive	1.75	High
C Street	West 9th Avenue	West 3rd Avenue	0.41	Low
C Street	West 36th Avenue		1.36	Medium
Denali Street	East 36th Avenue	Northern Lights Boulevard	0.50	High
Dimond Boulevard	Vanguard Drive	King Street	1.37	Low
Gambell Street	East 16th Avenue	East 5th Avenue	0.79	Low
Ingra Street	East 15th Avenue	East 5th Avenue	0.68	Medium
Minnesota Drive	Spenard Road	Hillcrest Drive	1.90	High
Mountain View Drive	Bragaw Street	Taylor Street	0.44	High
Muldoon Road	DeBarr Road	Boundary Avenue	1.00	Low
Muldoon Road	DeBarr Road	East 36th Avenue	1.50	Low
Northern Lights Boulevard	Seward Highway	Minnesota Drive	1.50	High
Spenard Road	West 36th Avenue	West 27th Avenue	0.59	Medium
Spenard Road	West 36th Avenue	Lois Drive	0.40	Medium
Tudor Road	Dale Street	Laurel Street	0.55	Medium
Tudor Road	Eau Claire Place	Arctic Boulevard	1.40	High

\* For a complete list of pedestrian projects, see Appendix A.1- Anchorage Pedestrian Plan- List of Priority Pedestrian Network Projects



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Table 5.4: Priority Pedestrian Network Projects (from the 2007 Anchorage Pedestrian Plan)

PROJECT PRIORITY NO.	PROJECT	SUBAREA	PROJECT SCORING										TOTAL POINTS	DESCRIPTION
			PPI	CRASHES	EMPLOYMENT	REDEVELOPMENT	TOWN CENTER	TRANSIT	SCHOOL	SHOPPING	PARK			
1	Edward St – 6th to Debarr Rd	NE	4	2	0	0	0	1	2	1	0	10	Missing sidewalk	
2	Mountain View Dr – Flower St to McCarrey St south side	NE	4	2	0	0	0	0	2	1	1	10	Missing sidewalk	
3	A St – 9th Ave to 13th Ave	NW	4	2	0	1	0	0	2	0	1	10	Missing sidewalk	
4	Lake Otis Blvd & Tudor Rd , #11 Crash Location	NE	4	2	0	0	0	1	2	0	1	10	Crossings	
5	Benson Blvd. & Spenard Rd., #5 Crash Location	NW	4	2	0	0	1	0	2	0	0	9	Missing sidewalk	
6	Reka Drive– Bragaw St to Pine St	NE	4	2	0	0	0	0	2	1	0	9	Missing sidewalk	
7	Spenard Rd – Chester Creek to Minnesota Dr	NW	4	2	0	0	0	1	2	0	0	9	Missing sidewalk	
8	Blueberry Rd – west side 27th Ave to Northern Lights Blvd	NW	4	2	1	0	0	0	2	0	0	9	Missing sidewalk	
9	Duben St – to Muldoon Elementary School, #14 Crash Location	NE	4	2	0	0	0	1	2	0	0	9	Missing sidewalk, crossing	
10	Northern Lights Blvd & Blueberry Rd	NW	4	2	1	0	0	0	2	0	0	9	Missing sidewalk, crossing	
11	Fireweed Lane at Arctic Blvd	NW	4	2	0	0	0	1	2	0	0	9	Sidewalk & crossing	
12	Northern Lights Blvd & Spenard Rd, #3 Crash Location	NW	4	2	0	0	1	0	2	0	0	9	Crossing	
13	Benson Blvd & Minnesota Dr, #9 Crash Location	NW	4	2	0	0	1	0	2	0	0	9	Crossing	
14	Bragaw Blvd & Mountain View Dr, #10 Crash Location	NE	4	2	0	0	0	0	2	1	0	9	Crossing	
15	27th Ave – Seward Highway to Minnesota Dr – heavy pedestrian route	NW	4	2	1	0	0	0	2	0	0	9	Crossing, sidewalk upgrade	
16	8th Ave at A and C Streets	NW	4	2	1	0	0	0	2	0	0	9	Crossings	
17	Northern Lights/Benson boulevards – between Arctic Blvd and C St	NW	4	2	1	0	0	0	2	0	0	9	Crossings, mid-block	
18	Tudor Road – Lake Otis Blvd to Baxter Rd	NE	4	2	0	1	0	0	1	0	1	9	Crossing	
19	Northern Lights Blvd – Seward Highway to Minnesota Dr	NW	4	2	1	0	0	0	2	0	0	9	Sidewalk separation, upgrade	
20	Lake Otis Blvd – 68th Ave to Abbott Rd	C	4	2	0	0	1	0	2	0	0	9	Sidewalk upgrade	
21	13th Ave – C St to Fairview Elementary School	NW	4	2	0	1	0	0	2	0	0	9	Sidewalk upgrade	
22	Lake Otis Blvd – Northern Lights Blvd to Debarr Rd	NE	2	2	0	0	1	0	2	0	1	8	Missing sidewalk	
23	32nd Ave – Lois Dr to Minnesota Dr	NW	4	0	0	0	1	0	2	0	1	8	Missing sidewalk	
24	Debarr Rd – Muldoon Rd east to Cross Pointe Loop	NE	4	0	0	0	1	0	2	0	1	8	Missing sidewalk	
25	Arctic Blvd –Fireweed Lane to Chester Creek Greenbelt	NW	4	0	0	1	0	0	2	0	1	8	Missing sidewalk, crossing	
26	Wilson St – 40th Ave to Tudor Rd	NW	4	0	0	1	0	0	2	0	1	8	Missing sidewalk	
27	Neighborhood northeast of Arctic Blvd & 32nd Ave	NW	4	2	0	1	0	0	0	0	1	8	Missing sidewalks	
28	31st Ave – Eide St to Arctic Blvd	NW	4	2	0	1	0	0	0	0	1	8	Missing sidewalk	
29	Fairview pedestrian/bike grid – 3rd, 9th, 13th, 15th avenues; Cordova, Karluk streets	NW	4	0	0	0	0	1	0	2	1	8	Missing sidewalk; improvements	
30	Lake Otis Blvd north of Northern Lights Blvd – narrow sidewalk, east side	NE	2	2	0	0	0	1	2	0	1	8	Missing sidewalk	
31	Tudor Road Mission – pedestrian crossing	NE	4	2	0	1	0	0	0	1	0	8	Special crossing	
32	Arctic Blvd & 20th Ave– challenging crossing	NW	4	0	0	0	0	1	2	0	1	8	Crossing	

PROJECT PRIORITY NO.	PROJECT	SUBAREA	PROJECT SCORING										TOTAL POINTS	DESCRIPTION
			PPI	CRASHES	EMPLOYMENT	REDEVELOPMENT	TOWN CENTER	TRANSIT	SCHOOL	SHOPPING	PARK			
33	Bragaw St at Reka Dr	NE	4	2	0	0	0	0	2	0	0	8	Crossing	
34	Pine St at Debarr Rd	NE	4	0	0	0	0	1	2	0	1	8	Crossing	
35	9th Ave & E St – turning traffic	NW	4	0	1	0	0	0	2	0	1	8	Crossing	
36	Airport Heights Blvd & Debarr Rd – pedestrian route to hospital, southeast corner	NE	4	0	0	0	0	1	2	0	1	8 <sup>a</sup>	Crossing	
37	Northern Lights Blvd at UAA Dr	NE	4	0	1	0	0	0	2	0	1	8	Crossing	
38	17th Ave at Valley of the Moon Park	NW	4	0	0	0	0	1	2	0	1	8	Crossing	
39	10th Ave & A St	NW	4	0	0	1	0	0	2	0	1	8	Crossing	
40	E St at 10th Ave	NW	4	0	0	1	0	0	2	0	1	8	Crossing	
41	Lake Otis Blvd & Northern Lights Blvd, #13 Crash (pork chop medians)	NE	2	2	0	0	0	1	2	0	1	8	Crossing	
42	15th Ave & Ingra St, #16 Crash Location	NW	4	2	0	0	0	1	0	1	0	8	Crossing	
43	15th Ave & Gambell St, #7 Crash Location	NW	4	2	0	0	0	1	0	1	0	8	Crossing	
44	Northern Lights Blvd & Boniface Pkwy, #6 Crash Location	NE	2	2	0	0	0	0	2	1	0	7	Sidewalk, crossing	
45	Coronado St – Old Glenn to Echo St to North Eagle River Loop Rd	ER	2	2	0	0	1	0	2	0	0	7	Sidewalk, lighting	
46	Old Glenn Hwy, Monte Rd, Brooks Rd	ER	2	2	0	0	1	0	2	0	0	7	Sidewalk, crossing	
47	Petersburg St – 56th Ave to 57th Ave	C	4	0	0	0	1	0	2	0	0	7	Missing link walkway, lighting	
48	Muldoon Road – Boundary Ave to Bartlett High School, Oilwell Road	NE	2	0	0	0	0	1	2	2	0	7	Missing sidewalk	
49	20th Ave – Bragaw St to Tikishla Park	NE	4	0	0	0	0	0	2	0	1	7	Missing sidewalk	
50	McCarrey – west side Chena north to bus stop	NE	4	0	0	0	0	0	2	0	1	7	Missing sidewalk	
51	Northern Lights Blvd –path on south side, LaHonda Dr to Lois Drive	NW	4	0	0	0	1	0	2	0	0	7	Missing sidewalk	
52	Duben St – Muldoon Rd to Oklahoma St	NE	4	0	0	0	0	0	2	0	1	7	Missing sidewalk	
53	Abbott Rd – Lake Otis Blvd to Hillside Dr	SE	2	2	0	0	0	0	2	0	1	7	Missing sidewalk	
54	Molanary Drive – 86th Ave to 88th Ave	SW	4	0	0	0	1	0	2	0	0	7	Missing sidewalk	
55	Valley St – Muldoon Rd to 10th Ave	NE	4	0	0	0	0	0	2	0	1	7	Missing link walkway	
56	Debarr Rd – Boniface Pkwy to Muldoon Rd	NE	2	2	0	0	0	1	2	0	0	7	Missing sidewalk	
57	Minnesota Dr & Northern Lights Blvd, # 2 Crash Location	NW	2	2	0	0	1	0	2	0	0	7	Crossing	
58	6th Ave & Muldoon Rd, #17 Crash Location	NE	2	2	0	0	0	1	2	0	0	7	Crossing	
59	15th Ave & A St	NW	2	2	0	0	0	1	2	0	0	7	Crossing	
60	Cordova/15th Ave – bike lane and crossing improvements	NW	4	0	0	1	0	0	2	0	0	7	Crossing	
61	Denali Elementary School – pedestrian-vehicle conflict at Cordova St	NW	4	0	0	1	0	0	2	0	0	7	Crossing	
62	15th Ave – L St to E St	NW	4	0	0	0	0	1	2	0	0	7	Crossing	
63	2nd & H St	NW	4	0	1	0	0	0	2	0	0	7	Crossing	
64	Lake Otis Blvd overcrossing at 84th Ave	SE	4	0	0	0	0	1	2	0	0	7	Crossing upgrade	

PROJECT PRIORITY NO.	PROJECT	SUBAREA	PROJECT SCORING										TOTAL POINTS	DESCRIPTION
			PPI	CRASHES	EMPLOYMENT	REDEVELOPMENT	TOWN CENTER	TRANSIT	SCHOOL	SHOPPING	PARK			
65	Mountain View Drive – east of Bragaw St	NE	4	0	0	0	0	0	2	1	0	7	Sidewalk improvements	
66	Northern Lights Blvd at Bragaw St	NE	2	2	0	0	0	0	2	0	1	7	Crossing	
67	Boniface Pkwy – Glenn Hwy south to Northern Lights Blvd (west side)	NE	4	2	0	0	0	0	0	0	1	7	Missing sidewalk	
68	West 36th – Minnesota Dr to Fish Creek	NW	4	2	0	0	0	0	0	0	1	7	Sidewalk	
69	Crescent St at East 37th Ave	NE	4	2	0	0	0	0	0	0	1	7	Missing link walkway	
70	A St – west side, Fireweed Ln to Benson Blvd	NW	4	2	1	0	0	0	0	0	0	7	Missing sidewalk	
71	A St – west side, Benson Blvd – 36th Ave	NW	4	2	1	0	0	0	0	0	0	7	Missing sidewalk	
72	Meadow Street – 72nd to Lore Rd	C	4	2	0	0	0	0	0	0	1	7	Missing sidewalk	
73	Tudor Rd at C St	NW	4	2	1	0	0	0	0	0	0	7	Lighting	
74	Boniface Blvd – Debarr Rd to Tudor Rd	NE	4	2	0	0	0	0	0	0	1	7	Missing sidewalk, upgrade	
75	Benson Blvd & Seward Hwy, # 4 Crash Location	NW	4	2	1	0	0	0	0	0	0	7	Sidewalk upgrade	
76	4th & C Street, #8 Crash Location	NW	4	2	1	0	0	0	0	0	0	7	Crossing	
77	6th Ave & C Street, #12 Crash Location	NW	4	2	1	0	0	0	0	0	0	7	Crossing	
78	Northern Lights Blvd & Arctic Blvd, #18 Crash Location	NW	4	2	1	0	0	0	0	0	0	7	Crossing	
79	Gambell St – 5th Ave to Fireweed Lane	NW	4	2	0	0	0	0	0	1	0	7	Crossing	
80	5th Ave & C Street, #1 Crash Location	NW	4	2	1	0	0	0	0	0	0	7	Crossing	
81	Debarr Rd at Columbine St – crossing to Penland area	NE	4	2	0	0	0	1	0	0	0	7	Crossing	
82	Northern Lights & Seward Hwy, #15 Crash Location	NW	4	2	1	0	0	0	0	0	0	7	Crossing	
83	36th Ave & Minnesota Dr	NW	4	2	0	0	0	0	0	0	1	7	Crossing	
84	Benson/Northern Lights Blvd – pedestrian amenities	NW	4	2	1	0	0	0	0	0	0	7	Crossing	
85	Benson & Northern Lights Blvd – Seward Hwy to Denali St	NW	4	2	1	0	0	0	0	0	0	7	Crossing	
86	36th Ave at Seward Hwy	NW	4	2	1	0	0	0	0	0	0	7	Crossing	
87	Airport Heights Dr & Glenn Hwy	NE	4	2	0	0	1	0	0	0	0	7	Crossing	
88	Tudor Rd at Old Seward Highway	NW	4	2	1	0	0	0	0	0	0	7	Crossing	
89	Seward Hwy at 36th Ave	NE	4	2	1	0	0	0	0	0	0	7	Separated crossing	
90	Seward Hwy – between Northern Lights Blvd & Benson Blvd	NE	4	2	1	0	0	0	0	0	0	7	Separated crossing	
91	Fireweed Ln – Spenard Rd to Seward Hwy. Curbs allow cars to park on sidewalk.	NW	4	1	0	1	0	0	0	0	0	6	Pedestrian facilities upgrade	
92	Town Center walkways – Old Glenn and Business Blvd connections	ER	2	2	0	0	1	0	0	0	1	6	Missing link walkway	
93	Farm Ave – Old Glenn Hwy to New Glenn Hwy	ER	2	2	0	0	1	0	0	0	1	6	Missing sidewalk	
94	Lois Drive between Northern Lights Blvd & 36th Ave	NW	2	0	0	0	1	0	2	0	1	6	Missing sidewalk	
95	Checkmate Drive – school route, no sidewalks	NE	4	0	0	0	0	0	2	0	0	6	Missing sidewalk	
96	Patterson St – Debarr Rd to Chester Creek	NE	2	0	0	0	0	1	2	0	1	6	Missing sidewalk	
97	Providence Drive at Spirit Way to Piper St, need pedestrian connection	NE	2	0	1	0	0	0	2	0	1	6	Missing sidewalk	
98	Johns Road – High View Dr to Klatt Road	SW	2	2	0	0	0	0	2	0	0	6	Missing sidewalk	
99	4th Ave – Bunnell St to Boniface Blvd	NE	2	2	0	0	0	0	2	0	0	6	Missing sidewalk	



PROJECT PRIORITY NO.	PROJECT	SUBAREA	PROJECT SCORING										DESCRIPTION
			PPI	CRASHES	EMPLOYMENT	REDEVELOPMENT	TOWN CENTER	TRANSIT	SCHOOL	SHOPPING	PARK	TOTAL POINTS	
100	East High – northeast entry, 20th Ave & Bragaw Rd	NE	4	0	0	0	0	0	2	0	0	6	Walkway needed
101	Pedestrian walkway – Donna Dr to 10th Ave	NE	4	0	0	0	0	0	2	0	0	6	Sidewalk & lighting
102	Patterson St – pedestrian facility 10th Ave to Debarr Rd	NE	2	0	0	0	1	0	2	0	1	6	Missing link walkway, lighting
103	Patterson St – pedestrian facility 6th Ave to 10th Ave	NE	2	0	0	0	1	0	2	0	1	6	Lighting
104	16th Ave & E St – sidewalk ends near Valley of the Moon Park	NW	2	0	0	0	0	1	2	0	1	6	Missing sidewalk
105	West 88th Ave – Jewel Lake Rd west to Jewel Lake Park	SW	2	0	0	0	1	0	2	0	1	6	Missing sidewalk
106	UAA Drive – north of engineering building	NE	2	0	1	0	0	0	2	0	1	6	Sidewalk, crossing
107	Baronoff Ave & Eagle River Loop Road – right turn lane conflict	ER	2	2	0	0	0	0	2	0	0	6	Crossing
108	Cherry St at 5th Ave	NE	4	0	0	0	0	0	2	0	0	6	Crossing
109	Hillcrest crosswalks – Minnesota Ramp, Wildwood Dr, Spenard Rd	NW	2	0	0	0	1	0	2	0	1	6	Crossings
110	16th Ave – Lake Otis Blvd to Sunrise Drive	NE	4	0	0	0	0	0	2	0	0	6	Inadequate sidewalk
111	Airport Heights Elementary School – street lighting on corners, de-icing by school	NE	4	0	0	0	0	0	2	0	0	6	Lighting & drainage
112	15th & Norene St – at pedestrian stair	NE	4	0	0	0	0	0	2	0	0	6	Lighting & drainage
113	Pine St – east side north of Debarr Rd	NE	4	0	0	0	0	1	0	0	1	6	Missing sidewalk
114	Seward Hwy – Fireweed Lane to Chester Creek, slanted sidewalk east side	NW	2	2	0	1	0	0	0	0	1	6	Inadequate sidewalk
115	C St – Fireweed Lane north to 13th Ave	NW	4	0	0	1	0	0	0	0	1	6	Inadequate sidewalk
116	A St – Fireweed Lane north to 13th Ave	NW	4	0	0	1	0	0	0	0	1	6	Inadequate sidewalk
117	Neighborhood northeast of Lake Otis & Tudor Rd to Dale St	NE	4	0	0	1	0	0	0	0	1	6	Missing sidewalks
118	34th Ave right-of-way – Arctic Blvd to Cope St	NW	4	0	0	1	0	0	0	0	1	6	Missing link walkway
119	Raspberry Road – Arctic Blvd to C St	SW	4	0	0	0	0	0	2	0	0	6	Missing link, sidewalk
120	Cope St – 32nd Ave to 36th Ave	NW	4	0	0	1	0	0	0	0	1	6	Missing sidewalks
121	16th Ave – 22nd Ave , between Eagle St and A St	NW	4	0	0	1	0	0	0	0	1	6	Walkway upgrade
122	36th Ave & Muldoon Rd	NE	2	2	0	0	0	0	2	0	0	6	Special Crossing
123	Dimond Dr & Victor Rd	SW	2	0	0	0	0	0	2	1	1	6	Crossing
124	Old Seward Hwy at 120th Ave –to Huffman Town Center area	SW	4	0	0	0	1	0	0	1	0	6	Crossing
125	Ingra St – 5th Ave to Chester Creek	NW	4	2	0	0	0	0	0	0	0	6	Crossing
126	9th Ave & L St – turning traffic	NW	4	0	1	0	0	0	0	0	1	6	Crossing
127	5th Ave – LaTouche St to Gambell St	NW	4	2	0	0	0	0	0	0	0	6	Crossing
128	West Dimond Blvd – connections to Kincaid Park, schools, school bus	SW	0	2	0	0	0	0	2	0	1	5	Missing sidewalk
129	Peck Ave – Oklahoma St to Patterson St , north side	NE	2	0	0	0	0	0	2	0	1	5	Missing sidewalk
130	Eagle River Road –Old Glenn Hwy to Eagle River Loop Rd	ER	2	0	0	0	0	0	2	0	1	5	Missing sidewalk
131	Eagle River Road – Mile 0 to Greenhouse Lane	ER	2	0	0	0	0	0	2	0	1	5	Sidewalk, crossing

PROJECT PRIORITY NO.	PROJECT	SUBAREA	PROJECT SCORING										TOTAL POINTS	DESCRIPTION
			PPI	CRASHES	EMPLOYMENT	REDEVELOPMENT	TOWN CENTER	TRANSIT	SCHOOL	SHOPPING	PARK			
132	120th Ave – Johns Rd to Old Seward Hwy – Oceanview Elementary School	SW	2	0	0	0	0	0	2	1	0	5	Missing sidewalk	
133	88th Ave, Lake Otis Blvd to Spruce St	C	2	0	0	0	0	1	2	0	0	5	Missing sidewalk	
134	Zarvis, Annapolis, Redwood, Cottonwood streets – at Rogers Park Elem. School	NE	2	0	0	0	0	0	2	0	1	5	Sidewalk, lighting	
135	Jewel Lake Rd – east side 73rd Ave to Weimer Dr and 82nd Ave – 88th Ave	SW	2	0	0	0	0	1	2	0	0	5	Missing sidewalk	
136	6th Ave – Patterson St to Muldoon Rd	NE	2	0	0	0	0	0	2	0	1	5	Missing sidewalk	
137	Seppala St – Northern Lights Blvd to Balto Seppala Park	NW	2	0	0	0	0	0	2	0	1	5	Missing sidewalk	
138	Northern Lights Blvd – south side, Lake Otis Blvd to Seward Highway	NE	2	0	0	0	0	1	2	0	0	5	Inadequate sidewalk	
139	Colgate St to Patterson St – school route	NE	2	0	0	0	0	0	2	0	1	5	Walkway, lighting	
140	Airport Heights Elementary School – access from condos to 16th Ave	NE	2	0	0	0	0	1	2	0	0	5	Walkway connector	
141	McPhee Park to Mountain View Elementary School	NE	2	0	0	0	0	0	2	0	1	5	Missing sidewalk	
142	Balto Seppala Park & Lloyd Steele Park to Turnagain Elementary School	NW	2	0	0	0	0	0	2	0	1	5	Missing link walkway	
143	Aero Ave – West 36th Ave to West 44th Ave	NW	2	0	0	0	0	0	2	0	1	5	Missing link walkway	
144	Hillcrest Dr – Atwood Dr to Spenard Rd	NW	2	0	0	0	0	0	2	0	1	5	Missing sidewalk	
145	Fish Creek Trail – Barbara Drive segment 29th Ave to 32nd Ave	NW	2	0	0	0	0	0	2	0	1	5	Missing sidewalk	
146	Staedium St to Norman St	NE	2	0	0	0	0	0	2	0	1	5	Missing link walkway, lighting	
147	Lake Otis Blvd – west side north of 36th Ave to Duke Dr	NE	2	0	0	0	0	1	2	0	0	5	Sidewalk upgrade	
148	Strawberry Road – to Jewel Lake Elementary School	SW	2	0	0	0	0	1	2	0	0	5	Sidewalk, crossing	
149	Brayton Dr – Legacy Dr to Dimond Blvd. school bus stops	C, SE	2	0	0	0	1	0	2	0	0	5	Sidewalk, lighting	
150	Independence Drive – Colony Loop to O'Malley Rd	SE	2	0	0	0	0	0	2	0	1	5	Missing link sidewalk	
151	Business Blvd at Carrs to Regency Drive	ER	2	2	0	0	1	0	0	0	0	5	Missing link walkway	
152	Huffman Town Center walkways – Daryl, Old Seward, from Post Office, Klatt	SW	4	0	0	0	1	0	0	0	0	5	Missing sidewalk	
153	Industry Way	SW	4	0	0	0	1	0	0	0	0	5	Missing sidewalk	
154	Huffman Park Drive	SW	4	0	0	0	1	0	0	0	0	5	Missing sidewalk	
155	Northway Drive – Debarr Rd north to Penland Parkway	NE	4	0	0	0	1	0	0	0	0	5	Missing sidewalk	
156	Landmark St – school bus stops off Huffman Rd	SW	4	0	0	0	1	0	0	0	0	5	Missing sidewalk	
157	Denali St to A St – pedestrian con behind Century Theater	NW	4	0	1	0	0	0	0	0	0	5	Missing link walkway	
158	Carrs Huffman to Post Office	SW	4	0	0	0	1	0	0	0	0	5	Missing link walkway	
159	Piper St –Tudor Rd to Campbell Creek	C	4	0	0	0	0	0	0	0	1	5	Missing sidewalk	
160	Boundary Ave – Boniface Pkwy to Muldoon Rd	NE	2	0	0	0	0	1	2	0	0	5	Missing sidewalk	

PROJECT PRIORITY NO.	PROJECT	SUBAREA	PROJECT SCORING										DESCRIPTION
			PPI	CRASHES	EMPLOYMENT	REDEVELOPMENT	TOWN CENTER	TRANSIT	SCHOOL	SHOPPING	PARK	TOTAL POINTS	
161	Commercial District – bounded by Denali, Seward Highway, 36th, & Benson	NW	4	0	1	0	0	0	0	0	0	5	Missing sidewalks
162	6th Ave & Cherry St	NE	2	0	0	0	0	0	2	0	1	5	Crossing
163	Old Glenn Hwy mid-block crossing – between Coronado Rd and Park Place	ER	2	2	0	0	1	0	0	0	0	5	Crossing
164	Farm Ave & Old Glenn Hwy	ER	2	2	0	0	1	0	0	0	0	5	Crossing
165	Old Glenn Hwy – Hiland Dr to Artillery Rd	ER	2	2	0	0	1	0	0	0	0	5	Special crossing
166	Seward Highway crossing at Northern Lights Blvd, Benson Blvd	NW	2	2	1	0	0	0	0	0	0	5	Crossing
167	Dowling Rd roundabouts	C	2	0	0	0	0	0	2	0	1	5	Crossing
168	Victor Rd & 100th Ave – issues with 4-way stop	SW	2	0	0	0	0	0	2	1	0	5	Crossing
169	Lake Otis Blvd at Maple Ave	NE	2	2	0	0	0	0	0	0	1	5	Crossing
170	Bragaw Rd at Penland Parkway – to Northway Mall	NE	4	0	0	0	1	0	0	0	0	5	Crossing
171	6th Ave & D St – intersection improvements (Penney's garage entry)	NW	4	0	1	0	0	0	0	0	0	5	Crossing
172	6th Ave & A St	NW	4	0	1	0	0	0	0	0	0	5	Crossing
173	7th Ave & C St	NW	4	0	1	0	0	0	0	0	0	5	Crossing
174	6th Ave & 7th Ave at A St – to Museum	NW	4	0	1	0	0	0	0	0	0	5	Sidewalk upgrade
175	Dimond Blvd – Jewel Lake Rd to Old Seward Hwy	SW	2	2	0	0	1	0	0	0	0	5	Missing link walkway, lighting
176	West 86th Ave right-of-way – Blackberry St to Crystal St	SW	2	0	0	0	0	0	2	0	0	4	Missing link walkway, lighting
177	27th Ave – Latouche St to Maplewood St	NE	2	0	0	0	0	0	2	0	0	4	Missing sidewalk, lighting
178	Turnagain Elementary School – West 29th Ave, Wisconsin St to school	NW	2	0	0	0	0	0	2	0	0	4	Missing sidewalk, lighting
179	Grand Larry St – narrow for pedestrians & cars	NE	2	0	0	0	0	0	2	0	0	4	Missing sidewalk
180	Wendler/Lake Otis Elem. School – east side connection to Northern Lights Blvd	NE	2	0	0	0	0	0	2	0	0	4	Missing link walkway
181	Geronimo Circle to Ptarmigan Elementary School	NE	2	0	0	0	0	0	2	0	0	4	Missing link walkway
182	Muldoon Road – 20th Ave to 36th Ave	NE	2	0	0	0	0	0	2	0	0	4	Missing sidewalk
183	Meadow Creek east	ER	2	0	0	0	0	0	2	0	0	4	Missing sidewalk, lighting
184	Meadow Creek path – Teklanika Dr & Upper Meadow Creek	ER	2	0	0	0	0	0	2	0	0	4	Missing sidewalk, lighting
185	Palos Verdes Circle	ER	2	0	0	0	0	0	2	0	0	4	Missing sidewalk
186	Teklanika St	ER	2	0	0	0	0	0	2	0	0	4	Missing sidewalk, lighting
187	Eagle River Loop Rd –War Admiral to Eagle River Road	ER	2	0	0	0	0	0	2	0	0	4	Missing sidewalk, lighting
188	Potter Drive – Arctic Blvd to Dowling Road	C	2	2	0	0	0	0	0	0	0	4	Missing link walkway
189	80th Ave – Lake Otis Blvd to Spruce St	SE	2	0	0	0	0	0	2	0	0	4	Missing sidewalk

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			PPI	CRASHES	EMPLOYMENT	REDEVELOPMENT	TOWN CENTER	TRANSIT	SCHOOL	SHOPPING	PARK			
190	Airport Heights Dr – Penland Pkwy to Debarr – west side	NE	2	0	0	0	0	1	0	0	1	4 <sup>a</sup>	Missing sidewalk	
191	Turnagain St – West Northern Lights Blvd to West 35th Ave (McRae)	NW	2	2	0	0	0	0	0	0	0	4	Missing sidewalk	
192	Post Office, Cuddy Park & Loussac Library	NW	2	0	1	0	0	0	0	0	1	4	Missing link walkway	
193	Campbell Airstrip Rd at 36th Ave –to Sapien Court/Boniface Blvd area	NE	4	0	0	0	0	0	0	0	0	4	Missing sidewalk	
194	Hartzell Road – 79th Ave to Dimond Blvd	SE	2	2	0	0	0	0	0	0	0	4	Missing sidewalk	
195	Spruce Street right-of-way – Dowling Rd to 68th Ave	C	2	0	0	0	0	0	2	0	0	4	Missing link sidewalk	
196	Spruce Street – Fergy Circle to 68th Ave	C	2	0	0	0	0	0	2	0	0	4	Missing sidewalk	
197	Eagle River Lane	ER	0	2	0	0	0	0	2	0	0	4	Crossing	
198	Northern Lights Blvd overpass at Rogers Park Elementary School	NE	2	0	0	0	0	0	2	0	0	4	Overpass upgrade	
199	Nadine Street – 80th Ave to 84th Ave	C	2	0	0	0	0	0	2	0	0	4	Missing sidewalk	
200	Petersburg Street – Lore Rd to 72nd Ave	C	4	0	0	0	0	0	0	0	0	4	Missing sidewalk	
201	Dimond Blvd at Seward Highway	C	2	2	0	0	0	0	0	0	0	4	Crossing	
202	Dimond Blvd & C St pedestrian intersection improvements	C	2	0	0	0	0	0	0	1	1	4	Crossing	
203	16th Ave & A St	NW	2	0	0	0	0	1	0	0	1	4	Missing link	
204	Commons Park to New Glenn Highway	ER	2	0	0	0	1	0	0	0	1	4	Missing link walkway	
205	Commons Park to Schroeder Park	ER	2	0	0	0	1	0	0	0	1	4	Missing link walkway	
206	Baxter Rd – Northern Lights Blvd to Tudor Rd	NE	2	0	0	0	0	0	2	0	0	4	Crossings	
207	Dimond Blvd & Old Seward Hwy	C	4	0	0	0	0	0	0	0	0	4	Crossing	
208	Eagle River Loop Rd & North Eagle River Loop Rd	ER	2	0	0	0	0	0	2	0	0	4	Crossing	
209	Hightower Rd and Alyeska Hwy	G	0	0	0	0	1	0	2	0	1	4	Crossing	
210	International Airport Rd at Jewel Lake/Spenard Road	NW	2	0	0	0	0	1	0	0	1	4	Special crossing	
211	Tudor Rd at McInnes St	NE	4	0	0	0	0	0	0	0	0	4	Crossing	
212	Rabbit Creek Rd –Seward Hwy to Goldenview Dr	SE	0	0	0	0	0	0	2	0	1	3	Missing sidewalk	
213	McKenzie Dr – Northern Lights Blvd to Clay Products Rd	NW	0	0	0	0	0	0	2	0	1	3	Missing sidewalk	
214	36th Ave north side at Upland Dr (Scenic Park Elementary School)	NE	0	0	0	0	0	0	2	0	1	3	Missing sidewalk	
215	Kincaid Road	SW	0	0	0	0	0	0	2	0	1	3	Missing sidewalk	
216	Goldenview Middle School to Potter Valley Rd	SE	0	0	0	0	0	0	2	0	1	3	Missing link ~~~walkway	
217	Sahalee Drive –north to Trailside Elementary School	SE	0	0	0	0	0	0	2	0	1	3	Missing link walkway	
218	Buffalo St, to Bainbridge Rd	SE	0	0	0	0	0	0	2	0	1	3	Missing link walkway	
219	Elmore Road –Huffman Rd to O'Malley Rd	SE	0	0	0	0	0	0	2	0	1	3	Missing link walkway	
220	Clarks Road	SE	0	0	0	0	0	0	2	0	1	3	Missing sidewalk	

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			PPI	CRASHES	EMPLOYMENT	REDEVELOPMENT	TOWN CENTER	TRANSIT	SCHOOL	SHOPPING	PARK			
221	Ridgewood Rd – Creek to Bainbridge – undeveloped right-of-way	SE	0	0	0	0	0	0	2	0	1	3	Missing link walkway	
222	DeArmoun Rd – 140th Ave to Hillside Dr	SE	0	0	0	0	0	0	2	0	1	3	Missing sidewalk	
223	Cranberry St – Collins Way to Raspberry Rd	SW	0	0	0	0	0	0	2	0	1	3	Missing sidewalk	
224	Elmore/Abbott Road – O'Malley Rd to Abbott Rd	SE	0	0	0	0	0	0	2	0	1	3	Missing link walkway	
225	Maplewood St – Bannister Dr to Chester Trail	NE	2	0	0	0	0	0	0	0	1	3	Missing sidewalk	
226	Pioneer Street	NE	0	2	0	0	0	0	0	0	1	3	Missing sidewalk	
227	Sitka St to Maplewood St	NE	2	0	0	0	0	0	0	0	1	3	Missing link sidewalk, bridge	
228	Klatt Rd –Old Seward Highway to Timberlane St	SW	2	0	0	0	0	0	0	0	1	3	Missing sidewalk	
229	Princeton Way to Jacobson Park	NE	2	0	0	0	0	0	0	0	1	3	Missing link walkway	
230	Purdue St, Wentworth St, and Wingate Circle to E 36th Ave	NE	2	0	0	0	0	0	0	0	1	3	Missing link walkway	
231	Sprucebrook St to Abbott Rd	C	2	0	0	0	0	0	0	0	1	3	Missing sidewalk	
232	Medfra St at Elegante St – slippery, steep sidewalk	NW	2	0	0	0	0	1	0	0	0	3	Inadequate sidewalk	
233	Fireweed Lane at Seward Highway	NW	2	0	1	0	0	0	0	0	0	3	Special crossing	
234	Maplewood St to Sitka Street	NE	2	0	0	0	0	0	0	0	1	3	Missing link walkway	
235	Lake Otis Blvd/Kempton Hills	SE	0	0	0	0	0	0	2	0	1	3	Crossing	
236	34th Ave & Old Seward Highway	NW	2	0	1	0	0	0	0	0	0	3	Crossing	
237	Brayton Dr/Huffman Rd at Seward Highway ramps	SE	2	0	0	0	1	0	0	0	0	3	Crossing	
238	Neighborhood west of Gruening Middle School	ER	0	0	0	0	0	0	2	0	1	3	Missing sidewalks	
239	Promenade – Centerfield Dr to Valley River Center & Town Square Park	ER	2	0	0	0	1	0	0	0	0	3	Missing link walkway	
240	Old Glenn Hwy to Business Blvd – ADA accessibility	ER	2	0	0	0	1	0	0	0	0	3	Missing link walkway	
241	Victor Rd – sidewalk repair, Dimond Blvd to 100th St	SW	2	0	0	0	0	0	0	1	0	3	Sidewalk upgrade	
242	Gregory Street – Huffman Rd to Chinook St	SE	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
243	Goldenview Drive – Rabbit Creek Road to Bridgeview Dr	SE	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
244	Turnagain View Paths – to DeArmoun & South High School	SE	0	0	0	0	0	0	2	0	0	2	Missing link walkway, lighting	
245	Forest Park Dr – Northern Lights Blvd to East High School	NW	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
246	Old Klatt Road– Timberlane Dr to Puma St	SW	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
247	Puma St – Klatt Elementary School south to Woo Blvd	SW	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
248	O'Malley Elementary School –. Stony Brook Dr to school.	SE	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
249	Mountain Place pedestrian connection – undeveloped right-of-way	SE	0	0	0	0	0	0	2	0	0	2	Missing link walkway	
250	Zodiak neighborhood	SE	0	0	0	0	0	0	2	0	0	2	Missing sidewalks	
251	Ensign Drive – no sidewalk on south side where homes are	SW	0	0	0	0	0	0	2	0	0	2	Sidewalk & lighting	



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252	34th Ave – Campbell Airstrip Rd to Baxter – undeveloped right-of-way	NE	0	0	0	0	0	0	2	0	0	2	Missing link walkway	
253	Bayshore Elementary School to Mears Middle School – emergency connection	SW	0	0	0	0	0	0	2	0	0	2	Lighting	
254	DeArmoun Rd/Elmore Rd	SE	0	0	0	0	0	0	2	0	0	2	Crossing	
255	Hillside Drive – Abbott Rd to Rabbit Creek Road	SE	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
256	Rabbit Creek Rd – separated pedestrian facilities. Goldenview Dr east	SE	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
257	James Drive	NE	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
258	Madelynn Street – Patterson St to James Dr	NE	0	0		0	0	0	2	0	0	2	Missing sidewalk	
259	Bayshore Drive – sidewalk south of Sleeping Lady	SW	0	0	0	0	0	0	2	0	0	2	Sidewalk, lighting	
260	Eagle River Lane – Eagle River Rd to Ptarmigan St	ER	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
261	Ravenwood Elementary School –to Ptarmigan/Anchorage School District property	ER	0	0	0	0	0	0	2	0	0	2	Lighting	
262	Ptarmigan St	ER	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
263	Eagle River Lane – slopes cause cars to slide backwards on ice	ER	0	0	0	0	0	0	2	0	0	2	Safety improvement	
264	Ravenwood Elementary School to Eagle Crossing – pedestrian connection	ER	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
265	Yosemite Dr – Eagle River Loop Rd to Eagle River High School	ER	0	0	0	0	0	0	2	0	0	2	Missing sidewalk, lighting	
266	Old Glenn Hwy – Voyles Blvd & Lake Hill Dr	CK	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
267	Ski Road	CK	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
268	North Birchwood Loop at Chugiak Elementary School	CK	0	0	0	0	0	0	2	0	0	2	Crossing	
269	South Birchwood Loop	CK	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
270	Reese Blvd – Lake Hill Dr to Sampson Drive	CK	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
271	West 100th Ave – Bayshore Dr to Pointe Resolution Dr	SW	0	0	0	0	0	0	2	0	0	2	Missing sidewalk	
272	DeArmoun Rd – Lake Otis Blvd to Brayton Dr	SE	0	0	0	0	0	0	2	0	0	2	Crossings	
273	Elmore Road – DeArmoun to Rabbit Creek Rd – foot bridge	SE	0	0	0	0	0	0	2	0	0	2	Missing link walkway	
274	Mountain Air Drive	SE	0	0	0	0	0	0	2	0	0	2	Missing link sidewalk	
275	Rabbit Creek Rd & Mountain Air Dr	SE	0	0	0	0	0	0	2	0	0	2	Crossing	
276	68th Ave at Elmore Rd	C	0	0	0	0	0	0	2	0	0	2	Crossing	
277	Eagle River Road – Hillcrest Dr to Stewart Dr	ER	0	0	0	0	0	0	2	0	0	2	Missing link sidewalk	
278	Halligan St – Muldoon Rd to site condos	NE	2	0	0	0	0	0	0	0	0	2	Missing sidewalk	
279	E. 32nd Ave at Muldoon Rd	NE	2	0	0	0	0	0	0	0	0	2	Missing sidewalk	
280	Bill Stephens Dr/Oberg Rd – between S. Peters Creek exit to Voyles Blvd	CK	0	0	0	0	0	0	0	1	1	2	Missing sidewalk	
281	Halligan St at Muldoon Rd	NE	2	0	0	0	0	0	0	0	0	2	Crossing	
282	Ptarmigan Ct at Muldoon Rd	NE	2	0	0	0	0	0	0	0	0	2	Crossing	

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283	Sandlewood Place – Lore Rd to 81st Ave	SE	2	0	0	0	0	0	0	0	0	2	Missing link sidewalk
284	88th/92nd Ave and Academy Dr at Seward Highway	C	2	0	0	0	0	0	0	0	0	2	Missing link walkway
285	15th Ave & Sitka St	NE	0	0	0	0	0	1	0	0	1	2	Crossing
286	Jewel Lake Rd at DeLong Lake	SW	0	0	0	0	0	1	0	0	1	2	Upgrade & lighting
287	Raspberry Road – between Jewel Lake Rd and Air Guard Rd, north side	SW	0	0	0	0	0	1	0	0	1	2	Missing sidewalk
288	Ptarmigan St – Muldoon Rd to site condos	NE	2	0	0	0	0	0	0	0	0	2	Missing sidewalk
289	3rd Ave & Reeve Blvd	NE	2	0	0	0	0	0	0	0	0	2	Crossing
290	Eagle River Loop Rd at Ptarmigan Blvd	ER	0	0	0	0	0	0	2	0	0	2	Crossing
291	Eagle River Road and Eagle River Lane	ER	0	0	0	0	0	0	2	0	0	2	Crossing
292	Cranberry St at Raspberry Rd	SW	0	0	0	0	0	0	2	0	0	2	Crossing
293	Old Glenn Hwy & North Eagle River Access Road	ER	0	0	0	0	0	0	0	2	0	2	Crossing
294	Old Seward Hwy – west side DeArmoun Rd to Rabbit Creek Rd	SW	0	0	0	0	1	0	0	0	0	1	Missing sidewalk
295	Alyeska Trail improvements	G	0	0	0	0	1	0	0	0	0	1	Sidewalk/trail upgrade
296	Oberg Rd – soccer fields to Deer Park Dr	CK	0	0	0	0	0	0	0	0	1	1	Missing sidewalk
297	Glacier Rd/Knik Vista Ct	CK	0	0	0	0	0	0	0	0	1	1	Missing sidewalk
298	Loretta French Park	CK	0	0	0	0	0	0	0	0	1	1	Missing sidewalk
299	Voyles Blvd from South Peters Creek exit to end	CK	0	0	0	0	0	0	0	1	0	1	Missing sidewalk
300	Homestead Rd to Blair Trail Extension	CK	0	0	0	0	0	0	0	0	1	1	Missing link walkway
301	Homestead Road Extension – Oberg Rd to Voyles Blvd	CK	0	0	0	0	0	0	0	0	1	1	Missing sidewalk
302	Eklutna Lake Road	CK	0	0	0	0	0	0	0	0	1	1	Missing sidewalk
303	Campbell Airstrip Rd	NE	0	0	0	0	0	0	0	0	1	1	Missing sidewalk
304	Collins Way	SW	0	0	0	0	0	1	0	0	0	1	Missing sidewalk
305	Winchester St –undeveloped right-of-way, Winchester Loop Rd to Abbott Road	C	0	0	0	0	0	0	0	0	1	1	Missing link walkway
306	Chevigny St hill – join north & south	SW	0	0	0	0	0	1	0	0	0	1	Missing link walkway
307	Postmark Drive – Lake Spenard to Earthquake Park	NW	0	0	0	0	0	0	0	0	1	1	Missing sidewalk
308	Abbott Rd at King David to Ruth Arcand Park	C	0	0	0	0	0	0	0	0	1	1	Crossing
309	88th Ave – Spruce Brook St to Elmore Rd	C	0	0	0	0	0	0	0	0	0	0	Missing sidewalk
310	Northwind Ave– Muldoon Rd to Cherry St	NE	0	0	0	0	0	0	0	0	0	0	Missing sidewalk
311	Mary St	SW	0	0	0	0	0	0	0	0	0	0	Missing sidewalk
312	100th Ave – Minnesota Dr east to C St	C	0	0	0	0	0	0	0	0	0	0	Missing sidewalk
313	O'Malley Rd – Seward Highway to Hillside Rd	SE	0	0	0	0	0	0	0	0	0	0	Missing sidewalk
314	Old Seward Hwy to Potter Valley Rd	SE	0	0	0	0	0	0	0	0	0	0	Missing sidewalk
315	Huffman Road – Elmore Rd to Birch Rd	SE	0	0	0	0	0	0	0	0	0	0	Missing sidewalk
316	Eagle River Road & Hamann Rd	ER	0	0	0	0	0	0	0	0	0	0	Sidewalk & lighting

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317	Glenn Hwy Frontage Roads	CK	0	0	0	0	0	0	0	0	0	0	Missing sidewalk
318	North Birchwood Loop – Birchwood Airport to Glenn Hwy	CK	0	0	0	0	0	0	0	0	0	0	Missing sidewalk
319	Hiland Road	ER	0	0	0	0	0	0	0	0	0	0	Missing sidewalk

<sup>a</sup> The score was increased by 1 point to reflect the location of a hospital within 1/2 mile of the project.

**Subarea Abbreviations:**

C = Central

CK = Chugiak/Birchwood

ER = Eagle River

G = Girdwood

NE = Northeast

NW = Northwest

SE = Southeast

SW = Southwest

**Other Abbreviation:**

ADA = Americans with Disabilities Act

PPI = Pedestrian Potential Index

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# CHAPTER

# 6



# Implementation

These examples provide details for potential project development and funding, including preliminary design options, cost opinions, funding options, and timeline; explore programs and policy recommendations that can further support infrastructure improvements; and identify next steps for developing a comprehensive active transportation network that support a variety of trip purposes and user types. The purpose of this chapter is to provide a clear strategy for implementation of the Non-motorized Plan. In order to do this, a realistic assessment of typical project cost, scope and maintenance needs is necessary. This chapter includes six example projects of varying facility types. They include preliminary concept design, cost opinions, funding options, and timeline. In addition to the concept design for these projects, this chapter also explores program, policy, and other system-wide recommendations.

## 6.1 Project Development

This section outlines preliminary concept-level design for six specific projects. These projects are examples of a variety of facility types and were selected from the network recommendations (as outlined in Chapter 5). These project locations include:

- » 10th Avenue and Cordova Street Intersection
- » Campbell Creek Trail Crossing at Lake Otis Parkway
- » Fireweed Lane – Bicycle and Pedestrian Improvements
- » 27th Avenue – Bicycle Boulevard
- » 40th Avenue – Sidewalk Infill
- » Coronado Street – Separated Shared-Use Pathway

For each project, the following details are provided:

- » Project description and locator map
- » Project challenges
- » Concept design<sup>1</sup>
- » Construction cost opinion
- » Maintenance cost opinion
- » Funding options
- » Timeline

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<sup>1</sup> The concept designs provided on the following pages are only examples of what can be implemented and are not intended as required design features.

## Representative Project #1:

### 10th Avenue and Cordova Street Intersection

#### PROJECT DESCRIPTION

The intersection of Cordova Street and East 10th Avenue represents an important node in Anchorage's evolving non-motorized network. First, it is identified as a preferred crossing location in the Safe Routes to Schools Manual for Denali Elementary School, located at the northwest corner. Second, East 10th Avenue (from P Street to Medfra St, 1.8 miles) was converted to a bicycle boulevard in 2017. Lastly, Cordova Street (from 16th St to 3rd Ave, 0.9 miles) was reconfigured to include bicycle lanes (south of 9th Ave) and shared use markings (north of 9th Ave). Previous projects neglected to include intersection improvements, conceivably due to funding or schedule constraints.

Both East 10th Avenue and Cordova Street were identified as priority network links during public and agency stakeholder involvement. Cordova Street is a neighborhood collector with a 2017 average annual daily traffic (AADT) count of 2,221 and a posted speed limit of 30 mph. East 10th Avenue is a local road with a 25 mph posted speed limit. The intersection is two-way stop controlled on both East 10th Avenue approaches.

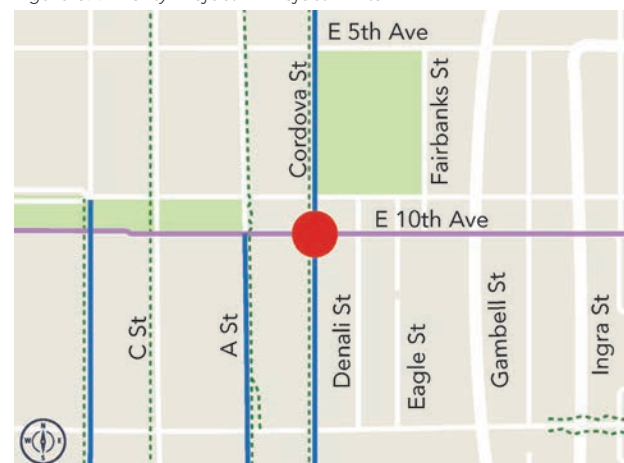
In order to improve the intersection for non-motorized users, the following upgrades are proposed:

- » Construct curb bulb-outs in the northeast and southeast corners to improve parking delineation and reduce pedestrian crossing distances on the north and east leg.

- » Reduce vehicular lanes on Cordova Street from 12 to 11 feet and repurpose the 2 foot gain in the form of a buffered bike lane along the east (parking) side of the street.
- » Extend the north-south bicycle lanes through the intersection and add conspicuity with green colored markings.
- » Add green colored markings to the ingress bicycle lanes to discourage encroachment by right turning vehicles.

#### PROJECT LIMITS

Figure 6.1: Priority Project #1 Project Limits



Red: project limits; blue: existing bike lanes; green dashed: existing pathway; purple: existing bicycle boulevard

Figure 6.2: Priority Project #1 10th Avenue and Cordova Street Intersection Plan View

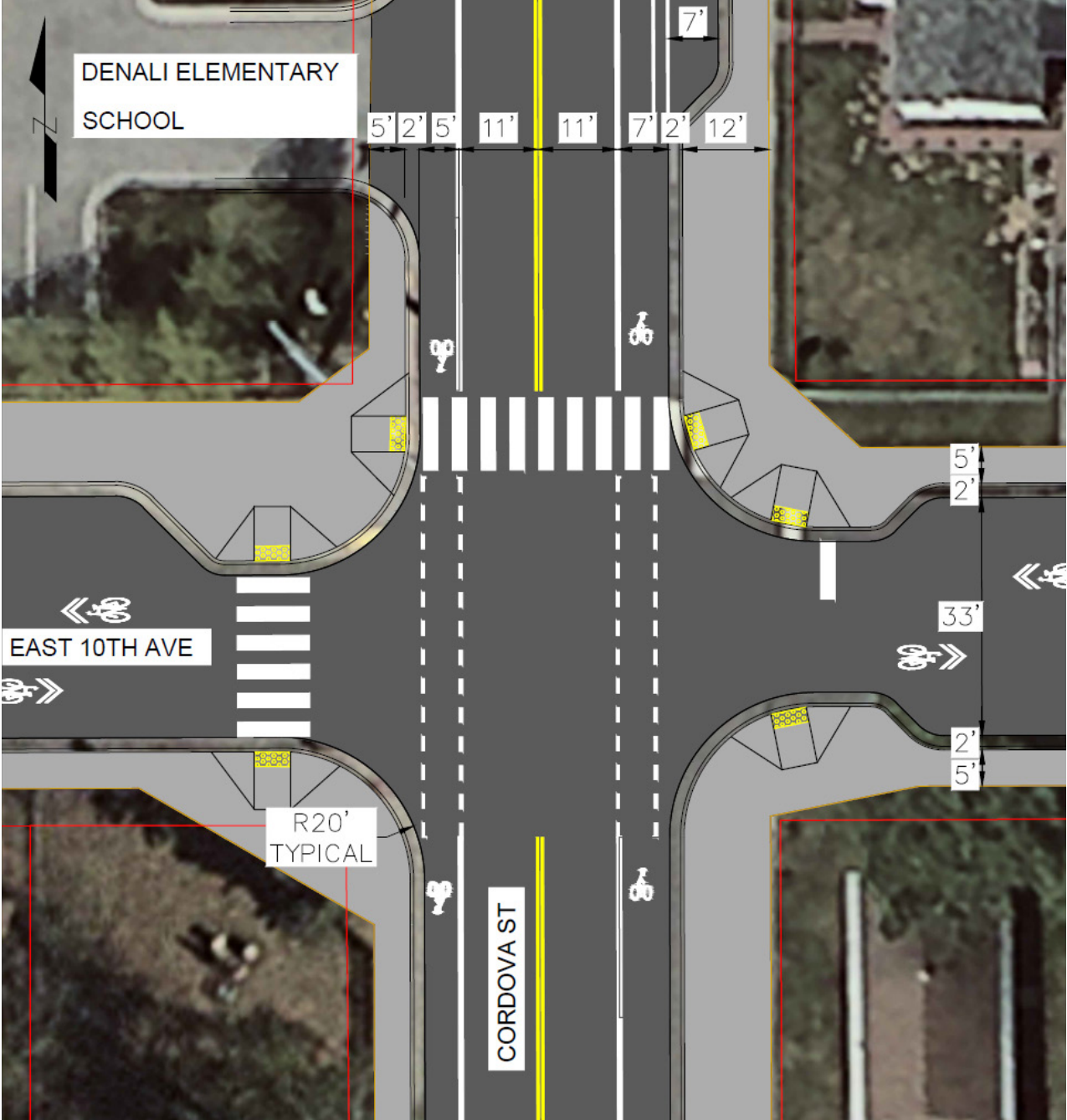


Figure 6.3: Priority Project #1: 10th Avenue and Cordova Street Visualization



## PROJECT CHALLENGES

**Maintenance and skid resistance:** Large area pavement markings are in their infancy in Anchorage. Concerns with longevity, replacement costs, and skid resistance have been brought up. Possible solutions are to use skid resistant inlaid markings or green colored concrete. However, given that roadway pavement provides sufficient friction components, another option includes applying a colored friction surface in accordance with the manufacturer's specifications. If applied during appropriate seasonal conditions, it has been successful for securing the friction component, but after one season of plowing the aggregate, if not applied correctly, can begin to wear. Another solution is the application of a colored paint that is not epoxy-based. This requires additional maintenance, but will minimize friction-related issues.

## MAINTENANCE COST OPTION (2018 DOLLARS)

Table 6.1: Priority Project #1: 10th Avenue and Cordova Street Maintenance Cost Options

DESCRIPTION	ESTIMATED RECURRING ANNUAL MAINTENANCE COSTS
Snow Hauling	\$6,000
Routine Maintenance	\$4,000
<b>Total (rounded)</b>	<b>\$10,000</b>



## PROJECT COST OPTION (2018 DOLLARS)

Table 6.2: Priority Project #1: 10th Avenue and Cordova Street Project Cost Options

DESCRIPTION	ITEM	CALCULATION	ESTIMATED COST
Engineering	A		\$200,000
Construction	B		\$520,000
Utility Relocation	C		\$50,000
Right-of-Way Acquisition	D		\$20,000
Subtotal	E	A + B + C + D	\$790,000
Construction Engineering	F	20% of B	\$104,000
Contingency	G	30% of E	\$237,000
<b>Total (rounded)</b>	<b>H</b>	<b>E + F + G</b>	<b>\$1,200,000</b>

### FUNDING OPTIONS

- » Municipality of Anchorage, Anchorage Roads and Drainage Area (ARDSA) Bonds
- » AMATS funding, Transportation Improvements Program (TIP) and Transportation Alternatives Program (TAP)
- » State Grant: Safe Routes to School funding via DOT&PF Transportation Alternatives Program

### IMPLEMENTATION PROCESS

Acquire funding to enable the project to advance through the following project development phases:

- » Application and FHWA approval for experimental traffic control devices
- » 65% Design, associated community involvement and agency review
- » Final Plans
- » Construction of proposed improvements

## Representative Project #2:

### Campbell Creek Trail - Lake Otis Parkway Crossing

#### PROJECT DESCRIPTION

The majority of the Campbell Creek Trail is unimpeded by roadway crossings. Lake Otis Parkway represents the last obstacle for users to travel the length of the trail. To cross Lake Otis Parkway, trail users must follow a rather circuitous route that crosses four stop-controlled side streets, two signalized crossings at Waldron Drive, and enter a tunnel under Lake Otis Parkway. This path adds approximately 0.5 miles to the route and increases conflict points among drivers and users of the trail. The Anchorage Pedestrian Plan (APP) and the Metropolitan Transportation Plan (MTP) identify the intersection of Campbell Creek Trail and Lake Otis Parkway as a crossing that needs to be improved for non-motorized users.

An above grade (separated) crossing is desirable for safety reasons, network consistency, winter grooming, and comfort. The alignment for the grade separated crossing begins approximately 500 feet west of E 47th Court. From there, it follows an existing private shared use pathway toward St. Mary's Episcopal Church. To cross Lake Otis Parkway, this alternative constructs a 175-foot long steel truss bridge north of E 47th Court. After crossing Lake Otis Parkway, it follows the existing shared use pathway east of Lake Otis Parkway and replaces an existing bridge over Campbell Creek, east of Campbell Park. The new alignment rejoins the existing shared use pathway on the south side of a small ball field east of the park. In addition to constructing two bridges, this alternative consists of approximately 2,000 feet of cast-in-place concrete and mechanically stabilized earth retaining walls. These walls are required to minimize the footprint and impacts to nearby properties.

PROJECT LIMITS

Figure 6.4: Priority Project #2 Campbell Creek Trail - Lake Otis Parkway Crossing Project Limits

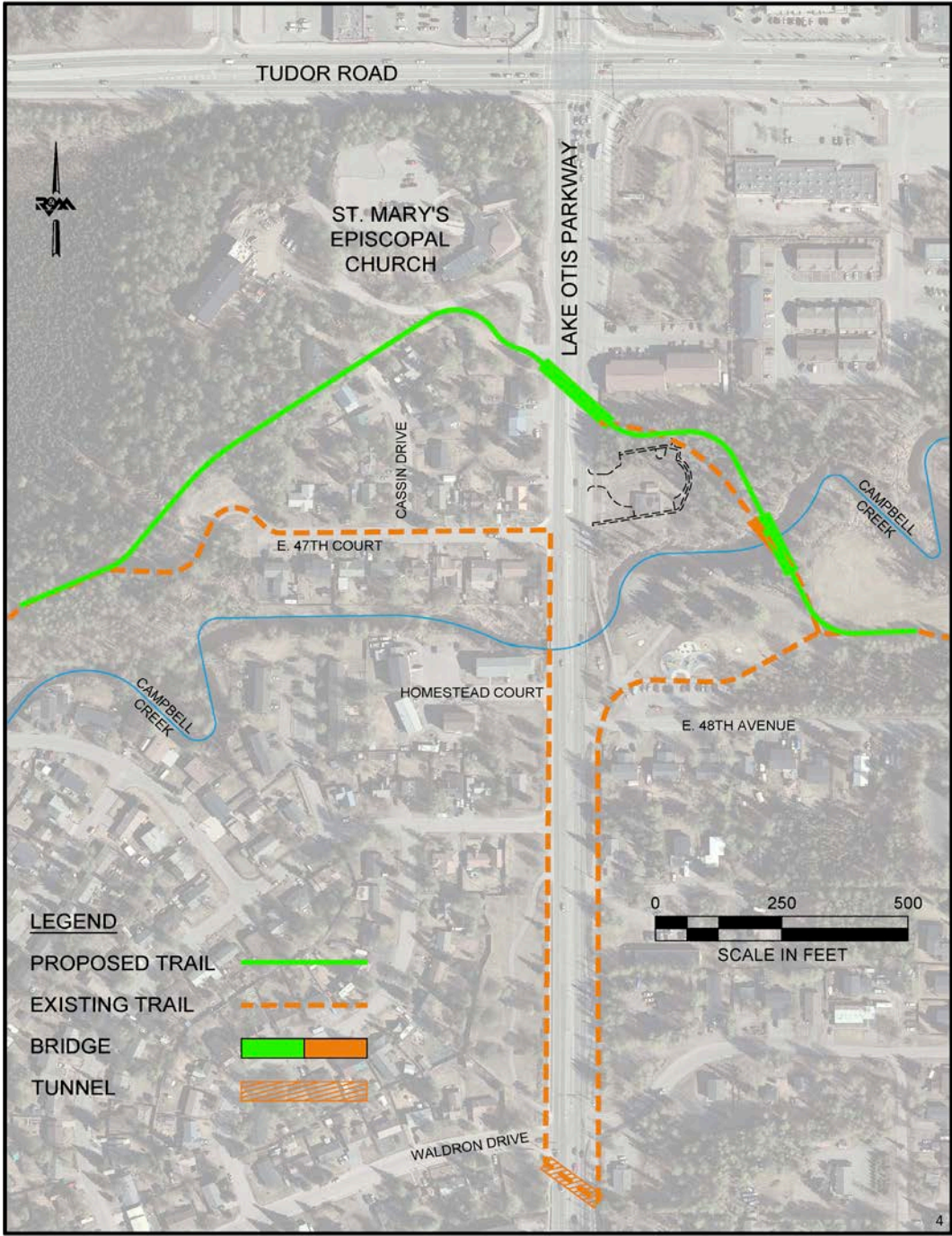


Figure 6.5: Priority Project #2 Campbell Creek Trail - Lake Otis Parkway Crossing, Cross Section

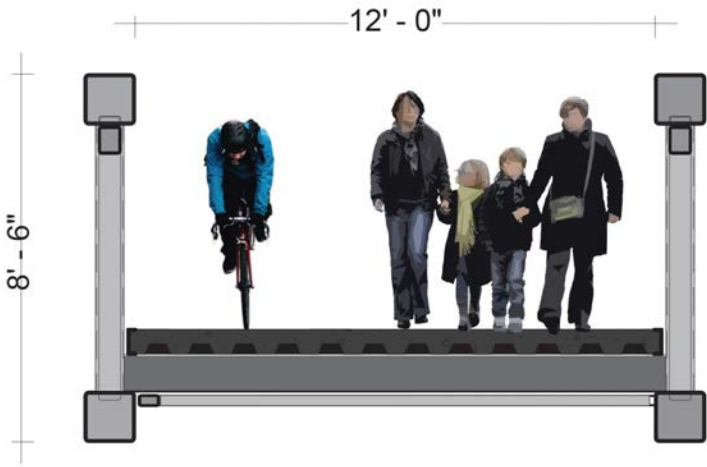


Figure 6.6: Priority Project #2 Campbell Creek Trail - Lake Otis Parkway Crossing, Visualization





## PROJECT CHALLENGES

**Right-of-Way (ROW):** Despite constructing retaining walls, this alternative impacts nearby structures and properties. It requires the full acquisition of one property and partial acquisition of six others. In addition to ROW impacts, this alternative would realign the driveway that serves St. Mary's Episcopal Church. On the east side of Lake Otis Parkway, the shared use pathway would be elevated as it passes south of a multi-family residence. In order to protect the privacy of the residents, a visually obstructing fence or wall would be required on the north side of the shared use pathway.

**Neighborhood Access:** A grade separated crossing eliminates the conflict between traffic on Lake Otis Parkway and users of the Campbell Creek Trail. However, it is less convenient for neighborhood residents trying to access Campbell Park from the west. An at-grade crossing between Tudor Road and Waldron Drive was analyzed but found to be unfeasible due to traffic volumes, speed, and proximity to existing signalized intersections.

## PROJECT COST OPTION (2018 DOLLARS)

Table 6.3: Priority Project #2: Campbell Creek Trail - Lake Otis Pkwy Crossing Cost Options

DESCRIPTION	ITEM	CALCULATION	ESTIMATED COST
Engineering	A		\$980,000
Construction (includes 25% contingency)	B		\$6,470,000
Utility Relocation	C		\$1,000,000
Right-of-Way Acquisition (includes 50% contingency)	D		\$960,000
Subtotal	E	A + B + C + D	\$9,410,000
Construction Engineering	F	20% of B	\$104,000
<b>Total (rounded)</b>	<b>G</b>	<b>E + F</b>	<b>\$10,100,000</b>



## MAINTENANCE COST OPTION (2018 DOLLARS)

Table 6.4: Priority Project #2 Campbell Creek Trail - Lake Otis Pkwy Crossing, Maintenance Cost Options

DESCRIPTION	ESTIMATED RECURRING ANNUAL MAINTENANCE COSTS
Snow Hauling	N/A
Routine Maintenance	\$9,000
<b>Total (rounded)</b>	<b>\$9,000</b>

### FUNDING OPTIONS

- » Municipality of Anchorage, Anchorage Roads and Drainage Area (ARDSA) Bonds
- » Nonprofit contributions, Anchorage Park Foundation, Alaska Trails
- » AMATS Funding, Transportation Improvements Program (TIP) and Transportation Alternatives Program (TAP)

### IMPLEMENTATION PROCESS

Acquire funding to enable the project to advance through the following project development phases (note that particular funding sources may have additional process requirements):

- » Parks & Recreation Advisory Board review
- » Design, associated community involvement and agency review
- » Final Plans
- » Construction of proposed Improvements

## Representative Project #3:

### Fireweed Lane

#### PROJECT DESCRIPTION

West Fireweed Lane between Spenard Road and Seward Highway is a four lane minor arterial with a posted speed limit of 35 mph. The 2017 AADT ranged from 5,076 to 8,716, decreasing from east to west. The DOT&PF owns and maintains the majority of West Fireweed Lane, while the MOA owns and performs summer maintenance on the segment between Arctic Boulevard and Spenard Road.

Land use along the corridor is predominately commercial, with an access density of one every 50 feet (106 per mile). Two schools are located adjacent to West Fireweed Lane: North Star School and Stellar Secondary School. Existing non-motorized facilities are limited to sidewalks on both sides, interrupted by frequent curb cuts. Crossing opportunities are present at the signalized intersection and the signalized mid-block crossing between the schools.

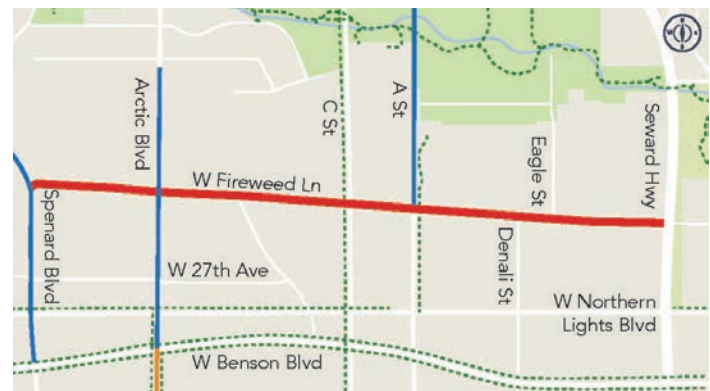
The alternatives for Fireweed Lane assume a reduction in the total number of travel lanes or a “road diet.” Removing a lane on Fireweed Lane creates an opportunity to provide enhanced pedestrian and bicycle facilities within the right-of-way that becomes freed up. Given the volumes and speed on this roadway, it is recommended that bicyclists be separated from motorized traffic.

Assuming an annual growth of 0.9% would result in a maximum 2045 AADT of 11,200. That puts the project squarely in the “Often Good Candidates” category according to FHWA guidelines for 3-lane conversions. It will however require intersection analysis to assure satisfactory operations.

The recommendation for bicyclists is a raised cycle track adjacent to and level with the sidewalk. This facility has advantages over an on-road bike lane (see Figure 6.8 and 6.9 on facing page). The raised cycle track will feature a distinguishing pattern and/or flush edge treatment to visually separate it from the pedestrian space. The raised cycle track can also accommodate temporary snow storage during winter months when bike traffic is lower, and it has the added advantage of increasing the bicyclists level of comfort through the physical separation.

#### PROJECT LIMITS

Figure 6.7: Priority Project #3 Project Limits



Red: project limits; blue: existing bike lanes; green dashed: existing pathway; orange: existing paved shoulder

Figure 6.8: Priority Project #3 Cross Section

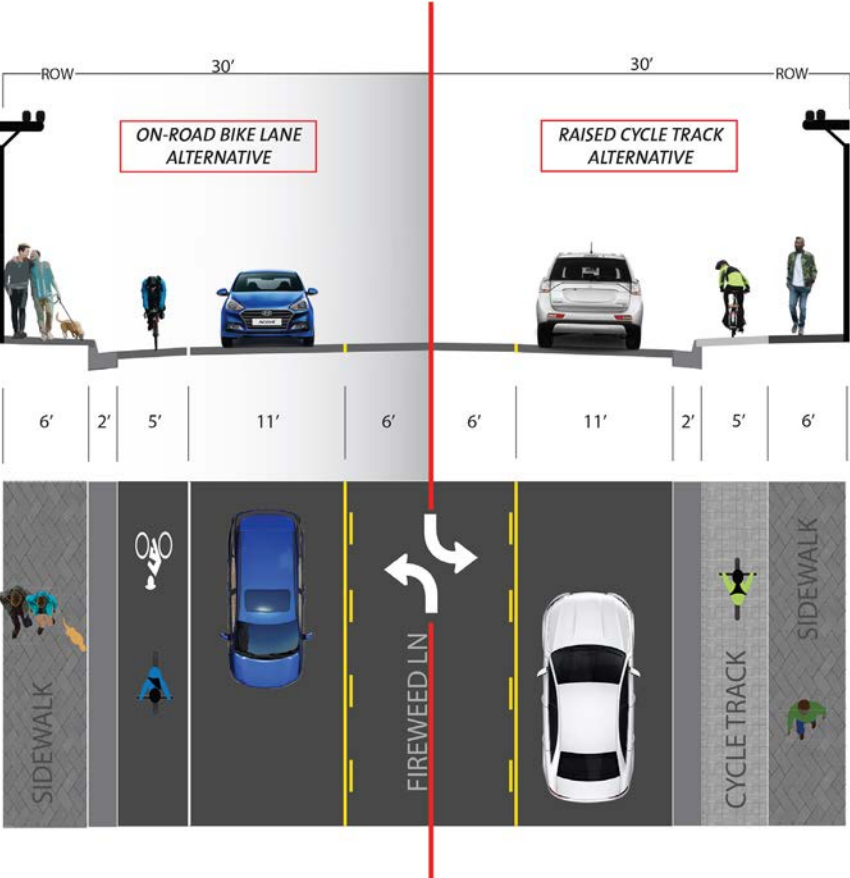
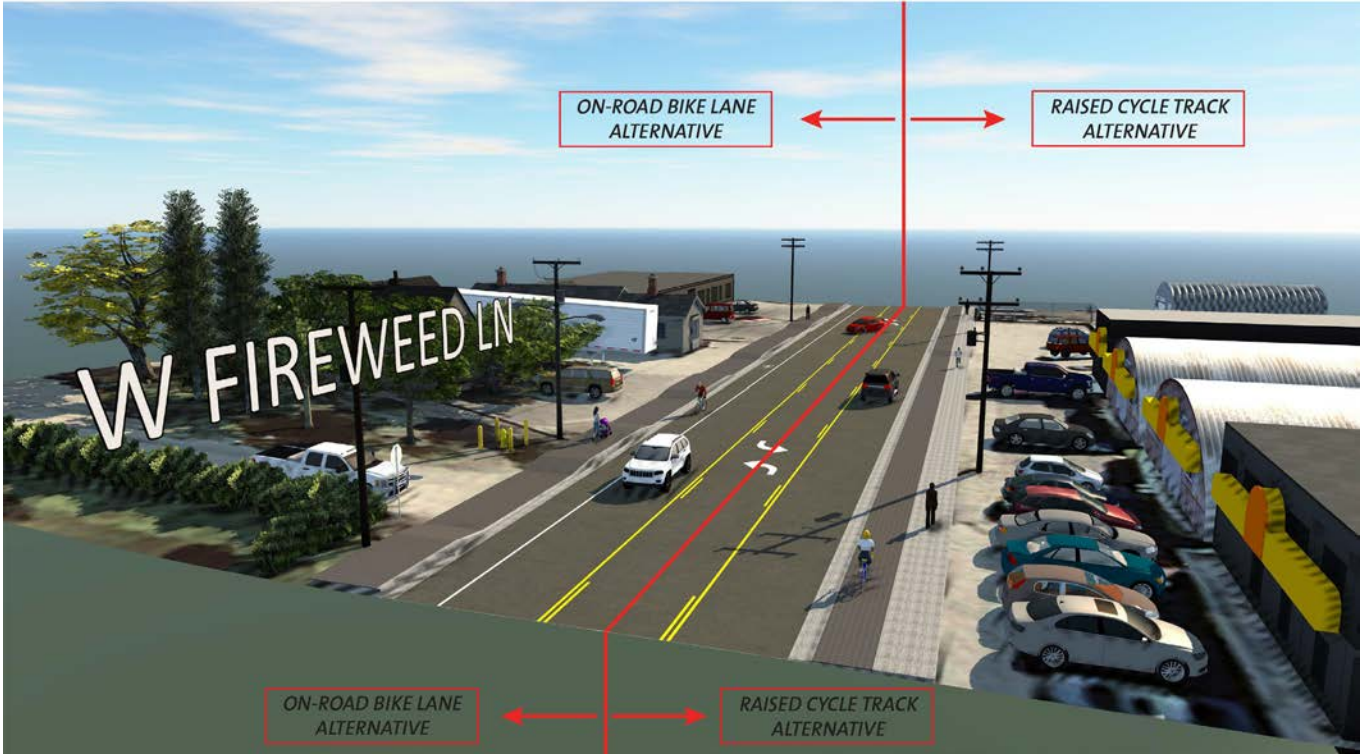


Figure 6.9: Priority Project #3 Visualization



## PROJECT CHALLENGES

**Business stakeholders:** previous attempts to upgrade Fireweed Lane were met with opposition from the local business community over access and traffic capacity concerns. Successes from the recently completed (and similar) Spenard Road project should be leveraged during the Context Sensitive Solutions (CSS) and Context Sensitive Design (CSD) stakeholder involvement. Before/after data from recent road diet projects (Spenard Road, Arctic Boulevard) could be evaluated to show skeptics that road diets and non-motorized improvements can benefit businesses and users alike.

**Parking:** many of the businesses fronting Fireweed Lane utilize parking immediately behind the existing sidewalk, as shown in the visualization above. Successful implementation of non-motorized improvements will necessitate reorganizing parking and consolidating access. One solution, employed on Spenard Road, was to purchase vacant lots and construct off-street parking lots to offset the loss of parking behind the pathway/sidewalk.

**Phasing:** the scope of the improvements is too large to bear for a single project under the current financial climate. It is recommended that future studies evaluate dividing the corridor into logical phases.

## PROJECT COST OPTION (2018 DOLLARS)

Table 6.5: Priority Project #3 Fireweed Ln Project Cost Options

DESCRIPTION	ITEM	CALCULATION	ESTIMATED COST
Engineering	A		\$3,000,000
Construction	B		\$16,000,000
Utility Relocation	C		\$3,000,000
Right-of-Way Acquisition	D		\$2,000,000
Subtotal	E	A + B + C + D	\$24,000,000
Construction Engineering	F	20% of B	\$3,200,000
Contingency	G	30% of E	\$7,200,000
<b>Total (rounded)</b>	<b>H</b>	<b>E + F + G</b>	<b>\$35,000,000</b>

## MAINTENANCE COST OPTION (2018 DOLLARS)

Figure 6.6: Priority Project #3 Fireweed Ln Maintenance Cost Options

DESCRIPTION	ESTIMATED RECURRING ANNUAL MAINTENANCE COSTS
Snow Hauling	\$110,000
Routine Maintenance	\$130,000
<b>Total (rounded)</b>	<b>\$240,000</b>

## FUNDING OPTIONS

- » AMATS funding, Bicycle Plan Implementation, Long Range Transportation Plan Implementation, Transportation Improvements Program (TIP)

## IMPLEMENTATION PROCESS

Acquire funding to enable the project to advance through the following MOA Context Sensitive Solutions Strategy and development phases:

- » Concept Report, associated community involvement and Planning & Zoning Commission informational review
- » Design Study Report, associated community involvement and public review
- » 65% Design and Urban Design Commission public hearing and approval
- » Final Plans
- » Construction of proposed improvements
- » Transfer ownership and maintenance responsibility from DOT&PF to MOA



## Representative Project #4:

### 27th Avenue Bicycle Boulevard

#### PROJECT DESCRIPTION

West 27th Avenue between Minnesota Drive and Blueberry Road was identified in the previous non-motorized plans and remains to be a priority corridor for pedestrian and bicyclist improvements.

East-west connectivity through Midtown Anchorage is dominated by high-volume, high-speed arterials. It is desirable to develop a non-motorized network along lower volume, lower speed roadways that parallel the arterials. West 27th Avenue provides connectivity to the Chester Creek Trail via the pathway along Minnesota Drive and the A Street pathway via the sidewalk along West Northern Lights Boulevard. Contained within a quarter mile boundary are a number of retail establishments, bike shops, restaurants, schools, and high-density residential units.

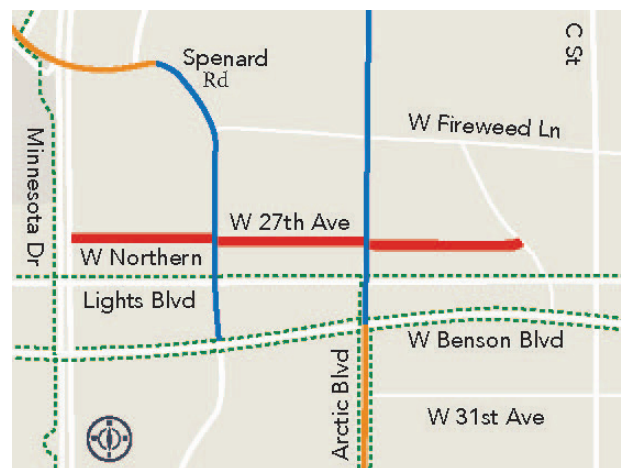
Even though the entire  $\frac{3}{4}$  mile corridor is classified as a local road, each of the three segments varies significantly in adjacent land use, right-of-way width, and traffic volume, thereby necessitating a different facility type to suit each context:

- » **Minnesota Drive to Spenard Road** - shared-use pathway on north side, sidewalk on south side, no shared-use road due to high traffic volumes
- » **Spenard Road to Arctic Boulevard** - bicycle boulevard with sidewalk on south side
- » **Arctic Boulevard to Blueberry Road** - One-way eastbound (motorized and bicycle boulevard with buffered westbound bike lane)

The intersection of West 27th Avenue and Spenard Road was recently realigned and crossing improvements were installed. It is recommended that additional signage and/or signalization be installed to further emphasize the crossing. Spare conduits were installed across Spenard Road to facilitate future improvements such as an electrical warning device. The intersection of West 27th Avenue and Arctic Boulevard should be reconfigured to allow for right-in/right-out only by extending the existing, raised median and adding cut throughs for bicyclists. The eastern most segment of West 27th Avenue is proposed to be one-way eastbound.

#### PROJECT LIMITS

Figure 6.10: Priority Project #4 Project Limits



Red: project limits; blue: existing bike lanes; green dashed: existing pathway; orange: existing paved shoulder

Figure 6.11: Priority Project #4 27th Ave Bicycle Blvd Cross Section

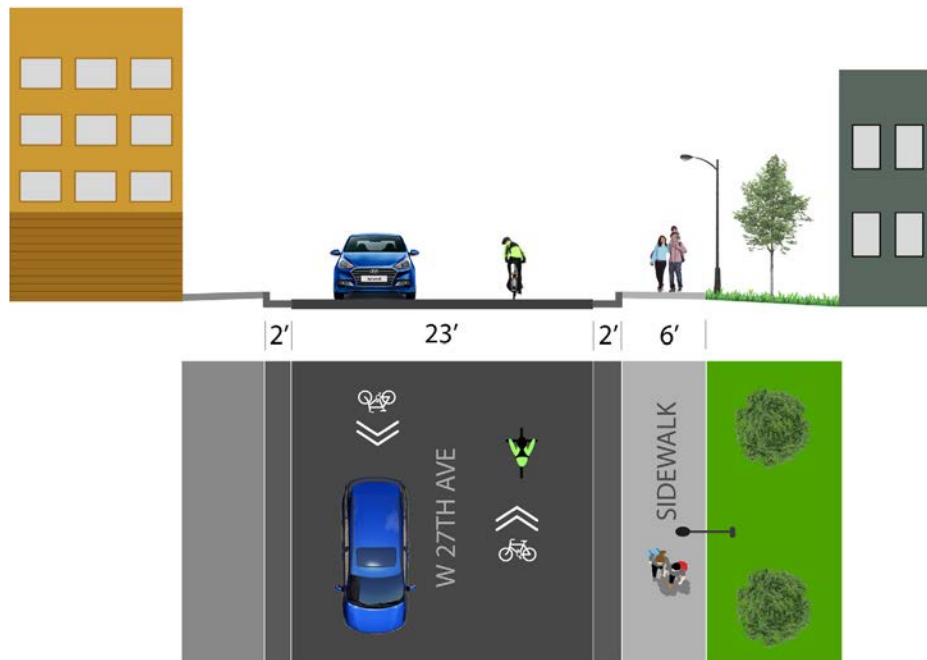


Figure 6.12: Priority Project #4 27th Ave Bicycle Blvd Visualization - Minnesota Drive to Spenard Road





Figure 6.13: Priority Project #4 27th Ave Bicycle Blvd Visualization - Spenard Road to Arctic Boulevard



Figure 6.14: Priority Project #4 27th Ave Bicycle Blvd Visualization - Arctic Boulevard to Blueberry Road



## PROJECT CHALLENGES

**On-street parking:** demand for on-street parking is high, particularly near the Bear Tooth Theatre pub.

**Offset intersection:** West 27th Avenue is offset across Arctic Boulevard.

**Connectivity:** connecting West 27th Avenue to the surrounding non-motorized network will require improvements along Minnesota Boulevard to extend the improvements to the signalized crossing at West 26th Avenue.

**Fire Department access:** additional street width is required in front of multi-story buildings.

**Utility relocations:** overhead electric will require relocation/undergrounding.

## MAINTENANCE COST OPTION (2018 DOLLARS)

Table 6.8: Priority Project #4 27th Avenue Bicycle Boulevard Project Maintenance Cost Options

DESCRIPTION	ESTIMATED RECURRING ANNUAL MAINTENANCE COSTS
Snow Hauling	\$55,000
Routine Maintenance	\$35,000
<b>Total (rounded)</b>	<b>\$90,000</b>

## PROJECT COST OPTION (2018 DOLLARS)

Table 6.7: Priority Project #4 27th Avenue Bicycle Boulevard Project Cost Options

DESCRIPTION	ITEM	CALCULATION	ESTIMATED COST
Engineering	A		\$1,000,000
Construction	B		\$3,600,000
Utility Relocation	C		\$1,230,000
Right-of-Way Acquisition	D		\$150,000
Subtotal	E	A + B + C + D	\$5,980,000
Construction Engineering	F	20% of B	\$720,000
Contingency	G	30% of E	\$1,794,000
<b>Total (rounded)</b>	<b>H</b>	<b>E + F + G</b>	<b>\$8,500,000</b>

## FUNDING OPTIONS

- » MOA ARDSA (Anchorage Roads and Drainage Area) bonds

## IMPLEMENTATION PROCESS

Concept Report and pre-Draft Design Study Report has already been completed and through the community involvement process as well as the Anchorage Planning and Zoning Commission at Concept Phase.  
See <http://w27thaveimprovements.com/> for more information.

Additional funding will enable the project to:

- » Advance to the Public Review version of the Design Study Report
- » 65% Design and Urban Design Commission (UDC) review and approval
- » Final Plans
- » Construction of proposed improvements





## Representative Project #5:

### 40th Avenue Sidewalk

#### PROJECT DESCRIPTION

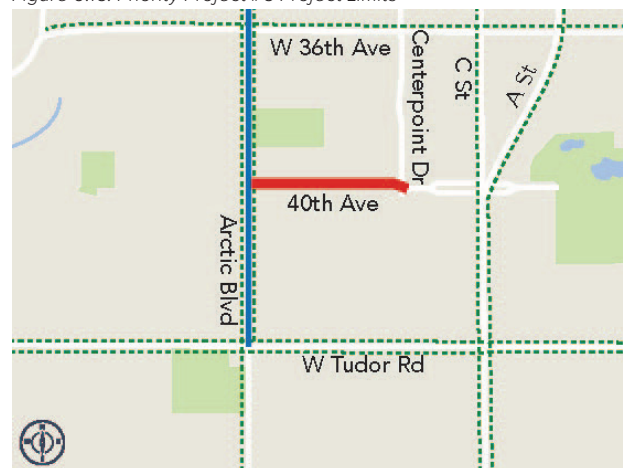
West 40th Avenue is a discontinuous roadway that extends from Lake Hood to the Cuddy Family Midtown Park. The segment between Arctic Boulevard and the Cuddy Family Midtown Park, classified a collector roadway, was identified as a priority corridor by the public and the agency advisory group. Like much of Midtown, West 40th Avenue serves a predominately commercial area, providing access to several high rises housing native corporations, energy companies, and financial institutions.

Similar to the 27th Avenue bicycle boulevard project, bicyclists and pedestrians traveling through Midtown favor lower volume/lower speed roadways as alternatives to the busy east-west arterials. This segment of West 40th Avenue has a 2017 AAADT of 1,464 and a posted speed limit of 25 mph, making it a pleasant environment for non-motorized users. In addition to the Cuddy Family Midtown Park, West 40th Avenue also provides connectivity to the ZJ Loussac Public Library, another civic destination.

Currently, no dedicated non-motorized facilities exist between Arctic Boulevard and Centerpoint Drive, a distance of approximately 1,200 feet. West 40th Avenue was already identified in the previous edition of the Bicycle Plan as a shared use roadway and recommended to receive a separated pathway. The existing Right-of-Way will not support the addition of a separated pathway. For this reason, and the corridor's propensity for a shared roadway, it is recommended to complete the missing sidewalk link by adding curb & gutter and sidewalk along the north side.

#### PROJECT LIMITS

Figure 6.15: Priority Project #5 Project Limits



Red: project limits; green dashed: existing pathway

Figure 6.16: Priority Project #5 40th Avenue Sidewalk Cross Section

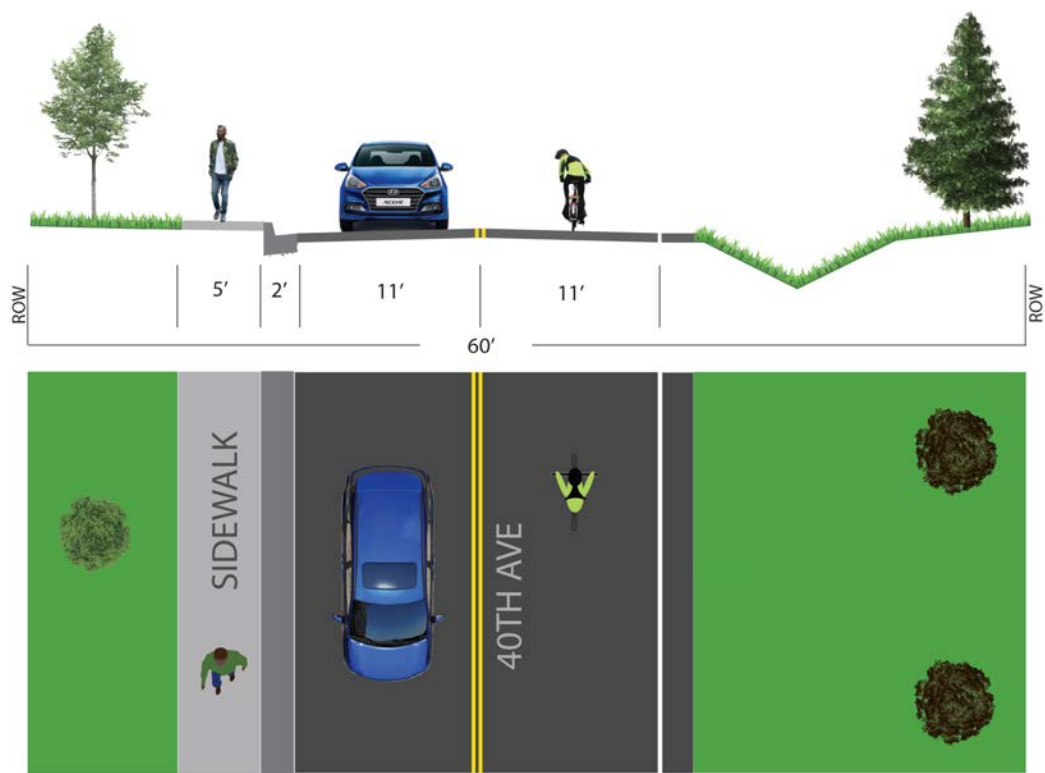


Figure 6.17: Priority Project #5 40th Avenue Sidewalk Visualization



## PROJECT CHALLENGES

**Drainage:** roadway drainage is conveyed through ditches and driveway culverts. Adding curb & gutter will necessitate the addition of an underground storm drain system or other innovative/green infrastructure solution. Retaining the open drainage on one side will be easier to maintain, enhance the quality of runoff destined for Fish Creek, and reduce overall project costs.

**Transients:** area stakeholders are very concerned about issues such as vandalism and illegal camps. Public facilities should incorporate features that discourage these activities with increased lighting (particularly pedestrian level lighting), open landscaping, and other Crime Prevention Through Environmental Design (CPTED) features. An increase in non-motorized activity will have a positive impact on how the space is used which in turn could help deter vandalism.

## PROJECT COST OPTION (2018 DOLLARS)

Table 6.9: Priority Project #5 40th Avenue Sidewalk Project Cost Options

DESCRIPTION	ITEM	CALCULATION	ESTIMATED COST
Engineering	A		\$200,000
Construction	B		\$580,000
Utility Relocation	C		\$50,000
Right-of-Way Acquisition	D		\$10,000
Subtotal	E	A + B + C + D	\$840,000
Construction Engineering	F	20% of B	\$116,000
Contingency	G	30% of E	\$252,000
<b>Total (rounded)</b>	<b>H</b>	<b>E + F + G</b>	<b>\$1,200,000</b>

## MAINTENANCE COST OPTION (2018 DOLLARS)

Table 6.10: Priority Project #5 40th Avenue Sidewalk Maintenance Cost Options

DESCRIPTION	ESTIMATED RECURRING ANNUAL MAINTENANCE COSTS
Snow Hauling	\$10,000
Routine Maintenance	\$15,000
<b>Total (rounded)</b>	<b>\$25,000</b>

## FUNDING OPTIONS

- » MOA Anchorage Roads and Drainage Area (ARDSA) bonds
- » AMATS funding, AMATS Bicycle Plan implementation and Complete Streets Policy Implementation
- » Transportation Improvements Program (TIP) and Transportation Alternatives Program (TAP)

## IMPLEMENTATION PROCESS

Acquire funding to enable the project to advance through the following development phases:

- » Design, associated community involvement and agency review
- » Final Plans
- » Construction of proposed improvements

## Representative Project #6:

### Coronado Street

#### PROJECT DESCRIPTION

Coronado Street in Chugiak-Eagle River is an east-west collector linking the Old Glenn Highway to the North Eagle River Loop Road via Eagle River Loop Spur, a distance of approximately 0.6 miles. The current roadway is strip paved, with narrow shoulders and shallow drainage ditches on both sides. Roadway illumination is virtually non-existent and dedicated non-motorized facilities are absent. The existing Right-of-Way (ROW) width is approximately 60 feet, the posted speed limit is 25 mph, and the 2017 AADT was 1,162 (Coronado Street) and 346 (Eagle River Loop Spur).

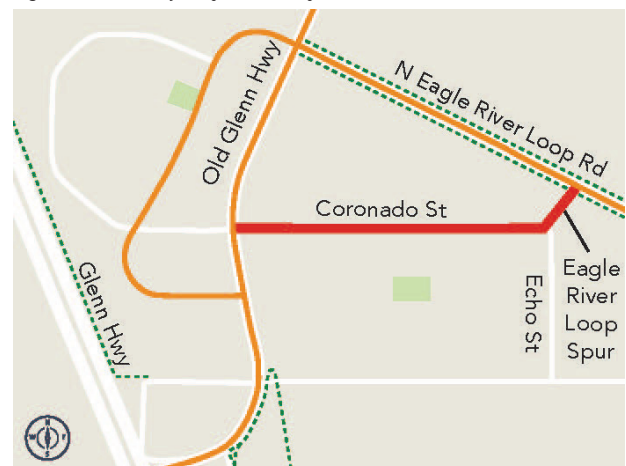
The zoning is a mix of Commercial (CE-RO), Two Family Residential (CE-R-2D), and Multiple Family Residential (CE-R-2M). The land use transitions from Town Center along the western end of Coronado Street to medium/high density residential for most of the remainder. The 2010 Anchorage Bicycle Plan recommended a shared roadway. In the 2007 Anchorage Pedestrian Plan, Coronado Street was ranked 45 out of 319 and slated to receive a sidewalk and lighting.

Recent developments such as Cook Inlet Housing Authority's 56-unit Coronado Park Senior Village and the Petersen Group's Coronado Park, which includes 43 structures comprised of over 90 units, access Coronado Street from the south. In addition, Coronado Street provides a connection between pathways along Old Glenn Highway and North Eagle River Loop Road.

Coronado Street and Eagle River Loop Spur will be upgraded to closely conform with Anchorage's Design Criteria Manual (DCM) collector road standards. Due to the limited ROW width, it is proposed to include a separated multi-use pathway on the south side only, with paved shoulders and curb & gutter on both sides. Limiting the pathway to one side reduces and/or eliminates costly and time consuming ROW acquisitions and has successfully been applied to other area road upgrades, such as Old Eagle River Road.

#### PROJECT LIMITS

Figure 6.18: Priority Project #6 Project Limits



Red: project limits; green dashed: existing pathway; orange: existing paved shoulder



Figure 6.19: Priority Project #6 Coronado Street Cross Section

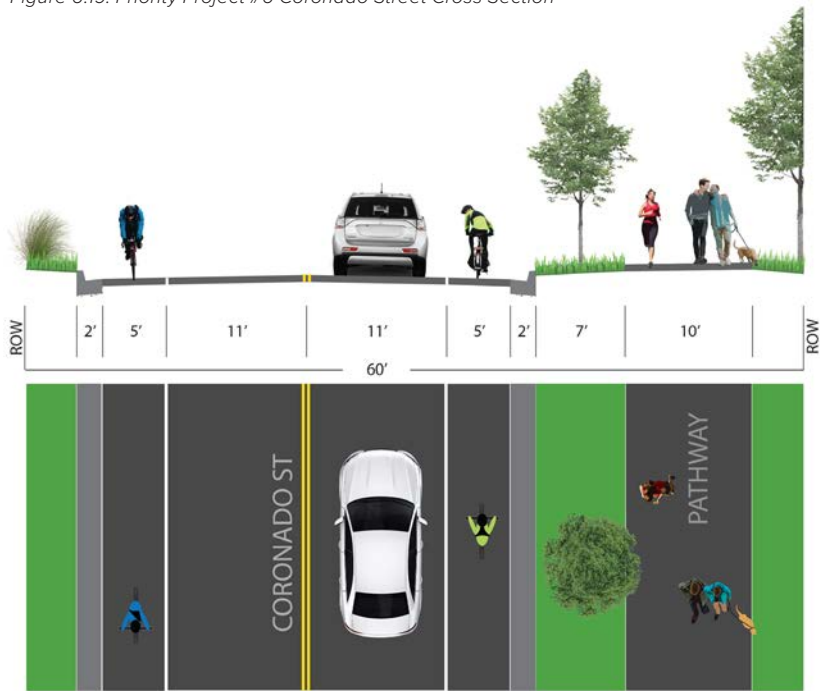


Figure 6.20: Priority Project #6 Coronado Street Visualization



## PROJECT CHALLENGES

**Roadway standards:** Title 21 and the Design Criteria Manual require dedicated pedestrian facilities on both side of an urban collector. In order to maintain separation (i.e., snow storage) and minimize ROW acquisition, a single shared-use separated pathway is proposed. This will require close coordination with MOA Planning to assure a smooth P&ZC/UDC review.

**Topography:** Eagle River Loop Spur may require retaining walls to prevent the widening from impacting private property access. Retaining walls add significant cost and should be programmed into future project nominations.

**Intersection:** The intersection of Coronado Street, Eagle River Loop Spur, and Echo Street is stop controlled on the Eagle River Loop Spur approach. It is possible to improve the intersection geometry by switching stop control to the Echo Street approach, which also allows the pathway to cross at a stop controlled location.

A lack of designated crossings along the Old Glenn Highway burdens non-motorized users with out-of-direction travel to access the west side of the central business district. Crossing improvements of the Old Glenn Highway in the vicinity of Coronado Street should be considered. The 2003 Chugiak-Eagle River Central Business District Revitalization Plan suggested a crossing approximately 180 feet to the north along with circulation improvements between Business Boulevard and Old Glenn Highway.

## PROJECT COST OPTION (2018 DOLLARS)

Table 6.11: Priority Project #6 Coronado Street Project Cost Options

DESCRIPTION	ITEM	CALCULATION	ESTIMATED COST
Engineering	A		\$150,000
Construction	B		\$5,000,000
Utility Relocation	C		\$200,000
Right-of-Way Acquisition	D		\$100,000
Subtotal	E	A + B + C + D	\$6,800,000
Construction Engineering	F	20% of B	\$1,000,000
Contingency	G	30% of E	\$2,040,000
<b>Total (rounded)</b>	<b>H</b>	<b>E + F + G</b>	<b>\$10,000,000</b>

## MAINTENANCE COST OPTION (2018 DOLLARS)

Table 6.12: Coronado Street Maintenance Cost Options

DESCRIPTION	ESTIMATED RECURRING ANNUAL MAINTENANCE COSTS
Snow Hauling	N/A
Routine Maintenance	\$40,000
<b>Total (rounded)</b>	<b>\$40,000</b>

## FUNDING OPTIONS

- » MOA Roads and Drainage Area bonds
- » AMATS funding, AMATS Bicycle Plan implementation and Complete Streets Policy Implementation
- » Transportation Improvements Program (TIP) and Transportation Alternatives Program (TAP)

## IMPLEMENTATION PROCESS

Acquire funding to enable the project to advance through the following MOA Context Sensitive Solutions Strategy and development phases:

- » Concept Report, associated community involvement and Planning & Zoning Commission informational review
- » Design Study Report, associated community involvement and public review
- » 65% Design and Urban Design Commission public hearing and approval
- » Final Plans
- » Construction of proposed improvements

## 6.2 Policy + Programs

Policy and programs provide a framework for promoting and improving the nonmotorized transportation network that builds on the infrastructure recommendations outlined in Chapters 4 and 5. Policies help guide AMATS Planning area agencies as they address items related to nonmotorized transportation, while programs provide an actionable response to a key issue or concern. The following sections provide policy and program recommendations as well as key actions and next steps for implementation.

### POLICY RECOMMENDATIONS

Updates to current policy and development of new guidance can help AMATS promote non-motorized facility use and work toward achieving the goals outlined in this document.

As part of this plan, a targeted policy review was conducted to identify opportunities for policy updates, further exploration, or program development. The result of this review is a compilation of policy recommendations that include a broad range of policies and actions that support the goals of the NMP.

To help identify the priority action items, AMATS staff identified six policy and program areas that should be considered for short-term implementation. These items were prioritized for reasons such as ongoing agency interest, opportunity to leverage ongoing program efforts, or coordination with other agency actions. Details regarding these programs can be found on subsequent pages.

#### Goal 1

» Increase the Use of Non-motorized system

#### Goal 2

» Promote + Improve Health + Quality of Life

#### Goal 3

» Improve Safety + Security

#### Goal 4

» Optimize Maintenance for All Seasons

#### Goal 5

» Connect Communities Through All Modes to All Destinations

#### Goal 6

» Measure Non-motorized Use + Assets

#### Goal 7

» Build Community Through Education + Involvement

## PROGRAM RECOMMENDATIONS

Providing a comfortable and safe environment for people using active transportation requires not only a focus on specific projects and engineering, but also on supporting investments through education, encouragement, and enforcement. Programmatic recommendations can include options such as internal agency trainings, safety campaigns, residential and business transportation demand management programs, safe routes to school programs, and many others. Programs intended to increase active transportation and promote greater awareness of these modes provide an opportunity for AMATS and the Municipality of Anchorage to coordinate across departments and collaborate with other agencies and community organizations.

The following program recommendations were selected in coordination with AMATS staff and build on the policy opportunities identified in the previous section. This program action supports and implements 2040 LUP Action 5-3 (see page 87).

### DATA CONSOLIDATION

- » **Relevant Goals:** 1, 5, 6
- » **Purpose:** Consolidate and standardize data sources, including spatial data, related to non-motorized transportation to facilitate coordinated planning and maintain an up-to-date inventory of existing assets.
- » **Target Audience:** Agency staff and partners, general public, developers
- » **Potential Partners:** AMATS, Anchorage Health Department, Alaska DOT&PF, MOA Parks & Recreation Department, Recreation, MOA Traffic, and Geographic Data and Information Center (GDIC)
- » **Timeframe:** 1-3 years; data maintenance ongoing
- » **Description:** Data regarding non-motorized assets is currently stored in a variety of formats and managed by multiple departments. Some data, such as previous plan recommendations, are not stored in a consistent format or represented

in spatial data, creating difficulty in tracking historical recommendations and projects. This recommendation encourages AMATS to consolidate and standardize data, particularly spatial data related to sidewalks and non-motorized modes. Data should include information such as facility type, width, maintenance responsibility, condition, and other relevant information. This data should reflect area-wide facilities, in order to provide a consolidated view of the AMATS Planning area. A comprehensive dataset can facilitate improved planning and implementation; sustain institutional knowledge; clearly document maintenance agreements; and improve project activities with partner agencies and organizations.

- » Further, data maintenance should be scheduled and updated regularly in order to remain current. This is critical to on-going data driven planning efforts. A process should be established for acquiring data from projects and plans, including specifying data requirements as a regular aspect of project scoping.
- » **Sample Programs:** Puget Sound Regional Council Pedestrian and Bicycle Data Collection and Consistency
- » **Next Step:** Identify and convene a work-group to identify partner departments, agencies, and organizations and establish a work plan for data consolidation. With this work-group, establish a list of near-term goals, steps to reach these goals, and who is responsible for each set. Consider setting up a structure that encourages review of the data among participants after a committee has reach an initial goal. Prioritize which data should be consolidated and unified first based on upcoming project needs, funding requirements, or partnership opportunities. In addition to near-term goals, identify a longer-term vision for data consolidation and maintenance and also identify the platform on which this data should be hosted.



## INTERNAL STAFF TRAININGS

» **Relevant Goals:** 1, 3, 7

» **Purpose:** Internal staff trainings can increase understanding of active transportation user needs and relevant federal and state guidance to designing and implementing facilities and programs.

» **Target:** AMATS and other agency staff

» **Potential Partners:** Alaska DOT&PF, Local Advocacy Groups, Anchorage Health Department, MOA Traffic, PM&E

» **Timeframe:** Ongoing

» **Description:** Offering technical trainings to agency staff can increase understanding of bicycle/

pedestrian user needs, best practice design guidance, safety measures, and educational campaigns to promote bicycle and pedestrian safety. A variety of training opportunities can provide staff with information and background to improve active transportation design, safety, and implementation in the AMATS Planning area. The following table describes organizations and related trainings that may be applicable to the AMATS Planning area.

» **Next Step:** Identify internal and intra-agency partners and assess opportunities for joint learning. Consider any ongoing trainings already held by partner agencies; assess if trainings, such as those listed above, can be integrated into current ongoing education programs.

Table 6.13: Training Available

AGENCY/ ORGANIZATION	TRAINING/ACTIVE TRANSPORTATION GUIDES
Federal Highway Administration (FHWA)	<ul style="list-style-type: none"> <li>» SMALL TOWN AND RURAL MULTIMODAL NETWORKS GUIDE (2017)</li> <li>» ACHIEVING MULTIMODAL NETWORKS (2016)</li> <li>» RESURFACING GUIDE (2016)</li> <li>» SEPARATED BIKE LANE GUIDE (2015)</li> <li>» MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (2009)</li> <li>» ALASKA TRAFFIC MANUAL SUPPLEMENT (2016)</li> </ul>
American Association of State Highway and Transportation Officials (AASHTO)	<ul style="list-style-type: none"> <li>» FLEXIBILITY GUIDE (2004)</li> <li>» GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES (2012)</li> <li>» GUIDE FOR THE PLANNING, DESIGN AND OPERATION OF PEDESTRIAN FACILITIES (2004, 2017)</li> <li>» GREEN BOOK (2011)</li> <li>» LOW VOLUME ROADS (2001, 2017)</li> </ul>
National Association of City Transportation Officials (NACTO)	<ul style="list-style-type: none"> <li>» URBAN STREET DESIGN GUIDE (2013)</li> <li>» URBAN BIKEWAY DESIGN GUIDE (2014)</li> </ul>
Institute of Transportation Engineers (ITE)	<ul style="list-style-type: none"> <li>» WALKABLE URBAN THOROUGHFARES (2010)</li> </ul>

## NON-MOTORIZED COUNTS PROGRAM

» **Relevant Goals:** 1, 6, 7

» **Purpose:** Data collection related to active transportation is essential to determine whether changes in mode share, safety, or crash risk are occurring. Robust data collection can support funding opportunities and demonstrate change over time and create the opportunity to partner with other agencies and departments to gather data in support of project outcomes.

» **Target:** AMATS

» **Potential Partners:** MOA Parks & Recreation Department, MOA Traffic, Alaska DOT&PF, local advocacy organizations

» **Timeframe:** On-going

» **Description:** Anchorage has a growing counts program that aims to understand the use of current non-motorized facilities. This program, conducted in coordination with AMATS and the MOA Parks and Recreation Department initially focused on shared use pathways. Collection of shared use pathway usage began in 2003. Focus on non-motorized usage on roadways and pathways began in 2017 for AMATS. Permanent counters on shared use pathways is a coordinated effort between Traffic and Parks. Bike to Work Day information utilizes volunteer, short-duration counts on each year. By working to expand this program—through additional automated permanent and short term count locations, clear partnerships with advocacy organizations, and established guidelines for project evaluation—Anchorage can continue to develop a more robust dataset that can support future project implementation, funding opportunities, and a better understanding of demand throughout

the municipality. Bike to Work Day manual counts should continue, regardless of permanent or short term counter locations, to encourage community participation, provide for continued data comparison over time, and to assess opportunities for future permanent count locations.

» **Sample Programs:** Minnesota DOT Bicycle and Pedestrian Counts; Washington DOT Bicycle and Pedestrian Counts. City of Calgary Annual Bicycle Count

» **Next Steps:** In addition to identifying future grant opportunities to fund additional count locations, explore opportunities to overcome challenges associated with getting permanent counters added to on-road, sidewalk and pathway projects, particularly for counter accuracy and opportunities to conduct counts along on-road facilities. Further, consider utilizing portable counters short term counts as a method for project evaluation; develop clear criteria for counting before and after project implementation.

## DRIVER EDUCATION PROGRAM

- » **Relevant Goals:** 1, 3, 7
- » **Purpose:** Support driver education that encourages sharing the road with pedestrians and bicyclists and includes an overview of current laws and common conflicts.
- » **Target:** Residents eligible for driver's licenses, current drivers
- » **Potential Partners:** Alaska DOT&PF; Alaska Department of Administration, Division of Motor Vehicles; Anchorage School District; Bike Anchorage; Anchorage Health Department
- » **Timeframe:** Ongoing
- » **Description:** Develop education materials that address bicycle and pedestrian safety in driver education training and licensing programs. Messaging includes information about common conflicts, how to safely share the road with bicycles and pedestrians, and reviews current laws and how they apply to each mode. Consider integrating information into beginning drivers' education courses, offering the course to businesses and other organizations that rely on vehicle trips, or partnering with organizations to promote improved safety for bicyclists and pedestrians in Anchorage. Further opportunities could include developing a diversion program for certain traffic offenses.
- » **Sample Programs:** Fort Collins, CO Bike Friendly Driver Program; Orange County Transportation Authority
- » **Next Step:** Utilize the open source materials available through Fort Collins, Colorado to assess which materials and messages will be most applicable to AMATS. Identify a staff member to lead the effort and begin developing materials for AMATS. Identify opportunities for implementation and the scope of implementation—will this program

be geared toward new drivers or offered as an opportunity for current drivers? Under what context should the program be offered? Identify partners, such as local advocacy groups, who may want to also host trainings for members.

## SAFE ROUTE TO SCHOOL (SRTS)

- » **Relevant Goals:** 1,2,3,7
- » **Purpose:** SRTS programs aim to improve safety near schools through infrastructure improvements and encourage increased active transportation through programmatic outreach to students and families.
- » **Target Audience:** Students, Parents, School Staff, Community members
- » **Potential Partners:** Anchorage School District, Anchorage Schools and Parent-Teacher Associations, Municipality of Anchorage, State of Alaska, Bike Anchorage
- » **Timeframe:** Ongoing
- » **Description:** Safe Routes to School (SRTS) refers to a variety of multi-disciplinary programs aimed at promoting healthy alternatives to driving alone in the family car, while improving traffic safety around school areas through education, fun events, enforcement, safety reminders, and engineering measures. Walking and biking to school are healthy alternatives to being driven, and can provide a sense of independence for children. Riding the bus and carpooling similarly reduce traffic and improve safety for the school community, and can be part of promoting healthy lifestyles.

In addition to more traditional infrastructure-based approaches that focus on opportunities for intervention, SRTS programs can also involve partnerships among municipalities, school districts, community organizations, parent volunteers, and

law enforcement agencies or other community groups to provide education and encouragement around active transportation. Among the goals of a SRTS programs are improved safety for children, establishing good health and fitness habits in families, and decreased traffic and air pollution from private automobiles. SRTS programs can help to address parents' safety concerns by encouraging greater compliance with traffic laws and implementation of safer streets near schools.

Schools and partners can implement a wide variety of encouragement activities, depending on volunteer and school staff capacity and interest. Popular events include Walk to School Day and Bike to School Day.

- » **Sample Programs:** King County Metro Safe Routes to School Toolkit; Minnesota Safe Routes to School
- » **Next Step:** Building on the Municipality of Anchorage's existing SRTS Manual and pedestrian route maps, next steps for establishing a more comprehensive program should identify potential partners for an expanded educational and encouragement-focused campaign and systematic infrastructure improvements. Consider a pilot program approach that partners with select schools to identify specific education and encouragement needs to test program scope and implementation methods. The program can also include walk audits and infrastructure upgrades that complement existing walking route maps. Consider convening a Task Force to define goals and problems at each pilot school; a resulting safety action plan can help participants and municipality better understand what efforts are most needed. Refer to existing materials through the sample programs listed above or through the National Partnership for Safe Routes to School to identify materials and opportunities for implementation within the AMATS Planning area.

Example parklet in Seattle, Washington



## OPEN STREETS/PARKLET/POP UPS PILOT PROGRAM

» **Relevant Goals:** 7

» **Purpose:** Open Streets and Parklet Pilot Programs help residents re-imagine the use of public space. Open Streets events restrict motor vehicle access on designated days to allow for non-motorized uses in the right of way, while parklet programs repurpose existing on-street parking spaces into small parks to active streets in a cost-effective way.

» **Target:** AMATS, General Public

» **Potential Partners:** MOA Parks & Recreation Department, Advocacy Organizations, Businesses, MOA PM&E, MOA Traffic, Alaska DOT + PF

» **Timeframe:** 1-3 years

» **Description:** Open Streets and Parklet Pilot programs can help re-imagine the use of public space, promote active lifestyles, and broaden transportation choices. While these two programs are distinct, they include similar goals of promoting use of public space. An Open Street program focuses on restricting motor vehicles on designated roadways for a time period. Many cities open roadways to walking and rolling for a day or an afternoon to promote active transportation, encourage community interaction, and celebrate neighborhoods or districts; the locations may stay the same for each event, but they also can change to promote different areas of the municipality, commemorate the opening of a new facility, or coincide with other community-based cultural celebrations. Open Streets events should be held regularly—whether that is once a year or once a quarter.

A Parklet Pilot program, on the other hand, focuses on the use of a very specific location. Often implemented in existing on-street parking spaces, the idea builds on the popular world-wide celebration of Park(ing) Day by establishing a permit process that allows for a semi-permanent installation of a small park space. Some cities have allowed the use of Parklets to extend café outdoor seating space, while others simply reclaim underutilized parking spaces and may instigate a larger change in the use of public space. Anchorage has celebrated Park(ing) Day for several years; existing effort surrounding this celebration could be leveraged to develop a formal program that allows for more permanent implementation. Cities, such as Montreal and Quebec, Canada, may provide a strong example for AMATS to explore in terms of incentivizing parklet development and implementation considerations for winter weather.

» **Sample Programs:** Montreal, Quebec; Philadelphia, PA Parklet Guidelines; Open Streets MPLS – Minneapolis, MN; Fort Collins Open Streets – Fort Collins, CO

» **Next Step:** Identify potential partners and ongoing community celebrations for an upcoming event. Engage local advocacy groups as well as citizen advisory groups to develop and implement an event. Consider developing an outline for a parklet implementation program and conduct public engagement to determine program needs.

Continue to engage with local groups to support Park(ing) Day demonstration parklets. For Park(ing) Day celebrations, consider expanding the area of implementation to include other neighborhood centers. AMATS could establish a method for participants to sign up to participate; provide instructions and background regarding what the event is, where parklets can be located, and where participating parklets can be found on that day. An online webmap marking locations or a walking/bicycling tour hosted by a local group are two options. Park(ing) day can provide a great opportunity to gather feedback from the public regarding similar programs, such as a parklet implementation program, to promote a new program or event that the municipality is promoting, or to establish partnership with groups that can help bring a more complete program in the future.



## WINTER MAINTENANCE STRATEGY

» **Relevant Goals:** 1, 3, 4

» **Purpose:** Developing a clear, focused winter maintenance strategy for non-motorized facilities can encourage use of active transportation network year-round.

» **Target:** Agency level, AMATS, MOA & ADOT&PF Maintenance and Operations, MOA Parks & Recreation Department

» **Potential Partners:** AMATS, MOA & ADOT&PF Maintenance and Operations, MOA Parks & Recreation Department

» **Timeframe:** 1 year

» **Description:** Establishing a unified winter maintenance approach that includes active transportation facilities – both on road and off—can encourage greater use of facilities year-round. This program should consider both existing maintenance agreements as well as opportunities to modify and expand upon current practices. Based on the peer cities review, approaches can vary and may include options such as prioritizing plowing based on facility type and location. Establishing a firm schedule and approach that can be easily communicated with the public can encourage more consistent use of active transportation facilities, even in the event of a snow storm.

The program should consider potential partnerships among agencies, departments, and other organizations active in the area. This is similar to existing arrangements and should be evaluated to maximize efficiency and effectiveness.

Further, the type of plowing or grooming treatment applied to facilities should also be considered. Snow clearing programs should include sidewalks, particularly those providing access to transit, and should accommodate a variety of modes along shared use pathways and sidepaths. For example, grooming protocols could be established that would provide for bicycle access along shared use pathways or sidepaths.

Longer term, AMATS should consider establishing a designated winter network. This network would provide for bicycle and pedestrian travel, and other winter modes if desired. Some cities have found that bicycle boulevard and shared use pathway networks, for example, provide a more comfortable path of travel for active modes during snow events. Unlike major roadways with parking or bicycle lanes that are used for snow storage and force bicyclists to travel in the motor vehicle wheel path, bicycle boulevards can provide a lower-stress route that is better suited for travel during winter months. As AMATS builds out the recommended network included in this plan and refines a comprehensive winter maintenance program, a designated winter network could be mapped and promoted to increase public awareness of travel options during the winter season.

Further, roadway, shared use pathway, and sidewalk design and implementation should be approached with snow storage and operating space for active modes in mind.

» **Sample Programs:** Calgary, AB; Montreal, QC; Minneapolis, MN.

» **Next Step:** Identify a working group to establish winter maintenance policy and procedures. The group should include representatives from existing winter maintenance agreements and should evaluate potential membership in the working group during the first meeting.

This working group should also consider holding an event, such as a Disaster Relief Trial, in conjunction with local advocacy and non-profit groups to better understand the need for and impact of a quality winter active transportation network.

Finally, this working group should establish cost estimates and funding mechanisms to carry out the Winter Maintenance Strategy.

## 6.3 Next Steps

This and previous chapters of this plan outline an approach for promoting non-motorized transportation throughout the AMATS Planning area. Through detailed analysis of existing conditions, review of previous planning efforts, and coordination with stakeholders, this plan presents a prioritized network for bicycle and pedestrian travel.

Through the course of this planning effort, several opportunities for further addressing the needs of nonmotorized transportation were identified. In addition to implementing the projects and programs listed above, the following items should be considered as a way to build on the work presented here:

» **Recreational Trails Plan:** Anchorage and the surrounding area have a robust system of recreational trails that accommodate walking, mountain biking, skiing, and a variety of other non-motorized modes. A separate planning effort should be explored that aims to not only catalogue this entire network but examine ways to improve existing trails, enhance connections to the trail network, and expand opportunities for recreational trails.

» **Sidepath Evaluation:** The existing network of sidepaths (shared use pathways alongside roadways) provides dedicated travel space for nonmotorized modes along many of the AMATS Planning area's busy roads. However, in many locations the existing sidepaths do not provide the necessary width, nor are protections in place to improve travel across driveways or through intersections. The sidepath network should provide a low-stress travel alternative along major roadways. Especially as the network ages, it is important to assess the quality of these facilities. AMATS should consider a study that examines existing sidepaths for width, surface quality, separation from roadway, driveway treatment, and interaction with roadways at intersections.

Table 6.14: Implementation Matrix: Immediate (0-2 years)

	IMPLEMENTATION ACTION	RELATED POLICY/GOAL	FUNDING SOURCES	IMPLEMENTATION PARTNERS
IMMEDIATE (0-2 YEARS)	Implement 5 High Priority Bicycle Projects	Goals 1, 2, 3, and 5	AMATS TIP, Municipal Bonds, AMATS h & ATAP	ADOT&PF, MOA PM&E, MOA Traffic
	Implement Projects on 3 High Priority Pedestrian Corridors	Goals 1, 2, 3, and 5	AMATS TIP, Municipal Bonds, AMATS TAP & ATAP	ADOT&PF, MOA PM&E, MOA Traffic
	Implement 1 Internal Staff Training	Goals 1, 3, and 7	AMATS PL	ADOT&PF, Local Advocacy Groups, MOA Parks & Rec
	Develop Data Consolidation Program Including Sidepath Evaluation	Goals 1, 5, and 6	MOA OECD, MOA Parks & Rec, MOA IT, AMATS TIP	AMATS, ADOT&PF, MOA Parks & Rec, MOA Traffic
	Develop Winter Maintenance Strategy	Goals 1, 3, 4, and 5	AMATS PL, MOA Parks & Rec, MOA M&O, ADOT&PF	AMATS, MOA M&O, ADOT&PF, MOA Parks & Rec, MOA Traffic, Other Organizations Assisting with Winter Maintenance
	Develop a Complete Streets Policy Checklist	Goals 1, 3, 4	N/A	MOA & State Transportation Agencies, MOA Traffic
	Develop Recreational Trails Plan	All Goals	AMATS TIP, AMATS TAP, ATAP, MOA Parks & Rec	MOA Parks & Rec, MOA Traffic
	Continue Open Street/ Parklet Pilot Program	Goal 7		MOA Parks & Rec, Advocacy Organizations
	Continue Safe Routes to School Program	Goals 1, 2, 3, and 7	AMATS TIP, AMATS TAP, ATAP, Alaska Trails, DHHS, ADHSS	Anchorage School District, Anchorage School District and Parent-Teach Associations, MOA, Local Advocacy Groups

Table 6.15: Implementation Matrix: Mid-term (2-10 years)

	IMPLEMENTATION ACTION	RELATED POLICY/GOAL	FUNDING SOURCES	IMPLEMENTATION PARTNERS
MID-TERM (2-10 YEARS)*	Implement All High Priority Bicycle Projects	Goals 1, 2, 3, and 5	AMATS TIP, Municipal Bonds, AMATS TAP & ATAP, Alaska State Grant Funds	ADOT&PF, MOA PM&E, MOA Traffic
	Implement Projects on All High Priority Pedestrian Corridors	Goals 1, 2, 3, and 5	AMATS TIP, Municipal Bonds, AMATS TAP & ATAP, Alaska State Grant Funds	ADOT&PF, MOA PM&E, MOA Traffic
	Implement 5 medium priority bicycle projects	Goals 1, 2, 3, and 5	AMATS TIP, Municipal Bonds, AMATS TAP & ATAP, Alaska State Grant Funds	ADOT&PF, MOA PM&E, MOA Traffic
	Develop and Expand Non-Motorized Count Program	Goals 1, 6 and 7	AMATS TIP, Municipal Bonds, AMATS TAP & ATAP, Alaska State Grant Funds	MOA Parks & Rec, Alaska DOT&PF, MOA Traffic, Local Advocacy Organizations

Table 6.15: Implementation Matrix: Mid-term (2-10 years) (con't)

	IMPLEMENTATION ACTION	RELATED POLICY/GOAL	FUNDING SOURCES	IMPLEMENTATION PARTNERS
MID-TERM (2-10 YEARS)*	Develop Program for Regular Internal Staff Training	Goals 1, 3, and 7	AMATS PL	MOA Transportation Agencies
	Develop Driver Education Program	Goals 1, 3, and 7	State of Alaska DMV	Alaska DOT&PF, Alaska Department of Admin, Division of Motor Vehicles, Anchorage public schools, Bike Anchorage
	Expand Safe Routes to School Program	Goals 1, 2, 3, and 7	AMATS TIP, AMATS TAP, ATAP, Alaska Trails, DHHS, ADHSS	Anchorage School District, Anchorage School District and Parent-Teach Associations, MOA, Local Advocacy Groups
	Continue Open Street/ Parklet Pilot Program	Goal 7		MOA Parks & Rec, Advocacy Organizations Businesses
	Continue Safe Routes to School Programs	Goals 1, 2, 3, and 7	AMATS TIP, AMATS TAP, ATAP, Alaska Trails, DHHS, ADHSS	Anchorage School District, Anchorage School District and Parent-Teach Associations, MOA, Local Advocacy Groups
	Develop performance metrics	Goal 6		

Table 6.16: Implementation Matrix: Long Term (10-20 years)

	IMPLEMENTATION ACTION	RELATED POLICY/GOAL	FUNDING SOURCES	IMPLEMENTATION PARTNERS
LONG-TERM (10-20 YEARS)*	Implement all medium and low priority bicycle projects	Goals 1, 2, 3, and 5	AMATS TIP, Municipal Bonds, AMATS TAP & ATAP, Alaska State Grant Funds	ADOT&PF, MOA PM&E, MOA Traffic
	Implement Projects on All Identified Pedestrian Corridors	Goals 1, 2, 3, and 5	AMATS TIP, Municipal Bonds, AMATS TAP & ATAP, Alaska State Grant Funds	ADOT&PF, MOA PM&E, MOA Traffic

\* It is assumed that actions from the immediate and mid-term lists are continued (e.g., continuation of the Safe Routes to School Program)





## CHAPTER

# 7



# Design Guide

## 7.1 Introduction

Quality design of active transportation facilities is key to creating a non-motorized transportation network for all users. To accommodate growing user demand and create future facilities that are appropriately designed for all types of users, this chapter presents pedestrian and bicycle design best practices to be used as guidelines in the selection, design, and maintenance of bicycle and pedestrian facilities. Maintenance of some bicycle and pedestrian facilities may require additional staffing and cost and should be considered when selecting facility types.

The following pages describe national, state, and local guidance consulted to develop the non-motorized design guidelines. Facilities should meet federal and state standards at a minimum, but if local guidance provides a safer facility or better practice then local guidance should be applied.

## Design Guidance

### NATIONAL GUIDANCE

#### Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) and Alaska

<https://mutcd.fhwa.dot.gov/>

The MUTCD defines the standards used by road managers nationwide to install and maintain traffic control devices on public streets, highways, bikeways, and private roads open to public traffic. The MUTCD is the primary source for guidance on lane striping requirements, signal warrants, and recommended signage and pavement markings.

To further clarify the MUTCD standards, the FHWA created a table of contemporary bicycle facilities that lists various bicycle related signs, markings, signals, and other treatments and identifies their official status (e.g., can be implemented, currently experimental).

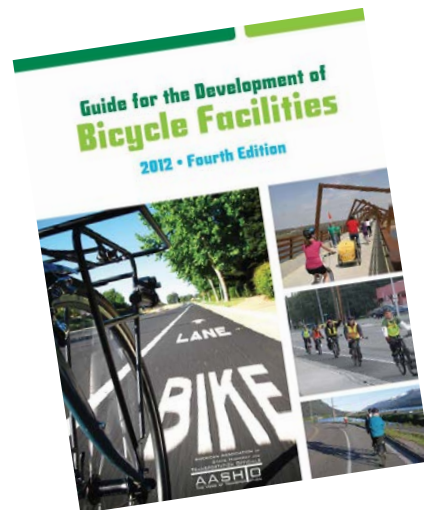
Bicycle way treatments not explicitly covered by the MUTCD are often subject to experiments, interpretations and official rulings by the FHWA. The MUTCD Official Rulings is a resource that allows website visitors to obtain information about these supplementary materials. Copies of various documents (such as incoming request letters, response letters from the FHWA, progress reports, and final reports) are available on this website.

#### Alaska Traffic Manual Supplement (ATMS)

<http://www.dot.state.ak.us/stwddes/dcstraffic/resources.shtml>

By statute, the 2016 Alaska Traffic Manual Supplement (ATMS) is a supplemental guide to be used in combination with the Federal MUTCD. The 2016 ATMS includes the latest standards on addressing nonmotorized traffic control devices and their use at crossings.

This document provides the standards for traffic control devices on public roads in Alaska. It includes THE Federal MUTCD, 2016 Alaska Traffic Manual Supplement, and the Alaska Sign Design Specifications (ASDS).



*American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities*

#### American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities

The AASHTO Guide for the Development of Bicycle Facilities, updated in June 2012, provides guidance on dimensions, use, and layout of specific bicycle facilities. The standards and guidelines presented

by AASHTO provide basic design information, such as minimum shared use pathway widths, bicycle lane dimensions, geometric design, detailed striping requirements and recommended signage and pavement markings.

### **AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities.**

The 2004 AASHTO Guide for the Planning, Design and Operation of Pedestrian Facilities provides comprehensive guidance on planning and design for people on foot.

### **National Association of City Transportation Officials' (NACTO) 2012 Urban Bikeway Design Guide**

<https://nacto.org/publication/urban-bikeway-design-guide/>

The NACTO Urban Bikeway Design Guide is the newest publication of nationally recognized bicycle way design, and offers guidance on current state-of-the-practice designs. The NACTO Urban Bikeway Design Guide is based on current practices in the best cycling cities in the world. The intent of the guide is to offer substantive guidance for cities seeking to improve bicycle transportation in places where competing demands for the use of the right of way present unique challenges. All of the NACTO Urban Bikeway Design Guide treatments are in use internationally and in many cities around the US.

### **National Association of City Transportation Officials' (NACTO) 2013 Urban Street Design Guide**

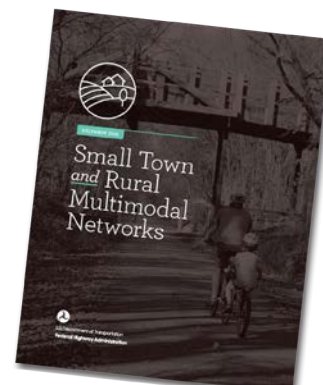
<https://nacto.org/publication/urban-street-design-guide/>

NACTO has also produced the 2013 Urban Street Design Guide which provides best practice for streets to serve as not only efficient travel corridors but public spaces. This guide includes a toolkit of street design elements with key dimensions and applications.

### **US Department of Transportation (USDOT) Small Town and Rural Multimodal Networks Guide**

[https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/publications/small\\_towns/](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/)

The Small Town and Rural Multimodal Networks Guide translates existing street design guidance and facility types for bicycle and pedestrian safety and comfort for the smaller scale places not addressed in guides such as the NACTO Street Design Guide and ITE Walkable Urban Thoroughfares report. The



*US Department of Transportation (USDOT) Small Town and Rural Multimodal Networks Guide*



*Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds, 2007*

guide provides clear examples of how to interpret and apply design flexibility to improve bicycling and walking conditions. This guide pertains in particular to the Municipality of Anchorage as it is comprised of a small urbanized area and large rural area.

The stated goals of the guide include “to provide a bridge between existing guidance on bicycle and pedestrian design and rural practice, encouraging innovation in the development of safe and appealing networks for bicycling and walking in small towns and rural areas, and to provide examples of peer communities and project implementation that is appropriate for rural communities.”

**The Recreational Trails Program of the Federal Highway Administration, U.S. Department of Transportation. (FHWA) Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds, 2007.**

[https://www.fhwa.dot.gov/environment/recreational\\_trails/publications/fs\\_publications/07232816/](https://www.fhwa.dot.gov/environment/recreational_trails/publications/fs_publications/07232816/)

The Equestrian Design Guidebook provides guidance for construction of trails and associated facilities with specific treatments for use by equestrians.

## **2006 and 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design**

[https://www.ada.gov/2010ADASTandards\\_index.htm](https://www.ada.gov/2010ADASTandards_index.htm)

The 2006 and 2010 ADA Standards contain guidance for the construction of accessible facilities. This includes requirements for sidewalk curb ramps, slopes, and pedestrian railings along stairs.

Some of these treatments are not directly referenced in the current versions of the AASHTO Guide or the MUTCD, although many elements of the treatments are found within these documents. In all cases, engineering judgment is recommended to match the application to the context of each treatment. Meeting the requirements of the ADA is an important part of any bicycle and pedestrian facility project.

## **Public Rights-of-Way Accessibility Guidelines (PROWAG)**

<https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines>

The U.S. Access Board’s proposed Public Rights-of-Way Accessibility Guidelines (PROWAG) provides additional guidance on accessible design for public outdoor facilities (adoption pending).

## **Rails-with-Trails: Lessons Learned Literature Review, Current Practices, Conclusions, 2002.**

<https://www.railstotrails.org/resourcehandler.ashx?name=rails-with-trails-lessons-learned&id=4495&fileName=ALTA%20RWT%20Study.pdf>

This document includes guidance on designing shared use pathways within or adjacent to active

railroad right-of-ways. It was produced with guidance from U.S. Department of Transportation, FHWA, Federal Railroad Administration, National Highway Traffic Safety Administration, and Federal Transit Administration.

## STATE GUIDANCE

### Alaska Highway Preconstruction Manual

<http://www.dot.state.ak.us/stwddes/dcsprecon/preconmanual.shtml>

This document provides guidance for developing and designing highway and road projects across the state. A non-motorized transportation chapter was last modified in 2005.

## LOCAL GUIDANCE

### Municipality of Anchorage Design Criteria Manual, January 2007.

[http://www.muni.org/departments/project\\_management/Pages/DesignCriteriaManual.aspx](http://www.muni.org/departments/project_management/Pages/DesignCriteriaManual.aspx)

The Municipality of Anchorage Design Criteria Manual (MOA DCM) includes roadway design elements, roadway requirements and characteristics based on classification, and street design criteria. The manual also includes guidance on drainage, landscaping, trails, lighting, public transportation, and traffic control.

### Anchorage Municipal Code Title 21

<https://www.muni.org/Departments/OCPD/Planning/Projects/t21/Pages/Title21Rewrite.aspx>

Chapter seven of the Anchorage Municipal Code (AMC) Title 21 includes development and design

standards for elements such as pedestrian facilities and bicycle parking.

### Anchorage Pedestrian Plan

[https://www.muni.org/Departments/OCPD/Planning/AMATS/Documents/PedestrianPlan\\_Web.pdf](https://www.muni.org/Departments/OCPD/Planning/AMATS/Documents/PedestrianPlan_Web.pdf)

The Anchorage Pedestrian Plan was adopted in 2007 and includes sidewalk design principles.

### Anchorage Bicycle Plan

<https://www.muni.org/Departments/OCPD/Planning/AMATS/Documents/AdoptedBicyclePlan.pdf>

The Anchorage Bicycle Plan is an element of the Municipality of Anchorage Nonmotorized Transportation Plan adopted in 2010 and includes guidance on bicycle facility design.

### Areawide Trails Plan, 1997

<https://www.muni.org/Departments/OCPD/Planning/Publications/Documents/AreawideTrailsPlan-1997-noMaps.pdf>

The Anchorage Areawide Trails Plan recommends improvements for motorized and non-motorized shared use pathways in Anchorage.

### Municipality of Anchorage Safe Routes to School Manual, 2019-2020

<https://www.muni.org/Departments/traffic/Pages/SafeRoutesToSchools.aspx>

The Anchorage Safe Routes to School Manual provides routing information to assist students who walk to and from school.







## 7.2 User Needs

### User Behavior

Active Transportation facilities attract a wide range of users with different needs and expectations. Important design characteristics are width, surface material, sight distances, clearances, and added features. The following section provides the framework for incorporating standards and guidelines for the following users:

- » **Pedestrians**
- » **Bicyclists**
- » **Wheelchair users**
- » **Other non-motorized users**

## Design Needs of Users

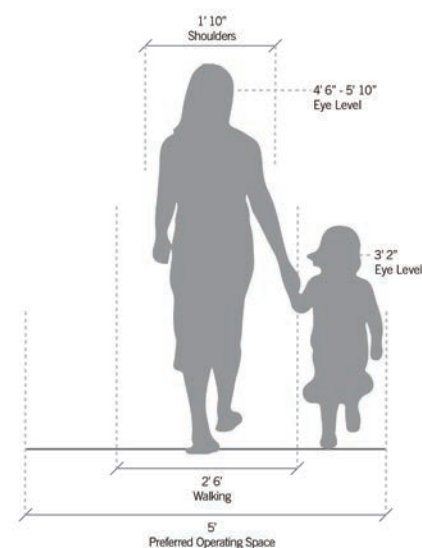
### PEDESTRIANS

Aside from space requirements related to pedestrian-specific activities such as pet walking or running, pedestrians have a variety of physical characteristics determining user needs and abilities. Age is one major factor that affects pedestrians' walking speed and environmental perception. Children have low eye height and walk at slower speeds than adults. They also perceive the environment differently at various stages of cognitive development. Older adults walk more slowly and may require assisting devices for walking stability, sight, and hearing. The table below summarizes common pedestrian characteristics for various age groups.

Table 7.1: Pedestrian Characteristics by Age.

AGE	CHARACTERISTICS
0-4	Learning to walk Require constant adult supervision Developing peripheral vision and depth perception
5-8	Increasing independence, but still require supervision Poor depth perception
9-13	Susceptible to "dart out" or intersection dash Poor judgment Sense of invulnerability
14-18	Improved awareness of traffic environment Poor judgment
19-40	Active, fully aware of traffic environment
41-65	Slowing of reflexes
65+	Difficulty crossing street in time Vision loss Difficulty hearing vehicles approach from behind

The Federal Highway Administration's Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) and the Alaska Traffic Manual (ATMS) compile standards for traffic control devices, including road markings, highway signs and traffic signals. As a rule of thumb, the MUTCD recommends a normal walking speed of three and a half feet per second for calculating the time needed for pedestrian crossings at traffic signals. Average walking speed is lowered to three feet per second in areas with older populations and persons with mobility impairments. While the type and degree of mobility impairment varies greatly across the population, the pedestrian network should accommodate these users to the greatest reasonable extent.



Design dimensions of pedestrians and preferred operating space

## BICYCLISTS

Bicyclists and their bicycles exist in a variety of sizes and configurations. These variations occur in the types of vehicle (such as a conventional bicycle, a recumbent bicycle, or a tricycle) and behavioral characteristics (such as the comfort level of the bicyclist). Bicyclists require clear, open space with no visual obstructions to operate within a facility. The minimum operating width is greater than the physical dimensions of the bicyclist to allow the

bicyclists shy distance from vertical obstacles and to allow maneuvering space around uneven pavement or other obstructions. Bicyclists prefer five feet or more operating width, although four feet may be minimally acceptable. Bicyclist speeds range from 12 to 30 mph on a paved level surface (grades less than 2 percent). Uphill speeds range from five to twelve mph, and downhill bicyclist speeds can reach 20 - 30 mph. As paths approach stop controlled intersections, path geometry should be such to promote lower design speeds.

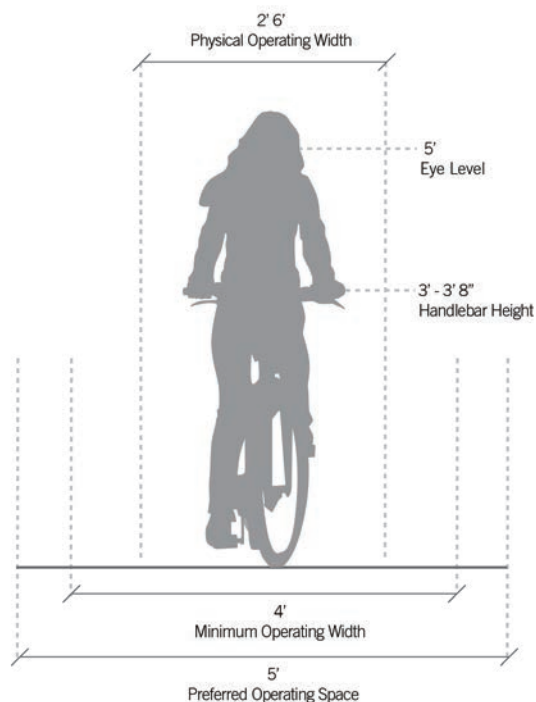
Table 7.2: Upright adult bicyclist - typical dimensions.

FEATURE	TYPICAL DIMENSIONS
Physical width	2 ft 6 in
Operating width (minimum)	4 ft
Operating width (preferred)	5 ft
Physical length	5 ft 10 in
Physical length of handlebars	3 ft 8 in
Operating height	8 ft 4 in
Eye height	5 ft
Vertical clearance to obstructions (tunnel height, lighting, etc.)	10 ft
Approximate center of gravity	2 ft 9 in = 3 ft 4 in

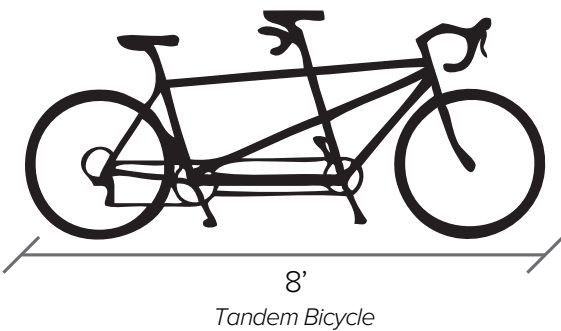
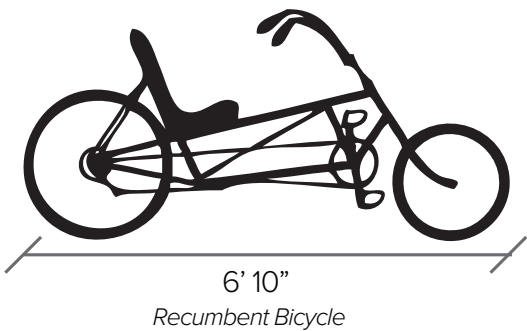
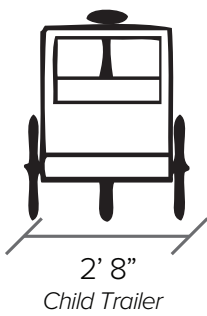
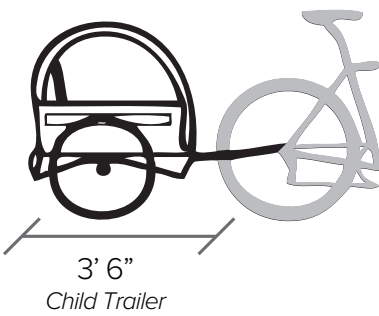
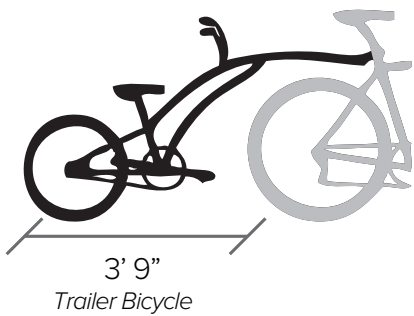
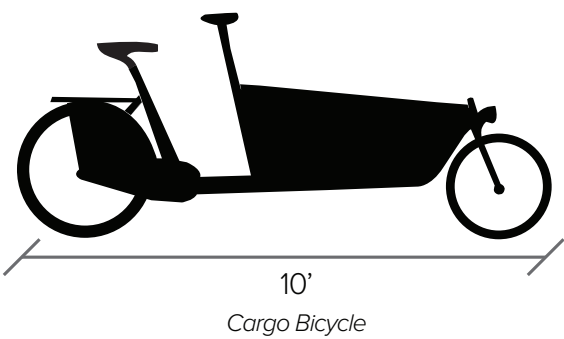
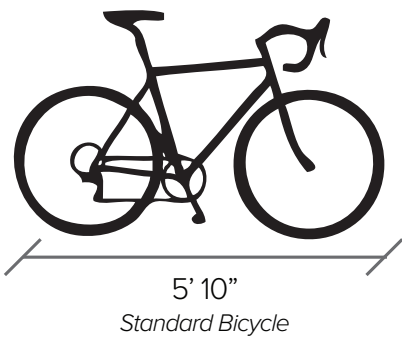
Table 7.3: Bicycle design speed expectations.

BICYCLE TYPE	FEATURE	TYPICAL SPEED
Upright Adult Bicycle	Paved level surfacing	8 - 15 mph
	Crossing intersection	10 mph
	Downhill	20 - 30 mph
	Uphill	5 - 12 mph
Recumbent Bicycle	Paved level surfacing	11 - 18 mph

\*Tandem bicycles and bicyclists with trailers have typical speeds equal to or less than upright adult bicyclists.



Typical bicycle operating widths



Typical dimensions for common bicycle types



## WHEELCHAIR USERS

As the American population ages, the number of people using mobility assistive devices (such as manual wheelchairs, powered wheelchairs) increases.

Manual wheelchairs are self-propelled devices. Users propel themselves using push rims attached to the rear wheels. Braking is done through resisting wheel movement with the hands or arm. Alternatively, a second individual can control the wheelchair using handles attached to the back of the chair.

Power wheelchairs use battery power to move the wheelchair. The size and weight of power wheelchairs limit their ability to negotiate obstacles without a ramp. Various control units are available that enable users to control the wheelchair movement based on their ability (e.g., joystick control, breath controlled, etc.).

Maneuvering around a turn requires additional space for wheelchair devices. Providing adequate space for 180 degree turns at appropriate locations is an important element for accessible design

## OTHER NON-MOTORIZED USERS

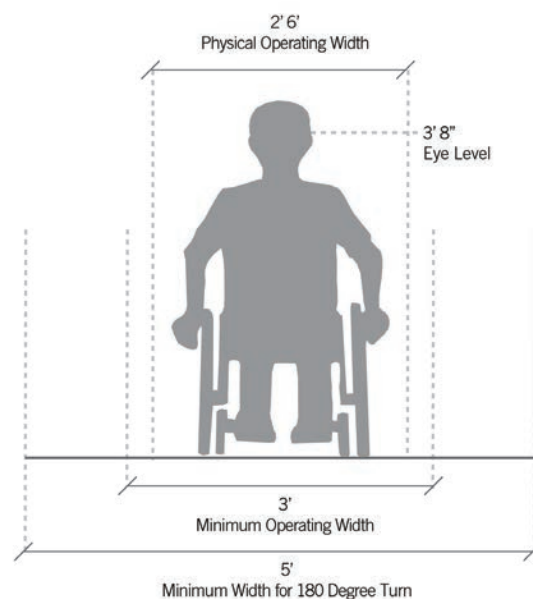
Please reference the forthcoming Recreation Trail Design Guidelines for guidance for other non-motorized users, such as those cross country skiing, skijoring, fat tire biking, horseback riding, and dog mushing.

Table 7.4: Wheelchair use typical speed.

USER	TYPICAL SPEED
Manual wheelchair	3.6 mph
Powered wheelchair	6.8 mph

Table 7.5: Wheelchair user design considerations.

EFFECT ON MOBILITY	DESIGN SOLUTION
Difficulty propelling over uneven or soft surfaces	Firm, stable surfaces and structures, including ramps or beveled edges
Cross-slopes cause wheelchairs to veer downhill	Cross-slopes of less than 2 percent
Require wider path of travel	Sufficient width and maneuvering space



Typical wheelchair operating widths

## Rules of the Road

### PEDESTRIANS

Just as there are rules of the road that govern operating a motor vehicle, there are specific laws pertaining to pedestrians. Both the Municipality of Anchorage, and the State of Alaska provide rules and ordinances to pedestrian's rights and duties when walking in a public right of way. A brief summary of those rules are provided below. A full record of pedestrian-related ordinances is available through the Alaska State Legislature online administrative code, [www.legis.state.ak.us/basis/aac.asp#13.02.150](http://www.legis.state.ak.us/basis/aac.asp#13.02.150), and Anchorage's municipal ordinances, [library.municode.com/ak/anchorage/codes/code\\_of\\_ordinances?nodeId=TIT9VETR\\_CH9.20PERIDU](http://library.municode.com/ak/anchorage/codes/code_of_ordinances?nodeId=TIT9VETR_CH9.20PERIDU)

- Pedestrians must comply with traffic and pedestrian-control signals.
- A pedestrian may not enter or remain on the rotary traffic island of a roundabout or the roadway circulating around it.
- When traffic-control signals are not in place or not in operation, the driver of a vehicle shall yield the right-of-way to a pedestrian who is on a sidewalk, vehicular way or area, or who is crossing a roadway within a crosswalk when the pedestrian is upon the half of the roadway upon which the vehicle is traveling, or when the pedestrian is approaching so closely from the opposite half of the roadway as to be in danger.
- No pedestrian may leave a curb or other place of safety and walk or run into the path of a vehicle which is so close as to constitute an immediate hazard.
- When a vehicle is stopped at a marked crosswalk or at an unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, no driver of another vehicle

approaching from the rear may overtake and pass the stopped vehicle.

- A pedestrian crossing a roadway at a point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right-of-way to all vehicles upon the roadway (except as provided in AS 28.35.145).
- No pedestrian may cross a roadway at a point where a pedestrian tunnel or overhead pedestrian crossing has been provided and which is accessible at road level at or near the point of crossing, unless a marked crosswalk is also provided at that point. If a pedestrian overpass or tunnel is not accessible and if no marked crosswalk is provided, a pedestrian crossing the roadway must yield the right-of-way to all vehicles on the roadway which are so close as to constitute a hazard.
- Between adjacent intersections in a business or residence district in which traffic-control signals are in operation, no pedestrian may cross except in a marked crosswalk.
- No pedestrian may cross a roadway intersection diagonally or otherwise than at a right angle unless authorized by an official traffic-control device. When authorized to cross diagonally, pedestrians must cross in accordance with the official traffic-control device.
- No pedestrian may cross a roadway where an official traffic-control device specifically prohibits the crossing.
- A pedestrian must cross a roadway at a right angle to the roadway or by the shortest route to the opposite side of the roadway.

## BICYCLISTS

In order to bicycle safely, it is important to keep in mind the laws regarding bicycling in Alaska, and Anchorage in particular. A summary of Article 9 from Alaska's Administrative Code, pertaining to rules of the road for bicyclists, is provided below. For a full account of Alaska's laws and rules related to operating a bicycle, please visit the Alaska State Legislature online administrative code, available at [www.legis.state.ak.us/basis/aac.asp#13.02.377](http://www.legis.state.ak.us/basis/aac.asp#13.02.377) and [library.municode.com/ak/anchorage/codes/code\\_of\\_ordinances?nodeId=TIT9VETR\\_CH9.38BI](http://library.municode.com/ak/anchorage/codes/code_of_ordinances?nodeId=TIT9VETR_CH9.38BI) for Anchorage's municipal ordinances.

- Every person operating a bicycle upon a roadway has all the rights and is subpart to all of the duties applicable to the driver of any other vehicle as set out in this chapter, in addition to special regulations in secs. 385-420 of this chapter, except as to those provisions of this chapter which by their nature have no application.
- No person may violate the provisions of secs. 385-420 of this chapter. The parent or guardian of a child may not authorize or knowingly permit a child to violate a provision of this chapter.
- When signs are erected indicating that no right, left, or U-turn is permitted, no person operating a bicycle may disobey the direction of this sign unless first pulling to the extreme right or shoulder of the road, dismounting and making the turn as a pedestrian.
- No person operating a bicycle upon a highway may carry a person other than the operator, unless the bicycle is equipped with a seat for the passenger, except that an adult rider may carry a child securely attached to his person in a backpack or sling.
- No person operating a bicycle or other non-motorized conveyance may attach, hold on by hand or otherwise secure the bicycle or conveyance or himself to another vehicle so as to be towed or pulled.
- A person operating a bicycle upon a highway shall maintain control of the bicycle and shall at all times keep at least one hand upon the handlebars of the bicycle.
- No person may operate a unicycle, coaster, roller skates, or similar device on a highway.
- A person operating a bicycle upon a roadway shall ride as near to the right side of the roadway as practicable, and shall give way to the right as far as practicable to a motor vehicle proceeding in the same direction when the driver of the motor vehicle gives audible signal.
- Persons riding bicycles on a roadway may not ride more than two abreast except on paths or parts of roadways set aside for the exclusive use of bicycles. Persons riding bicycles two abreast may not impede traffic and, in a laned roadway, shall ride within the farthest right lane.
- When a shoulder of the highway is maintained in good condition, an operator of a bicycle shall use the shoulder of the roadway.
- A person operating a bicycle on a trail, path, sidewalk, or sidewalk area shall
  1. exercise care to avoid colliding with other persons or vehicles;
  2. give an audible signal before overtaking and passing a pedestrian, and
  3. yield the right-of-way to any pedestrian.
- A person riding a bicycle intending to turn left shall, unless he dismounts and crosses as a pedestrian, give a signal by hand and arm continuously during the last 100 feet traveled unless the hand is needed in the control or operation of the bicycle. When stopped to await an opportunity to turn, a hand and arm signal must be given continuously by the operator.

- No person may ride a bicycle upon a sidewalk in a business district or where prohibited by an official traffic-control device.
- No bicycle race may be conducted upon a roadway, except as provided under AS 05.35.
- No person may park a bicycle on a street or sidewalk in a manner which obstructs pedestrian traffic or the parking and driving of motor vehicles.
- No person may secure a bicycle to any of the following publicly owned facilities:
  1. fire hydrants;
  2. police and fire call boxes;
  3. electric traffic signal poles;
  4. stanchions or poles located within bus zones or stands;
  5. stanchions or poles located within 25 feet of an intersection; or
  6. trees under 10 inches in diameter.
- A bicycle parked on a highway must comply with the provisions of this chapter regulating the parking of vehicles.
- Every vehicle, including bicycles, traveling on a highway or other vehicular way or area within the state must illuminate lights
  1. between one half hour after sunset and one half hour before sunrise; or
  2. at any other time when, because of insufficient light or other atmospheric conditions, persons or vehicles on the highway are not clearly discernible at a distance of 1000 feet.
- A bicycle, when ridden at the times when lights are required by law (see above), must be equipped with at least one light on the front of the bicycle, emitting white light visible from a distance of at least 500 feet in front of the bicycle under normal atmosphere conditions.
- A bicycle must be equipped with a taillight which displays a red light visible 500 feet to the rear of a bicycle.
- Every bicycle, when ridden at a time when lights are required, must be equipped with a red reflector on the rear of the bicycle and reflective material visible from the sides of the bicycle meeting the visibility requirements described above.
- Every bicycle must be equipped with a brake system, maintained in good working condition, which will enable its driver to stop the bicycle within 25 feet from a speed of 10 miles per hour on dry, level, clean pavement.
- “Bicycle” means a vehicle propelled exclusively by human power upon which a person may ride, having two tandem wheels or three wheels in contact with the ground, except scooters and similar devices.

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## 7.3 Facility Types

The following sections provides design guidance on the facilities types for AMATS's non-motorized transportation network:

- » **Pedestrian Facilities** – Pedestrian lane, sidewalk (also see shared use pathway, sidepath)
- » **Bicycle facility selection**
- » **Enhanced shared roadway** – Yield roadway, bicycle boulevard
- » **Separated bikeway** – Buffered bicycle lane, protected bicycle lane
- » **Shared use pathway or sidepath** – Sidepath, shared use pathway
- » **Equestrian trails along roadways**
- » **Supplemental bicycle facilities** – Signed route, paved shoulder, advisory shoulder, bicycle lane

## Pedestrian Facilities

### PEDESTRIAN LANE

Pedestrian lanes can serve as an interim or temporary pedestrian facility. Pedestrian lanes are not intended to be an alternative to sidewalks, but rather can serve as an interim solution to fill short gaps between other higher quality facilities. A pedestrian lane is a designated space on the roadway for exclusive use of pedestrians. Pedestrian lanes may be appropriate on roads with low to moderate speeds and volumes.

#### Design Features:

- » The preferred width of a pedestrian lane is eight feet (Small Town and Rural Multimodal Networks, 5-7).
- » Recommended minimum width is five feet to still allow for side-by-side walking and maneuverability for users of mobility devices (Small Town and Rural Multimodal Networks, 5-7).



*Pedestrian lane in St. Charles, MN*

### SIDEWALKS

Sidewalks are the most fundamental element of the walking network as they provide an area for pedestrian travel that is separated from vehicle traffic. Sidewalks are typically constructed out of concrete and are separated from the roadway by a curb or gutter and sometimes a landscaped planting strip. Added features for sidewalks include street trees, benches or places to sit, pedestrian scaled lighting, and bicycle racks.

#### Design Features:

- » In the central business district (zones B-2A, B-2B, and B-2C) the recommended sidewalk width is 12 feet with a minimum of 11.5 feet (AMC 21.40.150L, AMC 21.40.160L, AMC 21.40.170L). For the rest of the municipality the minimum width of sidewalks is five feet (MOA DCM, 1-11). Maintenance equipment and resource needs should be considered when designing sidewalk widths (See also page 200).
- » The US Access Board has pending guidelines requiring a minimum of four-foot clear walking space with five-foot wide passing areas every 200 feet (PROWAG, R302.3-302.4).
- » To allow two people to comfortably walk side by side, six feet is the preferred minimum width (NACTO Urban Street Design Guide, 40).
- » Recommended separation from motor vehicles with curb and paved or landscaped buffer of two to six feet is preferred for comfort and snow storage (Small Town and Rural Multimodal Networks, 4-21).

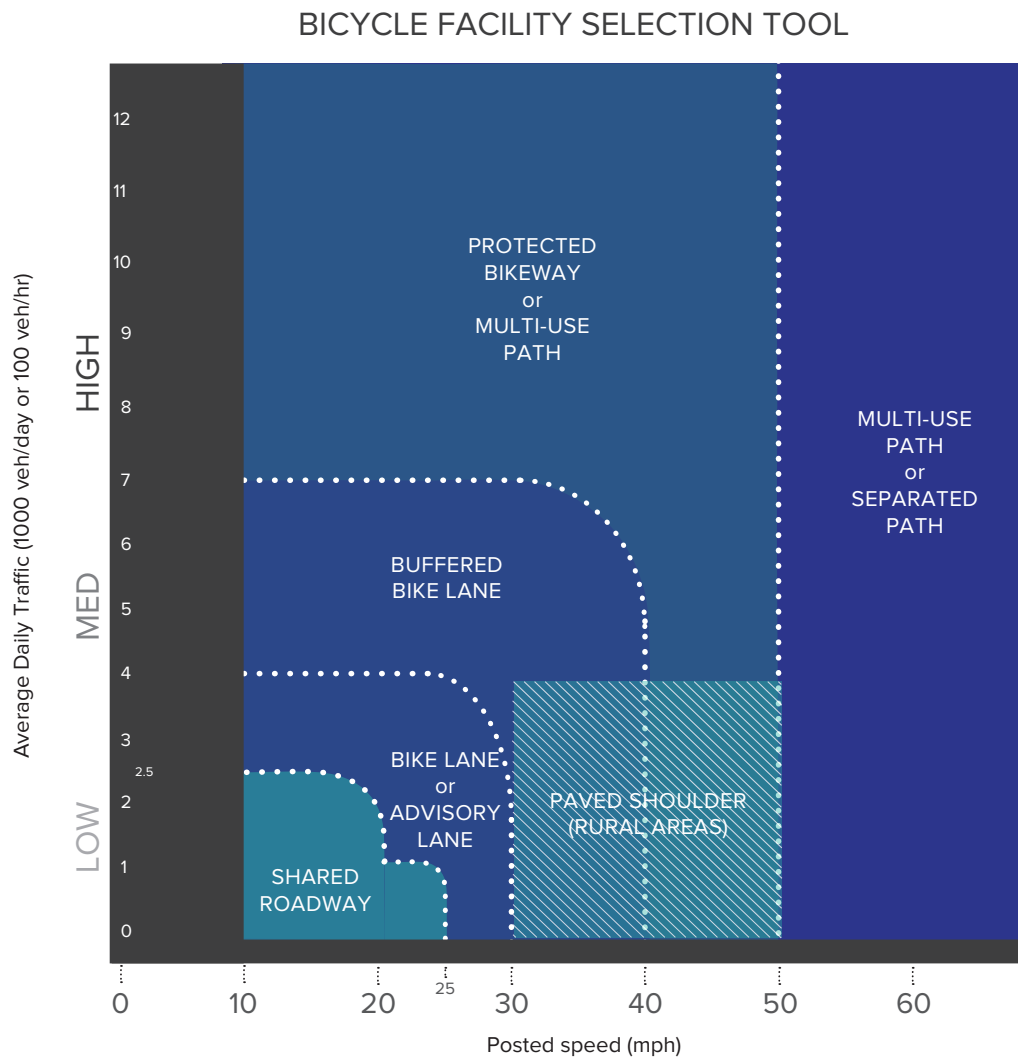


*Sidewalk in Anchorage, AK*

## Bicycle Facility Selection

Selecting the best bicycle way facility type for a given roadway can be challenging given the range of factors that influence a bicycle user's comfort and safety. There is a significant impact on cycling comfort when the speed differential between bicycle and motor vehicle traffic is high and traffic volumes are high. The tool below will assist with appropriate

selection of facility based on average daily traffic and posted speed. In addition to the factors of speed and traffic volumes outlined in the diagram below, winter maintenance and snow storage needs can influence the type of facility that is most appropriate in a given context. (See page 114 for details on the winter maintenance strategy.)



*Note: Shared roadway includes: Bicycle boulevard, yield roadway, and advisory lane. Source: Facility selection tool based on NACTO Bikeway Design Guide.*

## Enhanced Shared Roadway

### YIELD ROADWAY

A yield roadway is designed to serve pedestrians, bicyclists, and motor vehicle traffic in the same slow-speed travel area.

#### Design Features:

- » Yield roadways serve bidirectional motor vehicle traffic without lane markings in the roadway travel area.
- » The traveled way width can vary from 12 feet to 20 feet (Small Town and Rural Multimodal Networks, 2-3 - 2-4). The minimum width for a rural collector street in Anchorage is 20 feet (MOA DCM, 1-25)



*Yield roadway in Sisters, OR*

### BICYCLE BOULEVARD

Bicycle boulevards, also called Neighborhood Greenways, are non-arterial streets with low motorized traffic volumes and speeds, designated and designed to give bicycles and pedestrians travel priority. Bicycle boulevards provide comfortable and attractive places to ride a bicycle or walk for people of all ages and abilities using minor street design modifications including wayfinding signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow through movements of bicyclists while discouraging similar through-trips by non-local motorized traffic.

#### Design Features:

- » Bicycle boulevards should have a maximum posted speed of 25 mph and target motor vehicle volumes of less than 1,500 vehicles per day, no more than 3,000 vehicles per day (NACTO Urban Bikeway Design Guide, 154).
- » A critical component of a bicycle boulevard is to improve crossings at arterial streets for safer and more comfortable travel for both bicyclists and pedestrians (e.g. RRFB, signals, etc.).



*Bicycle boulevard in Anchorage, AK*



## Separated Bikeway

### BUFFERED BICYCLE LANES

Buffered bicycle lanes are conventional bicycle lanes with an additional designated painted buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.

#### Design Features:

- » Seven feet is the preferred minimum overall width of the bicycle lane and the painted buffer (NACTO Urban Bikeway Design Guide, 12-13).
- » The painted buffer should be at least 18 inches wide as it is impractical to stripe a narrower area (NACTO Urban Bikeway Design Guide, 13).
- » If located adjacent to a parking lane, a wider buffer should be provided to allow space for bicyclists to avoid the door zone.

### PROTECTED BICYCLE LANES

Of all on-street bicycle facilities, protected bicycle lanes offer the most protection and separation from adjacent motor vehicle traffic. Protected bicycle lanes are bicycle facilities that are physically separated from motor vehicle traffic by a painted buffer and physical barriers such as flexible delineators, curbs, or planters. Parking lanes can also be used as a means of physical protection if there is a buffer space between the bicycle lane and the parking lane. Single or bi-directional protected bicycle lanes are ideally placed on streets with few driveways or mid-block access points for motor vehicles.

#### Design Features:

- » Eight feet is the minimum recommended total width for a protected bicycle lane, five feet of bicycle lane and three feet of physical buffer zone (NACTO Urban Bikeway Design Guide, 32-33).



Buffered bicycle lane in Lyndonville, VT  
Source: Western Transportation Institute



Protected bicycle lane in Jackson Hole, WY  
Source: Wyoming Pathways



*Sidepath, Kelowna, CA*

## Shared use pathway or sidepath

### SIDEPATH

As defined by AASHTO, a sidepath is a shared use pathway located immediately adjacent and parallel to a roadway. Sidepaths are for two-way movement by bicycles, pedestrians and other non-motorized users. Sidewalks are not considered sidepaths as they are not conducive to riding a bicycle and can lead to user conflicts (AASHTO Guide for the Development of Bicycle Facilities, 3.4.2). Sidepaths are appropriate adjacent to roadways with high speed or high volumes of motor vehicles that would discourage bicyclists from using the roadway, and there are no practical alternatives to improving the roadway or redirecting cyclists to alternate routes.

#### Design Features:

- » The preferred buffer width between a shared use pathway and roadway is seven feet or more to improve user experience and provide snow storage area without covering the facility (MOA DCM, 1-11)
- » Sidepaths should have a minimum of five feet of distance between the path and the roadway. If this setback distance is not available, there should be a barrier or railing to protect the path from vehicles and to discourage path users from crossing the roadway other than designated locations (AASHTO Guide for the Development of Bicycle Facilities, 5.2.2). The greater upfront costs associated with providing a setback or physical barrier/railing as a buffer between bicycle/pedestrian traffic and motor vehicles should be balanced by consideration of the long-term gains in safety, snow storage, and maintenance efficiency (see page 200 for design guidance for facility width and buffer/separation distance as they relate to maintenance and snow storage considerations).
- » Sidepaths are eight to twelve feet wide with a recommended minimum of ten feet and eight feet in constrained conditions (Small Town and Rural Multimodal Networks, 4-13).
- » At intersections, physical separation of the sidepath through the crossing should be maintained in the form of sweeps. Sidepath separation distance may vary from 5 ft–24 ft. depending on the vehicle speed of the adjacent roadway (Small Town and Rural Multimodal Networks, 4-15).



## SHARED USE PATHWAY

A shared use pathway is an off-street dedicated facility for two-way bicycle traffic and other non-motorized users such as pedestrians, skaters, wheelchair users, and joggers. Shared use pathways in Anchorage are Trail Class 5 or a fully developed trail that accommodates two-lane travel and is paved (MOA DCM, 4-9). These facilities are frequently found in parks, along rivers, beaches, and in greenbelts or utility corridors where there are few conflicts with motorized vehicles. At low user volumes, shared use pathways are functional, pleasant, and adequate for use by users of all ages and abilities.

### Design Features:

- » Shared use pathways are 10 to 14 feet wide, single paved surface capable of accommodating low to moderate volumes of users (Small Town and Rural Multimodal Networks, 4-3).
- » 12 to 14 feet is preferred to accommodate two-way travel and enable passing (Small Town and Rural Multimodal Networks, 4-6).
- » AASHTO defines 10 feet as the minimum paved dimension for two way travel (AASHTO Guide for the Development of Bicycle Facilities, 5.2.1).
- » Eight feet is the minimum allowed for a two-way bicycle path and is only recommended for low traffic situations or for short lengths (Small Town and Rural Multimodal Networks, 4-6).



*Shared use pathway in Anchorage, AK*

## Equestrians trails along roadway

Trails adjacent to roadways pose risks as horses may run into the roadway. Either a physical barrier or buffer of a certain width can aid in the safety of all users.

### Design Features:

- » AASHTO recommends separating equestrians and bicyclists on paved shared use pathways.
- » Recommended separation between equestrians and other users is at least six feet wide and can be a vegetation buffer or barrier. In some areas, the treads are separated by an elevation change (FHWA Equestrian Design Guidebook for Trails, Trailheads, and Campground, 46).
- » The recommended height for most equestrian barriers is 60 inches to reduce the risk of a horse attempting to jump over a barrier. Barriers should be able to withstand the force of a trail animal attempting to run through them (FHWA Equestrian Design Guidebook for Trails, Trailheads, and Campground, 46).
- » Clearance to overhead obstructions should be 12 feet (FHWA Equestrian Design Guidebook for Trails, Trailheads, and Campground, 57).
- » A two-foot or greater shoulder on both sides of the trail should be provided. The installation of signage or other furnishings should be located at least two feet beyond the two-foot shoulder. (FHWA Equestrian Design Guidebook for Trails, Trailheads, and Campground, 56)



*Equestrian trail adjacent to roadway in Anchorage, AK*



## Supplemental bicycle facilities

### SIGNED ROUTE

Signed bicycle routes are roadways shared with motor vehicles which have route signs for bicycle wayfinding. As per the Anchorage Municipal Law (AMC), signed routes, shoulders, and bikes lanes fall under motor vehicle rules of the road. Where bike routes become side paths, they fall under pedestrian rules of the road and will follow use both a pedestrian and bicyclist symbol denoting multi-use and change in rules of the road (see page 127). Signed bicycle routes provide connections with other bicycle facilities or designate preferred routes through high-demand corridors. Unlike bicycle boulevards, marked bicycle routes do not include traffic calming measures, pavement markings, or directional wayfinding signs to provide a higher level of comfort for bicycle users.

#### Design Features:

- » Typically, signed routes are placed on roadways with low speeds and traffic volumes, however there are also applications on higher volume roads with wide outside lanes or shoulders.



*Bicycle route signage in Anchorage, AK*

### PAVED SHOULDERS

Except where expressly prohibited, pedestrians may legally walk on shoulders. Most roadway shoulders are not intended for regular use by pedestrians, but wide shoulders can accommodate occasional pedestrian use. Wider shoulders are preferable to allow a pedestrian to walk as far as possible away from the travel lane of a roadway.

Shoulders used as access routes should meet ADA requirements for pedestrian walkways (AASHTO Pedestrian Guide 2004, 55).

#### Design Features:

- » Provision of a four foot minimum continuous clear width (Small Town and Rural Multimodal Networks, 3-5).
- » Five by five foot minimum passing spaces are desirable at 200 foot maximum intervals (PROWAG 2001, R302.4). Moreover, part of complying with ADA is providing adequate maintenance. The clear widths should remain free and clear of obstructions, including snow, ice, debris.



*Paved shoulder in Ridgecrest, CA*



## ADVISORY SHOULDER

Advisory shoulders create a usable area for bicyclists on a roadway that is otherwise too narrow to accommodate one. The shoulder is delineated by pavement markings and optional pavement color. Motorists may only enter the shoulder when no bicyclists are present and should overtake these users with caution due to potential oncoming traffic and cyclist safety.

### Design Features:

- » The preferred width of the advisory shoulder space is six feet. Absolute minimum width is four feet when no curb and gutter is present (Small Town and Rural Networks Guide, 2-19).
- » Preferred two-way center travel lane width is 13.5 - 16 feet although may function with widths of 10 - 18 feet (Small Town and Rural Networks Guide, 2-19).

### FHWA Experimentation:

» Advisory shoulders are an emerging treatment in the US. While all required traffic control device elements are included in the MUTCD in some capacity, the manual does not fully address the particular combination of traffic control devices which make up the treatment. It is recommended communities implement advisory shoulders within the experimentation process established by the FHWA. The experimentation process has monitoring and reporting requirements, but offers benefits to communities and agencies in the form of stronger liability protection, FHWA technical support, and makes a positive contribution to the body of knowledge regarding this facility type. The process involves writing a letter to the FHWA with the details of the existing circumstances, a proposed plan, and answering questions that may arise (Lessons Learned Advisory Bike Lanes in North America., 9).



*Advisory shoulder in Edina, MN*

## BICYCLE LANE

Bicycle lanes designate an exclusive space for bicyclists with solid lane lines, bicycle symbol pavement markings, and signage. The bicycle lane is located adjacent to motor vehicle travel lanes and bicyclists ride in the same direction as motor vehicle traffic. Bicycle lanes are typically on the right side of the street (on a two-way street), between the adjacent travel lane and curb, road edge, or parking lane. At signalized intersections bicycle detection can be used to detect bicyclists for crossing (see Bicycle Detection at Traffic Signals, pg. 37). As an interim solution bicycle exit and entrance ramps can be used to allow bicyclists to cross through the pedestrian crosswalk at intersections (AMATS Bicycle Plan).

### Design Features:

» While four feet is the minimum width of a bicycle lane exclusive of the gutter pan, six feet is preferred. If illegal parking is a concern, five feet may be preferable (NACTO Urban Bikeway Design Guide, 6).



*Bicycle lane in Anchorage, AK*





## 7.4 Intersections

Areas where different types of traffic intersect warrant special attention. Well-designed crossings can mitigate many operational issues and provide a higher degree of safety and comfort for all users. The context, or type of roadway will inform signage, pavement markings, and overall design. The following section provides design guidance to create safe and effective intersections. These guidelines consider the following components:

- » **At-grade intersection treatments** – Crosswalk, curb extensions, median refuge island, curb ramps with detectable warning strips, crossbike, bicycle boxes, two-stage turn boxes, mountable truck apron
- » **Crossing types** – Rail crossing, Sidepath and shared use pathway crossing, Protected intersection, Trail entry control
- » **Grade-separated intersection treatments** – Grade-separated roadway crossing, grade-separated rail crossing
- » **Signalization** – Pedestrian signal, bicycle detection at traffic signals, Rectangular Rapid Flash Beacon (RRFB)



*Raised crosswalk in Anchorage, AK*



*Curb extensions in Anchorage, AK*

## At-grade intersection treatments

### CROSSWALK

A marked crossing, or crosswalk, typically consists of striped, high-visibility pavement markings which run alongside the direction of vehicle travel to indicate a dedicated pedestrian roadway crossing. Other markings, warning signs, active warning beacons, or traffic signals to slow or stop traffic may supplement crosswalk in order to increase safety and awareness for all users.

#### Design Features:

- » Transverse crosswalk lines should be used at controlled traffic signals or stops signs. Longitudinal crosswalk lines should be used at uncontrolled approaches or midblock crossings. (ATMS, Sec.3B.18).
- » Crosswalk lines shall be solid white lines 24 inches in width (ATMS, Sec.3B.18).

### CURB EXTENSIONS

Extensions of the sidewalk at intersections functionally reduce the crossing distance, and thereby minimize pedestrian exposure while crossing. Most commonly, this sidewalk extension is located in the area of a parking lane, and extend into the roadway at the corners of intersections or at midblock crossings. These extensions also allow additional waiting space for pedestrians, and improve pedestrian visibility at intersections. Curb extensions also help position pedestrians closer to the cross street centerline to improve visibility and encourage motorists to yield at crossings (NACTO Urban Street Design Guide, 115).





*Median refuge island in Anchorage, AK*

## MEDIAN REFUGE ISLAND

A median refuge island can improve user safety by providing pedestrians and bicyclists space to perform the safe crossing; one side of the street at a time. Refuge islands minimize user exposure by shortening crossing distance and increasing the number of available gaps for crossing. At-grade passage through the island, rather than ramps and landings, provides optimum accessibility. To promote yielding to non-vehicular users, the median safety island should require horizontal deflection of the motor vehicle travel lanes. Refuge islands may collect road debris and may require more frequent maintenance.

### Design Features:

- » The waiting area is desired to be 10 feet or greater with a minimum of six feet (ATMS 4A.100).
- » Consider the use of landscaping with low-growing, minimally-spreading native shrubs and ground cover that require little maintenance and are no higher than 18 inches. This type of landscaping will not compromise the visibility of users crossing in the crosswalk.
- » For separated-use trail crossings, the crossing should maintain user separation. This can be accomplished with crosswalk markings in the pedestrian path, and green colored pavement in the bicycle lane.
- » Reflective delineators should be used to mark refuge islands for increased visibility during snow removal (ATMS 4A.100)

## CURB RAMP W/ DETECTABLE WARNING STRIP

Curb ramps allow wheeled users, such as wheel chair users and bicyclists, to make a smooth transition from the street to the sidewalk. A sidewalk without a curb ramp forces wheelchair users into the roadway until a driveway allows them access to a sidewalk. American Disabilities Act (ADA) compliant curb ramps will be marked with tactile warning strips to alert people with visual impairments. High color contrast between the tactile device and the surrounding infrastructure is important to allow people with partial vision to see the change in the sidewalk.

At intersections, curb ramps perpendicular to the roadway are preferred to parallel curb ramps. Parallel curb ramps create potential safety and mobility problems for pedestrians, including reduced maneuverability and increased interaction with turning vehicles (AASHTO Pedestrian Facilities Guide, 87). It is crucial that the interface between a curb ramp and the street is adequately maintained and graveled to prevent ponding. Asphalt streets can develop potholes at the foot of the ramp, which can catch the front wheels of a wheelchair.

### Design Features:

- » The curb ramp shall have no more than a 1:20 (5 percent) gradient running slope with maximum 1:10 side flares (ADA Standards, Chapter 4).
- » The landing at the top of the ramp shall be at least three feet deep and at least as wide as the ramp (ADA Standards, Chapter 4).



ADA compliant curb ramp with tactile warning strip in Anchorage, AK



Green crossbike markings continue a bicycle lane across an intersection in Minneapolis, MN

## CROSSBIKE

A crossbike is an intersection marking which indicates the intended path of bicyclists through an intersection or across a driveway or ramp. Crossbikes guide bicyclists on a direct path through the intersection and provide clear boundaries between the path of bicyclists and motor vehicles in the adjacent lane.

Colored pavement can be overlaid several different ways: paint, durable liquid pavement markings (DLPM) including epoxy and Methyl Methacrylate (MMA), thermoplastic, or colored asphalt. Paint is easily worn down during winter months and often needs to be replaced annually, but is the least expensive overlay option, while the other applications are more expensive to apply, but last longer (NACTO Urban Bikeway Design Guide, 125 - 131)

### Design Features:

- » Crossbikes are typically painted green to add visibility to the facility and to distinguish it from a crosswalk (NACTO Urban Bikeway Design Guide, 58-59).

**Note:** The Municipality of Anchorage has received FHWA Interim Approval for two locations to implement green pavement markings for bike lanes, but would need to receive FHWA Interim Approval to implement bicycle boxes and two-stage turn boxes.



*The green bicycle box allows bicycles to wait for a signal change in front of motor vehicles to prevent “right hook” collisions in Minneapolis, MN*

## BICYCLE BOXES

A bicycle box is a designated area located at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible way to get in front of queuing traffic during the red signal phase. Motor vehicles should wait behind the white stop bar line at the rear of the bicycle box. This treatment reduces right hook collisions and allows bicyclists to quickly clear the intersection on a green signal. Large area markings do present a skid issue and therefore skid-resistant materials should be considered (e.g. colored concrete). This treatment is most appropriate on streets where there is high bicycle demand.

### Design Features:

- » Boxes for queuing bicyclists are typically 10 to 16 feet deep (NACTO Urban Bikeway Design Guide, 53).
- » No turn on red signs should be installed to prevent vehicles from entering the bicycle box.



## TWO-STAGE TURN BOXES

Two-stage turn boxes offer bicyclists a safe way to make turns at multi-lane signalized intersections by separating the turn movement into two stages. This intersection treatment results in providing more predictability for all modes. In order to make a left turn, bicyclists will travel straight into the bicycle facility on the far side of the intersection, then stop in a protected area called a turn box. This turn box then allows bicyclists to shift into the direction they want to travel. Bicyclists will wait to proceed straight until the signal turns green for the new direction of travel. Two stage turn boxes may prohibit turn on red signs and require enforcement to create a safer overall intersection for all users of the roadway.

### Design Features:

- » Typically, two stage turn boxes are painted green for high visibility and to clearly denote to bicyclists and motor vehicles it is a bicycle facility (NACTO Urban Bikeway Design Guide, 52-53).



A two stage turn box near street car tracks in Charlotte, NC

## MOUNTABLE APRON

A mountable truck apron is a roadway design treatment that consists of a mountable (rollover) curb and colored or textured pavement to delineate the roadway and the apron. Often installed at signalized intersections, mountable aprons visually narrow an intersection to help calm traffic and reduce motor vehicle speeds. Similar to a mountable curb around a roundabout, mountable aprons provide additional space for freight, emergency, and other large vehicles to safely complete the turn, and discourage smaller vehicles (the majority of motorized road users) from taking sweeping, high-speed turns. Mountable truck aprons may be installed as retrofits to existing intersections.

### Design Features:

- » In a typical application, there is a 3 inch rolled curb to allow counting by trucks and large vehicles, and a six-inch standard curb that form the waiting area for pedestrians.
- » There may be striping to indicate where motorists should yield to pedestrians and avoid driving on the apron.



Mountable curb



## Crossing Types

### RAIL CROSSING

Locations where shared use pathways cross railroad tracks are a challenge for pedestrians and bicyclists, particularly for those with mobility or vision impairments. Wheelchair casters and bicycle wheels can easily get caught in the flange-way gap, and slippery surfaces, degraded rough materials, or elevated track height can cause tripping hazards for all users. In terms of visibility, sight triangles provide the driver of a vehicle approaching an intersection an unobstructed view of any conflicting vehicles or pedestrians. Per NACTO, these triangular areas should be large enough that drivers can see approaching vehicles and pedestrians in sufficient time to slow or stop and avoid a crash. Angled track crossings are also problematic because they limit sight triangles, impacting the ability to see oncoming trains.

Bells or other audible warning devices may be included in the flashing-light signal assembly to provide additional warning for pedestrians and bicyclists. In areas with frequent train movements, pedestrian automatic gate arms or manually operated swing gates may help control non-motorized user movements when a train is approaching.

Adding new crossings increases crash risk and crash prediction. Joint Policy requires new risks be mitigated by reducing overall risk – possibly by making improvements nearby to other facilities to offset increased risks.

Crossing design and implementation is a collaboration between the railroad company and the roadway agency. The railroad company is responsible for the cross-bucks, flashing lights and gate mechanisms, and the highway agency is responsible for advance warning markings and signs. Warning devices should be recommended for each specific situation by a qualified engineer based on various factors including train frequency and speed, path usage, and sight distances.

#### Design Features:

- » The crossing should be as close as practical to perpendicular with tracks (Rails-with-Trails: Lessons Learned, 73).
- » Ensure clear lines of sight and good visibility so that trail users can see approaching trains (Rails-with-Trails: Lessons Learned, 72).
- » The crossing should be level and flush with the top of the rail at the outer edge and between the rails (Rails-with-Trails: Lessons Learned, 73-74).
- » Flange-way gaps should not exceed two and a half inches (three inches for tracks that carry freight.) Concrete or rubber is the best material for pedestrian railroad crossings (Rails-with-Trails: Lessons Learned, 73).

## PROTECTED INTERSECTION

A protected intersection, or “bend-out” uses a collection of intersection design elements to maximize user comfort within the intersection and promote a high rate of motorists yielding to people bicycling. The design maintains a physical separation within the intersection to define the turning paths of motor vehicles, slow vehicle turning speed, and offer a comfortable place for people bicycling to wait at a red signal.<sup>2</sup>

### Design Features:

- » Corner radii should be 20 feet or greater based on control vehicle.
- » An apron radius, if present, should be 10 - 20 feet based on passenger car turning speed (Lessons Learned: Evolution of the Protected Intersection, 26).



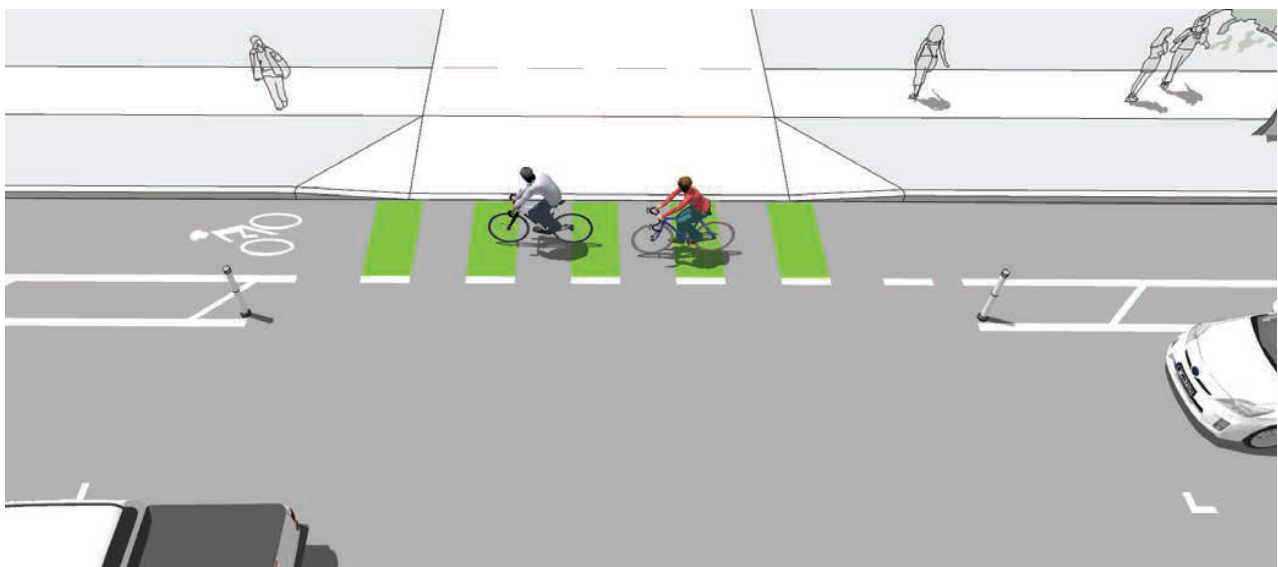
*Protected intersection*

## DRIVEWAY CROSSINGS

Ideally, bikeways and sidepaths are along corridors with few driveway or side street crossings to minimize the number of potential conflicts between bicycle facility users and motor vehicle drivers. However, safety at driveway crossings can be increased by providing clear sightlines for motor vehicle drivers and bicyclists, pavement markings, and signage. The use of green pavement markings as shown is to alert both motorists and the non-motorized user of a potential conflict zone. Design details illustrating proper use and placement is shown in the NACTO Urban Bikeway Design Guide. These experimental treatments are recommended for major conflict areas.

### Design Features:

- » Provide ample stopping sight distance for vehicles (AASHTO Policy on Geometric Design of Highways and Streets, Table 9-21).
- » Driveway crossing can be raised to give priority to bike users and slow vehicles approaching the driveway.
- » The width of driveways can be narrowed to reduce vehicle speeds and reduce the driveway crossing distance for bicycles and pedestrians.
- » Turning radii can be decreased to slow vehicle speeds.
- » Provide crossing markings across entire length of driveway.



*On street protected bike lane with crossing markings at driveway crossing to raise conspicuity.*



Shared use pathway entry in Anchorage, AK



Multi-use entry control

## SHARED USE ENTRY CONTROL

A variety of physical barriers and design strategies are employed to restrict motor vehicle access to non-motorized areas. While the bollard post is a common treatment, it presents numerous safety hazards to users. Potential hazards include inconsistent and unpredictable placement, broken fold-down posts that often do not fold back up, removable posts lacking flush sleeves, or removable posts with theft preventing chains that dangle onto the trail surface. If bollards are used at intersections and access points, they should be adequately spaced and brightly colored and/or supplemented with permanent reflective materials to be visible at night. Removable barriers should leave a flush surface to prevent tripping hazards.

### Design Features:

- » Physical barriers should only be considered when other measures do not adequately control unauthorized vehicles, or where the danger posed by unauthorized vehicles exceeds the safety risks to trail users by the barriers themselves.
- » Alternative design strategies to control shared-use path entry include signage indicating “No Motor Vehicles” (MUTCD R5-3) placed at the path access point, separating the non-motorized path into two treads in advance of the crossing so that the curb cuts are not conducive to motor vehicle access, and including a landscaped median to act as an access barrier.
- » Note that there should be a minimum of five feet clearance for each tread for path user access.



## Grade-separated intersection treatments

### UNDERCROSSINGS

Undercrossings can provide critical links in areas separated by barriers such as railroads and highway corridors. In most cases, these structures are built in response to user demand for safe crossings where they previously did not exist. There are no minimum roadway characteristics for considering grade separation.

The undercrossing should have a centerline stripe, even if the rest of the path does not have one, to discourage passing movements. Safety is a major concern with undercrossings as path users may be temporarily out of sight from public view and may experience poor visibility. To mitigate safety concerns, an undercrossing should be designed to be spacious, well-lit, and completely visible for its entire length from end to end. Potential problems

of undercrossings include conflicts with utilities, drainage, flood control, wildlife, limited sightlines, and vandalism. Undercrossings on shared use pathways that are used in the winter require that snow be hauled in for activities such as skiing.

#### Design Features:

- » Undercrossings should be a minimum of 14 feet wide, and greater widths are preferred for undercrossing lengths of over 60 feet.
- » For maintenance vehicles, there should be a 10 foot minimum vertical clearance.
- » Any grade-separated treatments should be implemented in accordance with the DOT P&F Highway Preconstruction Manual Section 1130.7 - Separation Structures for Pedestrian Crossings.



Undercrossing in Anchorage, AK



Undercrossing with typical dimensions



*Overcrossing with typical dimensions*

## OVERCROSSINGS

Bicycle and pedestrian overcrossings can be used to continue pedestrian and bicycle facilities over large barriers such as deep canyons, waterways, or major roadways or rail yards. Overcrossings pose potential concerns regarding visual impact and functional appeal, as well as space requirements for approach ramps.

### Design Features:

- » The recommended minimum vertical clearance for pedestrian structures over local roads and state highways is 17 feet 6 inches (Alaska Highway Preconstruction Manual, 1130-5).
- » The recommended minimum vertical clearance for pedestrian structures over railroads is 23 feet.
- » Access ramps to overcrossings are limited to five percent slopes per ADA. Level resting landings must be provided at four hundred foot intervals. Steeper grades will require more frequent landings.

## Signalization

### PEDESTRIAN SIGNAL

Pedestrian signals can be actuated by manually using a push button or automatically timed into each signal cycle. When possible, crossing signals may include audible information, because pedestrians with vision impairments cannot rely on the sound of vehicular traffic to identify the start of the WALK phase. Automatic timing of pedestrian walk phases is appropriate where sidewalks are present along with a high volume of pedestrian crossings, such as in urban areas. Manual activation can be more appropriate when pedestrian crossings are less predictable or more infrequent. This allows a pedestrian walk phase to be skipped when it is not necessary.

#### Design Features:

- » Manual activation of pedestrian signals require the user to locate and press a push button to actuate the pedestrian signal phase. Push buttons should be accessible per ADA standards. A push button outfitted with a pilot or indicator light with audible or vibrotactile feedback acknowledges that the pedestrian call has been placed and reassures the pedestrian they have been detected.
- » Automatic timing of a pedestrian walk phase into a signal cycle makes pedestrian crossings predictable, minimizes pedestrian delay, and does not create uncertainty whether a pedestrian has been detected.



*Pedestrian push button in Anchorage, AK*

## BICYCLE DETECTION AT TRAFFIC SIGNALS

Bicycle Detection and Actuation is used to alert the signal controller of bicycle crossing demand on a particular approach. Proper bicycle detection should meet two primary criteria: accurately detects bicyclists and provides clear guidance to bicyclists on how to actuate detection (i.e. what button to push and where to stand)

### Design Features:

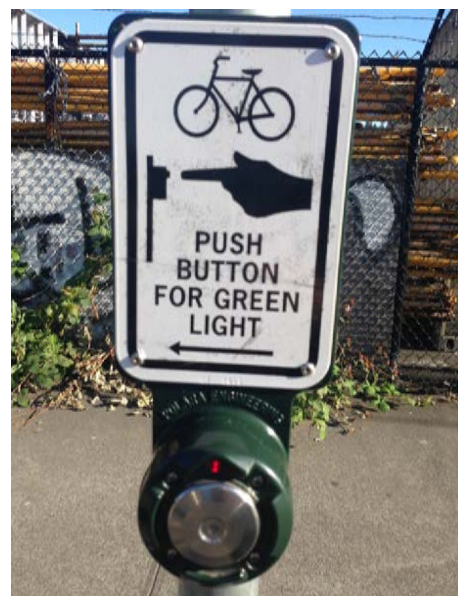
Radar detection is the preferred method of bicycle detection in the AMATS planning area. This method is used to detect bicyclists at or approaching signals and should register the presence or passing of cyclists in the anticipated path of travel.

Other methods of detection include push button activation and loop detectors. These methods are not preferred and are gradually being replaced by radar detection.

- » Signals that require push button for activation should not require bicyclists to dismount or require mounting the sidewalk to push the button. The push button should be mounted on a pole and face the street to easily reach from a curb side bicycle lane. Push buttons should also be paired with a sign such as MUTCD R10-24 or R10-26 to indicate to bicyclists to use the push button. These types of signals and signage are in use in Minneapolis, Minnesota.
- » Loop detectors are embedded within the roadway and trigger the signal when a metal object passes over them. This allows a bicyclist to stay within their lane of travel without having to maneuver to the side of the road to reach a push button. A pavement marking should be placed on the optimum detection area of the loop detector to indicate to bicyclists where to position themselves to activate the signal.



MUTCD Figure 9C-7 pavement marking for bicycle loop detectors



Bicycle push button paired with a MUTCD R10-26 sign



## RECTANGULAR RAPID FLASHING BEACONS

Rectangular Rapid Flashing Beacons (RRFB) are amber flashing lights that supplement warning signs at unsignalized intersections or midblock crosswalks. Beacons are actuated by either manually pushing a button or passively through loop detection. RRFBs use an irregular flash pattern similar to emergency vehicle flashing patterns. RRFBs can be used to enhance driver yielding for bicyclists and pedestrians in the crosswalk (NACTO Urban Street Design Guide, 114-115).

The selection and placement of RRFBs are based upon an engineering review of visibility, gaps, speed, crossing length, and traffic and pedestrian volumes.

### Design Features:

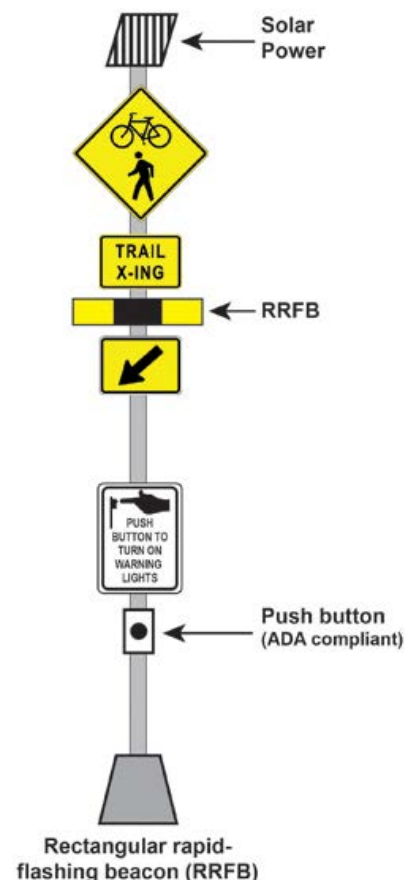
- » Location of beacon poles should not conflict with pedestrian or bicycle crossing movements.
- » Push buttons should be no higher than four feet above the ground for ADA accessibility.



An RRFB midblock crossing in Atlanta, GA.

- » Passive detection technology or active push buttons can activate warning beacons.
- » Refer to ATMS 4A.100 and 4L.100 for more guidance on selection and use of various treatments

**Note:** The Alaska Department of Transportation has received Interim Approval from FHWA for the use of RRFBs.









## 7.5 Bicycle Parking

Bicycle parking should be convenient, highly visible, and easily accessible. Bicycle parking is categorized as either short term, which is storage for two hours or less, or long term parking, which is storage for two hours or more.

- » **Short term parking** – bicycle racks, on-street corrals
- » **Long term parking** – bicycle lockers, secure parking areas
- » **Bicycle repair** – a kiosk for basic bicycle service, including a tire pump and basic tools

## Short Term Bicycle Parking

### BICYCLE RACKS

Bicycle racks provide short-term bicycle parking and are meant to accommodate visitors, customers, and others expected to arrive and depart a location in a brief time period. Per APBP standards, a bicycle rack should support a bicycle in at least two places to prevent it from falling over, and the rack should allow locking of the bicycle frame and one or both wheels with a U-lock. Bicycle racks should be constructed of durable, weather resistant materials to prevent rusting, bending, and deformation. A “staple” rack is an ideal rack type as it is easily recognizable as bicycle parking, can accommodate bicycles of all sizes, and allows secure locking techniques (APBP Essentials of Bike Parking, 6).

AMATS should consider reviewing the development code and updating to reflect best practices regarding required bicycle parking (See APBP Essentials of Bike Parking for best practices).

#### Design Features:

- » Three feet minimum from the curb to avoid the door zone of parked cars (APBP Essentials of Bike Parking, 10).
- » Three feet perpendicular between racks to provide handlebar space and maneuvering room (APBP Essentials of Bike Parking, 10).
- » Six feet parallel space between racks to allow for the length of a bicycle and wheels (APBP Essentials of Bike Parking, 10).
- » Located close to destinations: place bike parking no further from the primary entrance than the closest vehicle parking space (Title 21). 50 feet maximum distance from a main building entrance (APBP Essentials of Bike Parking, 2).



*Bicycle Parking, Portland, OR; NACTO Guide*



*Bicycle racks in Anchorage, AK*





*Bicycle Parking, Portland, OR*

## ON-STREET BICYCLE CORRALS

On-street bicycle corrals (also known as on-street bicycle parking) consist of staple racks grouped together in set spacing. Corrals may be located in an on-street parking space or in a particularly wide area of a sidewalk. Note that each motor vehicle parking space can be replaced with approximately 8-10 bicycle parking spaces. Bicycle corrals are reserved exclusively for bicycle parking and provide a relatively inexpensive solution to providing bicycle parking in areas of high demand.

### Design Features:

- » Bicyclists should have an entrance width to the corral from the roadway of five to six feet.
- » Can be used with parallel or angled parking.
- » Parking stalls adjacent to curb extensions are good candidates for bicycle corrals.
- » On-street bicycle corrals should be seasonal and removed during winter months. For example the City of Minneapolis removes their bicycle corrals between November 1 and April 15 each year (City of Minneapolis On-Street Bicycle Corral Program, 3).

## Long Term Bicycle Parking

Long term bicycle parking provides additional security and weather protection for a bicycle by an enclosed structure and managed access. It is a good option where users are expected to store their bicycles for more than two hours, especially for a full day or longer. While uncommon, users may use long term secure bicycle parking for shorter periods of time if they prefer the added security.

### BICYCLE LOCKERS

Bicycle lockers provide long-term bicycle storage for an individual bicycle in a rectangular enclosure. Lockers may be accessed electronically on-demand, or they may be assigned to an individual. Lockers are more expensive and take up a larger amount of space, but it is common for cities or transit agencies to charge a fee for use of bicycle lockers.

#### Design Features:

- » Labeled as a bicycle locker on the exterior.
- » Minimum dimensions: width (opening) two and a half feet; height - four feet; depth six feet.
- » Four-foot side clearance and six-foot opening end clearance.
- » Seven-foot minimum distance between facing lockers.

## SECURE PARKING AREA (SPA)

A Secure parking Area for bicycles, also known as a Bicycle SPA or Bicycle & Ride (when located at transit stations), is an enclosed space that houses a group of bicycle racks. Accessible via key-card, combination locks, or keys, Bicycle SPAs provide shared secure parking for 10 to 100 or more bicycles. To gain access to a bicycle SPA, typically users must pre-register with the city or transit agency managing the bicycle parking.

#### Design Features:

- » Closed-circuit television monitoring with secure access for users.
- » Double high racks & designated spaces for larger bicycles such as cargo bicycles.
- » Added features such as a bicycle repair station, bench, and bicycle tube and maintenance item vending machine.
- » Signage may be desired to direct users to designated bicycle SPAs.



Long term bus then bicycle shelter in Boulder, CO

## BICYCLE REPAIR

Bicycle repair stations are small kiosks designed to offer a complete set of tools necessary for routine bicycle maintenance and minor repairs. Popular locations for placement include transit stations, major trailheads, or other popular destinations with high volumes of bicycles. Bicycle repair station tools are secured by high security cables, but will still be an attractive target for theft. Kiosks should be placed in areas of high activity to reduce potential vandalism. Consider grouping repair stations together with other added features such as seating, bicycle parking, and drinking fountains.



*Bike repair station in Anchorage, AK*







## 7.6 Signage and Wayfinding

A comprehensive and consistent system of signage ensures that information regarding the safe and appropriate use of all facilities is visible. Wayfinding signage can boost community branding, create a sense of place, promote economic development, and safely communicate how to navigate to regional and local destinations. Successful wayfinding connects places, promotes active transportation, allows users to maintain motion while navigating the environment, is predictable, and keeps information simple. Directional signing and wayfinding is used to enhance the travel experience and is not a required design treatment.

- » **Pedestrian** - Map kiosk, directional signs
- » **Bicycle** - Decision signs, confirmation signs, and turn signs

## Pedestrian Wayfinding Elements

Pedestrian wayfinding defines neighborhood or district boundaries, directs people walking to destinations, and provides detailed information such as maps, transit routes, and local business lists. Pedestrian wayfinding is designed at a human scale with directional posts, information kiosks, and map panels positioned at eye level and scaled at smaller font sizes than vehicular signage. Pedestrian wayfinding elements include kiosks with detailed orientation maps and information, and directional signs with nearby destinations and directional arrows.

### MAP KIOSK

Kiosks with area and/or citywide orientation maps can provide helpful navigational information for pedestrians as well as for bicyclists, particularly in locations where bicyclists may be stopping long enough to digest more information (i.e. transit stations or stops, busy intersections, or trailheads). Map kiosks should include circles illustrating the walking and bicycling time and/or distances to encourage exploration. Additionally, orienting signs with respect to the audience's view (or, a heads up orientation) is more intuitive than maps where north is at the top. High contrast simple graphics or icons and the use of color coded areas or districts help make maps legible to a wide audience.

For shared use pathway settings, map kiosks should contain shared use pathway information such as rules and regulations including allowed uses and emergency contact information. Interpretive or educational information may also be integrated into kiosks (ATMS 2D.50).



Anchorage interpretive sign

## DIRECTIONAL SIGNS

Pedestrian directional signs include a list of major attractions and local destinations with directional arrows. Walking distances are included adjacent to the directional arrow. Pedestrian directional signs may be single panels, or may be configured as individual blades mounted in different directions on a post. Pedestrian directional signs may also incorporate colors or brand marks distinct to the identity of a particular neighborhood or district.



Directional sign in Anchorage, AK



Pedestrian map kiosk with an orientation map in Bellevue, WA



Directional sign in Vancouver, WA



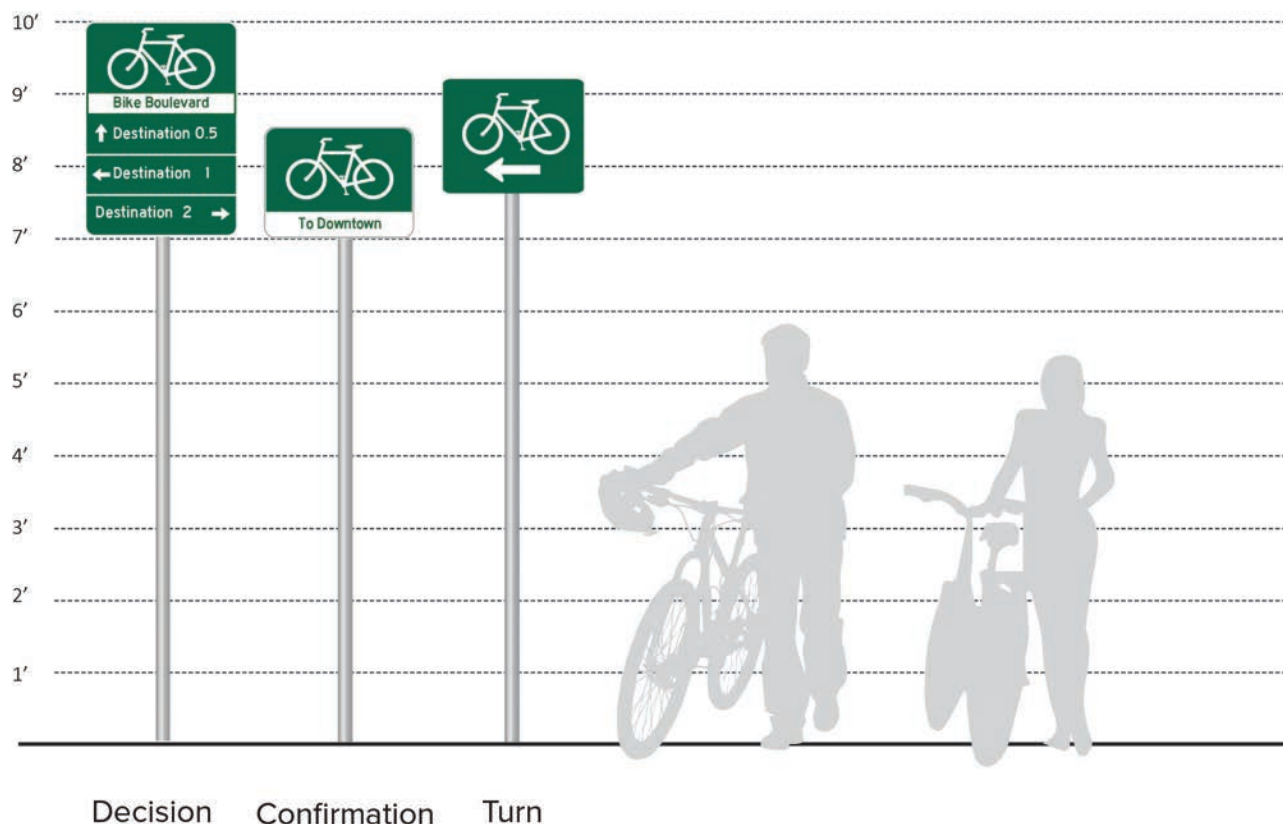
## Bicycle Wayfinding Elements

Bicycle wayfinding confirms orientation and directs bicyclists to local and regional destinations. Bicycle wayfinding is typically placed along shared use pathways and on-street bicycle facilities. These types of signs are designed so that bicyclists can easily read signs while moving, quickly comprehend the information, and adjust direction of travel in advance of turns. The fundamental family of bicycle wayfinding elements include decision, confirmation, and turn signs. Each proposed sign location should be evaluated based on the complexity of the location and decisions to be made with attention drawn to the overall number of signs within a given area. When non-motorized signage is added to motorized signage at a given location, there is the

potential for too many signs to be installed thereby reducing the effectiveness of any of the given signs. In the case of the sign family, the guidelines presented for each category are recommendations to be evaluated at the time of sign placement development

### DECISION SIGNS

Decision signs clarify route options when more than one potential route is available. Signs typically consist of a system brand mark, space for up to three destinations, distance in miles and/or time (based on 10mph or a six-minute per mile travel speed). Decision signs may include a specific route or path name.





Decision signs should be placed before decision making points or intersections with routes having bicycle facilities. Sufficient distance prior to the intersection should be provided to allow for safe recognition and response to information provided. Based on guidance from the AASHTO Guide for the Development of Bicycle Facilities, decision signs for bicycle travel typically are placed 50 - 150 feet in advance of a turn to allow a bicyclist enough time to slow, change lanes, and prepare for any turns that may be necessary. Care should be taken so that the turn or options the sign refers to are obvious. Decision signs should not be placed near side or access paths that could be confused with the primary route.

## CONFIRMATION SIGNS

Confirmation signs should be placed after a turn movement or intersection to reassure cyclists that they are on the correct route. This signage can indicate a single regional destination and distance/time, but does not include arrows or a full list of destinations. These treatments allow through movements of bicyclists while discouraging similar through-trips by non-local motorized traffic.

Signs should be placed 50 – 100 feet after turns. Confirmation signs need not occur after every intersection. They should be prioritized at locations where a designated route is not linear as well as after complex intersections. Complex intersections include those having more than four approaches at greater or less than 90 degrees, roundabouts, or indirect routing.

## TURN SIGNS

Turn signs are placed in advance of turns to give cyclists adequate time to slow down or, if necessary, change lanes to prepare for a turn. Turn signs may be used in conjunction with a decision sign at complex intersections warranting additional information. System brand mark (e.g. logo or city name), route or pathway name, bicycle symbol and directional arrow are included on the sign. Standard MUTCD D1-1 series signs may be used to indicate turns. Standard turn arrow signs (M5 and M6 series) may also be used in conjunction with bike route signs to clarify turn movements.

## GUIDELINES

Section 1A.12 of the MUTCD establishes the general meaning for sign colors. Green is the color used for directional guidance and is the most common color of bicycle wayfinding signage in the US. Note that signage on off-street facilities, such as shared use pathways, can have more flexibility in sign design.





CYCLISTS TODAY

100133

CYCLISTS THIS MONTH

44138

CYCLISTS LAST MONTH

49207

Cyclists this Year





## 7.7 Added Features

There is an array of site furnishings that enhance the user experience. Some of these, such as seating aid facility usage. Others, such as art and trash receptacles make the experience more desirable. When designing facilities, all these added features should be considered in order to create a complete user experience; however, these amenities and enhancements are suggested only and are not required.

- » **Lighting** - improves safety and ease of use, while extending the use of infrastructure at the beginning and end of the day
- » **Gathering area** - seating, trash receptacles, art

## PEDESTRIAN LIGHTING

There are many considerations for lighting, from the size, brightness and location, to the maintenance commitment lighting requires. Lighting can improve visibility for day time use in tunnels and underpasses, and night-time use along sidewalk and intersection crossings. Lighting can extend the hours of safe use, which should be considered particularly during winter months when trips to and from work are often made before sunrise and after sunset. Lighting spacing along shared use pathways depends on the type and intensity of lights, though thirty to fifty feet spacing is common for pedestrian scale lighting. Lighting is generally not appropriate for shared use pathways in remote areas, pathways with low use, or where there is little to no development.

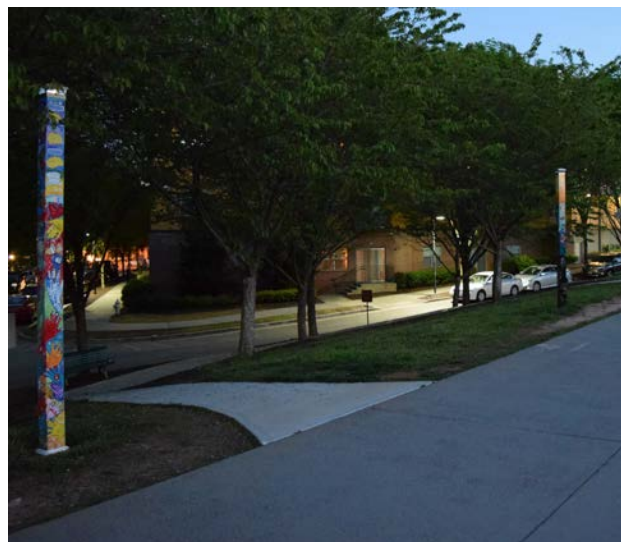
Lighting should respond to the conditions of the site and meet the minimum standards set forth by the Illuminating Engineering Society of North America (IESNA). Full cut-off fixtures, or luminaries with no direct uplight, should be used to reduce light pollution. These fixtures also limit direct glare or excessive illumination on to adjacent properties, streets, or sidewalks.

Shared use pathway lighting should be at pedestrian scale, but avoid light fixtures at eye level that could impair visibility. Pedestrian scale lighting is typically about 15 feet tall, has lower levels of illumination, and closer spacing to avoid dark zones between lights. Pedestrian scale light fixtures have been typically high pressure sodium vapor or metal halide lamps, which produce better “white light” than sodium vapor lamps. However, in recent years, light fixtures are being designed using LED lighting. LEDs are the preferred lighting bulb as they offer a wide range of light levels and can reduce long term utility costs. Average horizontal illumination levels are 0.5 to two foot candles or five to 22 lux (AASHTO, 5.2.12).

## GATHERING AREAS

### Seating

Seating provides a place for users to rest, congregate, contemplate, or enjoy art. Benches can be designed to create identity or be strictly utilitarian. Picnic tables provide places for users to congregate for meals or to relax. To prevent vandalism, seating should be securely anchored to hardened surfaces such as concrete or asphalt. Orienting seating to maximize sunlight and offer wind protection can help make seating more comfortable during winter months (Winter Design Guidelines Transforming Edmonton into a Great Winter City, 77).



*Effective lighting on sidewalks allows people to see 20 yards ahead*



## Trash Receptacles

Placement of trash receptacles will depend upon the location of concessions, facilities and areas of group activities. Receptacles should be selected for the expected trash/recycling amount, maintenance and collection program requirements, durability, and animal-resistance. Consider snow removal when placing trash receptacles or other street furniture and allow for a clear edge that can be easily cleared of snow (Winter Design Guidelines Transforming Edmonton into a Great Winter City, 43).

## Art

Public art can be aesthetic or functional, doubling as seating or shelter, and depending on the scale and form, an activity in itself to serve as a public attraction. Public art can also be used as an interpretive device for telling a compelling story about the area history.

## Bus Stops

Bus stops can provide information to riders through maps and signage making trips easier and provide comfortable areas to wait for buses. Stop elements could include shelters, seating, passenger information and wayfinding, and bike parking. Where possible consider headed shelters for winter months (Winter Design Guidelines Transforming Edmonton into a Great Winter City, 54) .



*Trash receptacle in Anchorage, AK*



*Art installation in Anchorage, AK*



*Seating and art in Anchorage, AK*





## 7.8 Maintenance

Regular, routine maintenance on a year-round basis will ensure the safety and use of pedestrian and non-motorized vehicle facilities. Maintenance activities required for continuous, safe facility operations should always receive top priority. Maintenance of some pedestrian and bicycle facilities may require additional staffing and costs, especially during winter months. This should be considered when selecting facility types. This section discusses:

- » **Maintenance matrix** – summer and winter maintenance facility matrix
- » **Winter maintenance** – strategies for snow removal, prioritization for snow removal






## Maintenance Matrix

One of the best ways to facilitate the removal of snow from non-motorized facilities is through thoughtful roadway design. Designing and building separated bicycle lanes with winter and seasonal maintenance in mind provides high-quality, comfortable facilities for year-round use.

The table below shows example facility dimensions to allow for snow clearance. Preferred widths allow for plowed snow to fit within boulevard space. This maintains facility width after snow clearance.

Table 7.6: Maintenance Matrix

SIDEWALK	ONE-WAY PROTECTED BICYCLE LANE	SIDEPATH/TWO-WAY PROTECTED BICYCLE LANE
		
<b>Preferred Sidewalk Width:</b> 11.5 to 12 feet in the central business district. Five to six feet along arterials and collectors. Six feet enables two pedestrians (including wheelchair users) to walk side-by-side or to pass each other comfortably.	<b>Preferred Bicycle Lane Width:</b> Six feet (allows for bicycle lane narrowing due to snow events). Five feet may be used in constrained conditions.	<b>Preferred Pathway Width:</b> Ten feet to 12 feet is preferred.
<b>Preferred Buffer Width:</b> Five feet or greater preferred. Three feet minimum recommended. Two feet allowable in constrained conditions.	<b>Preferred Buffer Width:</b> Five feet or greater preferred. Three feet minimum recommended. Two feet allowable in constrained conditions.	<b>Preferred Buffer Width:</b> Five feet or greater preferred. Three feet minimum recommended. Two feet allowable in constrained conditions.
<b>Summer Maintenance:</b> Pavement sweeping/blowing as needed	<b>Summer Maintenance:</b> Pavement sweeping/blowing as needed	<b>Summer Maintenance:</b> Pavement sweeping/blowing as needed
<b>Winter Maintenance Equipment:</b> This cell intentionally blank	<b>Winter Maintenance Equipment:</b> This cell intentionally blank	<b>Winter Maintenance Equipment:</b> This cell intentionally blank



## Strategies for snow removal

### SNOW REMOVAL TIMING

AMATS should adopt an internal policy to remove snow from non-motorized facilities within seventy-two hours after the end of a snow or freezing rain event. In addition, snow should be removed from separated bicycle lanes after the adjacent street is plowed. A maintenance worker will likely need to shovel these locations after the bicycle lane is cleared to reduce the likelihood of snow accumulating on curb ramps and crosswalks.

### SEASONAL PREPARATION

Apply anti-icing treatment to non-motorized facilities up to twenty-four hours before snow or freezing rain events to reduce the amount of snow clearing required during or after a snow event. Following the snow, non-motorized facilities should be cleared and additional anti-icing material should be added as necessary. This approach saves anti-icing material and time spent plowing.

### FUNDING OPPORTUNITIES

Snow removal is an annual cost to be factored into the overall planning process for any new non-motorized facilities. Designing facilities to be easily maintained by existing equipment is a strategy that will lead to the successful use and implementation of the proposed facility. Should this not be possible, utilizing funding sources such as the Federal CHIPS program to purchase specialty equipment for both summer and winter maintenance can greatly increase the success of the non-motorized facility. At a minimum, funding for any new facility should be included as an item in the City budget, and funding for the maintenance of these new facilities must also be anticipated and budgeted for.

Identifying new sources of funding for winter maintenance should be a top priority. Dedicated funding should also be identified to establish and continue coordination and communication between MOA and State DOT regarding snow removal of non-motorized facilities, as well as for improving coordination of facility design and maintenance requirements.

### ANTI-ICING MATERIAL

AMATS should use beet juice and salt brine for most anti-icing scenarios. Salt brine is a better option than dry salt because it allows for quicker reaction times, less material used, and improved application accuracy. State DOT is currently using a salt brine mixture, which limits snow from bonding with asphalt, can cover more area than sand, does not blow away like sand can, and comes at a lower cost. State DOT is adding liquid calcium to the salt brine mixture in winter to make it usable below 15 degrees Fahrenheit. (AMATS Winter Maintenance Forum: Meeting Summary). Beet juice is an inexpensive additive to an anti-icing solution that improves the adherence of salt and sand to the roadway and also lowers the freezing temperature of the ice. The advantages of beet juice are that it is inexpensive, it adheres well to the roadway, and it is more environmentally friendly than using plain road salt (<http://time.com/5761/salt-shortage-triggers-beet-juice-cheese-brine-alternatives/>). Calcium magnesium acetate can be used in places with sensitive plantings (e.g., sidepaths and shared use pathways).



Anti-icing treatment



*Snow removal vehicles*



## EQUIPMENT CONSIDERATIONS

Equipment can be mounted on pick-up (alley) trucks to plow bicycle lanes after plowing a street from its centerline. This equipment can also be used in two-way separated bicycle lanes

## RECOMMENDED EQUIPMENT INVESTMENT

Small, snow removal vehicles are available from a number of different manufactures. Many small utility vehicles such as tractors, ATVs, bombardiers, and “skid steers” can be equipped with snow removal devices. Typically small vehicles are either equipped with snow plows, snow brushes (effective for removing light snow), or snow blowers (effective for relocating heavy snow). Many small snow removal vehicles can also be equipped with anti-icing applicators. AMATS should purchase this equipment for use in non-motorized facilities, as needed.

## INTERAGENCY COORDINATION

Review AMATS departmental guidelines regarding snow clearance, and also review procedures for snow clearance on off-street shared use pathways. Agencies may find it mutually beneficial to coordinate clearing of snow. Currently, the State Department of Transportation (DOT) tries to clear all sidewalks and shared use pathways within 48 hours. MOA and State DOT have little overlap with shared plowing areas (AMATS Winter Maintenance Forum: Meeting Summary). These agencies should coordinate to prioritize non-motorized routes that should be cleared.

Agencies may choose to coordinate timing so that separated bicycle lanes are plowed immediately following travel lane plowing. This coordination helps keep separated bicycle lanes cleared of snow so that snow storage piles do not encroach on the bicycle lane. In terms of advance planning, maintenance agreements may be developed when separated bicycle lanes are installed on roads in Anchorage under the jurisdiction of another agency.

## GEOGRAPHIC CONSIDERATIONS

Consider staging winter maintenance equipment at multiple storage facilities, located near high-priority separated bicycle lanes. This will facilitate efficient response following a snow event.

## ORDINANCES AND COMMUNICATION

Create a service code for residents to report non-motorized facility maintenance needs to Street Maintenance (MOA). Train staff within Street Maintenance (MOA) to respond to service requests regarding non-motorized facilities. Afterwards, publicize residents' ability to request maintenance for pedestrian, bicycle, and multi-use facilities.

Communicate winter weather information through email, opt-in calls and text messages, mailers, and social media campaigns. Work with other departments to cross-promote winter-related messaging.

Regularly meet with transportation advocates and members of the public to discuss winter maintenance practices and areas for improvements.

After beginning construction on high-priority non-motorized facilities, consider working with advocates, private-sector firms, and members of the public to create a crowd-sourced, interactive map to monitor snow clearance quality along non-motorized facilities.

## Prioritization for snow removal

Prioritization and scheduling is a key component of a successful winter non-motorized facility program. For most jurisdictions, keeping all non-motorized facilities completely clear during or immediately after a heavy snow event is infeasible. Primary routes should be cleared first, providing the best access to the greatest number of people possible following a heavy storm event. Destinations should be taken into consideration as well. If roadway clearing and anti-icing begins first thing in the morning, primary routes leading to schools and business districts should be cleared first.

Currently, the Municipality of Anchorage, Park Operations utilizes a GIS-based tracking program to organize and prioritize plowing tasks and coordinate with roadway snow removal efforts (AMATS Winter Maintenance Forum: Meeting Summary).

During the AMATS Winter Maintenance Forum it was also identified that citizens should be involved in snow removal route prioritization.



# Appendices



**A.1 Meeting Minutes – see pages 46-49 for references**

**A.2 Traffic Controls or Treatments Not Yet Approved by Anchorage**

## A.1 Meeting Minutes from Advisory Committee Meetings

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## **MEETING SUMMARY**

### **Non-motorized Plan Community Advisory Group Meeting #1: 26 September 2017**

**Meeting Objective:** Introduction to the Anchorage Non-Motorized Plan

#### **INTRODUCTIONS**

Craig Lyon, the Municipality of Anchorage AMATS Coordinator, welcomed the group and gave a brief overview of AMATS, the Anchorage Metropolitan Area Transportation Solutions program. Every metropolitan area with a population of 50,000 or more residents must have a designated Metropolitan Planning Organization or MPO to qualify for federal highway funding and/or transit assistance. AMATS is the MPO for the Anchorage Bowl and Chugiak-Eagle River when federal transportation funds are used. Some requirements of this program include:

- Policy Committee
- Freight Advisory Committee
- Air Quality Committee
- Citizen Advisory Committee
- 20-year plan, 4-year plan, annual workplan

Additionally, AMATS has added the following to the program even though not required:

- Technical Advisory Committee
- Bicycle and Pedestrian Advisory Committee
- Bike Plan (2010)
- Pedestrian Plan (2007)
- Areawide Trails Plan (1997)
- AMATS Public Involvement Plan

Funding for this project comes from the Federal Highway Administration (FHWA) dollars through the Transportation Alternative Program, which supports transportation safety and recreation enhancements.

#### **PROJECT TEAM**

##### Municipality of Anchorage, AMATS

Joni Wilm, Senior Transportation Planner

Craig Lyon, AMATS Coordinator

Alta Planning and Design: Seattle, WA

Fred Young, Project Manager  
Steve Durrant, Principal  
Jessica Szlag, Anchorage-Based Project Manager

R&M Consultants: Anchorage, AK

Mark Frutiger, Transportation Engineer  
Van Le, Planning, Stakeholder Engagement

Huddle AK: Anchorage, AK

Holly Spoth-Torres, Stakeholder Engagement  
Chelsea Ward-Waller, Stakeholder Engagement

**PROJECT OVERVIEW**

Fred Young, Alta Project Manager provided a project overview and information about Alta. This project will update and combine the Bike Plan, the Pedestrian Plan and the Trail Plan into one, comprehensive Nonmotorized Transportation Plan for Anchorage.

Alta has completed plans like this all over the United States and Canada including many winter cities. Over the past 5 years Alta has been working on a variety of projects in Alaska including the Spenard Corridor Plan, the MOA 27<sup>th</sup> Ave. Bike Boulevard and the State of Alaska Pedestrian Plan. Additionally, Alta has given multiple presentations at local conferences and provided technical trainings to agency staff and the public.

Alta's plans typically include the following planning and analysis:

Analyze Level of Travel Stress for Non-Motorized Transportation: Are there bicycle and pedestrian facilities? How fast does vehicular traffic travel? Are facilities accessible?

Crash Analysis: Includes where collisions are occurring, why and displays using a heat map.

Public Health: We will use the new 500 cities data (Anchorage is one of the 500 cities) from the CDC to analyze 30 health indicators. We will analyze the dataset as it relates to non-motorized transportation infrastructure, programs and policy in Anchorage. We know that increasing the percentage of people that use non-motorized transportation decreases health care costs.

Demand Analysis: We will use a series of map overlays for nonmotorized transportation. Where do people access transit? Where do people live? Where do people work? Where do people buy groceries and receive other services? Where do people recreate? We will take this information and prioritize.

Design Guidelines & Standards: Alta will also complete design guidelines. Alta designed the National Guide for Urban Bikeways as well as the Rural Network Guide (Center for Prevention and FHWA). There are many locations in Anchorage where the rural network guide is totally applicable.



Winter Cycling Congress: Alta has been an active participant in the Winter Cycling Congress annually since its inception to encourage more people to bike during winter months.

### **PROJECT SCHEDULE & SCOPE**

Jessica Szlag, Anchorage-based Alta project manager presented the project schedule and scope.

The Anchorage Nonmotorized plan will follow a six-step process between September 2017 and April 2018 to include:

1. Guide
2. Listen
3. Learn
4. Envision
5. Share
6. Approve

The CAG will be intimately involved in four steps of the plan development: Listen, Learn, Envision and Share.

**LISTEN AND LEARN**: September 2017 – December 2017 – to include 2 CAG meetings, community workshops, online crowdsourcing mapping, review of best practices, review of existing plans.

**ENVISION**: January 2018 – to include finalizing vision, goals and priorities for nonmotorized transportation in Anchorage.

**SHARE**: February – March 2018 to include public review draft release in February, 1 CAG meeting in March to review the draft plan.

**APPROVE**: The project team will move the plan through the necessary review and approval processes and the CAG should participate by commenting, testifying and sharing information with friends and constituents.

### **COMMUNITY ADVISORY GROUP RESPONSIBILITIES**

The project team will guide the CAG through the process and important milestones. Overall the CAG should be prepared to do the following:

1. Represent the larger community
2. Meet 4 times to review progress throughout the planning process
3. Relay information about the plan to stakeholders
4. Encourage others to participate in the Community Involvement Events

The CAG has been selected as a diverse cross-section of Anchorage residents and are stewards of the plan. It will be important to encourage participation by your friends, families coworkers and peers to guide nonmotorized transportation planning in our city for the next 10-15 years.

The Community Advisory Committee will meet four (4) times: September 2017, November 2017, March 2018 and June 2018.

### **VISION – GOALS EXERCISE**

Steve Durrant, Alta Principal, facilitated the CAG through a visioning and goals exercise to begin to identify what participants think that the vision and goals of the plan should be. The team handed out three different colors of post-it notes and were asked to answer the following questions. There was no limit to the number of answers participants could provide.

- What are your aspirations for this project? (ORANGE)
- What is a mark of success for this project? (PINK)
- What is your greatest fear or obstacle to the success of this project? (BLUE)

The team categorized the responses on-the-fly, posted them on the white board, and then discussed the themes listed below. A detailed compilation of all of the responses received is attached.

### **ASPIRATIONS**

- CONNECTED NETWORK
- AGENCY COORDINATION
- ALL AGES & ABILITIES: Safe network for everybody
- SAFE
- FUTURE TOO
- SYNERGY-good coordination both with plans but between agencies

### **SUCCESS**

- Limits of acceptable change.
- MODE SHARE
- Anchorage! Recognition as premier Anchorage Cycling City
- PUBLIC HEALTH-more public awareness

### **OBSTACLES**

- Engineering “Standards”
- Maintainability and DOLLARS
- RESOLVE: how do we make this happen as a community and invite people to use?
- ATTITUDE

## **COMMENTS – QUESTIONS & ANSWERS**

- Q: How will this project overlay with the current Vision Zero effort?
- A: This plan is part of the overall Vision Zero implementation project. The two projects will coordinate when it comes to data collection, analysis and complete streets. We are working to ensure that the projects coordinate so that people involved in both efforts are using their time and energy efficiently so that efforts are not duplicated.
- Q: What is the scope when it comes to large areas of land with soft surface trails like Far North Bicentennial Park, Kincaid Park, Alaska Pacific University, BLM Campbell Tract?
- A: Everything within the AMATS boundary, regardless of ownership, it will be included in this plan. We will coordinate with all major landowners as stakeholders.
- Q: How will this plan successfully advocate for pedestrians? It is really difficult to advocate for pedestrians because they are generally not part of organized advocacy groups?
- A: We agree that this is challenging, however this is a primary goal of the public engagement strategy. Not only are we implementing typical open houses, but we are also scheduling a series of mobile meetings to meet stakeholders in locations where they already are.
- Q: How will project prioritization work?
- A: The project will use Alta's planning process described in the powerpoint presentation combined with the vision and goals we hear from the community to prioritize the non-motorized transportation system.
- Q: Project cost estimates in the most recent bike plan were not accurate. How will the project address these obstacles?
- A: This project will engage R&M consultants who have been building road and non-motorized transportation infrastructure to complete a detailed cost analysis for 5 test projects from which we will be able to better predict all project cost estimates.

## **ATTACHMENTS**

1. Agenda
2. Powerpoint
3. Sign-In Sheets
4. Aspirations, Success, Obstacles



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### **ASPIRATIONS**

- CONNECTED NETWORK
- AGENCY COORDINATION
- ALL AGES & ABILITIES: Safe network for everybody
- SAFE
- FUTURE TOO
- SYNERGY-good coordination both with plans but between agencies

### **SUCCESS**

- Limits of acceptable change.
- MODE SHARE
- Anchorage! Recognition as premier Anchorage Cycling City
- PUBLIC HEALTH-more public awareness

### **OBSTACLES**

- Engineering “Standards”
- Maintainability and DOLLARS
- RESOLVE: how do we make this happen as a community and invite people to use?
- ATTITUDE

## **COMMENTS – QUESTIONS & ANSWERS**

- Q: How will this project overlay with the current Vision Zero effort?
- A: This plan is part of the overall Vision Zero implementation project. The two projects will coordinate when it comes to data collection, analysis and complete streets. We are working to ensure that the projects coordinate so that people involved in both efforts are using their time and energy efficiently so that efforts are not duplicated.
- Q: What is the scope when it comes to large areas of land with soft surface trails like Far North Bicentennial Park, Kincaid Park, Alaska Pacific University, BLM Campbell Tract?
- A: Everything within the AMATS boundary, regardless of ownership, it will be included in this plan. We will coordinate with all major landowners as stakeholders.
- Q: How will this plan successfully advocate for pedestrians? It is really difficult to advocate for pedestrians because they are generally not part of organized advocacy groups?
- A: We agree that this is challenging, however this is a primary goal of the public engagement strategy. Not only are we implementing typical open houses, but we are also scheduling a series of mobile meetings to meet stakeholders in locations where they already are.
- Q: How will project prioritization work?
- A: The project will use Alta's planning process described in the powerpoint presentation combined with the vision and goals we hear from the community to prioritize the non-motorized transportation system.
- Q: Project cost estimates in the most recent bike plan were not accurate. How will the project address these obstacles?
- A: This project will engage R&M consultants who have been building road and non-motorized transportation infrastructure to complete a detailed cost analysis for 5 test projects from which we will be able to better predict all project cost estimates.

## **ATTACHMENTS**

1. Agenda
2. Powerpoint
3. Sign-In Sheets
4. Aspirations, Success, Obstacles



## Community Advisory Meeting #2 Anchorage Non-Motorized Plan



Wednesday, November 15<sup>th</sup>, 5:30 – 7:00 PM

Municipal Planning Department, 4700 Elmore Road, Training Room

The attached document is CAG powerpoint presentation.

### Meeting Agenda:

- Project Schedule
- Work to Date
- Vision & Goals Discussion
- Peer Cities Discussion Topics

### Project Schedule

The project team is in the third month of the project focused on the LEARN phase which includes LISTENING sessions with agencies, stakeholders and the public. Earlier today we met with the Agency Advisory Group for the second time. Also, there are a series of public outreach events at the APU Moseley Sports Center this weekend including a bike ride, walk audit and a public open house and workshop. Everyone is encouraged to attend.

All project information is available on the website: [www.anchoragenonmotorizedplan.com](http://www.anchoragenonmotorizedplan.com) The site includes project documents, schedule and an interactive map. The interactive map is a way for everyone to participate; you can add barriers, destinations and areas of concern. All the data input will be geocoded and used in project analysis. The data includes information collected during the data blitz six weeks ago.

Please use the website to view and provide feedback on the most current project information. You can share the website with your friends and family. Others can sign up here to receive project updates.

The website was advertised to the existing project email list as well as the Federation of Community Councils email list (over 8000 contacts). We will continue to advertise as the project continues.

The outreach effort for this plan is coordinating with other existing planning efforts like MTP 2040 and Vision Zero. The public involvement plan will include outreach to the Anchorage School District, the Anchorage Senior Center and a wide variety of other neighborhood groups.

### Discussion of Analysis Work to Date (Slides 6 – 8)

Anchorage Demographic Analysis: More people in Anchorage have vehicles than we typically deal with in an urban setting. Only about 2 % of households do not have cars.

Question: How does the number of people without cars compare to other winter cities?

Answer: We don't know off hand and will look into that.

Preliminary Analysis of Health Indicators: Using the CDC 500 Cities Data – This is the first time that census block level data has been available for 28 health indicators. Presented here are mental health, obesity, heart disease and diabetes (the darker the color, the higher the prevalence). As the team

## Vision & Goals – Continuation of Post-It Note Exercise

VISION: The CAG and the AAG did the same visioning exercise back in September. We asked the following:

1. What are your aspirations for this plan?
2. What does success look like?
3. What do you think are challenges/fears?

We took the results categorized them (See CAG Meeting #1 detailed notes) and we found that the AAG and the CAG mostly overlapped. The area where the groups separated was in the Challenges/Fears discussion.

AAG Challenges/Fears – How are we going to get it done?

CAG Challenges/Fears – How are we going to pay for it?

Based on the input and participation of both groups, the project team drafted a vision statement for the Non-Motorized Plan that includes the following elements:

**Diversity:** serve entire community, diversity of trails, diversity of users, inclusive

**Coordinated:** Integration/Simplification, remains relevant, synergistic w/ other plans, support/buy-in

**Implementable:** realistic, actionable, easy to use, create a true network, provides direction to planners and designers, modern, updated, funded

**World Class:** state of the art, wins awards, addresses challenges thought too complicated, local solutions, enthusiasm, model winter city, forward thinking, best practices, innovative, becomes a model/standard for other cities

DRAFT VISION STATEMENT PRESENTED TO THE CAG: *Anchorage provides an integrated, diverse, and world class pedestrian, bicycle, and trail network that is safe, connected and maintained in all seasons for a diverse set of users throughout the entire community.*

THE CAG COMPLETED A FACILITATED DISCUSSION TO ARRIVE AT THE FOLLOWING UPDATED DRAFT VISION STATEMENT: Anchorage provides a world-class, year-round municipal network of nonmotorized routes that are safe and accessible to the entire community.

GOALS: The CAG then reviewed the following draft plan goals in detail (see page 12 – 18 of the attached presentation for details).

### Ridership & Usage: Notes and Discussion

- What does more bike/ped community mean? -it's a culture of supporting bikes - culture shift
- Increase the percent of trips – first and last bullet are the same?
- Less car ownership isn't actionable – support access to transit. Less need for car ownership?
- Facilitating longer rides

### Health & Quality of Life: Notes

- Add Live.Work.Play as a goal

### Safety: Notes and Discussion

- “feel safe” might be an education goal or a user-ridership goal
- Consider using the phrase “Kids to Elders” instead of 8-80

### Maintenance: Notes and Discussion

- Prioritized maintenance
- The threat of completing winter maintenance shouldn’t prohibit good summer facilities.
- Q: How do you set up a plan that prioritizes the projects? A: There will be a prioritization matrix.
- We want this plan to facilitate a discussion about optimized routing for a multi-season network of maintainable routes/trails/facilities

### Connectivity: Notes and Discussion

- We want to connect both to nature and the grocery store/daily errands/work
- Connect communities in need
- Grocery store – utilitarian
- Reducing user conflict
- Better connectivity requires education in the winter when uses need to be separated
- Think about the modal shift seasonally

### Measurable: Notes and Discussion

- Linking injury

### Education: Notes and Discussion

- Accountability – Bike-Ped Coordinator – Advisory review committees
- Performance measures
- A system where everyone is continually informed
- Transparency is a goal—when things happen, we know, and we know why (funding, projects, etc)
- Environment/Sustainability is a goal

### Next Steps:

Vision/Goals – The project team will take this input on vision and goals, go through another iteration in order to present a Draft Vision and Goals to the BPAC in December. In advance of this BPAC meeting, we will send the draft Vision and Goals to the AAG and CAG for feedback.

Peer Cities - The project team will circulate a Peer City Summary Report that will include specific recommendations and opportunities for Anchorage based on the analysis of other cities. The CAG will have the opportunity to review and comment.

Next CAG Meeting - March 2018



# Anchorage Non-Motorized Plan

## Community Advisory Group: Meeting #2





# Meeting Agenda

- Project Schedule
- Work to date
- Vision & Goals Discussion
- Peer Cities Discussion Topics



# Project Schedule



	2017				2018										
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>GUIDE:</b> Project Management															
<b>LEARN:</b> Existing Conditions															
<b>LISTEN:</b> Public/Stakeholder Involvement	X		X				X		X						
<b>ENVISION:</b> Plan Recommendations															
<b>SHARE:</b> Draft/Final Plan															
<b>APPROVE:</b> Anchorage Non-Motorized Plan															





## ANCHORAGE

# Non-Motorized Plan

*Creating a multi-modal transportation system that is efficient, safe and implementable.*

### Next Public Meetings

Agency Advisory Group (AAG) Meeting  
Wednesday, November 15, 2017, 10-11:30am  
[AMATS, 4700 Elmore Rd, Rm 170](#)

Community Advisory Group (CAG) Meeting  
Wednesday, November 15, 2017, 5:30pm-7:30pm  
[AMATS, 4700 Elmore Rd, Rm 170](#)

Community Workshop #1



you can provide additional feedback on it by clicking on it.

Draw routes to indicate routes that you like and currently use, and routes that you dislike or need improvement for walking and biking:

Draw Routes You Like

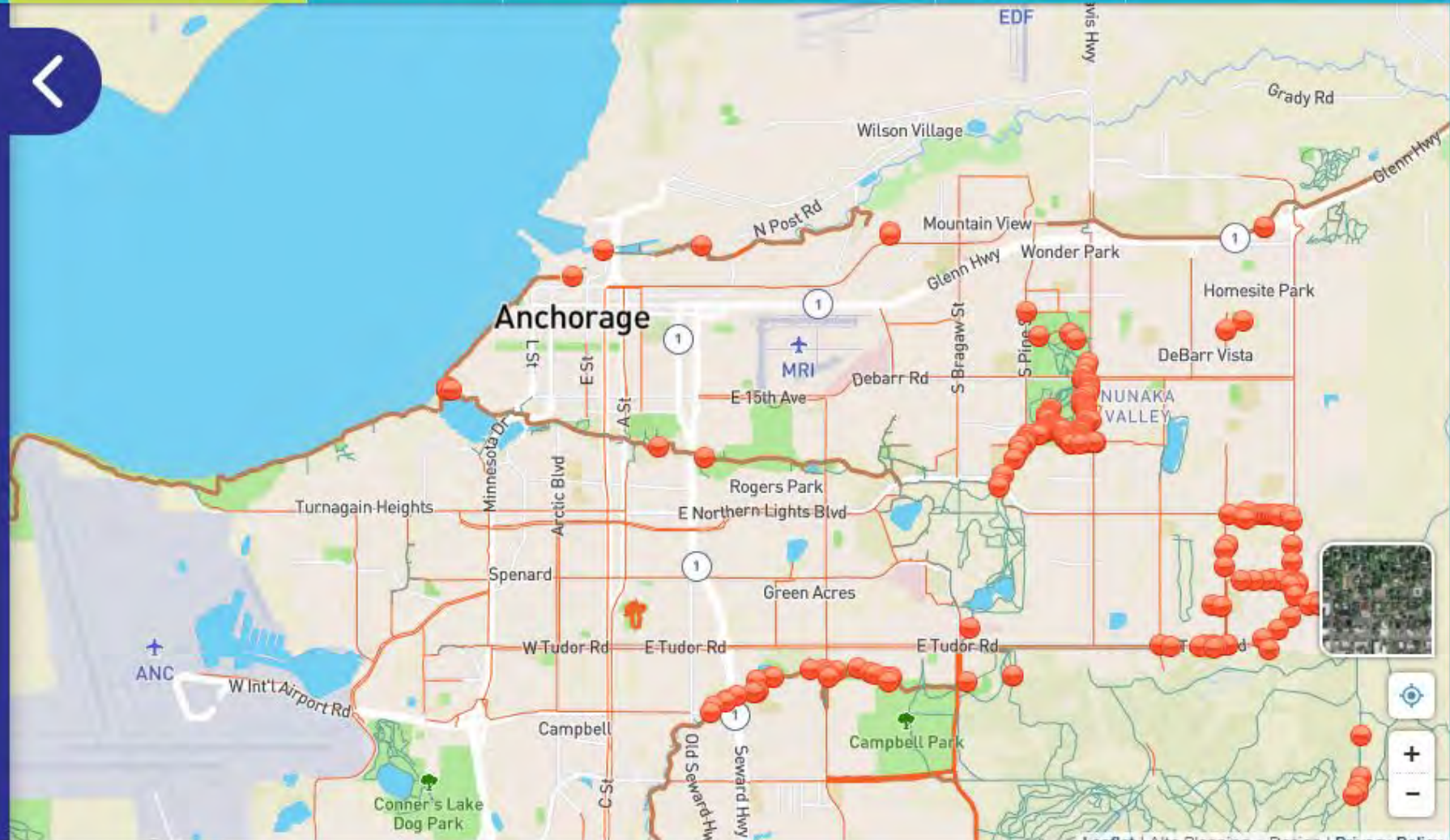
Draw Routes You Dislike

Add points to share the categories below:

Add Barrier

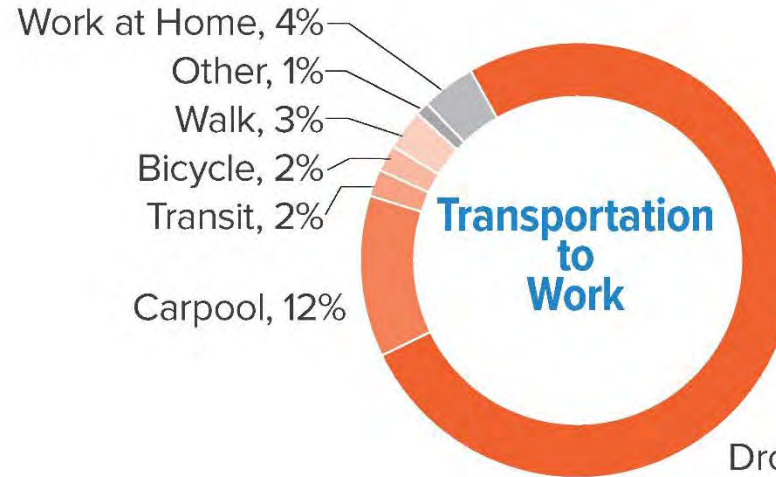
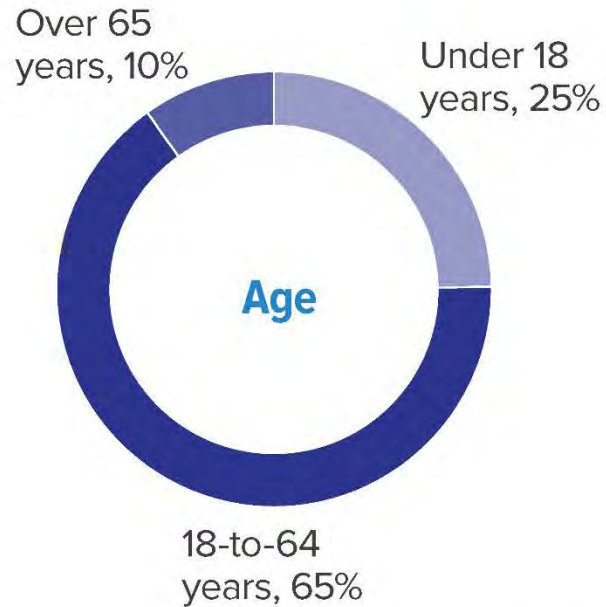
Add Destination

Add Safety Concern



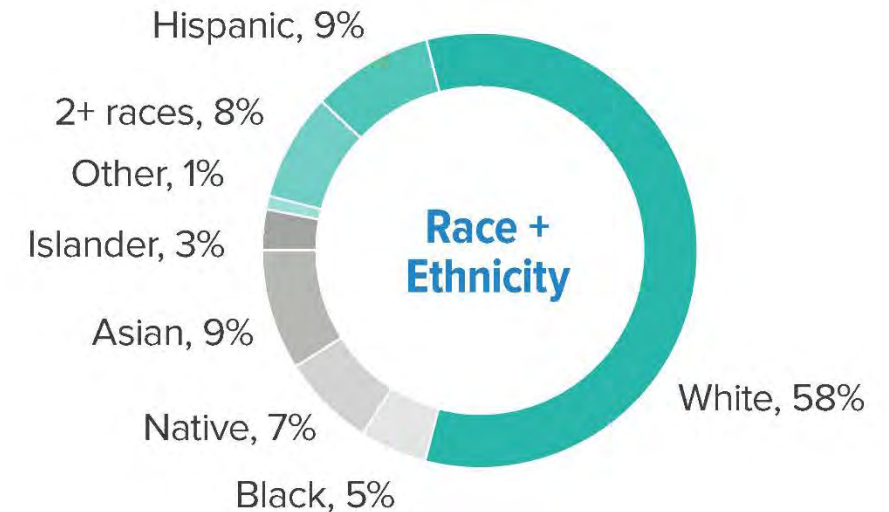
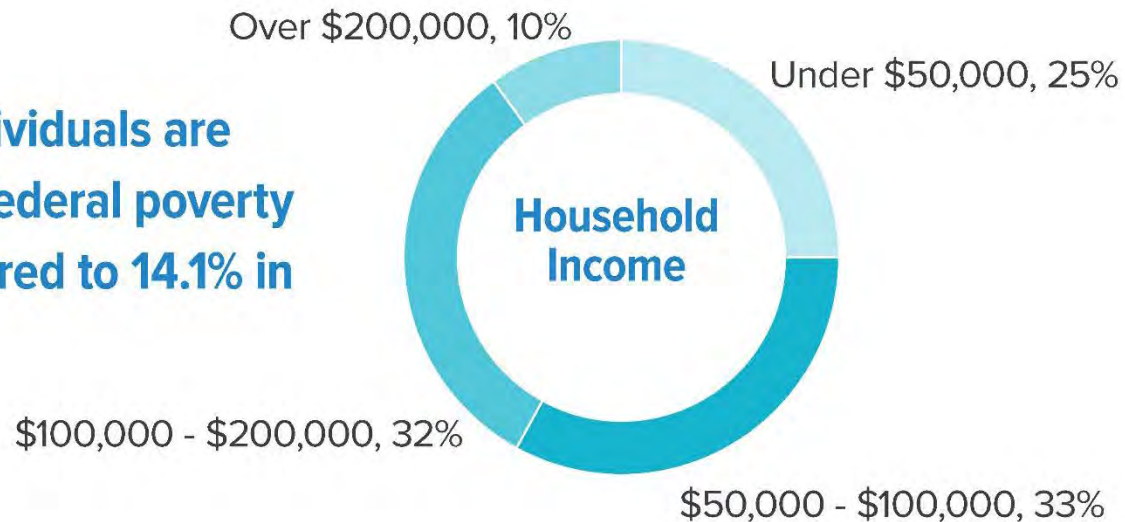


# Anchorage Demographics



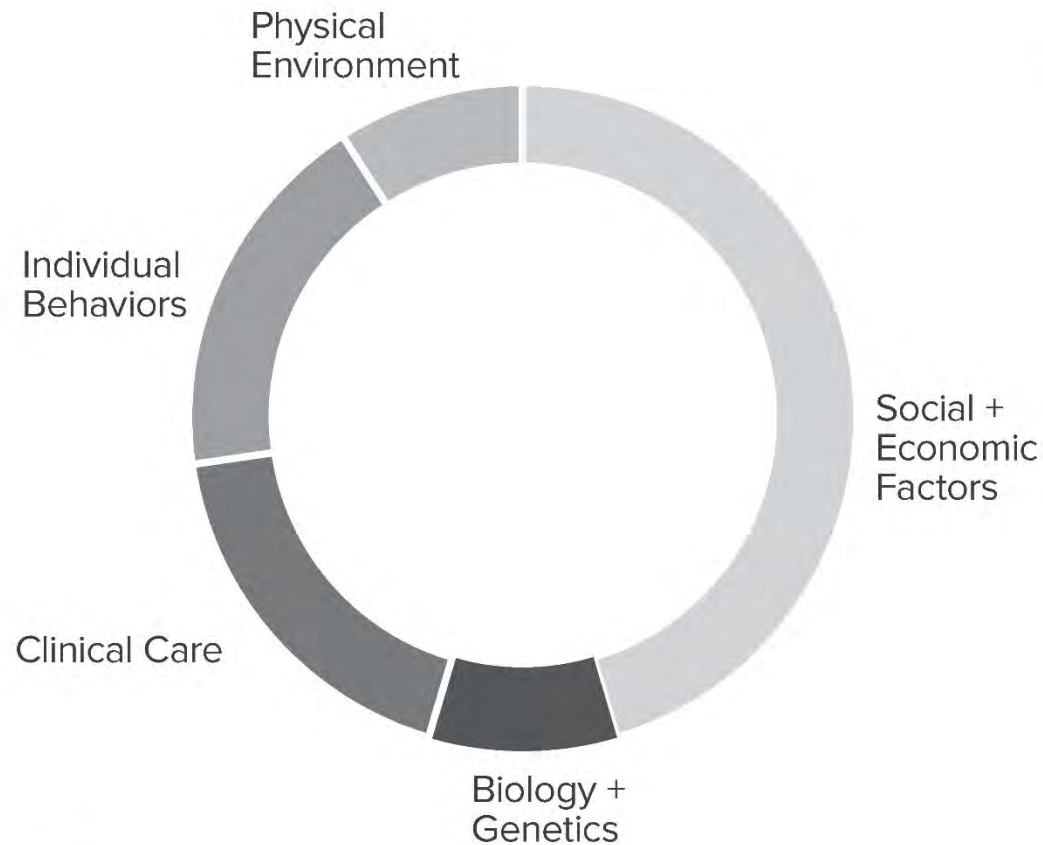
**2% of households do not have access to a motor vehicle, compared to 4.3% nationwide.**

**6.3% of individuals are below the federal poverty line, compared to 14.1% in the U.S.**



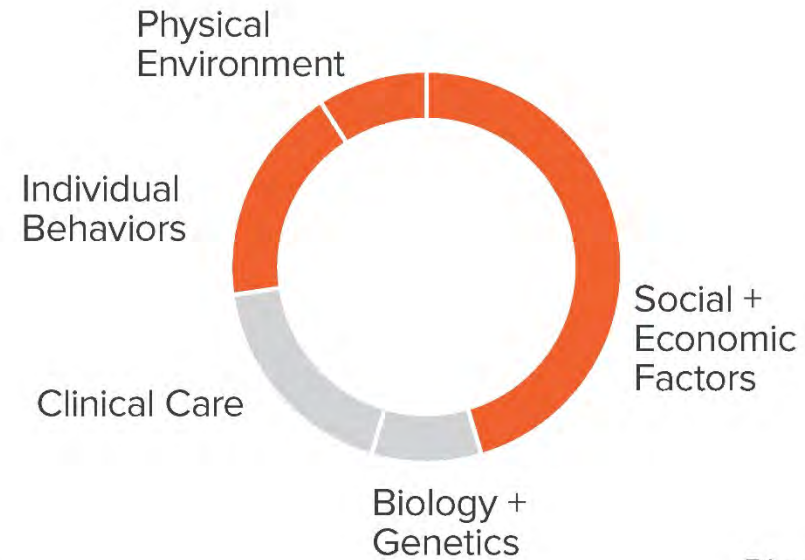
# What Shapes Health?

## 5 Elements of Health



Sources:  
<https://www.cdc.gov/nchhstp/socialdeterminants/faq.html>

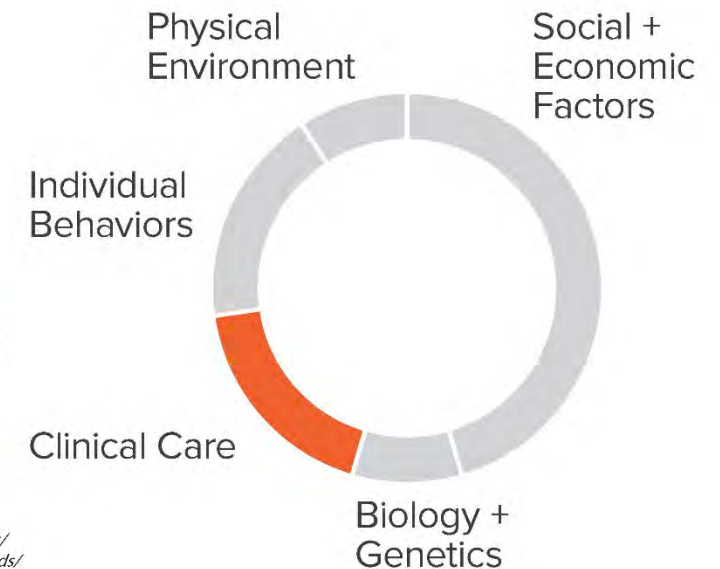
County Health Ranking & Roadmaps. University of Wisconsin Population Health Institute.  
Accessed January 2017. Retrieved from <http://www.countyhealthrankings.org/our-approach>



**60-75% of health outcomes can be impacted by Active Transportation**

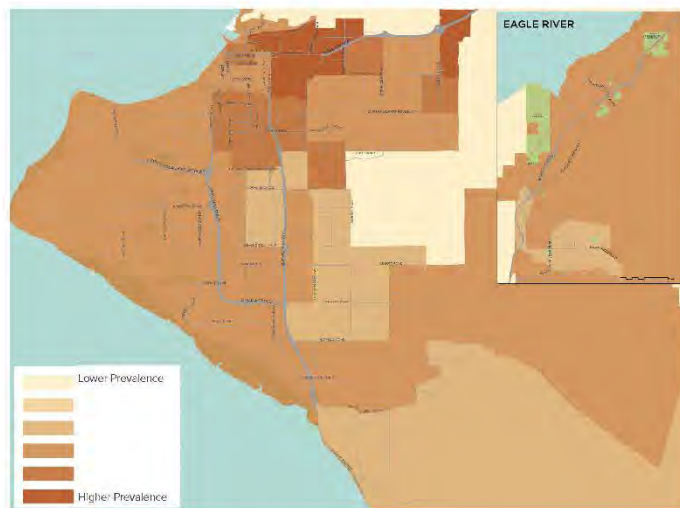
**Clinical Care accounts for 86% of \$ spent on health**

Source: <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/downloads/highlights.pdf>





## Health Conditions



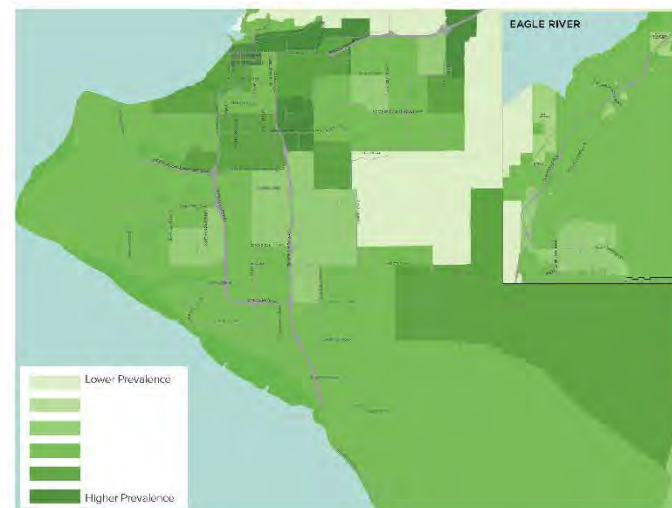
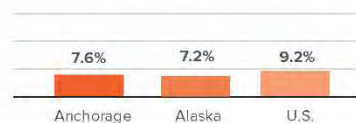
Source:  
CDC 500 Causes & Bites 55 Data: [www.cdc.gov/500causes/](http://www.cdc.gov/500causes/) & [www.cdc.gov/bites/toxins/toxins.htm](http://www.cdc.gov/bites/toxins/toxins.htm)  
7. <http://www.cdc.gov/diabetes/basics/index.html>  
8. <http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>  
9. <http://www.cdc.gov/diabetes/basics/diabetes.htm>



Approximately **1 in 11** Americans has diabetes, **the 7th leading cause of death in the U.S.** <sup>7,8</sup>

The health risks associated with diabetes include heart disease, stroke, blindness, kidney disease, high cholesterol, and permanent lower-extremity nerve damage.<sup>9,10</sup>

**Thirty minutes** of moderate-intensity physical activity has been shown to **directly reduce the risk** of diabetes by as much as 30-50 percent.<sup>11</sup>



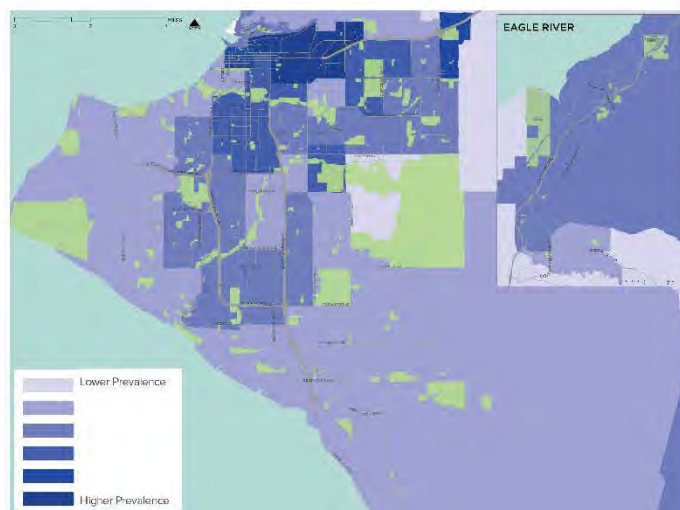
Source:  
CDC. 502 Cases & 818 SS Data. [www.cdc.gov/502cases&818ssdata/govtinfo.htm](http://www.cdc.gov/502cases&818ssdata/govtinfo.htm)  
12. <http://www.cdc.gov/niosh/oshaeffects.htm>  
13. Rimmaa, I., Bellamy, A., & Molk, A. (2011). Association Between Physical Activity and Heart Failure Risk in Women: Circulation: Heart Failure, 7(6), 877-881. <http://doi.org/10.1161/CIRC-BAHF.0b013e3182146167>



**Coronary Heart Disease (CHD)** is the leading cause of death in the U.S., with **1 in every 4 deaths** per year.<sup>12</sup>

Genetic factors play a role in people's risk for CHD, but a number of risk factors are highly preventable, including diabetes, overweight/obesity, poor diet, and physical inactivity.<sup>11</sup>

**20 minutes of walking or biking** each day is associated with **21% lower risk** of heart failure for men and **29% lower risk** for women.<sup>13,14</sup>



Source:  
CDC 500 Cities & BRFSS Data, [www.cdc.gov/500cities/](http://www.cdc.gov/500cities/) & [www.cdc.gov/brfss/data\\_tables/](http://www.cdc.gov/brfss/data_tables/), tools.htm  
1. <http://www.cdc.gov/obesity/data/adult.html>  
2. <http://www.cdc.gov/obesity/data/childhood.html>  
3. [http://cloud.itp.org/pubs/benefits\\_HealthBenefitsReport.pdf](http://cloud.itp.org/pubs/benefits_HealthBenefitsReport.pdf)  
4. <http://www.hsph.harvard.edu/obesity-prevention-source/obesity-consequences/>



**Obesity is a nationwide epidemic** that affects of **1/3 of U.S. adults** and **approximately 1/5 of U.S. Children** (age 2-19).<sup>1,2</sup>

Obesity is associated with a number of serious chronic illnesses, including high blood pressure, high cholesterol, stroke, diabetes, asthma, heart disease, and certain types of cancer.<sup>3,4,5</sup>

For every **0.6 mile walked** there is a **5% reduction** in the **likelihood of obesity**.<sup>6</sup>



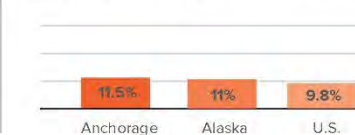
15. [http://www.namfi.org/NAMFI/media/NAMFI\\_MediaInfoGraphicSPGeneralAMFacts.pdf](http://www.namfi.org/NAMFI/media/NAMFI_MediaInfoGraphicSPGeneralAMFacts.pdf)



In the U.S., approximately **1 in 5 adults** experiences a **mental illness** in a given year, with the majority being anxiety disorders and depression.

Bicycling can improve self-confidence, tolerance to stress, and overall well-being.<sup>16</sup>

**Thirty minutes** a day of moderate intensity **physical activity** (walking/biking) at least **3 day a week** is associate with **reduced** anxiety, depression, and improved self-esteem and social interaction.





# Vision & Goals

# ASPIRATIONS

## SINERGY

Truly Synergistic plan - State/VZ/AMATS inclusive

More data than Crash Reports used to get more accurate understanding

## GEOGRAPHY

A PLAN FOR A FRIENDLY MOUNTAIN

Bike trail alternative to Muldoon Rd

Bike from Eagle River to Rabbit Creek

• Bike Park on Chester Creek Trail System  
→ Re-Vitalizing Russian Jack Park

A Local Solution to non-motorized transport

Connections / Safe Routes to where we need to go

An efficient basic bike network

Better ~~existing~~ pedestrian connectivity from city to mountains / open space

A FULLY (CONNECTED) NETWORK

Trails around every School in city

Coordinate Snow removal Plan

Improved Connectivity

better connectivity

Improve N-S connectivity

A prioritized network of winter cycling routes

SCHOOL ACCESS

To expand current trail system to encourage use!

## CONNECTED

## AGENCY COORD



# Vision

**Diversity:** serve entire community, diversity of trails, diversity of users, inclusive

**Coordinated:** Integration/Simplification, remains relevant, synergistic w/ other plans, support/buy-in

**Implementable:** realistic, actionable, easy to use, create a true network, provides direction to planners and designers, modern, updated, funded

**World Class:** state of the art, wins awards, addresses challenges thought too complicated, local solutions, enthusiasm, model winter city, forward thinking, best practices, innovative, becomes a model/standard for other cities



# Vision

Anchorage provides an integrated, diverse, and world class pedestrian, bicycle, and trail network that is safe, connected and maintained in all seasons for a diverse set of users throughout the entire community.



# Goals: Ridership & Usage

- Increase ped/bikes on roads, trails
- More miles of trail
- More funding
- Less car ownership
- More bike/ped community
- Increase use of non-motorized facilities



# Goals: Health & Quality of Life

- Improve health
- Improve livability
- Promote active transportation as a community health priority



# Goals: Safety

- feel safe
- safety is prioritized
- network is safe and convenient
- safe for kids
- no injuries/deaths
- perception of safety
- safe for every mode
- 8-80
- minimize conflicts
- gaps identified
- prioritized



# Goals: Maintenance

- expand and enhance maintenance
- in all seasons
- on all facilities (trails and road)



# Goals: Connectivity

- to transit
- safe connections
- able to travel between places
- to encourage use
- in all seasons
- to schools
- to mountains
- efficient



# Goals: Measurable

- Tracks users
- Health
- Economics
- Safety
- Miles travelled
- Data Collection



# Goals: Education

- Attitudes
- build community support
- see non-motorized as investment
- acceptance of multiple users
- reduce harassment of bike/peds
- Institutionalize
- children taught to ride/walk to school
- definition of uses
- rules of uses
- Acceptance
- Respect
- enthusiasm





# Peer Cities

City	Pedestrian Mode Share	Bicycle Mode Share	Number of Days Below Freezing	Inches of Annual Snowfall	Inches of Annual Rainfall	Length of Daylight at Winter Solstice	Length of Daylight at Summer Solstice
Anchorage	3	1.5	188	75.5	16.5	5:28	19:30
Calgary	5	2	194	51	13	7:54	16:53
Madison	8	6	61	43	34.4	8:59	15:22
Minneapolis	5	5	148	54	30.5	8:46	15:26
Montreal	5	2.5	148	82.5	31	8:42	15:41
Salt Lake City	17	4.8	113	56	16.5	9:14	15:06

# Peer Cities: Policies & Programs

City	Trail Conflicts	Open Streets Events & Tactical Urbanism	Street Safety
Calgary	<ul style="list-style-type: none"> <li>• Policies related to yielding on trails and lighting requirements</li> <li>• Trails are for non-motorized use only</li> </ul>	<ul style="list-style-type: none"> <li>• Pedestrian Strategy calls for creating a tactical urbanism program to facilitate design actions</li> </ul>	<ul style="list-style-type: none"> <li>• Rapid implementation of downtown protected bike lane network pilot</li> <li>• Complete Streets &amp; VZ Policies</li> </ul>
Madison	<ul style="list-style-type: none"> <li>• WI DNR pairs compatible trail users using a compatibility rating</li> <li>• Regulated yielding policies</li> <li>• Trail use permitted by designated user group</li> </ul>	<ul style="list-style-type: none"> <li>• Annual open street event</li> </ul>	<ul style="list-style-type: none"> <li>• State Complete Streets Policy</li> <li>• Vision Zero Policy</li> </ul>
Minneapolis	<ul style="list-style-type: none"> <li>• Standard practice to develop trails with separation of trail users (wheels v. feet)</li> <li>• Mixed trails: all users keep right</li> <li>• Wheeled users: clockwise around lakes</li> <li>• Unpaved trails: restricted use by bicyclists when trails are muddy</li> <li>• Winter: bicyclists yield to pedestrians</li> </ul>	<ul style="list-style-type: none"> <li>• 8 open street events every summer</li> <li>• Downtown Improvement District &amp; Public Works collaborated on a project to reclaim streets for pedestrian</li> </ul>	<ul style="list-style-type: none"> <li>• City Council funded plan to build 48 miles of protected bike lanes in 5 years</li> <li>• Complete Streets Policy</li> <li>• Vision Zero Policy in development</li> </ul>
Montreal		<ul style="list-style-type: none"> <li>• Many open streets events</li> <li>• Extensive parklet program that includes removing parklets for winter maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• City-wide No Right on Red &amp; 30 km/h speed limit on local streets</li> <li>• Uses a complete streets approach</li> <li>• Vision Zero Policy</li> </ul>
Salt Lake City	<ul style="list-style-type: none"> <li>• Currently developing policy related to soft surface trail users</li> <li>• Test policy (Liberty Park) to require all trail users to circulate counter clockwise</li> </ul>	<ul style="list-style-type: none"> <li>• Occasional open streets events</li> <li>• Pop-up protected bike lane demonstration project</li> <li>• Parklet pilot program</li> </ul>	<ul style="list-style-type: none"> <li>• Complete Streets &amp; Vision Zero Policies</li> </ul>



# Peer Cities: Design

City	Dedicated Staff	NACTO Membership	Other Local Design Guidance	Advisory Boards, Commissions & Committees
Calgary	1.0 FTE	no	<ul style="list-style-type: none"> <li>Alberta Bicycle Facilities Design Guide</li> <li>Alberta Trail Builders Companion</li> </ul>	<ul style="list-style-type: none"> <li>Calgary Pathway and Bikeway Advisory Council</li> <li>Advisory Committee on Accessibility</li> <li>Parks Foundation Calgary</li> <li>Regional Transportation Steering Committee</li> </ul>
Madison	1.0 FTE	Affiliate	<ul style="list-style-type: none"> <li>Wisconsin Bicycle Facility Design Manual</li> </ul>	<ul style="list-style-type: none"> <li>Platinum Biking City Planning Committee</li> <li>Long Range Transportation Planning Committee</li> <li>Pedestrian / Bicycle / Motor Vehicle Commission</li> <li>Madison Area Transportation Planning Board (MPO)</li> </ul>
Minneapolis	2.0 FTE	Member	<ul style="list-style-type: none"> <li>Minneapolis Public Works Bicycle Facility Manual</li> <li>Minneapolis Parks and Recreation Board Trail Design Standards</li> </ul>	<ul style="list-style-type: none"> <li>Minneapolis Bicycle Advisory Committee</li> <li>Minneapolis Pedestrian Advisory Committee</li> <li>Minneapolis Advisory Committee on People with Disabilities</li> <li>Minneapolis Advisory Committee on Aging</li> <li>RecQuest Advisory Committee (MPRB)</li> </ul>
Montreal	?	International		<ul style="list-style-type: none"> <li>Borough / Neighborhood Urban Planning Committees</li> </ul>
Salt Lake City	2.0 FTE	Affiliate	<ul style="list-style-type: none"> <li>Utah State Bicycle and Pedestrian Plan Design Guide</li> </ul>	<ul style="list-style-type: none"> <li>Pedestrian Safety Committee</li> <li>Bicycle Advisory Subcommittee</li> <li>Parks, Natural Lands, Trails &amp; Urban Forestry Advisory Board</li> <li>Transportation Advisory Board</li> </ul>

# Peer Cities: Maintenance

City	Winter Roadway Maintenance (pedestrian and bicycle)	Winter Trail Grooming (nordic skiing, dog sledding, fat bikes)
Calgary	<ul style="list-style-type: none"> <li>Sidewalks: City clears 124 miles; owners responsible for clearing adjacent to their property</li> <li>City clears snow from 249 miles of pathways (out of 528 miles)</li> <li>Calgary Parks clears snow from pathways within 24 hours</li> </ul>	<ul style="list-style-type: none"> <li>Calgary Parks and local ski clubs in partnership to groom nordic ski trails</li> <li>Groomed and ungroomed trails open to fat bikes</li> </ul>
Madison	<ul style="list-style-type: none"> <li>Arterial bikeways and paths are cleared of snow by 7AM</li> <li>Sidewalks: snow removal responsibility of adjacent owners before noon</li> <li>City prioritizes clearing of 150 miles of sidewalks adjacent to transit stops and school zones</li> </ul>	<ul style="list-style-type: none"> <li>Free nordic ski trails groomed weekly by city</li> <li>Paid access nordic ski trails groomed 3-4 times/week by city</li> </ul>
Minneapolis	<ul style="list-style-type: none"> <li>Currently updating winter maintenance plan</li> <li>Goal for trails and protected bike lanes to be cleared within 24 hours</li> <li>Sidewalks: snow removal responsibility of adjacent owners</li> </ul>	<ul style="list-style-type: none"> <li>Lopet Foundation grooms nordic ski trails regularly in parks and on frozen lakes</li> </ul>
Montreal	<ul style="list-style-type: none"> <li>62% of all bikeways cleared of snow in winter (Goal to establish a service standard for winter maintenance)</li> <li>Entire pedestrian network prioritized to be cleared of snow within 96 to 120 hours</li> </ul>	<ul style="list-style-type: none"> <li>Nordic ski trails maintained by boroughs (city districts) with different standards</li> <li>Dog sled trails in Parc Jean-Drapeau maintained privately</li> </ul>
Salt Lake City	<ul style="list-style-type: none"> <li>City clears all protected bike lanes with specialized plows</li> <li>CBD clears snow from protected bike lanes in CBD</li> <li>Sidewalks: snow removal responsibility of adjacent owners</li> </ul>	<ul style="list-style-type: none"> <li>Utah Nordic Alliance grooms nordic ski trails on city-owned golf course</li> <li>Parks and Public Lands maintains urban trails in winter</li> </ul>

# Peer Cities: Funding

City	Local Funding	Innovative Funding & Partnerships
Calgary	<ul style="list-style-type: none"> <li>Dedication of 4% of transportation funding to active transportation (\$126M over 9 years)</li> </ul>	<ul style="list-style-type: none"> <li>Alberta Sport, Recreation, Parks and Wildlife Foundation grants</li> <li>Calgary Parks Foundation grants</li> </ul>
Madison	<ul style="list-style-type: none"> <li>Partners in Recreation and Conservation: \$764K in grants for trail projects</li> </ul>	<ul style="list-style-type: none"> <li>State Highway Safety Funds (mini grants for spot improvements or studies)</li> </ul>
Minneapolis	<ul style="list-style-type: none"> <li>2016 budget: \$760K for separated bikeway implementation</li> <li>Annual allocation of up to \$1M for sidewalk improvements</li> <li>Bikeway funding accounts for 1.4% of capital funding for transportation projects</li> </ul>	<ul style="list-style-type: none"> <li>Communities Putting Prevention to Work (CDC &amp; MN Department of Health)</li> <li>MN Center for Prevention (BCBS administration of Tobacco Settlement funding)</li> </ul>
Montreal	<ul style="list-style-type: none"> <li>Program of \$20M for developing the bicycle network (\$11 per capita)</li> </ul>	<ul style="list-style-type: none"> <li>Quebec Green Fund (carbon market): \$10M for active transportation and managing transportation demand</li> </ul>
Salt Lake City	<ul style="list-style-type: none"> <li>County Active Transportation Network Improvement Program for bikeways in ROW (up to \$1M grants)</li> <li>Annual allocation for Safer Sidewalk Program</li> </ul>	<ul style="list-style-type: none"> <li>Received 2 TIGER grants (\$20M): first/last mile connections for pedestrians and bicyclists accessing streetcar</li> </ul>



# Next Steps

2017

2018

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>GUIDE:</b> Project Management															
<b>LEARN:</b> Existing Conditions															
<b>LISTEN:</b> Public/Stakeholder Involvement	X		X				X		X						
<b>ENVISION:</b> Plan Recommendations															
<b>SHARE:</b> Draft/Final Plan															
<b>APPROVE:</b> Anchorage Non-Motorized Plan															





# NON-MOTORIZED PLAN

## Citizens Advisory Group Meeting #2

November 15, 2017 at 5:30 PM  
Municipal Permitting Center, 4700 Elmore Rd  
Training Room

NAME	EMAIL	ORGANIZATION
Darcy Davis	DARCYDAVISAKS@BMAIL.COM	STA
Charlie Reutro	charlesreutroski@gmail.com	Citizen
Brian Fay	brianfayak@gmail.com	ER Parks & Rec
Oscar Avellaneda-Gruz	aka oscar@avephoto.com	Bike Rider / Citizen
Tanna Kornfield	+kornfield@anchorage.nordic.ski.com	Nordic Skiing Association of Anchorage
Dylan Watts	dylan.a.watts@gmail.com	ALASKA PACIFIC UNIVERSITY NORDIC SKI CENTER.
Matthew Mills	matthew.mills.13@us.af.mil	JBERR Bike Commuters
Deborah Summers	inletlights@gmail.com	CDMA
Andrew Ooms	ooms@kittelson.com	PTAB / Kittelson
Lindsey Hajduk	Lindsey@aydc.org	AK Injury Prevention Center
Dra Edwards	rooster.skier@gmail.com	Disability advocate
Kimberly Wells	kwells@gci.net	Anchorage Skijor club + alaskan sled dog + racing assoc.



# NON-MOTORIZED PLAN

## Citizens Advisory Group Meeting #2

November 15, 2017 at 5:30 PM  
Municipal Permitting Center, 4700 Elmore Rd  
Training Room

[illegible]



## Community Advisory Committee Meeting #3 Anchorage Non-Motorized Plan



Thursday, May 17<sup>th</sup>, 5:30-7:00 PM  
Municipal Planning Department, 4700 Elmore Road, Room 117  
The attached document is the CAC powerpoint presentation.

### Meeting Agenda

1. Project Status Update
2. Vision and goals recap
3. Needs Analysis Summary
  - Collision history
  - Level of comfort/risk assessment
  - Demand
  - Equity
  - Health
4. Draft Project Recommendations
  - Draft Recommended Bicycle Network
  - Draft Recommended Pedestrian Priority Corridors and Districts
5. Draft Project Prioritization Criteria
6. Next Steps

### Meeting Notes

AMATS staff Joni Wilm provided a brief background on the project, including what happened at the last meeting and previous discussion about visioning and concerns for this plan.

Next, Alta Planning + Design staff Rory Renfro presented a series of data and possible recommendations for the Community Advisory Committee (CAC) to consider and discuss. Based on previous public and agency input, the Non-Motorized Plan is focusing on safety and connectivity for people of all ages and abilities. Plan goals have been articulated through the public involvement process.

Since the last CAC meeting, the project team has been mining data related to collision history, level of comfort and risk assessment, demand, equity, and health. Data sources include Anchorage Metropolitan Area Transportation Solutions (AMATS), Alaska Department of Transportation (DOT), U.S Centers for Disease Control and Prevention (CDC), and the U.S. Census.

#### *Collisions and Level of Comfort and Risk Assessment*

Collision data was presented to the committee as a series of maps. The map shows pedestrian collisions concentrated on larger/major roads, intersections, areas with more walking activity, and higher speed roads. The map of bike collisions shows a similar pattern to the pedestrian collisions. Additional data highlights the common right-hook collision type, which could be associated with the unique side paths along roads in Anchorage. The Vision Zero Anchorage project is taking a closer look at bicycle and pedestrian collision data and will supplement this plan.

Pedestrian Level of Service (PLOS) map mirrors the major road system, indicating that pedestrians feel least comfortable and safe on major roads. Bicycle Level of Traffic Stress (LTS) again has similarities to

the pedestrian map, where major roads show higher stress. The lower the PLOS and LTS score, the better the rating.

#### *CAC Discussion Points*

- DOT is most resistant to adding bike facilities on major roadways, however these maps suggest that's where we need them most.
- There is correlation between bike and pedestrian collisions.
- There could be underrepresented locations, such as places that people might not bike/walk if they don't feel safe.
- The group noted that Elmore was shown as a relatively high LTS and PLOS, but it actually has good bicycle and pedestrian facilities including shoulders and separated bike path, but the vehicle speed limit is 45.
- A concern was raised about the relative numbers of crashes with bicycles and pedestrians. Many more pedestrian crashes.
- Higher pedestrian crashes overlaying high crash corridors in this project.

#### *Demand*

Heat maps were presented indicating the relative degree of potential travel demand through six lenses: live, work, school, transit, trails, shopping and retail, and a composite of all these. The darker the color, the higher the relative demand. These maps can help identify areas to which the non-motorized network should connect, and also help inform the project prioritization process.

#### *CAC Discussion Points*

- These maps look like they are missing people on Joint Base Elmendorf-Richardson (JBER). 10,000 people work there. It was noted that the data (provided by AMATS) doesn't include JBER), however the project team understands the critical importance of establishing active transportation links to this major destination.
- Commercial Blvd in Mountain View shows the highest transit corridor, yet it is the most dangerous corridor in Anchorage for pedestrians.
- Trails indicate access across region is important, darker is higher concentration of recreation activities.
- More information about where the data for the trails map came from: Municipal GIS Department, and Parks and Recreation Department.
- Relative to the Anchorage region as a whole, the composite demand maps illustrate a relatively high demand for walking and biking in midtown, downtown, east-west and north-south corridors.
- Questions:
  - o Does it include people trying to get to services/resources, i.e. homeless services and healthcare?
  - o Did you see anything that you didn't expect? The group noted that demand generally seems consistent.
  - o What percentage of the population are we talking about that would utilize the bike and pedestrian corridors?
- Design and maintain the roads to make more people find the roads comfortable.
- Maintenance prioritization should be part of this.

### *Equity*

Maps were presented showing census tract data on the proportion of the population under 18, over 65, zero-car households, no high school diploma, limited English proficiency, non-white, and a composite of all. These maps identify parts of town that with potentially higher demand for active transportation.

### *Health*

Maps were presented at the census tract level illustrating health indicators using CDC data (obesity, heart disease, diabetes, cancer, no leisure time physical activity, and poor mental health).

#### *CAC Discussion Points*

- Knowing more about this data source, this is good baseline data, but we won't be able to measure how improvements to infrastructure impact these health issues.
- Mountain view and Fairview are highlighted on each of these maps

### *Next Steps*

Two maps were presented in hard copy, large format for the group to review and discuss: a map of possible highest pedestrian need and a preliminary draft proposed bicycle network. These maps will be emailed to the group for more time to review. The project team also would like feedback regarding the most helpful way to package projects in the final plan, i.e. corridors or project bundles.

#### *CAC Discussion Points*

- These maps clearly show the effect of high speed vehicle traffic. Package projects on a systematic basis.
- Ranking projects helps advocates have teeth. There needs to be more of a demographic look at the local level, such as homeless routes and schools that aren't bussed.
- Use the system that allows you to bring benefit to the most people.
- Schools should be treated as a walking district without drivers. Look at schools that are not bussed and only bussed.
- The bike infrastructure design toolkit is bigger than for pedestrian infrastructure. Allow for a balance but include flexibility.
- There is a need for more demonstration projects before the infrastructure is built.
- More striping options should be possible.
- Remove retaining wall at Folker and Tudor.
- Prioritize hubs of demand first for connected routes.
- There should be a philosophy behind the network as a whole. This could include developer requirements, major road construction, Complete Streets, design manual, being proactive (not reactive).
- Trail system is positive, but a need for more available on-road system.
- Off-set corridors, so people on bicycles and walking do not have to use the main highway. Railroad corridors are an option. The non-motorized network needs to be tighter, more dense.
- Every road with a speed limit over 25 miles per hour needs a bike lane.





## **MEETING SUMMARY**

### **Non-motorized Plan Agency Advisory Group Meeting #1: 27 September 2017**

**Meeting Objective:** Agency Introduction to the Anchorage Non-Motorized Plan

#### **INTRODUCTION**

Joni Wilm, Senior Transportation Planner for AMATS welcomed the group and provided a project overview. This project will update and combine the Bike Plan, the Pedestrian Plan and the Trail Plan into one, comprehensive Nonmotorized Transportation Plan for Anchorage.

Funding for this project comes from the Federal Highway Administration (FHWA) dollars through the Transportation Alternative Program, which supports transportation safety and recreation enhancements. This plan is a line item from the Vision Zero Grant.

Craig Lyon, the Municipality of Anchorage AMATS Coordinator gave an AMATS refresher for agency staff, the Anchorage Metropolitan Area Transportation Solutions program. Every metropolitan area with a population of 50,000 or more residents must have a designated Metropolitan Planning Organization or MPO to qualify for federal highway funding and/or transit assistance. AMATS is the MPO for the Anchorage Bowl and Chugiak-Eagle River when federal transportation funds are used. Some requirements of this program include:

- Policy Committee
- Freight Advisory Committee
- Air Quality Committee
- Citizen Advisory Committee
- 20-year plan, 4-year plan, annual workplan

Additionally, AMATS has added the following to the program even though not required:

- Technical Advisory Committee
- Bicycle and Pedestrian Advisory Committee
- Bike Plan (2010)
- Pedestrian Plan (2007)
- Areawide Trails Plan (1997)
- AMATS Public Involvement Plan

#### **PROJECT TEAM**

Municipality of Anchorage, AMATS

Joni Wilm, Senior Transportation Planner

Craig Lyon, AMATS Coordinator

Alta Planning and Design: Seattle, WA

Fred Young, Project Manager

Steve Durrant, Principal

Jessica Szlag, Anchorage-Based Project Manager

R&M Consultants: Anchorage, AK

Mark Frutiger, Transportation Engineer

Van Le, Planning, Stakeholder Engagement

Huddle AK: Anchorage, AK

Holly Spoth-Torres, Stakeholder Engagement

Chelsea Ward-Waller, Stakeholder Engagement

**PROJECT OVERVIEW**

Alta is a planning firm that focuses exclusively on accessibility, bicycle and pedestrian transportation. Alta has completed plans like this all over the United States and Canada including many winter cities. Alta has 30 offices and 240 staff, including an Anchorage office. Over the past 5 years Alta has been working on a variety of projects in Alaska including the Spenard Corridor Plan, the MOA 27<sup>th</sup> Ave. Bike Boulevard and the State of Alaska Pedestrian Plan. Additionally, Alta has given multiple presentations at local conferences and provided technical trainings to agency staff and the public.

Alta's plans typically include the following planning and analysis:

Analyze Level of Travel Stress for Non-Motorized Transportation: Are there bicycle and pedestrian facilities? How fast does vehicular traffic travel? Are facilities accessible?

Crash Analysis: Includes where collisions are occurring, why and displays using a heat map.

Public Health: We will use the new 500 cities data (Anchorage is one of the 500 cities) from the CDC to analyze 30 health indicators. We will analyze the dataset as it relates to non-motorized transportation infrastructure, programs and policy in Anchorage. We know that increasing the percentage of people that use non-motorized transportation decreases health care costs.

Demand Analysis: We will use a series of map overlays for nonmotorized transportation. Where do people access transit? Where do people live? Where do people work? Where do people buy groceries and receive other services? Where do people recreate? We will take this information and prioritize.

Design Guidelines & Standards: Alta will also complete design guidelines. Alta designed the National Guide for Urban Bikeways as well as the Rural Network Guide (Center for Prevention and FHWA). There are many locations in Anchorage where the rural network guide is totally applicable.

Winter Cycling Congress: Alta has been an active participant in the Winter Cycling Congress annually since its inception to encourage more people to bike during winter months.

## **PROJECT SCHEDULE & SCOPE**

Jessica Szlag, Anchorage-based Alta project manager presented the project schedule and scope.

The Anchorage Nonmotorized plan will follow a six-step process between September 2017 and April 2018 to include:

1. Guide
2. Listen
3. Learn
4. Envision
5. Share
6. Approve

The bulk of Agency Advisory Group staff time will be focused during the middle four steps of plan development: Listen, Learn, Envision and Share.

**LISTEN AND LEARN:** September 2017 – December 2017 – to include 2 AAG meetings, 2 Community Advisory Group meetings, community workshops, online crowdsource mapping, review of best practices of other winter cities, review of existing plans.

**ENVISION:** January 2018 – to include finalizing vision, goals and priorities for nonmotorized transportation in Anchorage as well as analyze five (5) test projects to determine realistic implementation costs.

**SHARE:** February – March 2018 to include public review draft release in February, 1 CAG and AAG meeting in March to review the draft plan and other public communication outreach events.

**APPROVE:** The project team will move the plan through the necessary review and approval processes and the AAG should participate by officially commenting through the appropriate agency channels but also sharing information with constituents.

## **AGENCY ADVISORY GROUP RESPONSIBILITIES**

The project team will guide the AAG through the process and important milestones. Overall the AAG represents the best of the best in your professional arena and should be prepared to do the following:

1. Represent the larger community and your professional arena
2. Meet 4 times to review progress and provide input throughout the planning process
3. Relay information about the plan to stakeholders
4. Encourage others to participate in the Community Involvement Events

The Agency Advisory Group will meet four (4) times: September 2017, November 2017, March 2018 and June 2018.



## **VISION – GOALS EXERCISE**

Steve Durrant, Alta Principal, facilitated the AAG through a visioning and goals exercise to begin to identify what agency staff think the vision and goals of the plan should be. The team handed out three different colors of post-it notes and were asked to answer the following questions. There was no limit to the number of answers staff could provide.

- What are your aspirations for this project? (ORANGE)
- What is a mark of success for this project? (PINK)
- What is your greatest fear or obstacle to the success of this project? (BLUE)

The team categorized the responses on-the-fly, posted them on the white board, and then discussed the themes listed below. A detailed compilation of all the responses received is attached.

### **ASPIRATIONS**

- Diversity
- Increase Mode
- Health Priority and Safety
- Coordination
- Better Infrastructure – Seductive networks, safe and convenient
- Implement-
- Transport
- Winter
- Attitudes
- Diversity-serve entire community, not just the wealthy, not just bikes

### **SUCCESS**

- Buy in
- Equity/Health
- Maintenance
- Relevance
- Safe
- Mode Goals

### **OBSTACLES**

- Maintenance
- Fluff/Teeth
- Narrow-shouldn't be all about bikes
- Progressive-more of the same designs
- Duplication
- \$ vs Safety
- Coordination
- Beliefs and behavior

## **NEXT STEPS**

The project team just received NTP and are in the process of collecting crowd-sourced trail data from community members. The application will be open for at least three weeks and then again in the winter to make sure we capture multiple seasons. The next TODO item is to draft and finalize a Public Involvement Plan and launch a project website.

The next AAG meeting in November will review project goals and objectives.

## **COMMENTS – QUESTIONS & ANSWERS**

Q: What is the rationale to combine all the plans into one plan?

A: Agencies and staff have been trying to implement all three elements simultaneously. Challenges include funding estimates that are not accurate or consistent across plans. Explore creative best practices for design. We really need an integrated non-motorized plan. From a planning perspective, it's more efficient. We'll be able to do more. This methodology will reduce conflicts.

Q: Will the new plan have projected construction costs?

A: R&M Consultants have been recently designed and built road and non-motorized transportation infrastructure. As part of this project they are completing a detailed cost analysis for 5 test projects from which we will be able to better predict all project cost estimates. We will also predict inflation.

Q: Will there be a Data Blitz in the winter?

A: Yes, we are currently collecting data about user-experience focusing on paved trails throughout Anchorage. There is a downloadable app with a variety of drop-down attributes that describe trail conditions and safety. We will launch and advertise the app again in January to capture winter use.

Q: How will we capture crime and perceptions of crime?

A: As a starting point, the app will capture trail users' perception of crime.

Q: Is the data only for people with cell phones?

A: Right now, yes, but there will be an online map in October accessible by computer.

Q: Will this plan consider soft surface trail connections?

A: Yes, we will do a demand analysis on the trail network.

COMMENT: Maeve Nevins has data and community input on soft surface neighborhood connections to greenbelts.

COMMENT: Currently there is no winter maintenance of sidewalks in residential areas. This should be addressed.

Q: How does Safe Routes to Schools integrate into this planning effort?

A: We include this information as destinations during the demand analysis.

COMMENT: Anchorage's trail system is multi-use and unique. Park maintenance and the NSAA set tracks on many trails.

Q: Are we translating documents into other languages?

A: We will consider doing this as we develop the Public Involvement Plan.

Q: How do we make sure that those who are underrepresented get involved?

A: The Public Involvement Plan will be a multi-layered strategy focused on reaching a diversity of Anchorage residents including workshops, mobile meetings, stakeholder interviews and an app, to name a few.

COMMENT: Please have information about this plan at the library, recreation centers and the school district. Contact the ASD Transportation Coordinator.

COMMENT: Consider consolidating and transparently communicating corridors that are maintained for the winter. (Examples: Montreal, Calgary, Minneapolis)

#### ATTACHMENTS

1. Agenda
2. Powerpoint
3. Sign-In Sheets
4. Aspirations, Success, Obstacles



## Agency Advisory Group Meeting #2 Anchorage Non-Motorized Plan



Wednesday, November 15<sup>th</sup>, 10:00 AM – 11:30 AM

Transit Department, 3600 Dr. Martin Luther King Jr. Blvd. 2<sup>nd</sup> Floor Conference Room

The attached document is AAG powerpoint presentation.

### Meeting Agenda:

- Project Schedule
- Work to Date
- Vision & Goals Discussion
- Peer Cities Discussion Topics

### Project Schedule

The project team is in the third month of the project focused on the LEARN phase which includes LISTENING sessions with agencies, stakeholders and the public. This evening the 2<sup>nd</sup> Community Advisory Group meeting is scheduled and there are a series of public outreach events this weekend including a bike ride, walk audit and a public open house and workshop.

All project information is available on the website: [www.anchoragenonmotorizedplan.com](http://www.anchoragenonmotorizedplan.com) The site includes all project documents, schedule and an interactive map. The interactive map is a way for everyone to participate; you can add barriers, destinations and areas of concern. All the data input will be geocoded and used in project analysis. The data includes information collected during the data blitz six weeks ago.

Please use the website to view and provide feedback on the most current project information. You can share the website with your agency stakeholders and other constituents. You can sign up here to receive project updates.

The website was advertised to the existing project email list as well as the Federation of Community Councils email list (over 8000 contacts). We will continue to advertise as the project continues.

The outreach effort for this plan is coordinating with other existing planning efforts like MTP 2040 and Vision Zero. The public involvement plan will include outreach to the Anchorage School District, the Anchorage Senior Center and a wide variety of other neighborhood groups.

### Discussion of Analysis Work to Date (Slides 6 – 8)

Anchorage Demographic Analysis: More people in Anchorage have vehicles than we typically deal with in an urban setting. Only about 2 % of households do not have cars.

Preliminary Analysis of Health Indicators: Using the CDC 500 Cities Data – This is the first time that census block level data has been available for 28 health indicators. Presented here are mental health, obesity, heart disease and diabetes (the darker the color, the higher the prevalence). As the team collects and receives more data on the condition of the built infrastructure, the information will be combined to drive priorities, identify gaps and trends.

## Vision & Goals – Continuation of Post-It Note Exercise

VISION: The CAG and the AAG did the same visioning exercise back in September. We asked the following:

1. What are your aspirations for this plan?
2. What does success look like?
3. What do you think are challenges/fears?

We took the results categorized them (See AAG Meeting #1 detailed notes) and we found that the AAG and the CAG mostly overlapped. The area where the groups separated was in the Challenges/Fears discussion.

AAG Challenges/Fears – How are we going to get it done?

CAG Challenges/Fears – How are we going to pay for it?

Based on the input and participation of both groups, the project team drafted a vision statement for the Non-Motorized Plan that includes the following elements:

**Diversity:** serve entire community, diversity of trails, diversity of users, inclusive

**Coordinated:** Integration/Simplification, remains relevant, synergistic w/ other plans, support/buy-in

**Implementable:** realistic, actionable, easy to use, create a true network, provides direction to planners and designers, modern, updated, funded

**World Class:** state of the art, wins awards, addresses challenges thought too complicated, local solutions, enthusiasm, model winter city, forward thinking, best practices, innovative, becomes a model/standard for other cities

DRAFT VISION STATEMENT PRESENTED TO THE AAG: *Anchorage provides an integrated, diverse, and world class pedestrian, bicycle, and trail network that is safe, connected and maintained in all seasons for a diverse set of users throughout the entire community.*

THE AAG COMPLETED A FACILITATED DISCUSSION TO ARRIVE AT THE FOLLOWING UPDATED DRAFT VISION STATEMENT: *Anchorage is a world-class northern city that has a safe, integrated network of streets and trails for people.*

GOALS: The AAG then reviewed the following draft plan goals in detail (see page 12 – 18 of the attached presentation for details).

### Ridership & Usage: Notes and Discussion

- All MOA plans need to be coordinated regarding increasing usage across all modes.
- Less car dependency – instead of less car ownership
- What is bike/ped community? Community = CULTURE
- ADD More miles of trail and on-street facilities
- First and last bullet are the same. Consider joining.
- Consider changing the title of the plan – Non-motorized plan = jargon and feels inaccessible.

### Health & Quality of Life: Notes

- Add equity to this goal

### Safety: Notes & Discussion

- Add Crime?
- 20 MPH vs 25 MPH – we need active enforcement – opportunity for policy change
- Add enforcement to this goal. Look at Title 9 for clarity. The most vulnerable user is the priority.
- Add VZ to this goal?
- Facility should be safe FIRST without reliance on enforcement.
- Add lighting. Places where lighting gaps.
- Address gender equity in addition to other equity. Do women feel less safe than men? Do men bike more?
- Safe from vehicles/wildlife/crime
- Sight distance for bike facilities
- Delete prioritized, the last bullet.

### Maintenance: Notes & Discussion

- Facilities should be planned and designed for maintenance
- Funding for maintenance
- Coordination of maintenance – road-ped-agencies
- Educate about what is being maintained vs what is not

### Connectivity: Notes

- Add accessibility goal here

### Measurable: Notes

- Add GIS to the list of goals

### Education: No notes

IN SUMMARY: The project team will take this input, go through another iteration in order to present a Draft Vision and Goals to the BPAC in December. In advance of this BPAC meeting, we will send the draft Vision and Goals to the AAG and CAG for feedback.

### Peer Cities Discussion Topics - Benchmarks to look at Anchorage

The project team identified five cities similar to Anchorage—on the basis of factors including geography, climate, land use and political climate. This group of peer and aspirational cities provides an opportunity to identify best practices related to nonmotorized plan implementation, funding strategy, maintenance, facility design, planning, and programs.

The team presented a summary of the selected cities that will help stakeholders assess and prioritize recommendations for the Anchorage Non-Motorized Plan.

The attached presentation (pages 19 – 23) provides a detailed summary of the peer cities discussed:

- Calgary



- Madison
- Minneapolis
- Montreal
- Salt Lake City

Major discussion points from the AAG meeting as result of the peer cities analysis:

Minneapolis Grand Rounds: Anchorage has the making of a greenbelt system that is truly world-class. Anchorage can look to the Minneapolis Grand Rounds for policies, design, maintenance, management, funding and implementation strategies. The Grand Round is approximately 50+ miles of connected trails, pathways, sidewalks and in-road routes circumnavigating the city. In certain areas uses are separated and/or single direction based on maintenance regime (groomed vs plowed) or designated use (pedestrian and bikes separated).

Dedicated Staff: Although there are multiple staff within the Anchorage Municipal organizational structure, there is not a staff person dedicated to coordinate and manage everything non-motorized. All other peer cities have FTE(s) dedicated to overall program management.

Funding: In many of the peer cities, residents have successfully voted to allocate additional levies to fund nonmotorized transportation.

#### Next Steps:

Vision/Goals – The AAG will review Draft Vision and Goals

Peer Cities - The project team will circulate a Peer City Summary Report that will include specific recommendations and opportunities for Anchorage based on the analysis of other cities. The AAG will have the opportunity to review and comment.

Next AAG Meeting - March 2018



# Anchorage Non-Motorized Plan

## Agency Advisory Group: Meeting #2





# Meeting Agenda

- Project Schedule
- Work to date
- Vision & Goals Discussion
- Peer Cities Discussion Topics



# Project Schedule



	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>GUIDE:</b> Project Management															
<b>LEARN:</b> Existing Conditions															
<b>LISTEN:</b> Public/Stakeholder Invovlement	X		X				X		X						
<b>ENVISION:</b> Plan Recommendations															
<b>SHARE:</b> Draft/Final Plan															
<b>APPROVE:</b> Anchorage Non-Motorized Plan															





## ANCHORAGE

# Non-Motorized Plan

*Creating a multi-modal transportation system that is efficient, safe and implementable.*

### Next Public Meetings

Agency Advisory Group (AAG) Meeting  
Wednesday, November 15, 2017, 10-11:30am  
[AMATS, 4700 Elmore Rd, Rm 170](#)

Community Advisory Group (CAG) Meeting  
Wednesday, November 15, 2017, 5:30pm-7:30pm  
[AMATS, 4700 Elmore Rd, Rm 170](#)

Community Workshop #1



you can provide additional feedback on it by clicking on it.

Draw routes to indicate routes that you like and currently use, and routes that you dislike or need improvement for walking and biking:

Draw Routes You Like

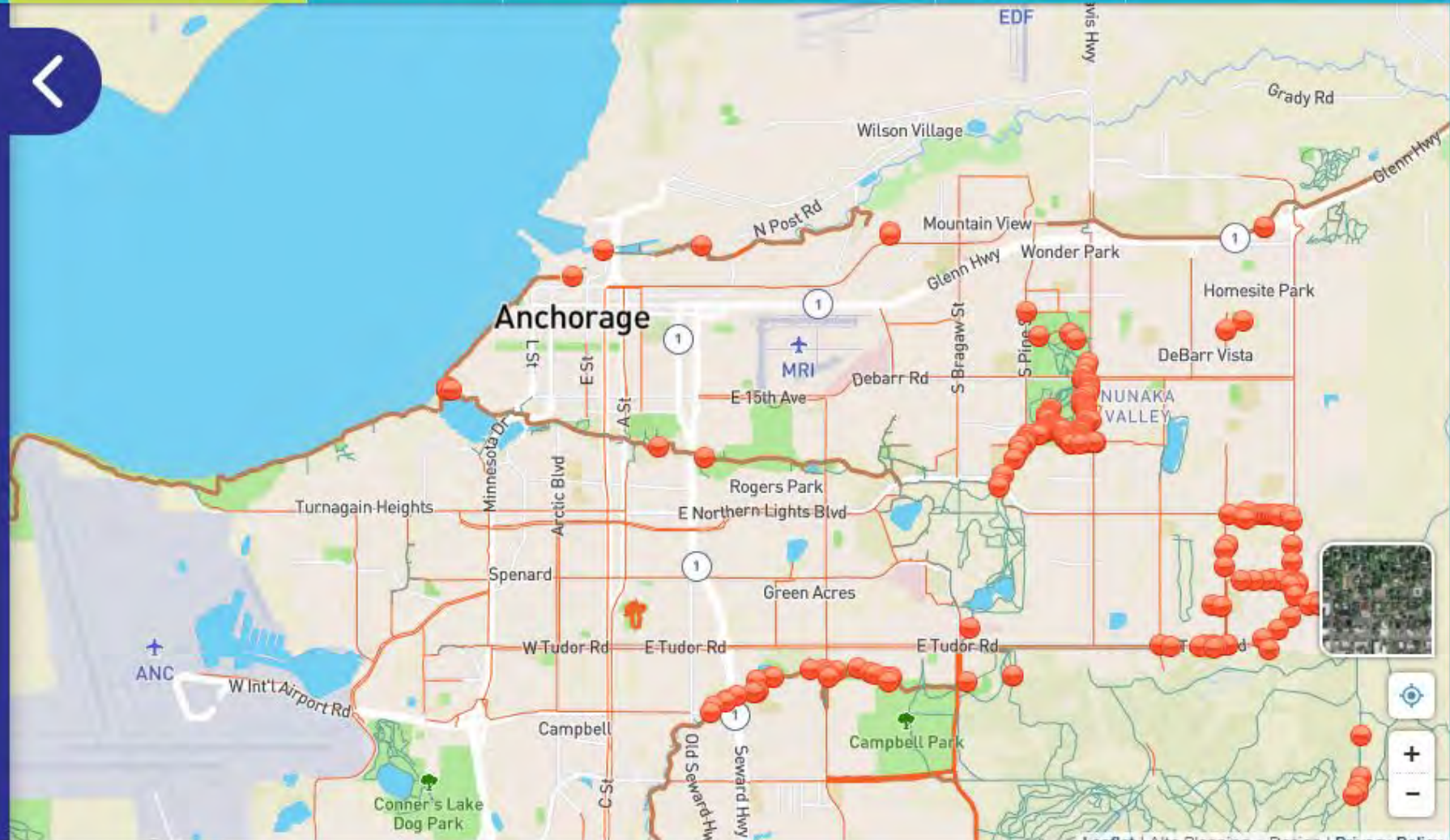
Draw Routes You Dislike

Add points to share the categories below:

Add Barrier

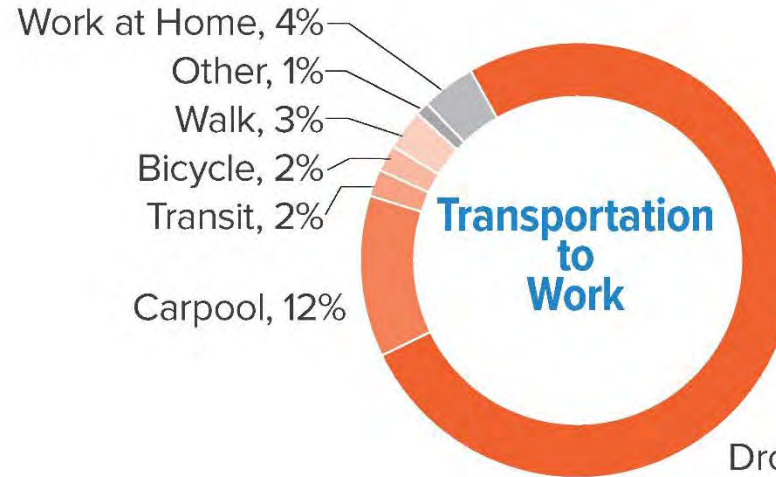
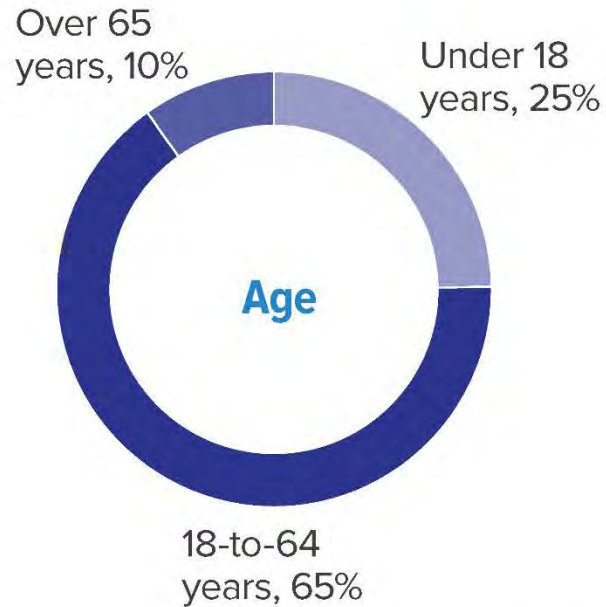
Add Destination

Add Safety Concern



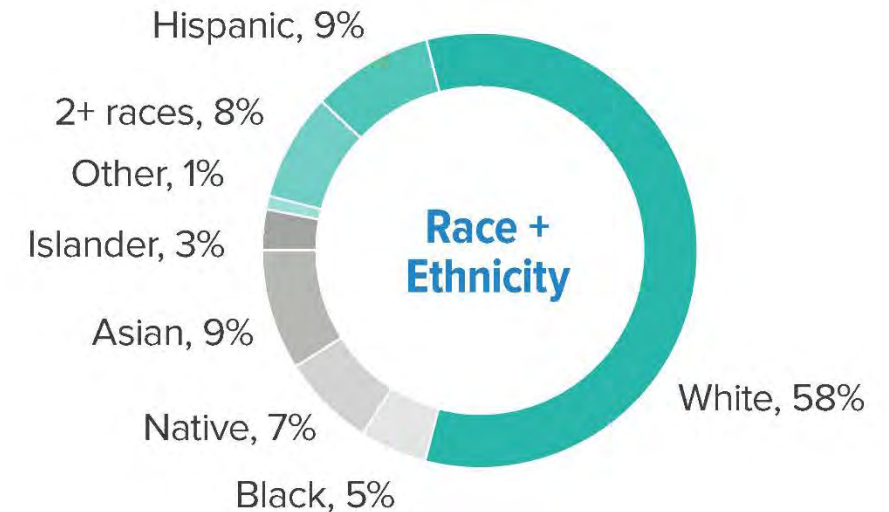
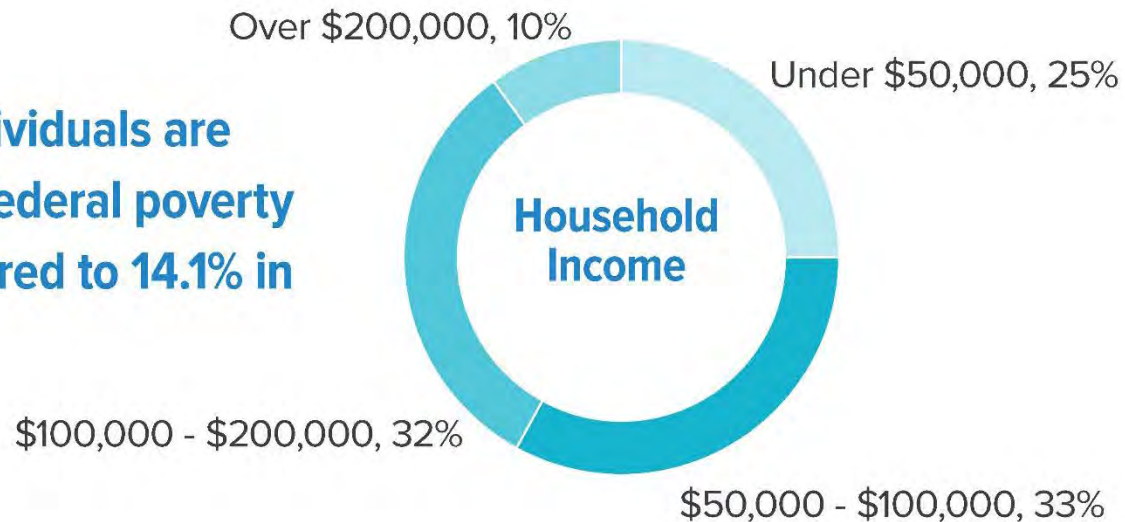


# Anchorage Demographics



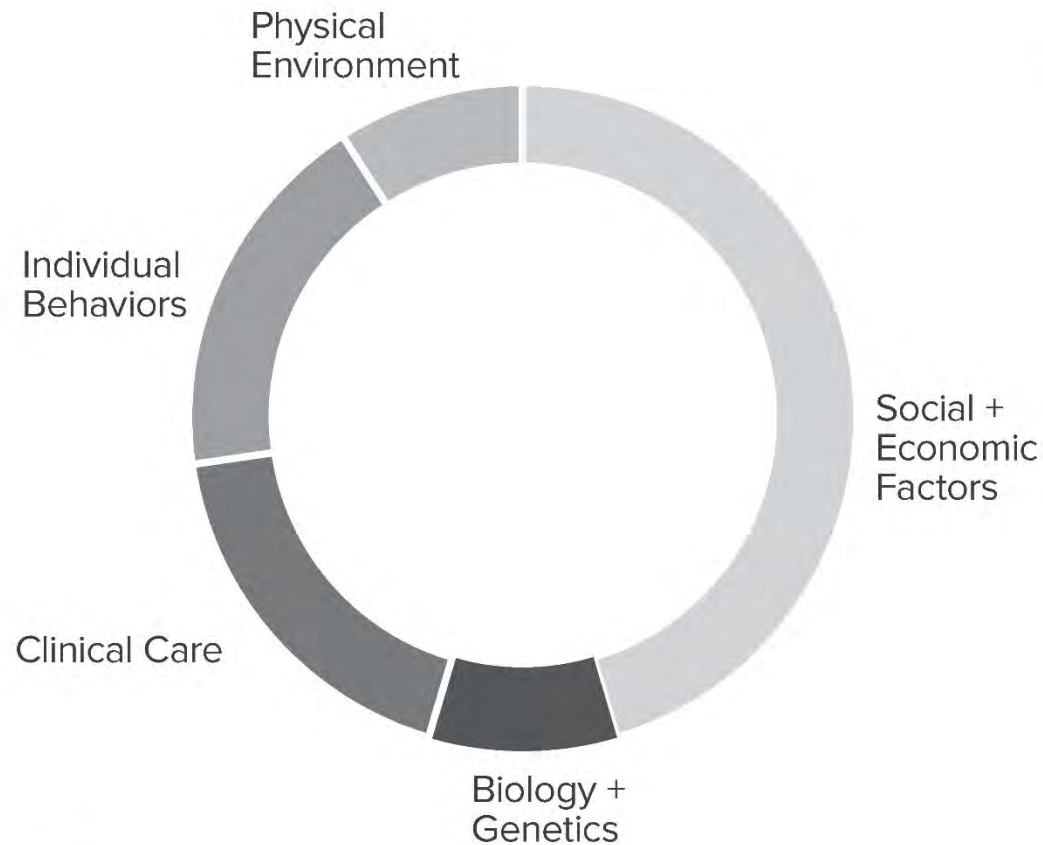
**2% of households do not have access to a motor vehicle, compared to 4.3% nationwide.**

**6.3% of individuals are below the federal poverty line, compared to 14.1% in the U.S.**



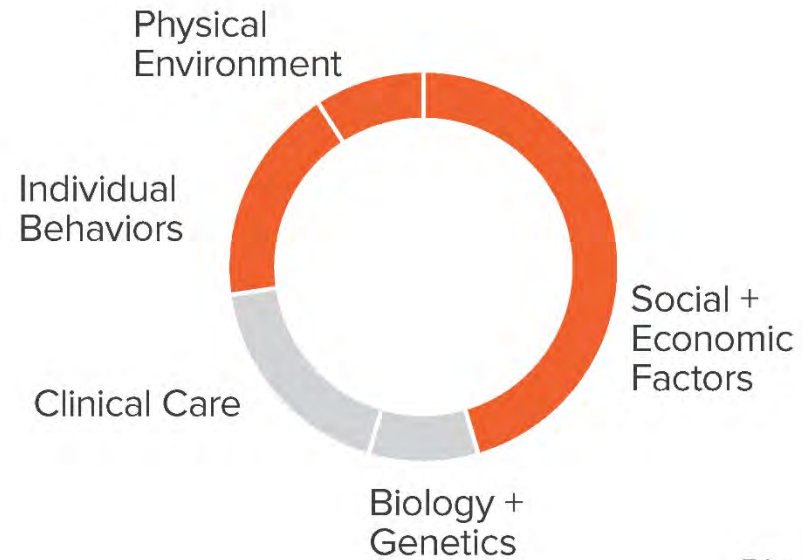
# What Shapes Health?

## 5 Elements of Health



Sources:  
<https://www.cdc.gov/nchhstp/socialdeterminants/faq.html>

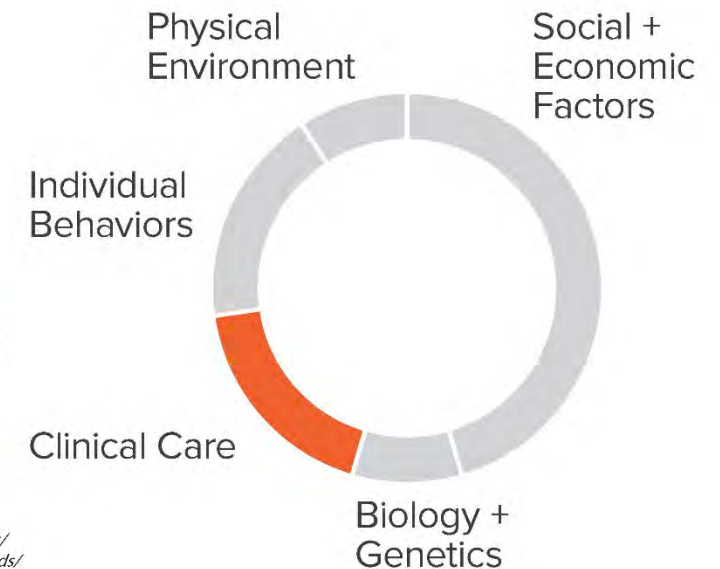
County Health Ranking & Roadmaps. University of Wisconsin Population Health Institute.  
Accessed January 2017. Retrieved from <http://www.countyhealthrankings.org/our-approach>



**60-75% of health outcomes can be impacted by Active Transportation**

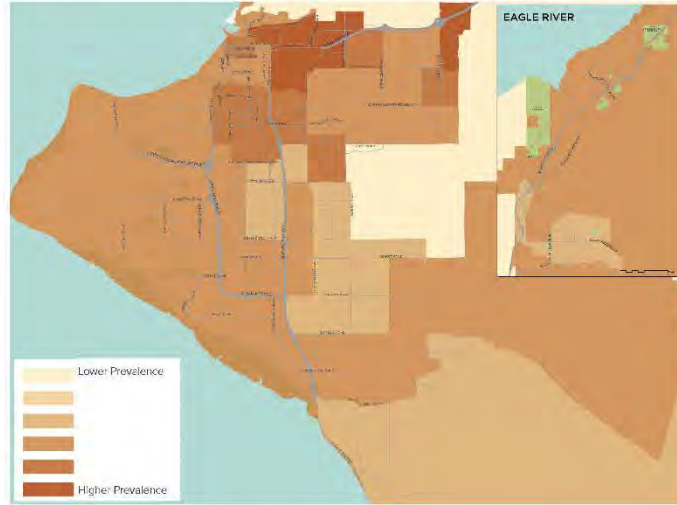
**Clinical Care accounts for 86% of \$ spent on health**

Source: <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/downloads/highlights.pdf>





# Health Conditions



Source:  
CDC 2007 Census of Diabetes Data, [www.cdc.gov/diabetes/data/adult.html](http://www.cdc.gov/diabetes/data/adult.html)  
7. <http://www.cdc.gov/diabetes/basics/index.html>  
8. <http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>  
9. <http://www.cdc.gov/diabetes/basics/diabetes.htm>

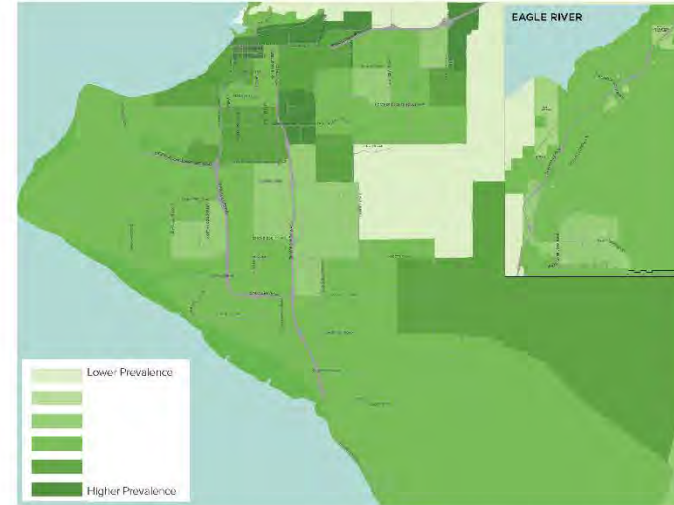
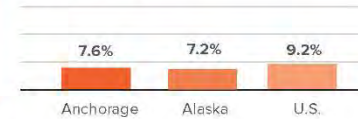
10. [http://www.heart.org/HDR/Conditions/Diabetes/WhyDiabetesMatters/WhyDiabetesMatters\\_UCM\\_002633\\_Article.jsp#.Vam000nIV](http://www.heart.org/HDR/Conditions/Diabetes/WhyDiabetesMatters/WhyDiabetesMatters_UCM_002633_Article.jsp#.Vam000nIV)  
11. <http://jap.physiology.org/doi/abs/10.1152/jap.1993.119.3.1193>



Approximately **1 in 11** Americans has diabetes, the **7th leading cause of death in the U.S.**<sup>7,8</sup>

The health risks associated with diabetes include heart disease, stroke, blindness, kidney disease, high cholesterol, and permanent lower-extremity nerve damage.<sup>9,10</sup>

**Thirty minutes** of moderate-intensity physical activity has been shown to **directly reduce the risk** of diabetes by as much as 30-50 percent.<sup>11</sup>



Source:  
CDC 2007 Census of Diabetes Data, [www.cdc.gov/diabetes/data/adult.html](http://www.cdc.gov/diabetes/data/adult.html)  
12. <http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>  
13. Rahman, L., Bhatia, A., & Wolk, A. (2014). Relationship Between Physical Activity and Heart Failure Risk in Women: Circulation, Heart Failure, 7(6), 877-881. <http://doi.org/10.1161/CIRC-OUT-1114-014.001461>

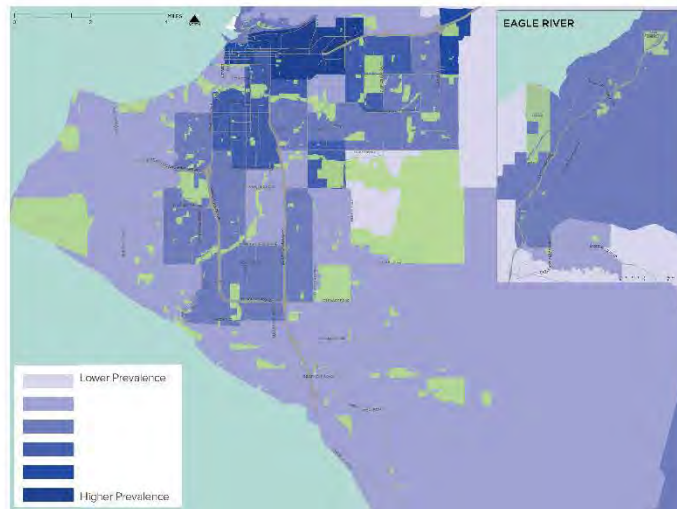
14. Rahman, L., Bhatia, A., Wolk, A., & Orsini, H. (2015). Physical Activity and Heart Failure Risk in a Prospective Study of Men. JACC: Heart Failure, 3(9), 581-7. <http://doi.org/10.1016/j.jhef.2015.05.006>



**Coronary Heart Disease (CHD)** is the leading cause of death in the U.S., with **1 in every 4 deaths** per year.<sup>12</sup>

Genetic factors play a role in people's risk for CHD, but a number of risk factors are highly preventable, including diabetes, overweight/obesity, poor diet, and physical inactivity.<sup>11</sup>

**20 minutes of walking or biking** each day is associated with **21% lower risk** of heart failure for men and **29% lower risk** for women.<sup>13,14</sup>



Source:  
CDC 2007 Census of Diabetes Data, [www.cdc.gov/diabetes/data/adult.html](http://www.cdc.gov/diabetes/data/adult.html)  
1. <https://www.cdc.gov/obesity/data/adult.html>  
2. <https://www.cdc.gov/obesity/data/childhood.html>  
3. [http://cloud.tpl.org/pubs/benefits\\_HealthBenefitsReport.pdf](http://cloud.tpl.org/pubs/benefits_HealthBenefitsReport.pdf)  
4. <https://www.hsph.harvard.edu/obesity-prevention-source/obesity-consequences/>

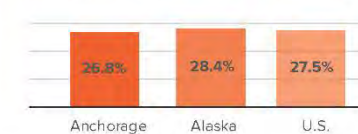
5. <https://www.cdc.gov/healthychild/obesity/facts.htm>  
6. Frank, Lawrence D., et al. (2004). Density relationships with community design, physical activity, and time spent in cars. American Journal of Preventive Medicine, Volume 21, Issue 2, 87-96.



**Obesity is a nationwide epidemic** that affects of **1/3 of U.S. adults** and **approximately 1/5 of U.S. Children** (age 2-19).<sup>1,2</sup>

Obesity is associated with a number of serious chronic illnesses, including high blood pressure, high cholesterol, stroke, diabetes, asthma, heart disease, and certain types of cancer.<sup>3,4,5</sup>

For every **0.6 mile walked** there is a **5% reduction** in the **likelihood of obesity**.<sup>6</sup>



Source:  
CDC 2007 Census of Diabetes Data, [www.cdc.gov/diabetes/data/adult.html](http://www.cdc.gov/diabetes/data/adult.html)  
15. [http://www.nami.org/NAMI/media/NAMI\\_MediaBlog/graphics/GeneralMH\\_Facts.pdf](http://www.nami.org/NAMI/media/NAMI_MediaBlog/graphics/GeneralMH_Facts.pdf)  
16. [http://www.cycle-benefits.com/cycling\\_and\\_health.pdf](http://www.cycle-benefits.com/cycling_and_health.pdf)  
17. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1470658/>



In the U.S., approximately **1 in 5 adults** experiences a **mental illness** in a given year, with the majority being anxiety disorders and depression.

Bicycling can improve self-confidence, tolerance to stress, and overall well-being.<sup>16</sup> **Thirty minutes** a day of moderate intensity **physical activity** (walking/biking) at least **3 days a week** is associated with **reduced** anxiety, depression, and improved self-esteem and social interaction.





# Vision & Goals

# ASPIRATIONS

## SINERGY

Truly Synergistic plan - State/VZ/AMATS inclusive

More data than Crash Reports used to get more accurate understanding

## GEOGRAPHY

A PLAN FOR A FRIENDLY MOUNTAIN

Bike trail alternative to Muldoon Rd

Bike from Eagle River to Rabbit Creek

• Bike Park on Chester Creek Trail System  
→ Re-Vitalizing Russian Jack Park

A Local Solution to non-motorized transport

Connections / Safe Routes to where we need to go

An efficient basic bike network

Better ~~existing~~ pedestrian connectivity from city to mountains / open space

A Fully (CONNECTED) NETWORK

Trails around every School in city

Coordinate Snow removal Plan

Improved Connectivity

better connectivity

Improve N-S Connectivity

A prioritized network of winter cycling routes

SCHOOL ACCESS

To expand current trail system to encourage use!

## CONNECTED

## AGENCY COORD



# Vision

**Diversity:** serve entire community, diversity of trails, diversity of users, inclusive

**Coordinated:** Integration/Simplification, remains relevant, synergistic w/ other plans, support/buy-in

**Implementable:** realistic, actionable, easy to use, create a true network, provides direction to planners and designers, modern, updated, funded

**World Class:** state of the art, wins awards, addresses challenges thought too complicated, local solutions, enthusiasm, model winter city, forward thinking, best practices, innovative, becomes a model/standard for other cities



# Vision

Anchorage provides an integrated, diverse, and world class pedestrian, bicycle, and trail network that is safe, connected and maintained in all seasons for a diverse set of users throughout the entire community.



# Goals: Ridership & Usage

- Increase ped/bikes on roads, trails
- More miles of trail
- More funding
- Less car ownership
- More bike/ped community
- Increase use of non-motorized facilities



# Goals: Health & Quality of Life

- Improve health
- Improve livability
- Promote active transportation as a community health priority



# Goals: Safety

- feel safe
- safety is prioritized
- network is safe and convenient
- safe for kids
- no injuries/deaths
- perception of safety
- safe for every mode
- 8-80
- minimize conflicts
- gaps identified
- prioritized



# Goals: Maintenance

- expand and enhance maintenance
- in all seasons
- on all facilities (trails and road)



# Goals: Connectivity

- to transit
- safe connections
- able to travel between places
- to encourage use
- in all seasons
- to schools
- to mountains
- efficient



# Goals: Measurable

- Tracks users
- Health
- Economics
- Safety
- Miles travelled
- Data Collection



# Goals: Education

- Attitudes
- build community support
- see non-motorized as investment
- acceptance of multiple users
- reduce harassment of bike/peds
- Institutionalize
- children taught to ride/walk to school
- definition of uses
- rules of uses
- Acceptance
- Respect
- enthusiasm





# Peer Cities

City	Pedestrian Mode Share	Bicycle Mode Share	Number of Days Below Freezing	Inches of Annual Snowfall	Inches of Annual Rainfall	Length of Daylight at Winter Solstice	Length of Daylight at Summer Solstice
Anchorage	3	1.5	188	75.5	16.5	5:28	19:30
Calgary	5	2	194	51	13	7:54	16:53
Madison	8	6	61	43	34.4	8:59	15:22
Minneapolis	5	5	148	54	30.5	8:46	15:26
Montreal	5	2.5	148	82.5	31	8:42	15:41
Salt Lake City	17	4.8	113	56	16.5	9:14	15:06

# Peer Cities: Policies & Programs

City	Trail Conflicts	Open Streets Events & Tactical Urbanism	Street Safety
Calgary	<ul style="list-style-type: none"> <li>Policies related to yielding on trails and lighting requirements</li> <li>Trails are for non-motorized use only</li> </ul>	<ul style="list-style-type: none"> <li>Pedestrian Strategy calls for creating a tactical urbanism program to facilitate design actions</li> </ul>	<ul style="list-style-type: none"> <li>Rapid implementation of downtown protected bike lane network pilot</li> <li>Complete Streets &amp; VZ Policies</li> </ul>
Madison	<ul style="list-style-type: none"> <li>WI DNR pairs compatible trail users using a compatibility rating</li> <li>Regulated yielding policies</li> <li>Trail use permitted by designated user group</li> </ul>	<ul style="list-style-type: none"> <li>Annual open street event</li> </ul>	<ul style="list-style-type: none"> <li>State Complete Streets Policy</li> <li>Vision Zero Policy</li> </ul>
Minneapolis	<ul style="list-style-type: none"> <li>Standard practice to develop trails with separation of trail users (wheels v. feet)</li> <li>Mixed trails: all users keep right</li> <li>Wheeled users: clockwise around lakes</li> <li>Unpaved trails: restricted use by bicyclists when trails are muddy</li> <li>Winter: bicyclists yield to pedestrians</li> </ul>	<ul style="list-style-type: none"> <li>8 open street events every summer</li> <li>Downtown Improvement District &amp; Public Works collaborated on a project to reclaim streets for pedestrian</li> </ul>	<ul style="list-style-type: none"> <li>City Council funded plan to build 48 miles of protected bike lanes in 5 years</li> <li>Complete Streets Policy</li> <li>Vision Zero Policy in development</li> </ul>
Montreal		<ul style="list-style-type: none"> <li>Many open streets events</li> <li>Extensive parklet program that includes removing parklets for winter maintenance</li> </ul>	<ul style="list-style-type: none"> <li>City-wide No Right on Red &amp; 30 km/h speed limit on local streets</li> <li>Uses a complete streets approach</li> <li>Vision Zero Policy</li> </ul>
Salt Lake City	<ul style="list-style-type: none"> <li>Currently developing policy related to soft surface trail users</li> <li>Test policy (Liberty Park) to require all trail users to circulate counter clockwise</li> </ul>	<ul style="list-style-type: none"> <li>Occasional open streets events</li> <li>Pop-up protected bike lane demonstration project</li> <li>Parklet pilot program</li> </ul>	<ul style="list-style-type: none"> <li>Complete Streets &amp; Vision Zero Policies</li> </ul>



# Peer Cities: Design

City	Dedicated Staff	NACTO Membership	Other Local Design Guidance	Advisory Boards, Commissions & Committees
Calgary	1.0 FTE	no	<ul style="list-style-type: none"> <li>Alberta Bicycle Facilities Design Guide</li> <li>Alberta Trail Builders Companion</li> </ul>	<ul style="list-style-type: none"> <li>Calgary Pathway and Bikeway Advisory Council</li> <li>Advisory Committee on Accessibility</li> <li>Parks Foundation Calgary</li> <li>Regional Transportation Steering Committee</li> </ul>
Madison	1.0 FTE	Affiliate	<ul style="list-style-type: none"> <li>Wisconsin Bicycle Facility Design Manual</li> </ul>	<ul style="list-style-type: none"> <li>Platinum Biking City Planning Committee</li> <li>Long Range Transportation Planning Committee</li> <li>Pedestrian / Bicycle / Motor Vehicle Commission</li> <li>Madison Area Transportation Planning Board (MPO)</li> </ul>
Minneapolis	2.0 FTE	Member	<ul style="list-style-type: none"> <li>Minneapolis Public Works Bicycle Facility Manual</li> <li>Minneapolis Parks and Recreation Board Trail Design Standards</li> </ul>	<ul style="list-style-type: none"> <li>Minneapolis Bicycle Advisory Committee</li> <li>Minneapolis Pedestrian Advisory Committee</li> <li>Minneapolis Advisory Committee on People with Disabilities</li> <li>Minneapolis Advisory Committee on Aging</li> <li>RecQuest Advisory Committee (MPRB)</li> </ul>
Montreal	?	International		<ul style="list-style-type: none"> <li>Borough / Neighborhood Urban Planning Committees</li> </ul>
Salt Lake City	2.0 FTE	Affiliate	<ul style="list-style-type: none"> <li>Utah State Bicycle and Pedestrian Plan Design Guide</li> </ul>	<ul style="list-style-type: none"> <li>Pedestrian Safety Committee</li> <li>Bicycle Advisory Subcommittee</li> <li>Parks, Natural Lands, Trails &amp; Urban Forestry Advisory Board</li> <li>Transportation Advisory Board</li> </ul>

# Peer Cities: Maintenance

City	Winter Roadway Maintenance (pedestrian and bicycle)	Winter Trail Grooming (nordic skiing, dog sledding, fat bikes)
Calgary	<ul style="list-style-type: none"> <li>Sidewalks: City clears 124 miles; owners responsible for clearing adjacent to their property</li> <li>City clears snow from 249 miles of pathways (out of 528 miles)</li> <li>Calgary Parks clears snow from pathways within 24 hours</li> </ul>	<ul style="list-style-type: none"> <li>Calgary Parks and local ski clubs in partnership to groom nordic ski trails</li> <li>Groomed and ungroomed trails open to fat bikes</li> </ul>
Madison	<ul style="list-style-type: none"> <li>Arterial bikeways and paths are cleared of snow by 7AM</li> <li>Sidewalks: snow removal responsibility of adjacent owners before noon</li> <li>City prioritizes clearing of 150 miles of sidewalks adjacent to transit stops and school zones</li> </ul>	<ul style="list-style-type: none"> <li>Free nordic ski trails groomed weekly by city</li> <li>Paid access nordic ski trails groomed 3-4 times/week by city</li> </ul>
Minneapolis	<ul style="list-style-type: none"> <li>Currently updating winter maintenance plan</li> <li>Goal for trails and protected bike lanes to be cleared within 24 hours</li> <li>Sidewalks: snow removal responsibility of adjacent owners</li> </ul>	<ul style="list-style-type: none"> <li>Lopet Foundation grooms nordic ski trails regularly in parks and on frozen lakes</li> </ul>
Montreal	<ul style="list-style-type: none"> <li>62% of all bikeways cleared of snow in winter (Goal to establish a service standard for winter maintenance)</li> <li>Entire pedestrian network prioritized to be cleared of snow within 96 to 120 hours</li> </ul>	<ul style="list-style-type: none"> <li>Nordic ski trails maintained by boroughs (city districts) with different standards</li> <li>Dog sled trails in Parc Jean-Drapeau maintained privately</li> </ul>
Salt Lake City	<ul style="list-style-type: none"> <li>City clears all protected bike lanes with specialized plows</li> <li>CBD clears snow from protected bike lanes in CBD</li> <li>Sidewalks: snow removal responsibility of adjacent owners</li> </ul>	<ul style="list-style-type: none"> <li>Utah Nordic Alliance grooms nordic ski trails on city-owned golf course</li> <li>Parks and Public Lands maintains urban trails in winter</li> </ul>

# Peer Cities: Funding

City	Local Funding	Innovative Funding & Partnerships
Calgary	<ul style="list-style-type: none"> <li>Dedication of 4% of transportation funding to active transportation (\$126M over 9 years)</li> </ul>	<ul style="list-style-type: none"> <li>Alberta Sport, Recreation, Parks and Wildlife Foundation grants</li> <li>Calgary Parks Foundation grants</li> </ul>
Madison	<ul style="list-style-type: none"> <li>Partners in Recreation and Conservation: \$764K in grants for trail projects</li> </ul>	<ul style="list-style-type: none"> <li>State Highway Safety Funds (mini grants for spot improvements or studies)</li> </ul>
Minneapolis	<ul style="list-style-type: none"> <li>2016 budget: \$760K for separated bikeway implementation</li> <li>Annual allocation of up to \$1M for sidewalk improvements</li> <li>Bikeway funding accounts for 1.4% of capital funding for transportation projects</li> </ul>	<ul style="list-style-type: none"> <li>Communities Putting Prevention to Work (CDC &amp; MN Department of Health)</li> <li>MN Center for Prevention (BCBS administration of Tobacco Settlement funding)</li> </ul>
Montreal	<ul style="list-style-type: none"> <li>Program of \$20M for developing the bicycle network (\$11 per capita)</li> </ul>	<ul style="list-style-type: none"> <li>Quebec Green Fund (carbon market): \$10M for active transportation and managing transportation demand</li> </ul>
Salt Lake City	<ul style="list-style-type: none"> <li>County Active Transportation Network Improvement Program for bikeways in ROW (up to \$1M grants)</li> <li>Annual allocation for Safer Sidewalk Program</li> </ul>	<ul style="list-style-type: none"> <li>Received 2 TIGER grants (\$20M): first/last mile connections for pedestrians and bicyclists accessing streetcar</li> </ul>



# Next Steps

2017

2018

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>GUIDE:</b> Project Management															
<b>LEARN:</b> Existing Conditions															
<b>LISTEN:</b> Public/Stakeholder Involvement	X		X				X		X						
<b>ENVISION:</b> Plan Recommendations															
<b>SHARE:</b> Draft/Final Plan															
<b>APPROVE:</b> Anchorage Non-Motorized Plan															





# NON-MOTORIZED PLAN

## Agency Advisory Group Meeting #2

November 15, 2017 from 10:00 am - 11:30 am  
Municipal Transit Center Conference Room  
3600 Doctor M.L.K. Jr Ave.

NAME	EMAIL	ORGANIZATION
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# NON-MOTORIZED PLAN

## Agency Advisory Group Meeting #2

November 15, 2017 from 10:00 am - 11:30 am  
Municipal Transit Center Conference Room  
3600 Doctor M.L.K. Jr Ave.

[illegible]



## Agency Advisory Group Meeting #3 and Walk Audit Anchorage Non-Motorized Plan



Friday, May 18<sup>th</sup>

Walk Audit – 10:00-11:30 AM

Meeting – 11:30 AM – 1:00 PM

Municipal Planning Department, 4700 Elmore Road, Training Room

The attached document is the AAG powerpoint presentation.

### Walk Audit

A group of Agency Advisory Group (AAG) members participated in a walk audit beginning and ending at the Municipal Planning Department, 4700 Elmore Road. The walk audit reviewed conditions along Tudor Road heading west from Elmore, Piper Road heading north from Tudor, 42<sup>nd</sup> Ave east from Piper, and then back south on Elmore to the Planning Department.

The tour stopped and reviewed various points of interest along the route, scoring the locations from 0-10 (0 = does not meet any criteria, 10 = meets all criteria) on the following criteria:

- A varied mix of land uses (live, work, shop, play, learn)
- Good connections for pedestrians, bicycle, transit use (sidewalks, trails, etc.)
- Functional, inviting site design (buildings at the sidewalks, trees, benches, etc.)
- Safety and access for all users of all ages, abilities, incomes (lighting, traffic calming, etc.)
- Accessible, appealing, and affordable healthy food options

1. Tudor at Elmore: ratings ranged from 4-6.

*Comments:* loud traffic, not a lot for mixed use, wheelchair access angled improperly, striping over five years old, path right next to road without protection, improve accessibility to neighboring facilities.

2. Tudor mid-block: ratings ranged from 3-5.

*Comments:* loud, no protection from traffic, no ADA access to strip mall from bus stop.

3. Piper at Tudor: ratings ranged from 4-5.

*Comments:* no trail on the south side of the intersection on either side of Piper, Campbell Creek trail access at Piper without wayfinding, narrow, parking, lots of businesses, moving into U-Med district, half-mile between lights for pedestrian crossing, retaining wall on south side of Tudor unsafe in winter, more lighting coming to Tudor soon.

4. 42<sup>nd</sup> at Piper: ratings ranged from 5-9.

*Comments:* traffic calming features, raised intersection/speed table, visually appealing, feeling safer, bikes don't ride on the road, slower feel, physical barriers between non-motorized and vehicle traffic.

5. Elmore at Residential Rd: ratings ranged from 1-2.

*Comments:* gravel path indicates demand, not ADA accessible, roundabout far away, potential for smaller lane width, truck traffic.

### Meeting Agenda

1. Project Status Update
2. Vision and goals recap
3. Needs Analysis Summary

- Collision history
  - Level of comfort/risk assessment
  - Demand
  - Equity
  - Health
4. Draft Project Recommendations
    - Draft Recommended Bicycle Network
    - Draft Recommended Pedestrian Priority Corridors and Districts
  5. Draft Project Prioritization Criteria
  6. Next Steps

### Meeting Notes

AMATS staff Joni Wilm provided a brief background on the project, including what happened at the last meeting and previous discussion about visioning and concerns for this plan.

Next, Alta Planning + Design staff Rory Renfro presented a series of data and possible recommendations for the AAG to consider and discuss. Based on previous public and agency input, the Non-Motorized Plan is focusing on safety and connectivity for people of all ages and abilities. Plan goals have been articulated through the public involvement process.

Since the last AAG meeting, the project team has been mining data related to collision history, level of comfort and risk assessment, demand, equity, and health. Data sources include Anchorage Metropolitan Area Transportation Solutions (AMATS), Alaska Department of Transportation (DOT), U.S Centers for Disease Control and Prevention (CDC), and the U.S. Census.

#### *Collisions and Level of Comfort and Risk Assessment*

The Vision Zero Anchorage project is taking a closer look at collision data, which will supplement this plan. Collision data will be taken into account for the purpose of this plan, but collision maps were not presented at this meeting.

Pedestrian Level of Service (PLOS) map mirrors the major road system, indicating that pedestrians feel least comfortable safe on major roads. Bicycle Level of Traffic Stress (LTS) again has similarities to the pedestrian map, where major roads show higher stress. The lower the PLOS and LTS score, the better the rating.

#### *AAG Discussion Points*

- Like the CAC, the AAG noted that Elmore was shown as a relatively high LTS and PLOS, but it actually has good bicycle and pedestrian facilities including shoulders and separated bike path, but the vehicle speed limit is 45. Tudor should not have a lower LTS and PLOS than Elmore.
- The plan should make recommendations for data management.
- PLOS doesn't include the greenbelts, only roadway infrastructure.

#### *Demand*

Heat maps were presented indicating the relative degree of potential travel demand through six lenses: live, work, school, transit, trails, shopping and retail, and a composite of all these. The darker the color, the higher the relative demand. These maps can help identify areas to which the non-motorized network should connect, and also help inform the project prioritization process.

#### *AAG Discussion Points*

- Job demand map missing Anchorage International Airport, where 1 in 7 jobs are. It was noted that the airport is shown, but it does not appear as prominent as other job centers depicted on the map
- Military base should be included in recreation/trails and employment maps.
- Tikatnu Mall and Cabelas and Target on C Street are missing on the retail map.
- Retail map shows demand at Boniface and Tudor, but there isn't significant retail there.
- Other questions regarding the map can be forwarded to AMATS staff.
- These maps should factor in the updated Land Use map to plan for future areas of demand and look at plans cohesively.

#### *Equity*

Maps were presented showing census tract data on the proportion of the population under 18, over 65, zero-car households, no high school diploma, limited English proficiency, non-white, and a composite of all. These maps identify parts of town that with potentially higher demand for active transportation.

#### *Health*

Maps were presented at the census tract level illustrating health indicators using CDC data (obesity, heart disease, diabetes, cancer, no leisure time physical activity, and poor mental health).

#### *AAG Discussion Points*

- Need to identify non-motorized use as preference vs necessity to prioritize user groups. Much more concerned about people who don't have a choice to use a motor vehicle. Glad to hear focus on equity.

#### *Next Steps*

Two maps were presented in hard copy, large format for the group to review and discuss: a map of possible highest pedestrian need and a preliminary draft proposed bicycle network. These maps will be emailed to the group for more time to review. The project team also would like feedback regarding the most helpful way to package projects in the final plan, i.e. corridors or project bundles, and also on a better way to approach pedestrian projects, since only a few have been implemented from the current pedestrian plan.

#### *AAG Discussion Points*

- Girdwood, Eagle River maps needed.
- Maps and data on snow removal routes should be included in this plan.
- Many indicated a list of projects is more helpful.
- Restructure the TIP to prioritize specific areas and populations.
- Helpful that the 1997 Areawide Trails Plan old plan identified missing links, but treatments were too specific.
- Provide a variety of options for each individual need.
- Rural Design Guide from FHWA pertinent to Anchorage.
- Use collision history to prioritize.
- Keep winter maintenance in mind when providing treatment options.
- Package up projects in terms of utility.
- AMATS doesn't track HSIP projects.
- Include projects based on land use plan in the future, increased density.



- Marking helps to inform other users of bike priority.
- Need to think beyond commuter hour level of service.
- Need better inventory of existing infrastructure and plan to keep it updated.
- Connections between Dowling and Raspberry, West Sand Lake not shown on map. There are also connections that are currently shown on the map shouldn't be on there.
- Increasing number of unauthorized trails.
- Build flexibility into plan, adjust cost.
- Include trail recommendations from long range land use plan, regional plans.
- Trails needs to be included in bicycle and pedestrian connections as part of transportation network.
- Reconcile recreational trails that need to be maintained as such rather than using them as transportation, i.e. groomed trail vs plowing.
- Identify priority areas using Strava data on times of day and year.
- It was suggested that the Project Team hold a work session with the AAG to further discuss potential evaluation criteria.
- State traffic safety packet distributed.



**Non-motorized Plan Community Workshop 1**  
Saturday, November 18, 2017  
10:30 am - 2:30pm  
APU Moseley Sports Center

## **MEETING SUMMARY**

### **Non-motorized Plan Community Workshop #1: November 18, 2017**

**Objective:** Introduction to the Anchorage Non-Motorized Plan, Visioning & Goals

#### **PROJECT TEAM**

Municipality of Anchorage, AMATS

Joni Wilm, Project Manager

Craig Lyon, AMATS Planning Manager

Alta Planning and Design:

Fred Young, Project Manager – Seattle, WA

Jessica Szelag, Senior Planner, Anchorage

R&M Consultants: Anchorage, AK

Van Le, Planning/Stakeholder Engagement

Taryn Oleson, Planning/Stakeholder Engagement

Huddle AK: Anchorage, AK

Holly Spoth-Torres, Stakeholder Engagement

Chelsea Ward-Waller, Stakeholder Engagement

#### **ATTACHMENTS**

1. Agenda
2. Sign-In Sheets
3. Display Boards
4. Comment Form

#### **MEETING SUMMARY**

The community workshop was scheduled and advertised in three sections, a bike tour beginning and ending at the Moseley Sport Center from 10:30 am to 12:00 pm, a community workshop from 12:00 pm to 2:30 pm, and a walking tour from 2:30 pm to 3:30 pm.

The bike tour was led by Fred Young, Chelsea Ward-Waller and Jessica Szelag. The tour left the Moseley Sports Center with nine riders. Participants travelled by bike through UAA's campus, crossing Lake Otis Parkway at Campus Dr. and biked along neighborhood streets south of Rogers Park Elementary School towards the Seward Highway. Along the way,

intersection treatments, neighborhood greenways, and sidepaths were discussed as possible facilities to address safety, connectivity, and accessibility concerns and form a connected bike network. After biking along sidepaths, trails, sidewalks, and alleyway adjacent to the Seward Highway, participants again used a series of neighborhood side streets and trails to return to APU's Moseley Sports Center.

Community Members began arriving for the community workshop around 11:45 am. The community workshop was primarily open house style, with 11 informational and interactive boards (see attached) set up around the room and tables with comment forms in the center of the room. As attendees entered the gym, they were greeted by Taryn Oleson, signed in and were provided an overview of the meeting format and its objectives. They would then review the materials on display moving counter-clockwise around the room, talking with project staff as they went along.

Four boards were interactive, asking attendees to:

1. Describe what they want for Anchorage in 3 words
2. Create a vision statement
3. Identify their top three project goal priorities
4. Identify what walking and biking concepts are most important to them.

Two maps asked community members to specifically identify areas where there are missing connections in non-motorized network and where they feel unsafe, are concerned about collisions or personal safety. Holly Spoth-Torres facilitated the discussions around the two maps.

At approximately 1:15 pm, Joni Wilm welcomed the group, introduced the project team, and provided an overview of the project. This project will update and combine the Bike Plan, the Pedestrian Plan and the Trail Plan into one, comprehensive Non-Motorized Transportation Plan for Anchorage and Chugiak-Eagle River. Funding for this project comes from the Federal Highway Administration





The community workshop concluded at the scheduled time of 2:30 pm. The proposed Walk Audit did not have attendee interest and was postponed for Workshop 2, proposed for spring 2018.



The following contributions were made to the interactive boards at the workshop:

- a. Connect to natural setting
- b. Plowed. Accessible. Multimodal sidewalks/trails
- c. Connectivity, Safe, Used!
- d. Welcoming, stress-free commuting, accessible
- e. Connectivity, safety, fun
- f. Girdwood-to-Knik Coastal Trail
- g. Bike-able, safe, progressive
- h. Easy, connected, unintimidating
- i. Safe, kid-friendly, multiuse trails
- j. Connected, vibrant, equitable

- Page 3

- a. Make it as safe and fun and easy as possible to be non-motorized travelers in this city
- b. Teach and promote walking/biking at all schools - the next generation wants/need alternatives to private cars
- c. More bike lanes and routes, better sidewalk plowing in winter, promote denser development and town centers to reduce driving need and support mass transit over cars
- d. Make walking safe for everyone!
- e. Maintain what we have!
- f. Tunnel – bridge
- g. Connection along railroad ROW from Barbara Street and Fish Creek trails to Coastal Trail – let's do it!
- h. Support mass transit-pull more people into walking and biking
- i. Direct pedestrian connections between lots – make it quicker to walk than drive
- j. Make non-motorized options safe, convenient and preferable to motorized transportation
- k. Make it as easy to bike/walk to a destinations all year long as the use of a vehicle to the same designation
- l. Make it easy to recreation and commute, connecting people to one another and the places they want to go safely.
- m. Provide and promote a safe, direct, aesthetic network of routes that reduces the need to own/drive a private care. Reduced per/capita car use and ownership should be a measured outcome
- n. Parking is not 'free' even when not priced – the city needs parking policies to reflect the external costs

**3. Walking and Biking Concepts: Which of the following concepts are most important to you?**

<b>Walking &amp; Biking Concepts</b>	<b>Most Important</b>	<b>Somewhat Important</b>	<b>Least Important</b>
<b>5 E's</b> – holistic approach that includes education, encouragement, engineering, enforcement and evaluation	3	10	0
<b>All Ages and Abilities</b> – providing infrastructure that is appropriate for people of all ages and abilities	7	6	0
<b>Safety</b> – safety from motor vehicles, as well as crime	15	0	0
<b>Connectivity</b> – making sure that getting from place to place is easy and convenient	17	1	0
<b>Directed Funding</b> – providing infrastructure while being respectful of project cost and budget constraints	3	11	0

What else is important to you?

- Convenience
- Encouraging safe bike riding habits
- Separated trails, safe for children is a priority to me
- Linking trails
- Increasing bike-ability in areas where homes are close to commercial areas (to encourage cycling trips to get the grocery store, etc. – especially need in the south side and Abbot Loop area
- Making it easier to bike commute for those who drive across the highway – clearer routes?
- First mile, last mile (connection to destinations) equity

#### **4. Funding Strategies Breakout Session Notes**

- Potential Funding Sources: TAP (Transportation Alternatives Program), TIP (Transportation Improvements Program), CIP (Capital Improvements Program), Parks & Recreation, AK Department of Transportation, STIP (Statewide Transportation Improvements Program), AMATS, PM&E via CIP from local road bonds
- Examples of projects funded through these sources:
  - Trails: Fish Creek trail design
  - Ped Improvements: Patterson and Boniface
  - Bike Lanes: Wisconsin, DeArmoun, Arctic

**Results of the Missing Connections, Collisions and Safety Concerns, and the Breakout Session Map are summaries in the attached files (Excel and Map).**



## **COMMENTS**

The following comments were received via comment form (each bullet represents one person who submitted comments):

### **How do you use the sidewalks, trails, bicycle lanes (non-motorized network)?**

- We bike kids to daycare and school with a 'chariot' pull behind. I biked to work until it was stolen – winter still scares me to bike. We walk to Fred Meyer via sidewalks and crossing parking lots. We use Chester Creek Trail to exercise and weekend entertainment
- Commute by bike to work, ski/run/bike after work and on the weekends. Run errands by bike within a 5 mile radius of home if decent route is possible (not covered in now or limited by construction activities).
- Primarily to get from Point A to B, e.g walk or bike to work (5 miles 1 way) go to store or get food at fast food place (less than 2 miles one-way) – secondarily as exercise or just to get out and explore.
- I currently use trails and bike lanes mostly for recreational biking and skiing. I would like to use them more for commuting but the connectivity needs to improve.
- I ride approximately 50-80 miles a week, primarily linking the existing trail networks – I avoid Anchorage roads at all costs. Favorite rides – Tour of Anchorage, Campbell Creek Trails to Chester to Coastal Trail loop, Campbell Trail to Tour of Anchorage to Birch trail – down Huffman (need trail down Huffman)
- Year round cyclist
- Recreation for exercise - I do not bike commute due to safety concerns. I ski, hike, bike, run and orienteer in Northeast Anchorage.
- I recreate (ski, bike, run) as well as summer commute by bike.
- Commuting to work by bike, walking, and skiing in winter.
- Summer commute most days by bike on the roads and greenbelts and winter commute occasionally, mostly on the greenbelts.
- Health, access to destinations, recreation, and access to work.

### **What do you like about the existing non-motorized network?**

- We have so many trails! The distance (15 min by car) to hundreds of miles of trails is world

## **AMATS Winter Maintenance Forum: Meeting Summary**

DATE: Thursday, September 7, 2017

TIME: 2 PM – 5 PM

LOCATION: BP Energy Center, Alder Room

### **OVERVIEW**

This forum was requested by the Bicycle/Pedestrian Advisory Committee as in information-sharing discussion on winter maintenance practices, operations, challenges, and an opportunity to brainstorm ideas for improvements. Attendees represent municipal and state agencies.

### **PRESENTATIONS FROM AGENCY OPERATIONS**

#### ***Municipality of Anchorage, Maintenance & Operations***

##### ***Alan Czajkowski, Paul VanLandingham***

Keeping streets and pedestrian amenities clear of snow and ice is dependent on financial resources. MOA Maintenance & Operations is working under a 50% loss of positions and a budget cut of \$5M over the past 5-7 years. The MOA clears city roads under a priority system: major arterials are cleared first, then neighborhood collectors, then residential streets. Pedestrian routes follow the same priority system as adjacent roads, and are cleared concurrently. MOA Streets clears 227 miles of sidewalks.

Snow storage sites have decreased over the past 20 years from 13 to six. Snow storage sites must be permitted for runoff; snow cannot be stored just anywhere. The Northwood snow storage lot is owned by the airport; the MOA is currently unable to store snow on this lot which results in snow being trucked farther away. The MOA is working with the airport to return the Northwood lot to a snow storage area. Some roads have enough right-of-way to store 3-5 snowfalls on the side of the road.

The MOA has a fleet of 30 graders to clear roads, 14 trackless vehicles to clear sidewalks and trails, and 16 dump trucks to haul away snow. Winter operations begin mid-October and operate 10-hour shifts around the clock until June. Operations first plows snow from roadways, then transitions to snow removal to storage sites.

The MOA clears snow for 33 schools, of which the priorities fall between neighborhood collectors and residential streets, dependent on the day (weekend, holiday, etc.). Snow plowing also must be coordinated with trash collection.

The MOA spreads a calcium chloride mixture on roads before snowfalls to prevent icing. They sand roadways; sand must be cleaned up in spring which comes at a cost.

#### ***State of AK, DOT&PF, Maintenance & Operations***

##### ***Bob Anderson***

State Maintenance & Operations has had a 27% decrease in funding over the past 3 years. State road snow removal has a 5-level priority system: Priority 1 – Seward Highway, Minnesota Drive, have 24 hours to clear; Priority 2 – arterials, collectors, have 36 hours to clear; Priority 3 – have 48 hours to clear; Priority 4 – have 96 hours to clear. During winter 2016-2017, clearing times were tracked and happened

significantly faster than priority standards. Sidewalk clearing is currently being reprioritized based on travel volume, rather than being the same priority as adjacent roadway. State DOT attempts to clear all sidewalks and trails within 48 hours, and can make another clean up lap within 24 hours after that. State DOT and MOA have very little shared plowing area since their priorities are different. This system was reconfigured in 2016. State DOT plow operators train in the off-season to learn route and obstacles within route.

State DOT clears roads with big, fast plows that start at the center of the road and work within the right-of-way. Many times, plows bury cleared sidewalks to create adequate lane widths for emergency vehicle access since the roads do not always have snow storage space. Roundabouts increase snow removal costs, and road-widening/lane increasing roadway projects reduce right-of-way used for snow storage. Plowing configurations must change or be reconsidered when road projects occur.

State DOT is trying new ideas and technologies to make snow removal more efficient. They have implemented an aggressive salt brine program. The salt brine mixture, which limits snow from bonding with asphalt, can cover more area than sand, does not blow away like sand can, and comes at less cost. State DOT is adding liquid calcium to the salt brine mixture this winter to make it usable below 15 degrees Fahrenheit. They are utilizing a Maintenance Decision Support System on the Kenai Peninsula that provides micro-forecasts to plow operators so they can apply the brine mixture before snowfall events. State DOT also operates an app that shows routes that have been plowed, and plow truck locations to aid in citizen decision making.

### ***Municipality of Anchorage, Park Operations***

#### ***Josh Durand***

MOA Park Operations grooms the Coastal Trail, Campbell Creek Trail, and Chester Creek Trail for winter use by fat tire bikers, skiers, and walkers. Ideally the trails are groomed three times per week. Park Operations also clears sidewalks as supplement to MOA and State efforts (example: A Street/C Street couplets). Park Operations has 4 crew members to operate 5 trackless vehicles; other areas are cleared with hand shovels or snow blowers.

Trails are cleared to support fat tire bike usage, but not all bike users/commuters can use the trails in winter (mountain bikes). Anchorage trails were initially designed for recreation. Emerging data from trail counters show that people are using the trails as commuting and transportation assets. Future trail design and maintenance should take this into consideration.

Park Operations utilizes a GIS-based tracking program to organize and prioritize plowing tasks and coordinate with roadway snow removal efforts. They would like to make trail clearing data live for citizen decision making.

### **PRESENTATION OF CASE STUDIES**

Three cities' winter maintenance practices were presented as case studies for snow removal programs. These cities have similar winter climates to Anchorage, and have been featured at the Winter Cycling Congress.



**Madison, Wisconsin:** Code enforcement in Madison requires property owners to clear sidewalks adjacent to their property, or they are subject to ticketing. Anchorage has a similar code for business properties to clear parking areas and ADA access; however, this code is not enforced.

**Oulu, Finland:** Oulu was designed around a long-term commitment to bicycle and pedestrian facilities, as those are the city's major modes of transportation. Separated bike paths have intentional destinations. The 19% municipal tax rate helps fund 95-100% maintenance of trails in winter months.

**Montreal, Canada:** Montreal separates bicycle and pedestrian facilities from roadways using a variety of design techniques. Their winter maintenance includes clearing seasonal paths during winter.

### **MAYOR RECAP**

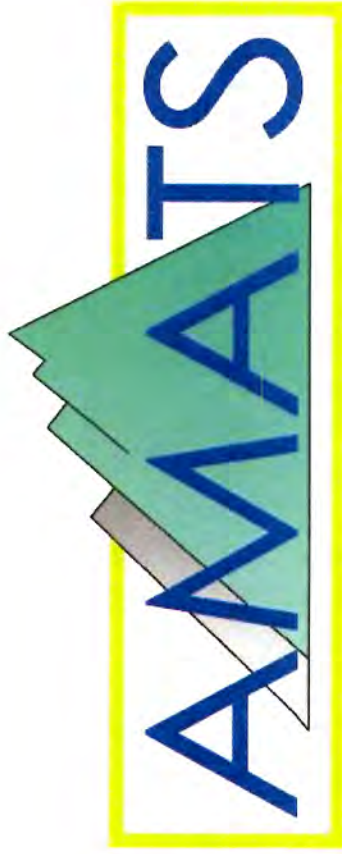
Anchorage will be a stronger city when people can commute on foot or bicycle – even in winter. Show the mayor a plan or model for businesses/residents removing snow adjacent to their property, and any code changes that may occur. In the meantime, utilize social media platforms like Facebook or NextDoor to encourage neighbors to clear property.

### **WINTER MAINTENANCE IN ANCHORAGE: What is working well?**

- Lots of communication and collaboration between MOA and State agencies
- Increased concern about non-motorized transportation routes
- Anchorage doesn't shut down when it snows like other winter cities
- Innovative clearing ideas and the strive for constant improvement
- Skilled workforce (when resources allow)
- Major roads are cleared quickly

### **IDEAS: What would be the one thing you would do to improve winter maintenance in Anchorage?**

- Rethink government structure: There is a disconnect between new roadway projects and the maintenance of these projects. Future planning needs *authentic planning*. MOA Streets and Maintenance should work with designers.
- Rethink maintenance system: Reevaluate snow clearing priorities. Maybe everything doesn't get plowed.
- Involve citizens in route prioritization
- Purchase more right-of-way for snow storage as a long-term, network-based initiative.
- Support of clearing priorities by top administration of municipal government.
- Remove plowing obstacles from sidewalks (parking meters, signs, etc.) so that sidewalks and roads can be cleared at the same time.
- Identify new sources of funding



# WINTER MAINTENANCE FORUM

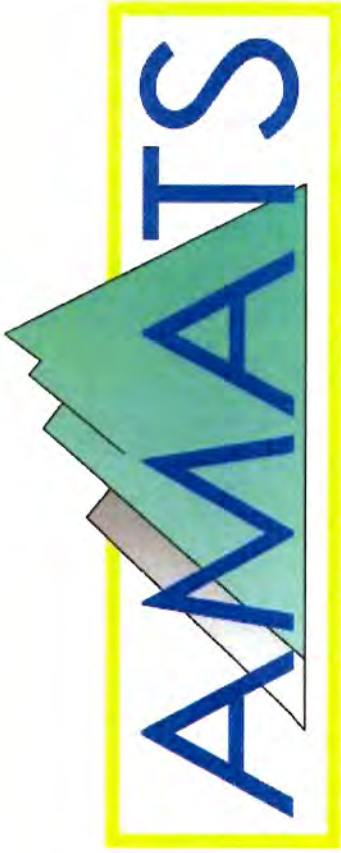
THURSDAY, SEPTEMBER 7, 2017

2:00 - 5:00 PM

**PLEASE SIGN IN**

[illegible]





# WINTER MAINTENANCE FORUM

THURSDAY, SEPTEMBER 7, 2017

2:00 - 5:00 PM

PLEASE SIGN IN

NAME	AGENCY/DIVISION	EMAIL ADDRESS	PHONE
<del>Debra Lindamood</del>	<del>ALAC</del>	<del>lindamood@alac.ak</del>	<del>265-3095</del>
James Starzee	DOT-Planning	james.starzee@alaska.gov	269.0507
Craig Lyon	NOA - AMATS	lyonch@muni.org	343-7996
Baron Tongvalh	DOT - Planning	baron.tongvalh@alaska.gov	269-0515
Stephanie Mornilo	NOA - Traffic	mornilob@muni.org	343-8070
Jim Amundsen	DOT+PF Hwy	Jim.Amundsen@Alaska.gov	269-0566
Bob French	AMATS CAC	bob.french@genmtr.com	240-1744
Josh Derand	hba Parks	DURANDJA@HUN.CAC	243-4127
Pierce Schwalb	Bike Anchorage	pierce@bikeanchorage.org	3524061726
Steve Cleary	Alaska Trails	steve.cleary@alaskatrails.org	334-8049
Zoddan Howe	DOT+PF	zoddan.howe@alaska.gov	269-0520
Ryan McKee	CRW Engineering	bmckee@crweng.com	246-5654



class. I adore Campbell Creek, Chester Creek and the Coastal Trail. The ability to ring this commuter and recreational network around the entire bowl should be a long term vision – multiple rings (see blue lines on missing connections map).

- Being able to exercise and get away from traffic to safer routes.
- Like green belts where they are totally separated, getting things connected and snow removal.
- That it exists. It's mostly pleasant to use but having to cross streets is a downside.
- First, I just returned from living in San Diego for 3 months – San Diego has nothing like the Anchorage trail system. Why I returned, safety. I like that I can do 50 mile rides in Anchorage without having to hardly ride on a street. The trails are well distributed and usually pretty quiet.
- For pedestrians in downtown, no intervention is needed. Bikes not allowed on downtown sidewalks but no signage. A Street/Benson – good when cars don't turn on a red.
- The Chester Creek and Campbell Creek & Tony Knowles Coastal Trails are gems. I drive to use them as I hate fighting traffic.
- I love the trail system! I love the efforts to groom trails and the communication around which trails have been groomed. I like that there are some places I can get only using trails
- Green belts, contiguous trails that don't intersect with motorized traffic, and some trail groomed for skiing in winter.
- Compatibility of various users – runners, walkers, bikers, skiers. Greenbelts Rock! They are a wonderful backbone.
- Greenbelts, improvements in connectivity over the years and improved maintenance of trail system.

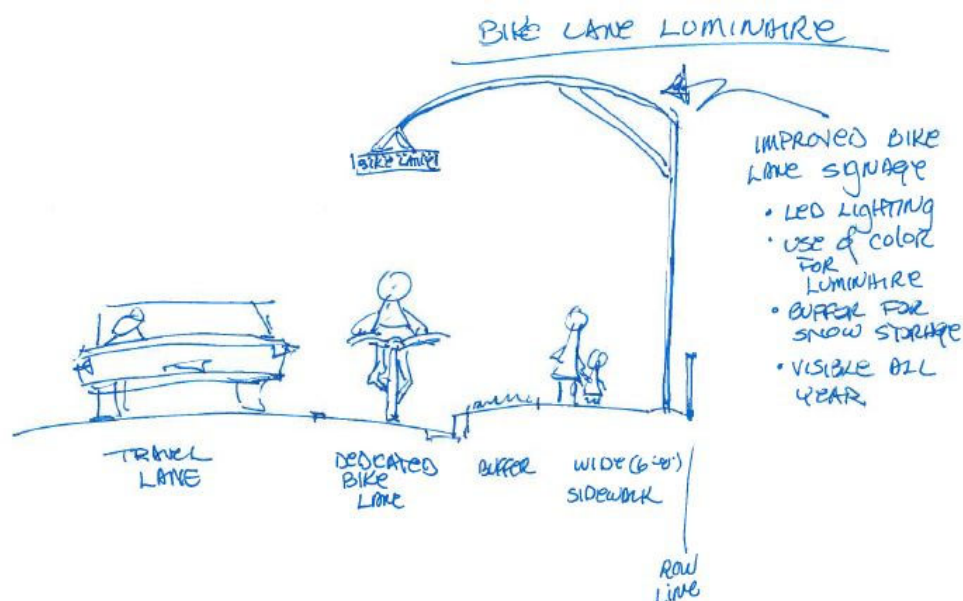
### What would you change?

- Ban cars "Right on Red". Ticket for unplowed sidewalks in commercial districts or incentivize them to shovel/plow. Fund more Muni and state sidewalk clearing. Try cheaper bike lane solutions like experimental striping and movable cones/barriers.
- Connect sidewalks in Midtown – "Break the Mega Blocks!"
- More designated lanes/paths for biking year-round. Greater driver awareness for bikers and pedestrian. Less campers in the woods along the Chester Creek trail, trashing the

woods and the trail. More sidewalk paving in the winter and more grooming of the Chester Creek trail in winter for skiing.

- City/state came into Community Councils or municipality land owners and move or do not do planned pathways (Old Glenn Highway by Fire Lake and Strawberry come to mind). Short stretches where no trails on get pushed out into road.
  - Possibly expand trails to allow for more uses. Better intersections, more maps, more bike lanes and signage.
  - Coastal trail needs centerline stringing and signs (keep left). Ship Creek Trail needs to connect to Bartlett. Mountain View is a huge safety problem – no trails and is not safe. Would love to connect to Glenn Highway trail. South Anchorage needs a bike route down O'Malley and Huffman. Birch trail dead ends at DeArmoun and should connect to something to get downhill. Homeless camps on Chester Creek/Ship Creek are a problem.
  - At intersections, traffic signals require active intervention – have to activate at beginning of a light cycle or have to wait sometimes in bad weather. Dedicated systems work in other cities. Old Seward/Tudor – signals don't work well. Tudor/Lake Otis – signal for ped/bike is a long wait.
  - I would love separated paths that kids in my area could safely ride – currently to get to a separated path, my students must be driven to the trails and most families don't do this. Connecting Scenic Foothills/Muldoon to the trail network is important!
  - I feel there needs to be more connectivity throughout the city going east to west. I also think bike lanes would make a difference, but these need to be clearly marked and wayfinding is necessary.
  - Continue development of contiguous trails – use more bridges/tunnels to bypass motorized intersections. Link up Campbell and Chester for a large, continuous off street loop.
  - More connectivity – build missing links. More single-track trails in every park. Let's get more bike lanes – through intersections and signalized intersections too. Education – let vehicle drivers and bicyclists know how to deal with bike lanes and shared use. Solve maintenance concerns with MOA and DOT – bike lanes can be cleared separately. Replace smaller tunnels on Chester Creek Trail. Get horses off of main trails FBNP (tour trail) during the winter – they ruin snow grooming.
- Changes to consider:
- More links in Midtown – this last mile is the most difficult part of my commute
  - Wayfinding – help lead people along routes, like through Mountain View, and use both signs and pavement markings

- Eliminate the rolled curb design option and replace with curb/gutter and space for snow storage.
- Require the installation of sidewalks with new sub-divisions and when streets are reconstructed
- Provide a better approach to signing of dedicated bike lanes (see illustration of typical section below)
- Encourage more innovation in snow removal – snow melt cisterns, snow blower loan program, and neighborhood snow-fighters
- Create a dedication funding source for bike/ped infrastructure – surcharge applied at the time of bike purchase as an example
- Municipality needs to assume ownership of key road corridors that work best for complete streets and primary transit corridors
- Place the bike/ped on equal footing with the auto in certain segments of the road network
- Create pedestrian streets (Woonerf) where autos are allowed but the street is designed primarily for pedestrian mobility across the width of the road
- Change the design code and/or ordinance that allows street maintenance to use sidewalks for snow storage
- Create pedestrian streets in Mid-town area – University Center, library, movie theatre, grocery stores





## Non-Motorized Plan - Mobile Meetings Update

We have presented at the following "mobile meetings":

- 2/8, Anchorage Transportation Fair (tabling, no formal presentation)
- 2/14, Anchorage Senior Activity Center (tabling, no formal presentation)
- 3/8, Anchorage Parks and Recreation Commission
- 3/12, Eagle River Park Board
- 3/13, Anchorage ADA Commission
- 3/15, Anchorage Equal Rights Commission
- 3/22, Anchorage Youth Advisory Commission
- 4/12, Public Transit Advisory Board
- 4/20, Alaska Nations Reentry Group

We presented at these meetings for 10-15 minutes. The presentation covered background information, project team expertise, vision, goals, and a short written activity with 6 open-ended questions regarding how people move around the Anchorage Bowl, barriers to non-motorized transportation, possible solutions, and prioritizing the project goals.

### *Input Received*

We received 55 responses to the activity form. Approximately 20% of the respondents do not use a personal vehicle as their primary mode of transportation, indicating these mobile meetings were targeting relevant and appropriate audiences.

The comments on barriers and solutions generally focus on the following topics:

- More sidewalks and increase/improve non-motorized infrastructure
- Safety (traffic and trails)
- Better winter sidewalk maintenance/snow removal for accessibility
- Non-motorized (and transit) travel time being a barrier
- Improve connectivity for non-motorized routes.

Goals 2 and 3 are most frequently listed as the most important: Improve safety and security (36 responses) and promote and improve health and quality of life (29 responses). Goals 5, 4, and 1 are the next most frequently listed: Connect all communities through all modes to all destinations (21 responses), optimize maintenance for all seasons (19 responses), and increase use of the non-motorized system (17 responses). Goal 7, build community through education and involvement, was noted 12 times. Goal 6, measure non-motorized use and assets, was never listed as a priority.

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## A.2 Traffic Controls or Treatments Not Yet Approved by Anchorage

Table A.4.1: Traffic Controls or Treatments Not Yet Approved by Anchorage

ITEM	TREATMENT	MUTCD STATUS
1	automated pedestrian detection device	Approved (4E.08)
2	push buttons with lights, audible or vibrotactile feedback	Approved (4E.09)
3	push button bicycle detection	N/A
4	automated bicycle detection	Approved (9C.05)
5	hybrid beacon (hawk)	Approved (4F)
6	green crossbike markings	N/A
7	protected intersection	N/A
8	two-stage turn boxes	Interim Approval (IA-20)
9	bicycle boxes	Interim Approval (IA-18)



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