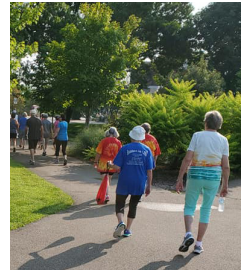
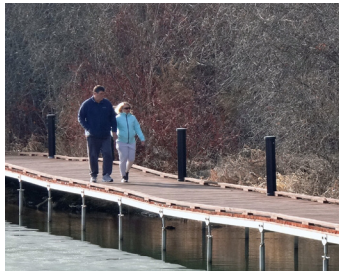




City of Chaska 2040 Pedestrian and Bicycle Master Plan



Making Walking and Biking in Chaska Safer and More Inviting, Convenient, and Fun!



Adopted March 4, 2024



CITY OF
Chaska
MINNESOTA

"The Best Small Town in Minnesota"

Acknowledgments

We are grateful for the support and guidance of the following individuals and organizations:

Project Steering Committee (PSC)

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Chaska Staff

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Statement of Intent

The intent of this plan is to expand upon the trail and sidewalk networks that Chaska is known for and offer recommendations for improving and increasing opportunities for walking and bicycling in Chaska, for both recreational and transportation purposes.

Recommendations include investments in new facilities and in new programs. In most cases, funding for the recommendations in this plan is currently not available or allocated. The variety of recommendations are intended for City staff and City Council to consider, many of which will require further evaluation, community engagement, and funding before implementation.

Recommendations are based on Minnesota-specific best practices, applications, and guidance provided by the Minnesota Department of Transportation (MnDOT), including consideration of winter conditions on use, operations, and maintenance. Where possible, examples from communities of a size and context similar to Chaska are provided. In other cases, examples from elsewhere in Minnesota are included and are supplemented by national practices recommended by the US Federal Highway Administration (FHWA) and the US Department of Transportation (USDOT).

Please note that:

- 1) Additional investigation and design for each specific facility or project must be completed by a licensed engineer prior to implementation
- 2) Additional community engagement, especially in key locations like the City's downtown or residential districts, should be completed ahead of consideration of each specific facility or project
- 3) Projects that align with the City's 2040 Comprehensive Plan will receive higher priority for implementation

Executive Summary



Executive Summary

The Chaska Pedestrian and Bicycle Master Plan was developed through an extensive community process with guidance from Chaska City staff and volunteer members of the plan's Project Steering Committee.

Why do a pedestrian / bicycle plan?

Because Chaska residents told us they want more opportunities for safe walking and biking, and because investing in these modes makes sense for Chaska. Some additional reasons include:

- » To improve safety for everyone
- » To increase livability and equitable access to trails, parks, schools, and other community destinations
- » To increase residents' options for recreation and healthy physical activity
- » To increase household and community prosperity
- » To improve air quality
- » To enhance Chaska's desirability and regional economic competitiveness by providing the type of amenities that residents, young families, and visitors expect

What does the plan do?

It offers a wide range of recommendations covering facilities and programs to achieve an **"All Ages and Abilities"** system (where people of all ages and abilities can safely and conveniently use walking or biking as part of their daily routine).

How does the plan do it?

By using a **"6Es"** approach that provides recommendations for:

- » Engineering
- » Enforcement
- » Education
- » Evaluation
- » Encouragement
- » Equity

When will the plan be implemented?

No funding is currently allocated or committed, but many of the recommendations are intended for implementation over the next fifteen years (some of the recommendations may take longer to implement). City Council and staff will evaluate each recommendation individually, and will decide based on available funding, community preferences, and other considerations.



How did residents contribute?

A robust community engagement process was a key component of the approach for this plan, serving as the foundation for the plan's vision and recommendations.

- » More than one thousand residents provided comments and ideas through an online survey and an interactive map
- » Residents described the barriers they encounter while walking or biking, described their desired outcomes, and identified specific types of facilities they wanted to see
- » Residents drew and submitted routes for new walking and biking facilities
- » Additional community conversations were held at several locations, including at River City Days and several apartment complexes

Top 10 Priorities for Implementation

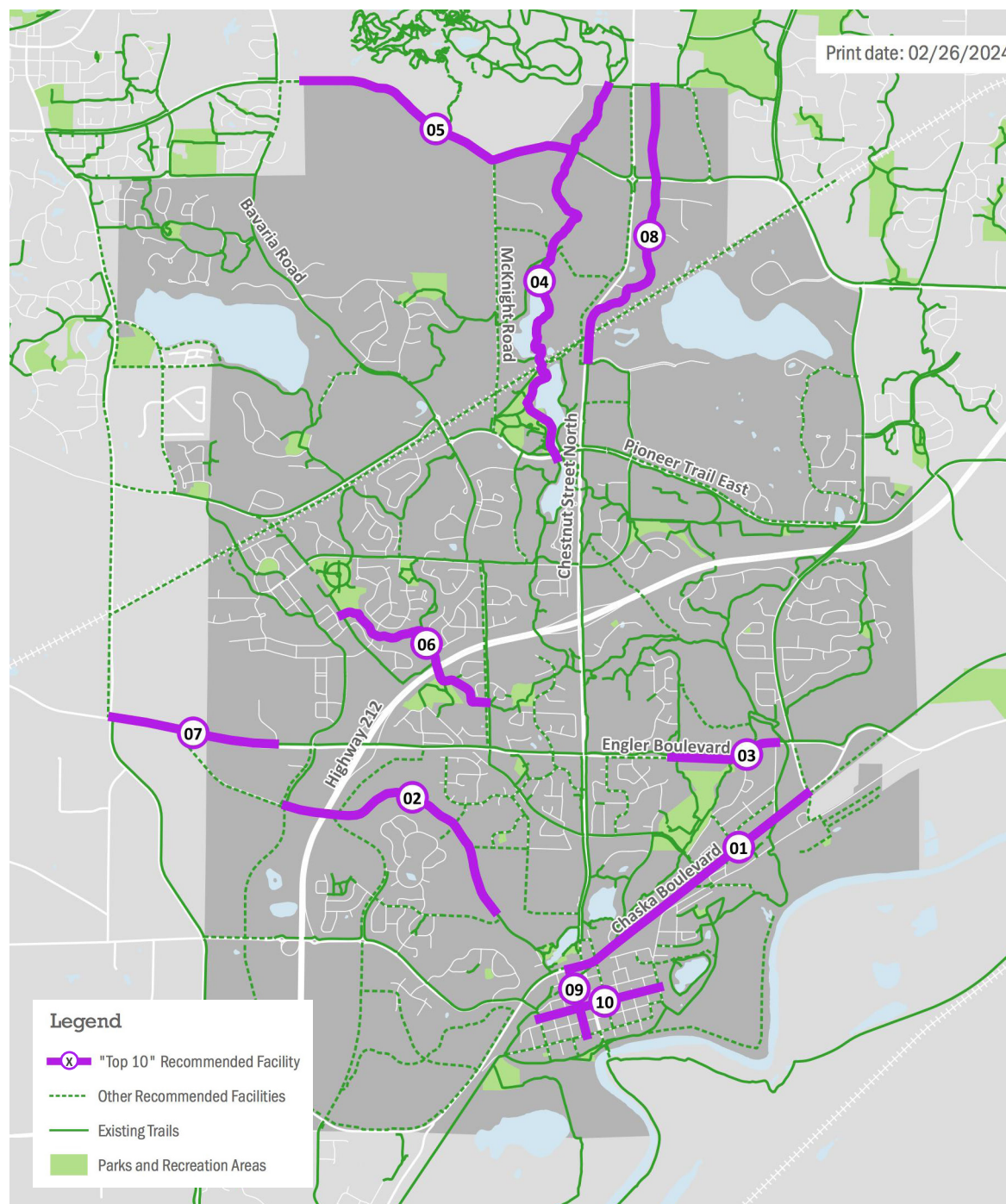
Numerous recommendations for bicycle and pedestrian routes and investments are described in this plan.

A set of “**Top 10**” routes and facilities was selected from those recommendations for priority implementation.

Please note that funding for the facilities and programs identified by this plan (including the “Top 10” facilities) has not yet been secured, though it is anticipated that the main source of funds will be grants from state, federal, and county sources supplemented by a mix of City resources (please see potential funding sources in the plan’s implementation chapter).

Top 10 routes were selected responding to several factors, including:

- » Whether they serve a regional connectivity role per Metropolitan Council’s Regional Bicycle Transportation Network (RBTN)
- » The number of key destinations (schools, parks, library, transit) they connect
- » Requests for routes along their alignments during the plan’s community engagement process (including through the Wikimaps engagement portal)
- » Guidance from City staff and leaders



Funding for “Top 10” and Other Facilities and Programs

Funding for facilities and programs identified by this plan (including the “Top 10” facilities) has not yet been secured, though it is anticipated that the main source of funds will be grants from state, federal, and county sources supplemented by a mix of City resources. A listing of potential funding sources is included in the plan’s implementation chapter.

Planning-level cost estimates for implementing the “Top 10” facilities are provided in this table:

Map Ref #	Route Name	From	To	Length (miles)	Facility Type	* Cost Estimate (\$)	MetCouncil RBTN?	# of Key Destinations
1	Chaska Blvd	Pine St N	Audubon Rd	1.56	SUP / Trail	\$561,600	Yes	3
2	Creek Road	Chaska Creek Blvd	Vista View Dr	1.48	SUP / Trail	\$532,800	Yes	1
3	Engler Blvd (eastern)	Ridge Ln	Old Audubon Rd	0.57	SUP / Trail	\$205,200	Yes	3
4	McKnight Lake Trail	Lyman Blvd	Pioneer Trail West	2.45	Upgrade Existing	\$502,250	Yes	3
5	Bavaria Rd/82nd St W	Ali Ln	McKnight Lake Trail	1.55	SUP / Trail	\$558,000	Yes	1
6	Clover Ridge Connector	Molnau Court trail	Bavaria Road	1.09	Upgrade Existing	\$223,500	No	3
7	Engler Blvd (western)	Carver Pkwy E	West Creek Ln	0.86	SUP / Trail	\$309,600	Yes	1
8	Peavey Road	Norex Drive	Hazeltine Blvd	1.64	SUP / Trail	\$590,400	Yes	3
9	Pine St (downtown)	Chaska Blvd	W 1st St	0.35	TBD (pending engagement)	-	Yes	5
10	W 3rd Street (downtown)	N Hickory St	Beech St	0.65	TBD (pending engagement)	-	Yes	5

* Cost estimates are based on MnDOT’s Metro District Bicycle Plan (March 2019), which were derived from statewide average bid prices. To reflect current conditions, including higher costs due to inflation, post-Covid supply chain disruptions, and other factors, future project costs should be inflated relative to a base year of 2017. Cost estimates shown here do not include an allowance for engineering, utility, or right-of-way costs, but do include a 40% contingency that may account for some of those costs. Please note that these estimates are only intended to be used at a planning level and should be refined throughout the project development phase of each individual project.

Facility Types for “Top 10” Facilities

Two types of facilities (with one “quick install” option) are recommended for implementing the Top 10 projects:

Preferred Type: Shared-Use Path (SUP)



A family enjoying a ride along a shared-use path (also known as a trail) in Chaska.

Totaling about 70 miles, Chaska has an extensive network of shared-use paths (SUPs). Also known as trails or bike trails, these facilities provide a dedicated space for people walking and biking.

Because they are physically separated from motor vehicle traffic and are generally sited along parks or scenic routes they are the “gold standard” for attracting users and growing walking or biking in a community.

SUPs are recommended and included within the “Top 10” projects where feasible to grow the City’s “All Ages and Abilities” network.

Protected Bike Lane (PBL, Cycletrack)



Barrier-separated protected bicycle lane, Glenwood MN (population 2,560). Image courtesy of MnDOT.

Protected bike lanes (PBLs, also known as cycletracks or sidepaths) are trail-like facilities, adjacent to existing roadways, that offer a physically separated space for bicycle riders.

PBLs offer an “All Ages and Abilities” experience and attract new and existing bicycle riders.

PBLs are recommended in more active and dense areas of the City, where space is limited (including at more urban / developed locations in the “Top 10” projects) to provide a safer environment for bicycle riders, pedestrians and motorists.

PBL: Cycletrack Quick Install Option



A MnDOT “quick install” cycletrack in Wahkon MN (pop. 310). Image: T.A. LeBrun and Mille Lacs Messenger.

Building the facilities needed to support increases in biking can take many years, especially if funding is uncertain.

[MnDOT has developed a set of guidelines and approaches](#) to help communities quickly deploy improvements for biking.

Demonstration projects can be quickly planned and deployed for less than 5% of the cost of permanent facilities.

This approach can be used to quickly implement the plan’s recommendations, including the “Top 10” projects.

Summary of Programs (Non-Infrastructure) Recommendations

Numerous recommendations for programs and other non-infrastructure initiatives (like printing bike route maps and focusing speed enforcement at specific locations) are also included as part of this plan and are detailed in the corresponding chapters.

Programs help build momentum for success as they are inexpensive, quick to deploy, and cost-effectively expand the reach and success of city investments.

A summary of key recommendations from each of the programs chapters is provided here - please refer to each full chapter for additional details.

Education

- » Develop and distribute network maps
- » Conduct a media campaign around walking, biking and driving safety
- » Develop a Safe Routes to School (SRTS) plan for the city's schools

Encouragement

- » Implement a yearly Open Streets event
- » Consider developing a walk / bike incentive program with local businesses
- » Apply for recognition as a [Walk Friendly](#) and [Bicycle Friendly Community](#)



At an Open Streets event in Albertville MN (population 7,900). Image courtesy of FYCC Albertville.

Enforcement

- » Provide safety call boxes and lighting at select trails and locations
- » Use active speed monitors at locations where speeding is a concern
- » Use [new Minnesota state laws](#) to adjust automobile speed limits at locations with high pedestrian or bicycle use
- » Consider a part-time position for a Pedestrian and Bicycle Coordinator (details in the Implementation chapter)

Evaluation

- » Setup a yearly counting program for assessing concentrations and level of use of walking and biking facilities
- » Set goals and benchmarks to evaluate improvements in measures like safety, use, and community participation

Equity

- » Include considerations of equity when funding or prioritizing improvements; expand access to walk/bike assets for the city's disparity populations
- » Expand proactive engagement to all of the city's populations
- » Continue to address ADA considerations throughout the city's walk/bike network



1

Introduction, Goals, and Vision

This chapter provides an introduction to the plan - its goals, vision and principles, and an overview of why planning for walking and biking is important.

In This Section:

- » Introduction
- » Vision
- » Why Plan for Walking and Biking?
- » Goals
- » Guiding principles

Introduction

Walking and biking are simple, accessible, and sustainable forms of transportation that provide healthy, affordable, and enjoyable options for reaching daily destinations.

Walkable, bikeable places provide safe, comfortable, and inviting walking and biking routes and offer freedom of travel for people of all ages, abilities and incomes, including the rich and poor, the young and elderly, and everyone in between.

About This Plan

This plan offers recommendations for routes, facilities, and programs to make walking and biking safer, more convenient, and more inviting and enjoyable options for people who live, work, and play in Chaska.

The plan uses two key approaches for its recommendations:

- » An **Active Living** approach that seeks to make walking and biking comfortable and normal everyday activities for connecting to work, school, parks, neighborhoods and other community destinations
- » A **6Es** approach that combines on-the-ground improvements (like new bike trails) with supportive programs (like maps, community events, safety campaigns and others) to make improvements in the city and grow walking and biking

The plan builds on the many investments and improvements that Chaska has completed over the last several decades, and looks into the future for implementing its recommendations.



Walking and biking trails in Chaska enrich residents' and visitors' experiences, connecting them with natural assets, the city's neighborhoods, and thriving business nodes.

How the Plan Was Developed

The project team worked with Chaska residents, staff, and officials to learn about existing issues and ideas for improvement, and develop a vision for walking and biking in the city.

Issues noted by residents and staff were carefully analyzed to respond to safety, connectivity, and user-comfort concerns. An implementation plan was developed to identify priorities for funding and building improvements.

The plan was led by City of Chaska staff, and was funded by a Statewide Health Improvement Partnership (SHIP) grant administered by Carver County Public Health.

Vision

The plan's Vision is a statement describing the future of Chaska after the plan's recommendations are implemented. It was developed from the comments and ideas gathered through the Plan's community engagement process, and refined through work with the plan's Project Steering Committee (PSC) and City staff:

The City of Chaska is an active and vibrant community where people of all ages and abilities enjoy access to a safe, inviting and convenient walking and biking network throughout the entire year.

Linking parks, schools, commercial, employment, residential areas, and transit, the City's network highlights Chaska's natural assets and offers easy and comfortable connectivity to destinations throughout the community.

Chaska continually grows the use of walking and biking through an integrated 6Es approach that combines on-the-ground improvements with engagement, education, encouragement, enforcement, evaluation, and equity initiatives.



What Residents Want

More than one thousand Chaska residents provided ideas and comments for improving walking and biking in the City. Their guidance helped shape the plan's recommendations. This is what they said:

- » Walking and biking are fun and important activities in their lives
- » The City has great trail assets already in place
- » Gaps in the current network make walking or biking difficult
- » Walking and biking close to motor vehicle traffic is stressful and makes daily use of these options less attractive
- » Maintaining walking and biking facilities throughout the year (including winter) is important
- » Wayfinding, and knowing how to navigate the system to reach desired destinations can be difficult

Why Plan for Walking and Biking?

There are many reasons why investing in walking and biking makes sense for Chaska. Here are some of them:

Safety

A comprehensive network of walking and biking routes improves safety by providing continuous connections with fewer gaps, more separation from motor vehicle traffic, and calmer streets.

Livability and Equity

Increasing options for getting around helps achieve community goals by improving access to jobs, neighborhood schools, and services for more people - including those without cars.

Access to Destinations / Mobility

Walking and bicycling increase mobility, allowing people of all ages and abilities to reach more destinations throughout the community.

Health

Active transportation options, like walking and biking, help people to build regular

physical activity into their daily lives, and improve health for the community overall.

Household and Community Prosperity

Walking and biking are affordable transportation options that reduce residents' cost of travel. People who walk or bike for at least some of their trips are able to save on costs associated with vehicle ownership and operation, freeing up budget for other expenses.

Cleaner Air

When more people walk, bike, or take transit to meet their transportation needs, all residents benefit from cleaner air and reductions in pollutants caused by vehicle exhaust.

Recreation

Walking and biking are among the top desired recreational activities in regional surveys, especially among older residents. During public engagement, Chaska residents noted that they use walking and biking for fitness and recreation more than for any other purposes.

Parking and Congestion Alleviation

Over 25% of trips in the US are shorter than one mile. That's a 20-minute walk, or a 6-minute bike ride, an easy distance for most people. Fewer people driving means less congestion on existing roadways, less demand for parking, less time and money spent waiting in traffic, and safer conditions for everyone.

Regional Economic Competitiveness

- » Communities with trails and safe walking and biking infrastructure [attract tourism and boost their economies](#).
- » Reducing traffic speeds by 5–10 mph [increases residential property values by approximately 20%](#)
- » In communities across the United States, each one point increase in a home's Walk Score (a measure of walkability) is associated with a [\\$700-\\$3,000 increase in resale value](#)
- » Over 75% of millennials say it is important for their city to offer [opportunities to live and work without relying on a car](#)

Goals

What Are the Goals for the Plan?

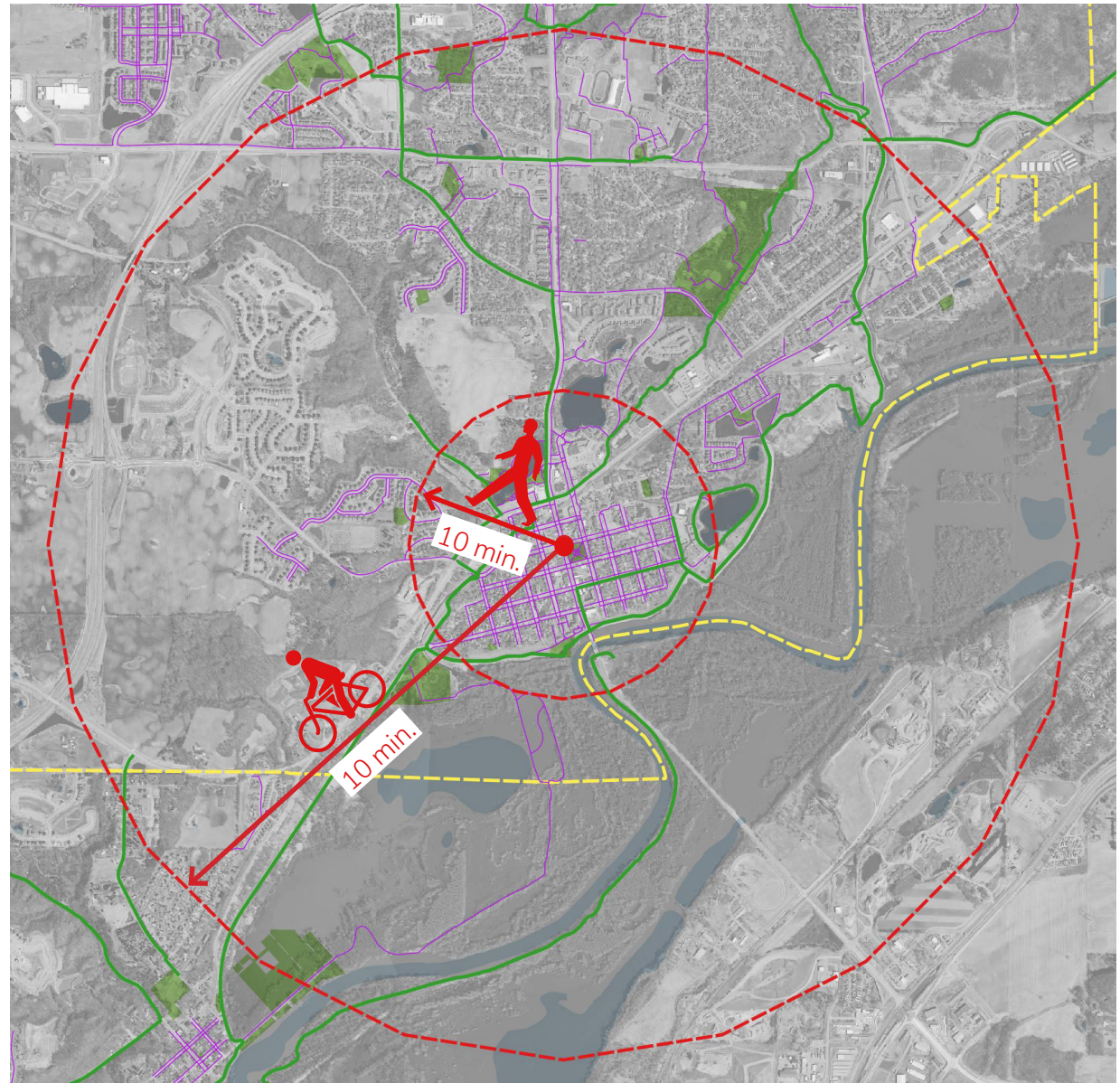
The main goal for this plan is very simple: to increase the number of Chaska residents, workers, and visitors who choose to walk or bike for transportation, recreation, health, fitness, and fun in the city.

The plan also aims to support the efforts made by City staff, residents, and elected officials to continually increase quality of life, amenities, safety, and environment for Chaska residents, businesses, workers, and visitors.

How Will We Achieve These Goals?

The plan's goals will be achieved by:

- » Providing a continuous network of safe, comfortable, and inviting facilities, and,
- » Implementing a full range of effective and proactive programs that support increased walking and biking in the city - including programs in community education, encouragement, enforcement, and evaluation.



Chaska is a walkable and bikeable community. Due to its compact size, a person walking can reach all of its downtown core in less than 10 minutes. On a bike, a 10-minute ride lets one reach many destinations in the city.

Guiding Principles

An “All Ages and Abilities” System

An “All Ages and Abilities” system is one where anyone, regardless of age or skill, can safely and conveniently use walking or biking as part of their daily routine. Building safe and comfortable facilities will invite use by more Chaska residents, including children, seniors, and adults - and those who are not currently walking or biking today.

Improve Safety, Perception of Safety, and User Comfort

Address unsafe conditions at intersections, facilities or trails where issues of safety or user perception of safety exist. Increasing the comfort of existing facilities to respond to user preferences will help grow walking and biking trips.

Develop Facilities and Address Gaps

Provide facilities, connections, and wayfinding where needed and develop walking and biking networks that offer continuous, high-quality, comfortable, and intuitive connections.

6Es for Success

Infrastructure and programing are the key to the system’s success. Thoughtfully-developed programs can quickly and inexpensively invite greater use and grow walking and biking in Chaska.

A Year-Round Approach

Support year-round walking and biking by making efficient use of the City’s limited maintenance resources. Protect investments by proactively maintaining walk/bike facilities.



A strategic year-round approach can help grow walking and biking in the community while being mindful of limited maintenance resources.

An Active Living Approach

The places where people live, work, and play shape their physical, emotional, and financial well-being. Active Living policies and initiatives help make physical activity (like walking or biking) a useful, easy, fun and normal part of everyday life.

An Active Living approach for designing communities can:

- » Improve people’s physical and mental health
- » Make walking and biking safer
- » Bring people together
- » Reduce traffic congestion, improve air quality, maximize green space, and reduce transportation costs for families
- » Decrease a community’s overall risk and severity of chronic disease and medical costs



2

Guidance from the Chaska Community

A robust community engagement process was a key component of the approach for this plan, serving as the foundation for the plan's vision and recommendations.

In this section:

- » What we did
- » What we heard and learned

This chapter provides a high-level summary of activities and findings - for additional details, please consult Appendix 2, which includes results from all of the plan's community engagement activities.

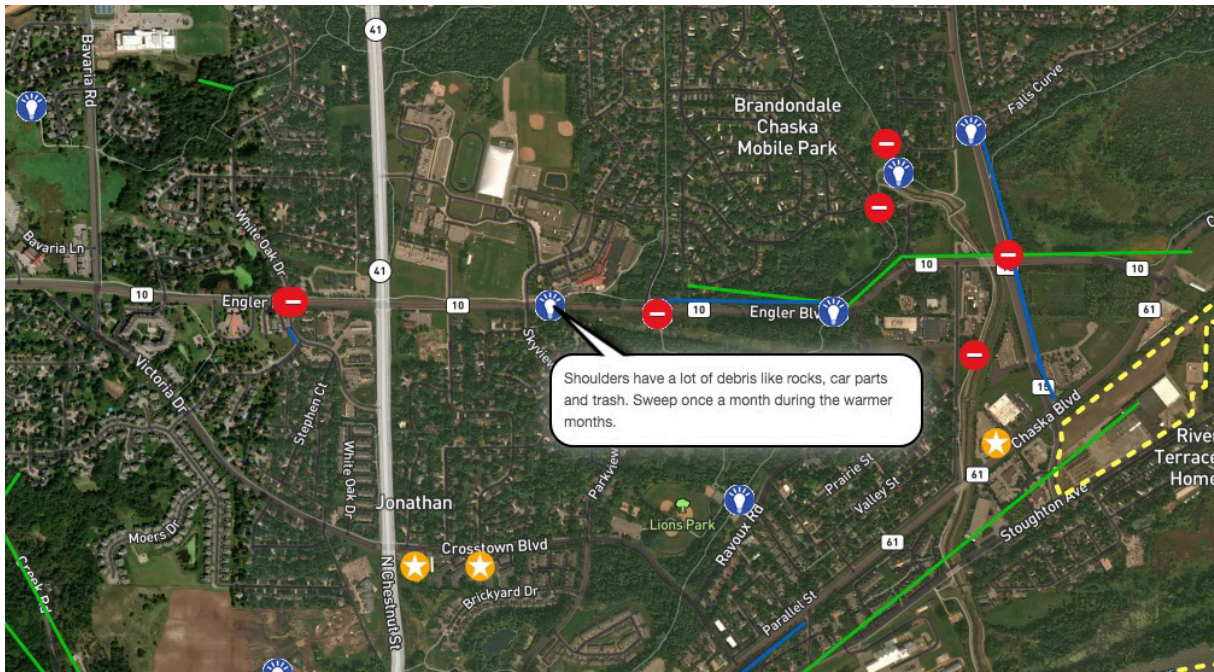
What We Did

Connecting with Chaska residents was a key priority for the plan. Working through the challenges presented by COVID-19, we conducted an extensive and very successful online engagement campaign to receive comments and guidance from more than one thousand Chaska residents.

We supplemented our online efforts with strategic in-person engagement once it was safe to do so - and conducted activities at community events and meetings with community partners, reaching more that 300 additional participants.

The comments we received, reflecting residents' experiences and ideas for the future of walking and biking in Chaska, helped to orient the plan's vision and recommendations.

A detailed summary of public engagement results can be found in Appendix 2.



Close-up view of comments received through the plan's Wikimap, one of several online engagement activities for the plan.

Participation by the Numbers

OVER **920** participants in the plan's online survey!



138 participants used the interactive online map to recommend new routes



OVER **110** map comments received including destinations, routes, barriers, and ideas



MORE THAN **650** unique visitors to the plan's public website



2 online public workshops to share experiences and ideas for improving walking and biking in the city

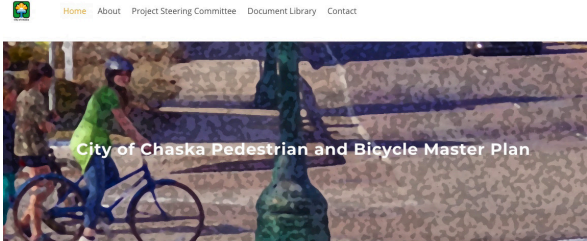


Tools and Approach

Knowing that COVID-19 would limit opportunities for in-person engagement, we developed a robust set of both online and in-person engagement activities.

Online components of our engagement campaign included:

Project website



Welcome

The City of Chaska is working to develop a Pedestrian and Bicycle Master Plan. You can use this site to contribute your ideas and comments, learn more about the project, and connect with us.

Latest news

06/21/21
Report from Wikimap Engagement
A full report including all of the comments received from the

The project website served as the principal clearinghouse for plan information and was a key tool for sharing project progress, providing access to mapping tools and surveys, and offering a platform for commenting on the plan. The website also hosted brief videos about the project as well as tools like fliers and sample social media messages to help disseminate news about the plan.

Interactive Online Map (Wikimap)



An interactive online map collected location-specific comments about walking and biking assets, locations of concern, and priorities. Data from the map was brought into the Geographic Information System (GIS) database used to develop the plan’s recommended routes, and were a key input for the design process.

Social Media

The project team closely coordinated with City staff to leverage the City’s current Facebook and Twitter channels to provide timely project announcements, share information about online participation tools, and invite residents to upcoming public workshops. Social media was also used to invite visitors to the project website to view project updates and plan drafts.

Online Community Survey



The plan’s online survey included questions to gather ideas and preferences related to walking and biking.

A detailed online survey was used to gather specific information from Chaska residents regarding their ideas, needs, and desires for the pedestrian and bicycle network in the city - including their preferences and perceptions of comfort and safety for specific types of facilities. This was key information for the plan as building an All Ages and Abilities network is one of its main goals.

The online engagement campaign was extremely successful, with more than 1,050 participants overall (926 participants in the online survey and 138 participants in the Wikimap). The online campaign was then supplemented with a strong in-person component.

In-Person Engagement

To round out the plan’s engagement campaign and connect with communities that were under-represented in online engagement activities, four additional in-person opportunities were held, including



At River City Days.

events at apartment complexes with immigrant populations (with translators available), at an event with young people, and at River City Days, which enjoys broad participation.



Session at Lake Grace Apartments.

Project Steering Committee (PSC)

The work of the plan was managed by a Project Steering Committee (PSC) made up of residents, local advocates, agency partners, and City staff.

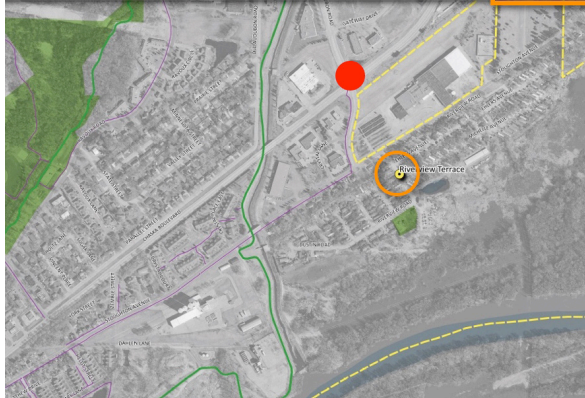


At one of the plan’s Steering Committee meetings.

Where would you add a walking or biking route?

Please use the pens, markers and stickers provided to tell us your ideas about:

- A new walking route
- A new biking route
- A problem



Comments gathered at Lake Terrace apartments.



City of Chaska Pedestrian and Bicycle Master Plan

What are some things you wish would be better? What doesn't work well for bicycling in Chaska?

better { trail maintenance, there are a lot of trails with broken asphalt and roots, levers, and weeds.

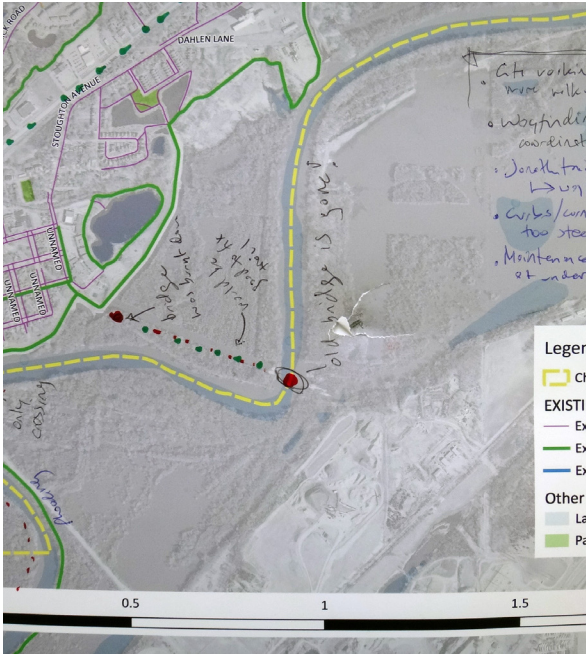
doesn't work { many pedestrians and bikers don't follow the rules of conduct on "side policy". for instance not biking on the right side. adding dashed lines or rules @ entrance

What ideas do you have for making bicycling better in Chaska? What would invite you to ride your bike more often to get to school, visit friends or hang out? What would get more of your friends on bikes?

more drinking fountains, the amount of times I run out of water w/o a place to get more is tough. maybe with the addition of a bench and sanitation station or something

Thank you for your ideas! Find out more about the plan at www.walkbikeschaska.org

Worksheet from the Mountain Bike Team.



Comments gathered at River City Days.

What We Heard and Learned

Key Themes

Several key themes emerged through engagement, including:

Residents very highly value Chaska's walk / bike facilities and network

- » Residents recognize, appreciate and use the walking and biking facilities that are in place today, while they also recognize opportunities for improving the system

Walking is a very popular activity in Chaska today

- » More than half of participants in the plan's engagement (51%) walk four or more times per week
- » Four-fifths (80%) of respondents walk for pleasure or exercise at least 2-3 times per week
- » One-quarter (25%) of respondents walk at least once a week to complete shopping or errands

Biking is also very popular

- » More than half of participants in the plan's engagement (58%) ride a bike at least 2-3 times per week

- » Just under one-quarter (22%) of respondents ride a bike at least once per week to go shopping
- » About one out of seven (14%) respondents ride a bike at least once a week to go to work

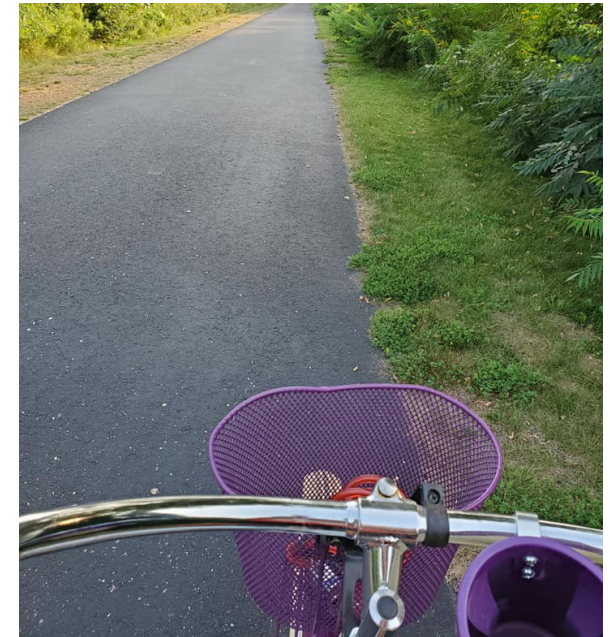
There's a lot of room to grow walking and biking

- » 80% of respondents have never biked to get to work or school
- » Over half (55%) of respondents have never walked to shopping or errands

Opportunities for Growing Walking and Biking

Participants identified several improvements that would invite them to walk or bike more often:

- » Growing the network of walking and biking routes
- » Making it easier for people to cross busy streets
- » Increasing separation from motor-vehicle traffic
- » Addressing gaps in the network

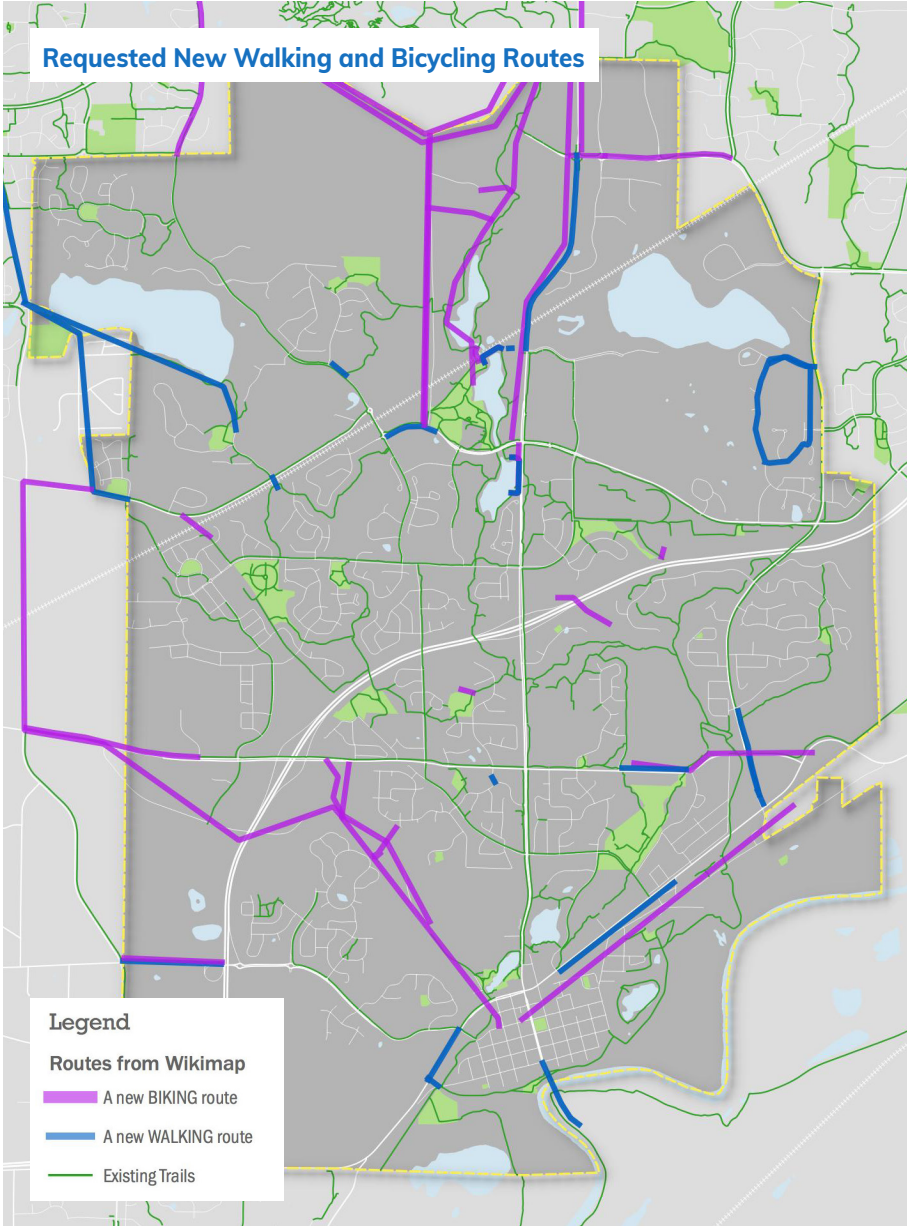
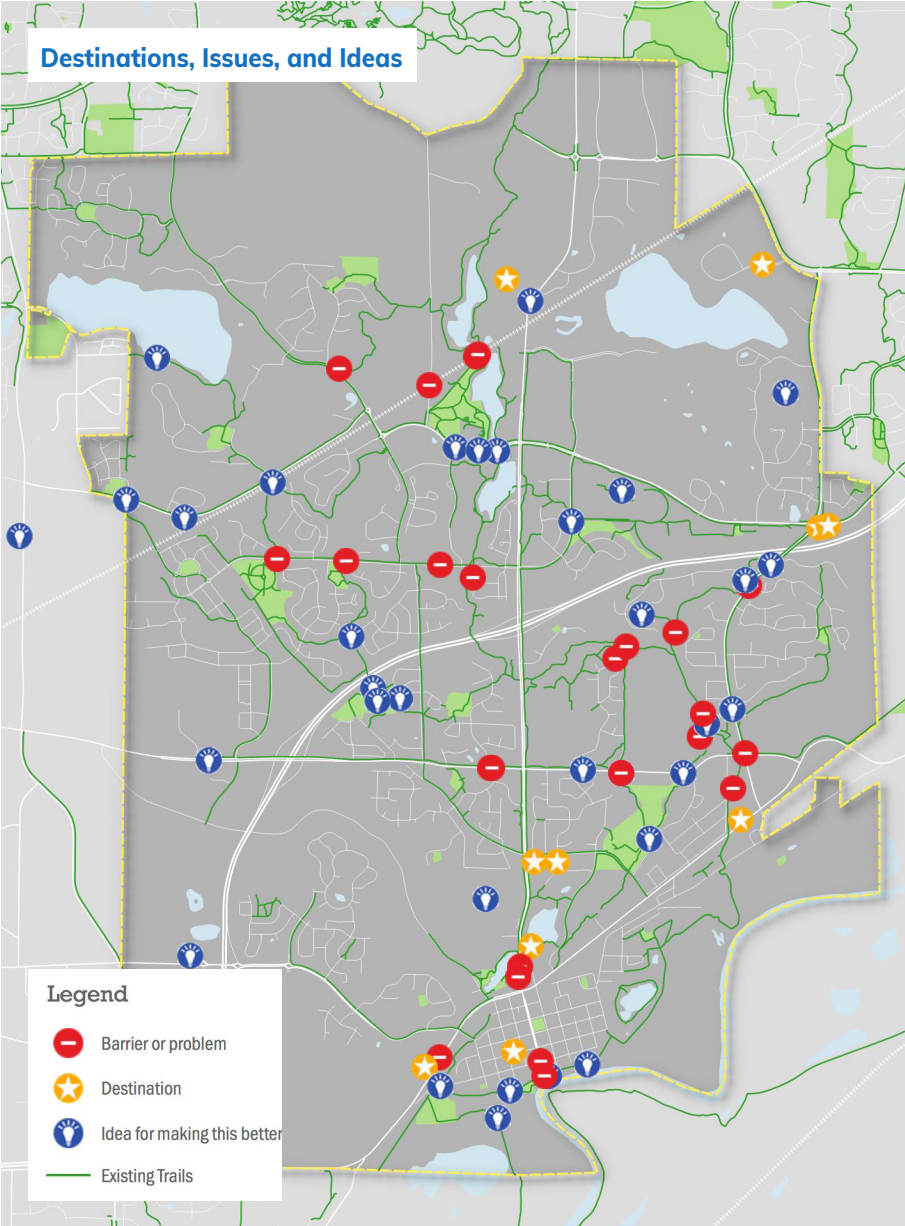


Recreation is among the top reasons provided by Chaska residents for walking and biking in their community. More than 80% of respondents walk for recreation at least twice per week; for bicyclists, the figure is about 60%. Image of trail from Carver to Firemen's Park courtesy of Val Preston.

- » Improving lighting along trails and streets
- » Improving winter maintenance of walking and biking routes
- » Installing more bike racks
- » Providing maps and signs to find destinations more easily

Results from the Wikimap

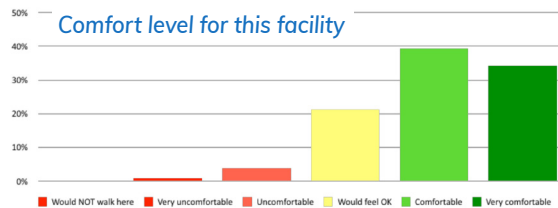
A sample of results from the interactive online map are provided below. Each of the points and lines shown includes a description and additional information provided by participants. A full export including each individual comment is provided in the Appendix.



Facility Preferences

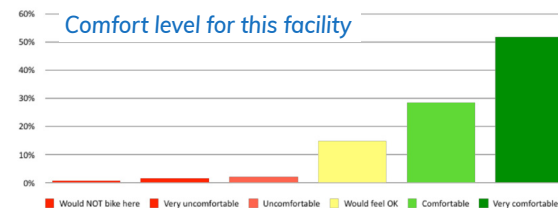
The online survey (with over 900 participants) included questions asking people to describe how comfortable they would feel walking or bicycling along twelve different types of facilities (user comfort is important because it will determine use of the City's network). The most comfortable facilities were those that provided separation from motor vehicles. Please see the report with full results in the plan's Appendix.

Walking



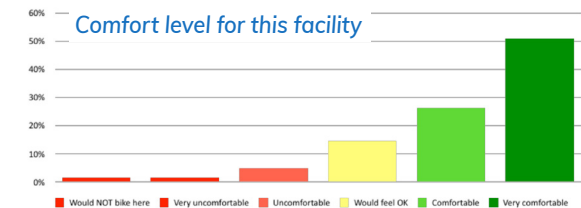
People walking indicated a very significant increase (about 120%) in the level of comfort they would experience if additional space (as little as 5 ft) was provided between the walking surface and lanes of moving traffic. For the plan, this means that providing a boulevard or other separation between sidewalks and traffic lanes is essential when developing new facilities.

Bicycling



People bicycling indicated a very clear and strong increase (over 500%) in the level of comfort they would experience as bicycle riders if additional space is provided between the bicycle facility and lanes of moving cars. Two key findings are:

- 1) A bicycle lane with a permanent barrier, like a median, ranked as high as an



entirely separate off-street facility like a shared-use path or trail.

- 2) A temporary facility, marked with bollards and paint (see image above), had a "level of comfort" almost indistinguishable to a trail - but can be developed very quickly and for less than 5% of the cost (\$40,000 per mile vs \$2,500,00 per mile).



3

Background and Existing Conditions

A careful review of Chaska's current conditions for walking and biking - and its many assets and accomplishments - provide a foundation for the plan's recommendations.

In this section:

- » Community Accomplishments
- » Chaska in Context
- » Existing Walk / Bike System
- » Current Plans and Policies

Celebrating Community Accomplishments

Chaska has been working for decades to become a more walkable and bikeable community. Its investments in pedestrian and bicycle connectivity are recognized and appreciated by residents, and are a distinguishing community characteristic.

The city's walkable downtown, its numerous recreational trails and pathways, and signature parks and civic spaces are key contributors to Chaska's high quality of life.

Some notable community assets and accomplishments include:

- » More than 70 miles of walking and biking trails
- » Sustained investments over decades for ensuring the vitality of its thriving and walkable historic downtown
- » Numerous parks and recreation assets
- » Educational walk/bike campaigns and events
- » Formation of a [Bicycle Friendly Community \(BFC\) Committee](#) to help elevate the City's walk/bike efforts and orientation
- » Development of the new [Hawks Ridge Mountain Bike Trail](#) - a joint effort of community volunteers with City and MnDOT support
- » New [walkability improvements for Highway 41](#) through the City's downtown

Development of this plan, supported through a grant from a [Carver County Public Health / Statewide Health Improvement Partnership \(SHIP\) grant](#) is also a community accomplishment and the foundation for the City's next round of successes!



City Square is a key walkable destination in the City's downtown.



Chaska's numerous recreational trails help connect residential and natural areas.

Chaska in Context

Chaska is an historic small town located along the Minnesota River in Carver County, toward the western edge of the Twin Cities Metropolitan Region. With a population of about 27,810 residents, it is classified as a “Suburban Edge” community by the Metropolitan Council, and is located inside the Metropolitan Urban Service Area.

The city is located about 20 miles southwest of Minneapolis and is immediately adjacent to Chanhassen.

Origins and History

The place where Chaska stands today was first inhabited by Mound Builder peoples, who built the ancient burial mounds found in what is now City Square. Later, the Dakota people (also known as the Sioux) inhabited the region, which they named the Big Woods.

The original town site was surveyed and platted in 1854 and incorporated as a Village in 1871, and later as a City in 1891.

Chaska’s early development was tied to steamboat traffic on the Minnesota River and later to agricultural development of the surrounding area. Brickyards and breweries



Early days of Chaska's Downtown.

were important early industries followed by pickle and sugar factories after the turn of the century. Two rail lines built in 1871 and 1877 influenced Chaska’s growth and its industrial expansion, evolving from a river port to a dual role as an agricultural trade/service center and industrial center. During the latter part of the 1800s and the first half of the 1900s, Chaska’s population stayed around 2,000 people.

The city remained a small town until growth of the Twin Cities metropolitan area reached it in the 1960s.



In the city's Downtown historic core today.

The city’s growth and development continues, with numerous industries and employers locating in the area, and construction of 100 to 300 new homes per year. Commercial businesses offer a variety of retail and service opportunities throughout the community, while revitalization of commercial areas in the city’s downtown began in the 1980s and continues today.

Although the community has seen much growth, sensible development and sound planning have ensured Chaska’s continuing sense of community and the preservation of its rich heritage.

Natural Features

The Minnesota River and two of its tributaries - East and West Chaska Creeks, are primary natural features. The main and tributary channels carved an extensive wooded ravine system through most of the City while the steep and wooded Minnesota River bluff line rises about 100 feet from the wide river valley.

The City's topography is characterized by level to gently rolling land within the Minnesota River Valley lowlands, with rolling to hilly terrain above the bluff. A wide variety of wetlands are also present, including lakes, ponds, and marshes.

Urban Form

The City's historic core, located along the Minnesota River, is organized as a traditional grid of streets, with generally square blocks of approximately 330 ft per face. This development pattern offers a high number of routes and alternatives for walking and biking trips.

Outside the historic core, the City has developed in a dispersed and discontinuous pattern, where areas hosting residential or commercial development are generally separated from others by large open spaces, parks, or agricultural areas. The

majority of residential development in the City is in the form of detached single family residences. A large industrial area is located in the City's northeast quadrant, while a large commercial area is located near its center.

The new residential and commercial areas are generally developed as large, curvilinear "superblocks" arranged around higher speed arterial roadways, and offering fewer opportunities for pedestrian or bicycle travel.

North Chestnut Street (State Highway 41) is a principal north-south route, while Pioneer Trail, Engler Boulevard, and Chaska Boulevard provide east-west connectivity. MN Highway 212 connects the City to other cities in the region.

Regional Walk/Bike Networks

There are several existing regionally-important non-motorized networks in and around the City, including the [Minnesota Valley State Trail](#), SW Regional Trail, and Minnesota River Bluffs Regional Trail. In addition, several corridors and alignments in and around the City are identified in the [Metropolitan Council Regional Bicycle Transportation Network \(RBTN\)](#).



Structure of blocks in the city's downtown historic core.



Development in "superblocks" along Pioneer Trail.

Existing Pedestrian and Bicycle System

Chaska's existing pedestrian and bicycle system is well-used by residents and is an asset to the community. There are opportunities to leverage those existing assets, address existing issues, and continue to grow walking and biking in the city.

Assets and Opportunities

- » The City's existing and extensive inventory of sidewalks and approximately 70 miles of shared-use paths and trails
- » Strong resident support for walking and biking
- » Commitment from elected officials, City Departments, County and community health organizations, and residents toward development of an All Ages and Abilities network
- » Understanding of and commitment to infrastructure and programs as part of the community's approach

Issues and Challenges

- » Gaps for All Ages and Abilities connectivity in the existing network, especially for access to and from the City's downtown, major commercial and industrial areas, and new residential developments
- » Infrequent facilities / limited connectivity / route options
- » Major roadways hindering walk/bike connectivity, and uncomfortable crossings at major intersections
- » Distance and connectivity issues to several important daily destinations



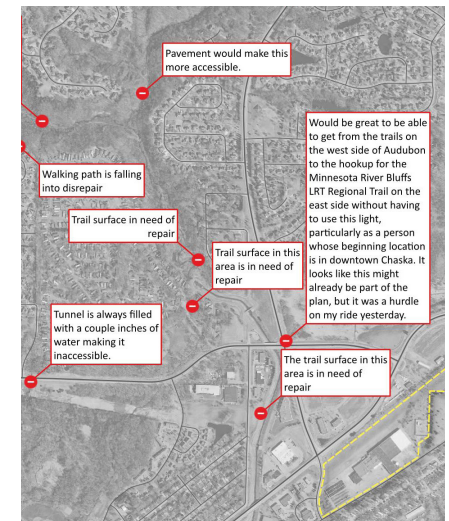
Community interest in walking and biking.



New high-quality trails and facilities.



Major roadways with large intersections.



Opportunities to add appeal & usefulness.

Existing Pedestrian Network

What the Map Shows

Numerous walking facilities, including sidewalks and trails, exist in Chaska. Sidewalk coverage in the Downtown is exceptional; however, connectivity gaps exist in many areas of the city where newer development is located.

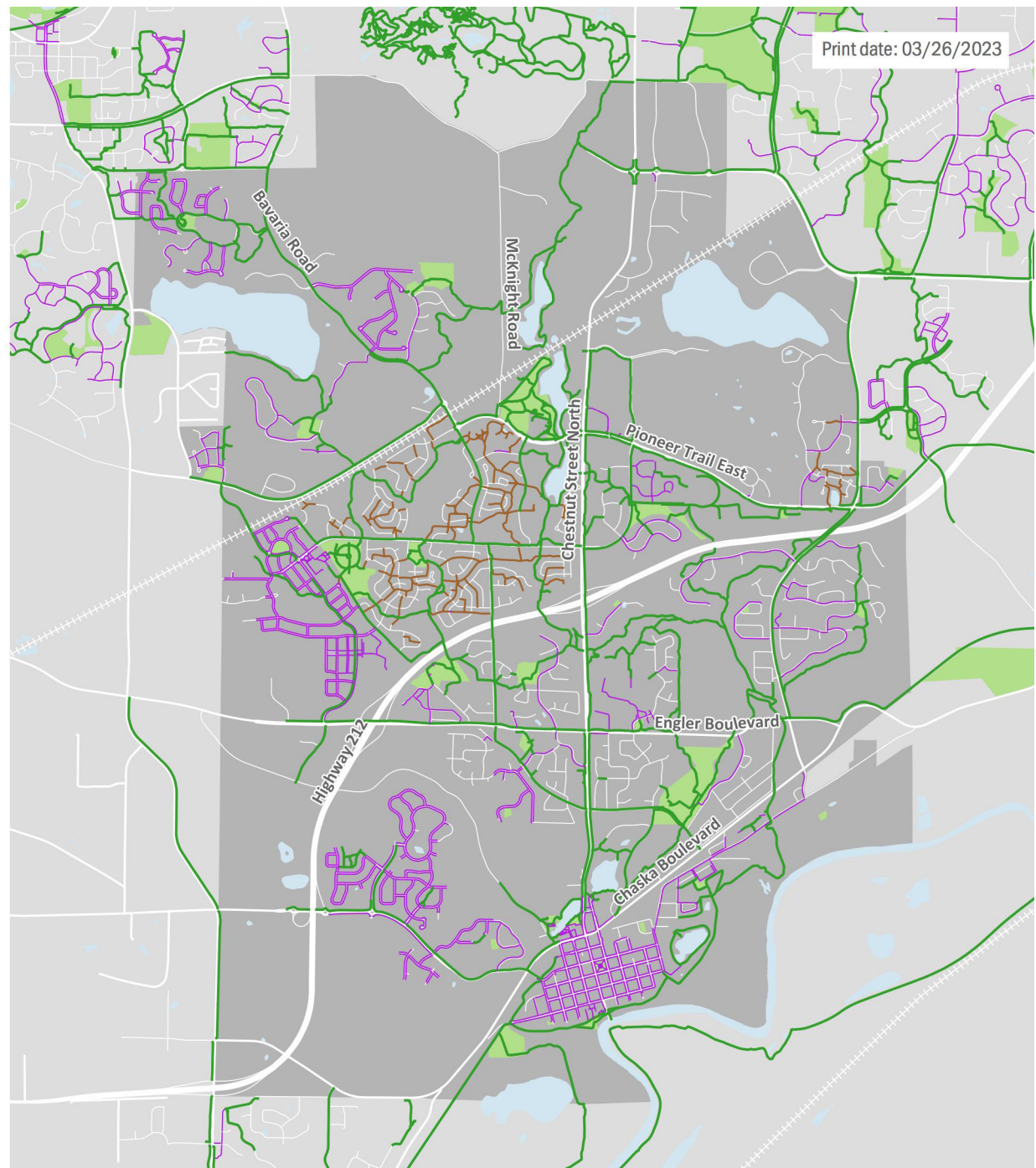
Some neighborhood streets in residential and employment districts do not include any walking facilities. Similarly, there are several stretches of key community roadways where sidewalks (either along or across them) are not provided.

Implications for the Plan

To avoid costly retrofits, sidewalks should continue to be required as part of new development. Creative low-cost solutions may be needed to address current gaps. Trail facilities at key locations may help address pedestrian connectivity.

Legend

-  Existing Sidewalks
-  Existing Trails
-  Jonathan Trails
-  Parks and Recreation Areas



Existing Bicycle Network

What the Map Shows

Approximately 70 miles of trails make up Chaska's inventory of bicycle facilities (no other types, like protected bicycle lanes or neighborhood slow streets are provided).

These facilities provide coverage across a southeast-northwest orientation. In some portions of the city, east-west and north-south trail connectivity is limited.

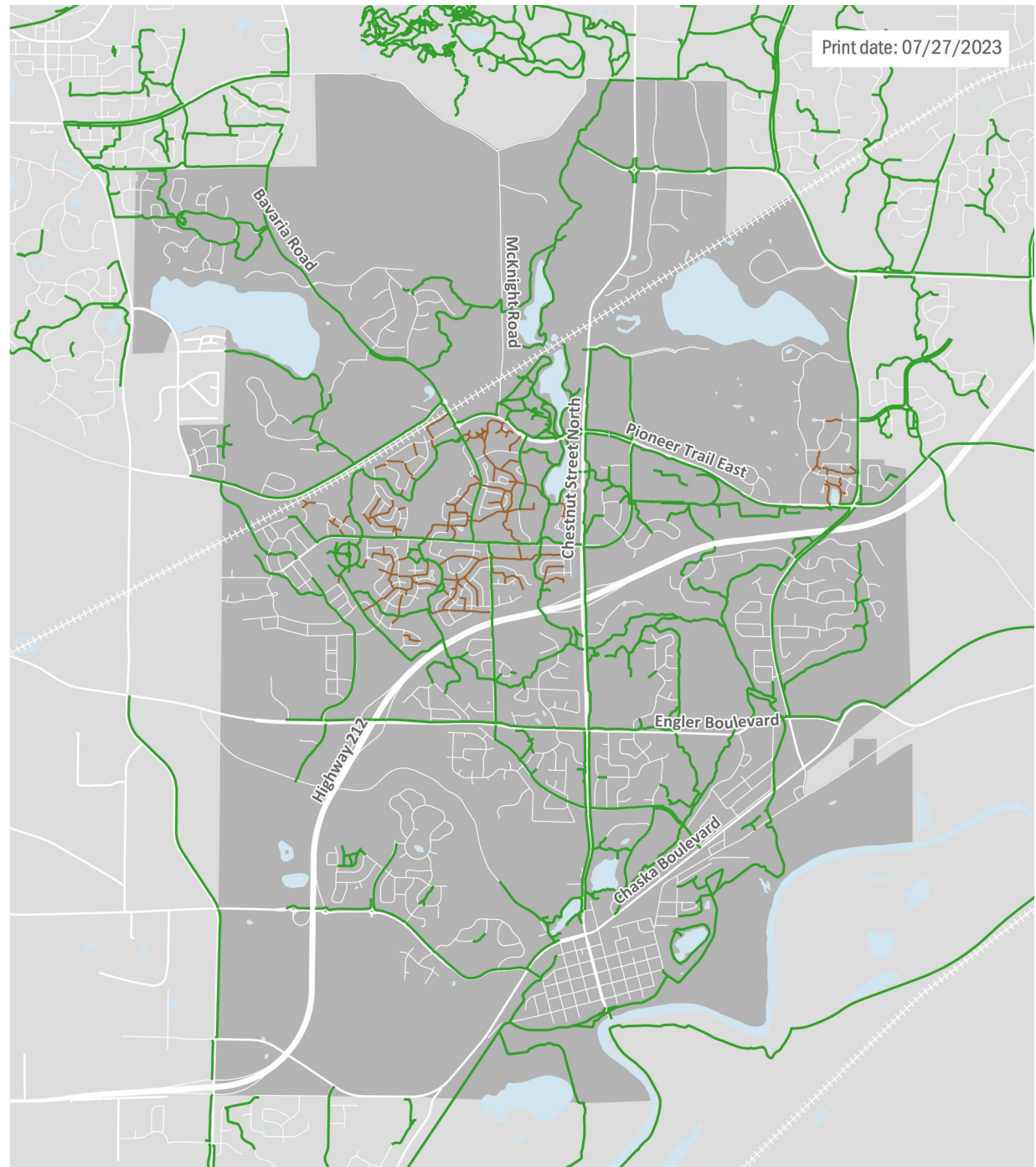
Several gaps in connection to residential, commercial and employment locations exist. Some major barriers, in the form of high speed / high capacity roadways, limit connectivity.

Implications for the Plan

Chaska's current inventory of trails provides a strong foundation for an "All Ages and Abilities" network. Establishing high-comfort connections across the city and a supportive network of calmed neighborhood slow streets will greatly improve bicycle travel.

Legend

- Existing Trails
- Jonathan Trails
- Parks and Recreation Areas



Current and Recent Plans and Policies

Chaska and other partner agencies have completed several planning initiatives with important implications for the City's walk/bike system.

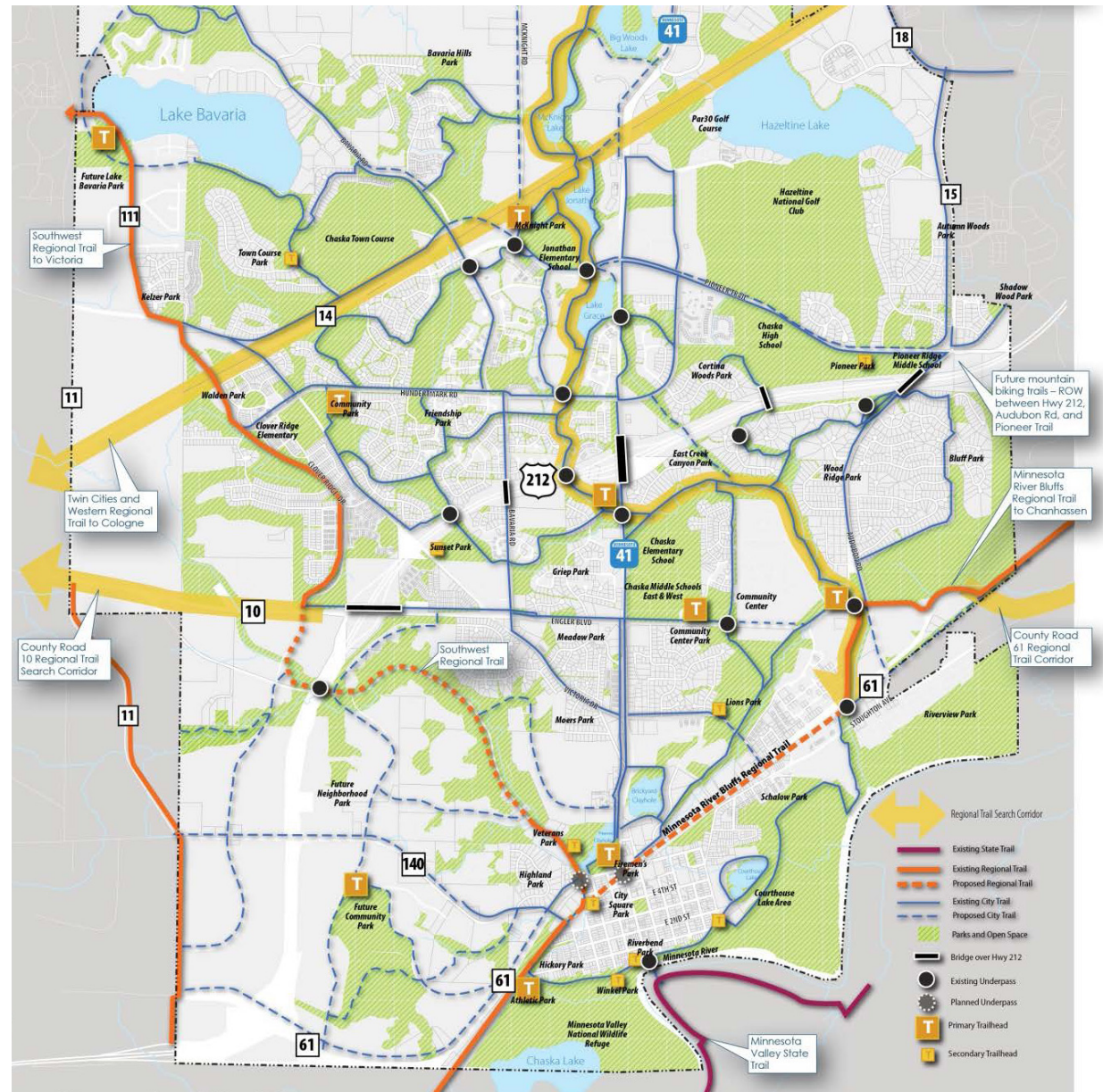
Recommendations from these plans were carefully examined and inform the recommendations from this planning effort.

2040 Comprehensive Plan

The City's Comprehensive Plan is a 20-year framework for how Chaska will grow and develop, addressing land uses, housing, parks, economic activity, and transportation.

Pedestrian and bicycle-related topics are addressed in several chapters, including Chapter 6 (Transportation), 7 (Parks and Trails), and 11 (Implementation).

Key recommendations include identification of future trail investments, development of Metropolitan Council regional trail search corridors, identification of Complete Streets goals, and prioritization of Safe Routes to School initiatives.



Existing and planned trails and parks facilities from the Parks and Trails chapter of the 2040 Comprehensive Plan.

Carver County 2040 Plan

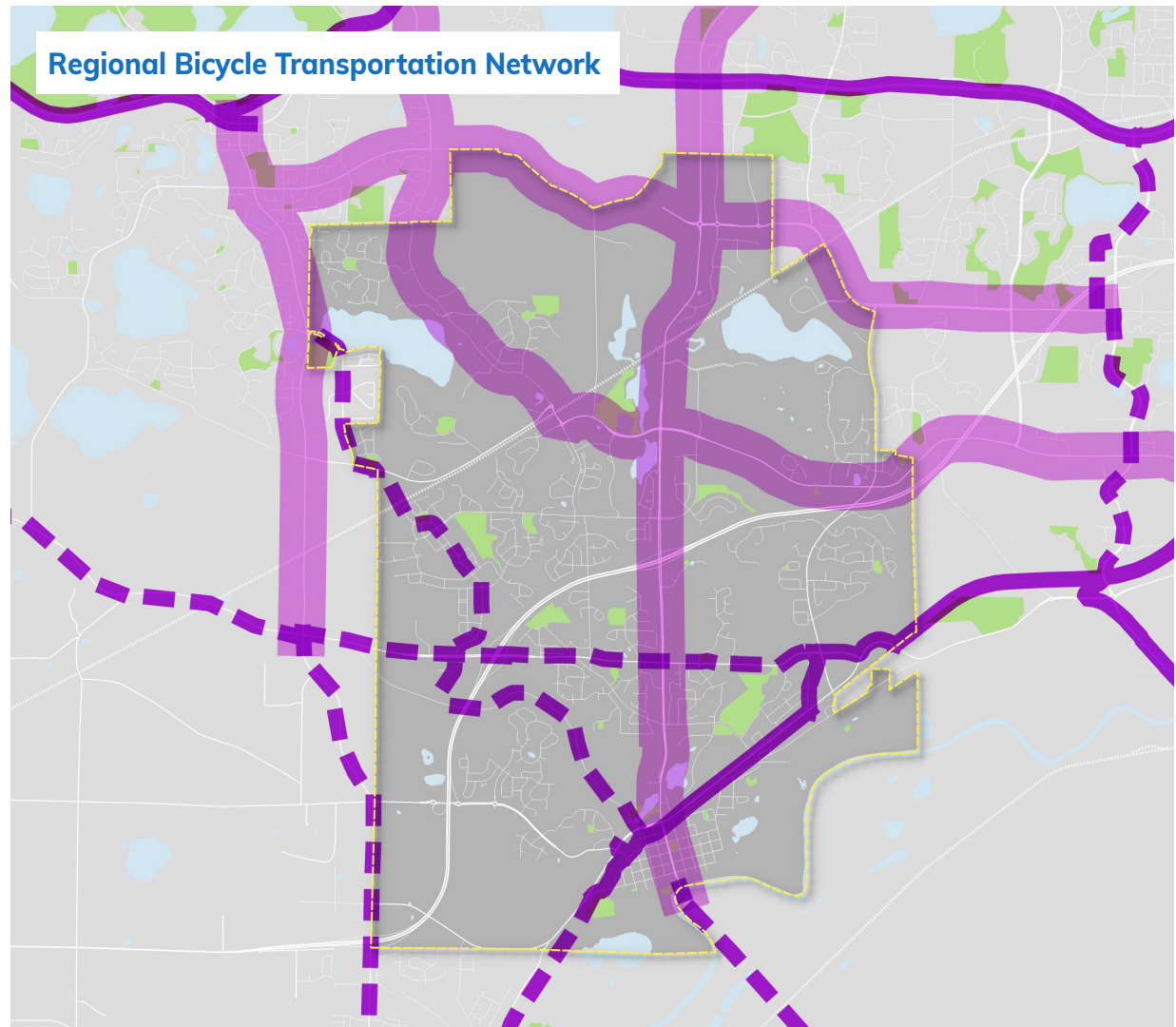
The [Carver County 2040 Comprehensive Plan](#) (adopted in 2020) outlines the County's priorities and actions for the next twenty years. It includes consideration of and planning for the County's pedestrian and bicycle network within its Transportation chapter (starting at page 4.86) and within its Parks, Open Space & Trail chapter (starting at page 6.34).

The County's bicycle and pedestrian system is generally made up of the Metropolitan Council Regional Bicycle Transportation Network (RBTN), local and regional trails, and the local sidewalk network.

Metropolitan Council Regional Bicycle Transportation Network

The [Regional Bicycle Transportation Network \(RBTN\)](#) was developed by the Metropolitan Council for the 2040 Transportation Policy Plan (TPP) and identifies corridors and alignments for improving bicycle connectivity across the region.

Alignments represent existing or proposed bicycle paths while corridors represent areas where bicycle path alignments are yet to be determined.



RBTN alignments (Tier 1 in solid purple, Tier 2 in dashed purple) and search corridors (in wide pink lines) are locations recommended by Metropolitan Council for bicycle connectivity.

Corridors and alignments are further classified into tiers, with Tier 1 Alignments/Corridors have higher priorities than Tier 2 Alignments/Corridors.

Bicycle facilities and alignments that correspond with the RBTN are more likely to receive funding for implementation as they provide both local and regional benefits.

Downtown Plan

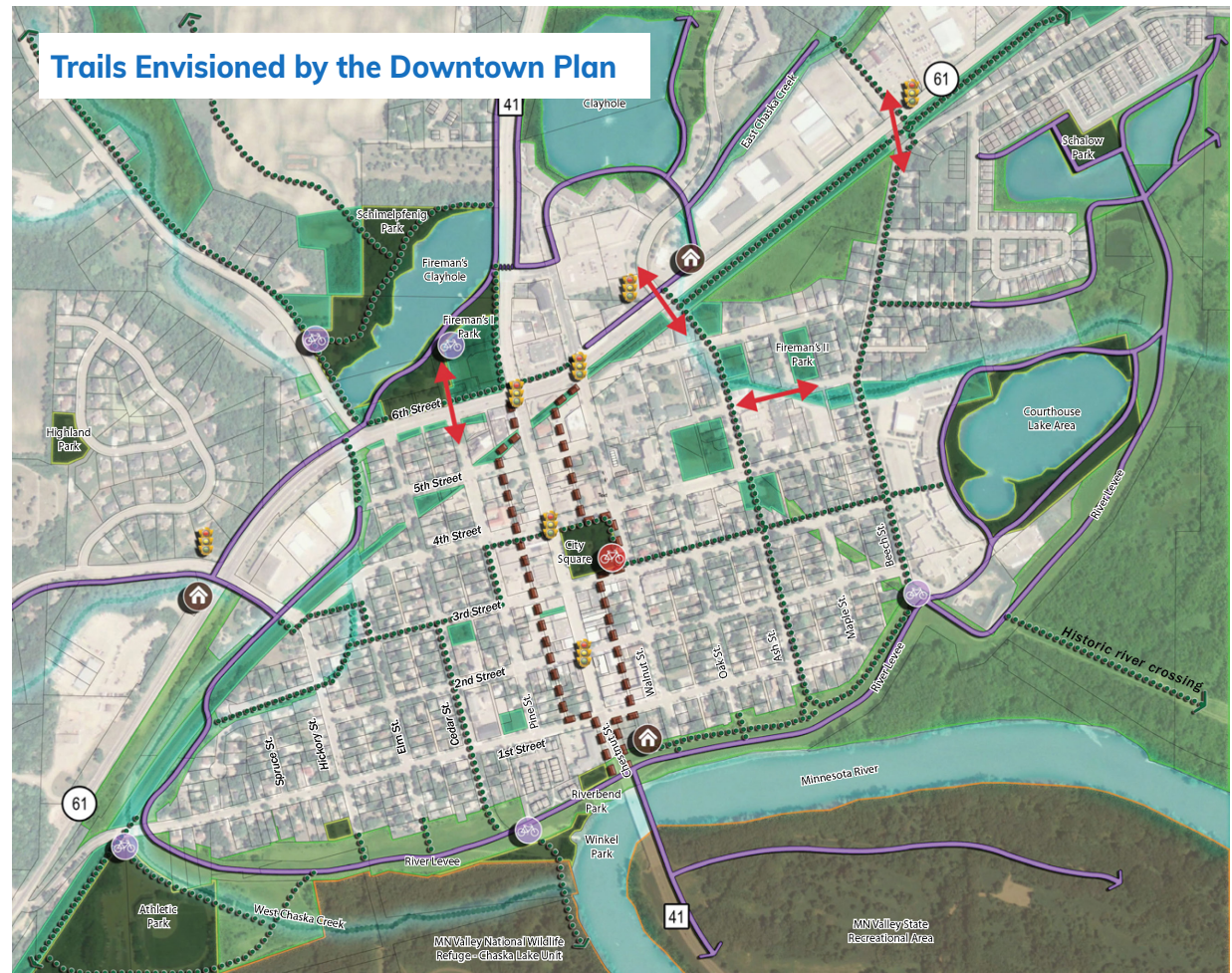
The City's 2012 Downtown Plan seeks to grow Downtown's role as a hub of community destinations and gathering places that reflect and celebrate Chaska's historic character, traditional small town atmosphere, prosperity, and vitality.

Improving walkability and enhancing bicycle connectivity within and to the downtown are key goals for the plan.

The plan advocates for Downtown streets and sidewalks to be "designed and reconstructed to create a desirable and balanced environment for pedestrians, bicyclists, and drivers" with a "Complete Streets network in downtown." Further, it guides that "convenient street and trail connections should be created between downtown and surrounding areas."

The plan offers recommendations to create inviting downtown streets, with comfortable and inviting sidewalks and trails connecting residents and visitors to this important community destination.

Over the years, the City has worked to implement many of the plan's recommendations. However, the bicycling component of the Downtown Plan's "Complete Streets" vision (where

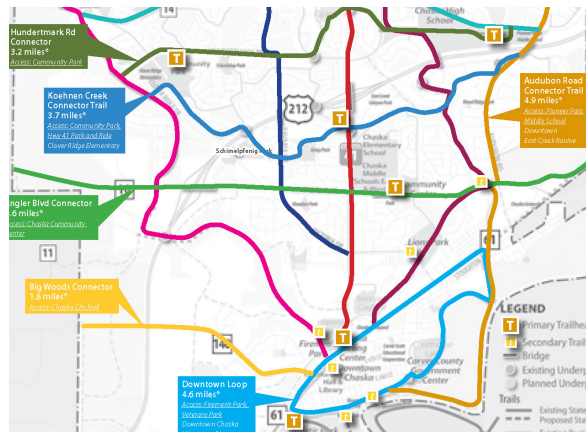


Trails and connectivity vision for Downtown Chaska, from the City's 2012 plan.

"pedestrians, bicyclists, motorists and public transit users of all ages and abilities [are] able to safely and comfortably move along and across the streets") has been more challenging to implement as limited space and concerns about parking have caused controversy.

Improving bicycle connectivity in and around the downtown will support greater use of bicycling in the city and will also support increases in economic activity and overall desirability for downtown. Some recommendations for addressing this challenge are included as part of this plan in the "Engineering" chapter.

Wayfinding Master Plan



Detail from the plan's Connector Trails recommendation.

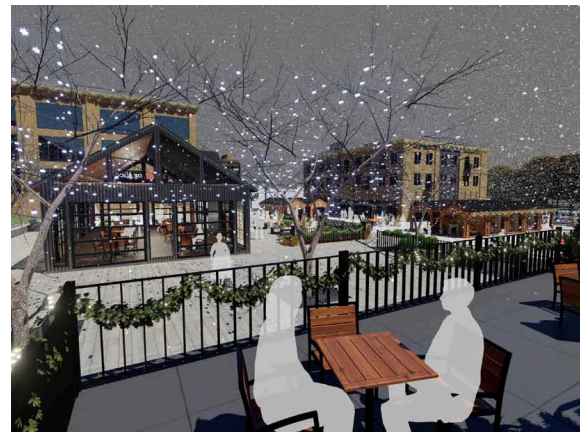
The 2018 Wayfinding Master Plan established citywide guidance for trail and vehicle-oriented wayfinding signage, as well as a Downtown-specific signage master plan.

Goals of the plan are to facilitate resident and visitor orientation for more easily accessing the City's features and assets.

Importantly, the plan identifies a series of loops within and around neighborhoods, as well as connectors joining destinations across the City.

Recommendations from the plan are incorporated into this plan's recommendations for wayfinding and network development.

City Square West



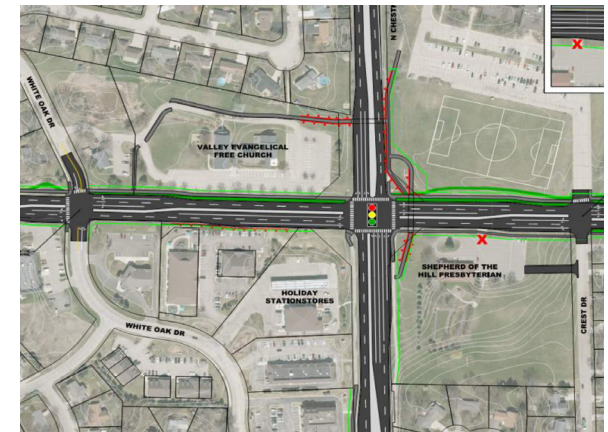
City Square West will be a year-round destination.

City Square West reimagines the block across City Square (crossing State Highway 41) as a thriving and compelling year-round destination. It is one of three catalyst redevelopment sites identified in the City's 2012 Downtown Master Plan.

The site is envisioned to add vibrancy and economic value to the City's Downtown through a mix of residential and retail development and a paseo/plaza space hosting community activities.

Walkable and bikeable access to and from the development will be a key consideration and contributor for its success.

Engler Blvd Improvements



Updates anticipated as part of the Highway 10 project.

Chaska is part of a project led by Carver County (with MnDOT, the cities of Victoria, Waconia, and Laketown Township) to identify transportation system improvements on County Road (CR) 10 from CR 43 in western Laketown Township to Highway 61 in Chaska.

CR 10, as a key roadway in Carver County, provides connections to multiple communities and is used by motor vehicles, pedestrians, bicycles, transit, and freight.

Numerous walk/bike improvements are planned for County Road 10 / Engler Boulevard in Chaska, including several trail segments and a tunnel to improve safe access for students at the schools campus near State Highway 41.

Downtown Highway 41



The new pedestrian and bicycle tunnel envisioned near 5th Street and Chaska Blvd.

Slated for construction in 2023, the Downtown State Highway 41 project envisions Highway 41 through downtown Chaska as a two-lane road that better balances pedestrian needs and comfort with roadway needs. With streetscaping, pedestrian and bicycle connections, and new gathering spaces, the project aims to create a more comfortable and inviting environment for all users while celebrating Chaska’s historic character, traditional small town atmosphere, and local businesses.

One of the project’s significant recommendations is a new pedestrian and bicycle tunnel under Highway 41 between 5th Street and Chaska Boulevard to provide a connection for downtown visitors and residents.



View of the Downtown Highway 41 project.



4

Approach and Policies for Consideration

This chapter describes the approach that guides the plan's "All Ages and Abilities" recommendations - from the needs of residents to the approach for ensuring its recommendations are part of a comprehensive set of initiatives that grow walking and biking in the city.

In this section:

- » User Types
- » Planning for All Ages & Abilities
- » Facilities and Context
- » The 6 E's of Walk / Bike Planning
- » Design Guidelines
- » Addressing Speed & Safety
- » Planning the City's Network

Pedestrians and Bicycle Riders and Their Needs

This plan addresses the needs of pedestrian and bicycle riders in Chaska. Although walking and biking have much in common with each other, there are significant and important differences in the characteristics of each mode and the needs of their users.

Pedestrians

Pedestrians include people of all ages and abilities - including people with physical or cognitive impairments, and those who depend on mobility devices like wheelchairs or walkers - who are walking, rolling, pausing, sitting and resting along Chaska streets and in other public spaces.

Designing for pedestrians means making streets accessible to all by providing safe and comfortable spaces with continuous, unobstructed and attractive sidewalks, and safe and comfortable intersections and travel across roadways. It also means providing a supportive environment with comfortable separation from motor-vehicle traffic as well as visual variety, engaging building frontages, connection to natural elements, and design for human scale and needs.

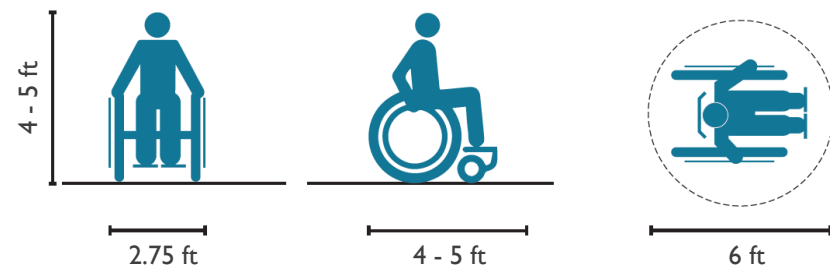
Accommodating People With Disabilities

Pedestrians may have cognitive disabilities (like limited vision) or physical disabilities that require use of wheelchairs or walkers for their travel. Adhering to the guidance of the Americans with Disabilities Act (ADA) and the Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG) will help ensure Chaska's pedestrian facilities address the needs of the widest range of users.



Pedestrians include people using wheelchairs, walkers and strollers, and people with sight and other cognitive impairments.

Spatial characteristics of pedestrians using wheelchairs



User dimensions shown; minimum safe operating space is larger, depends on specific context and facility, and is shown in this plan's accompanying Toolbox of Facilities and Treatments. Image: NACTO Global Street Design Guide.

Bicycle Riders

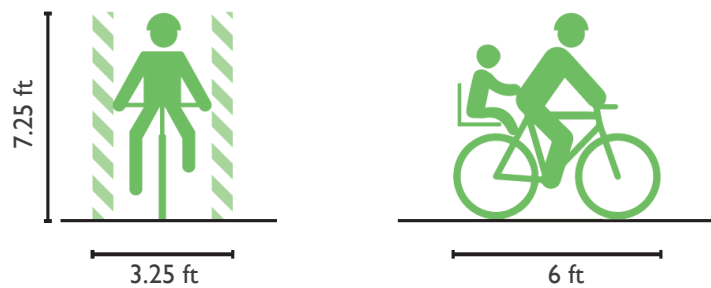
Bicycle riders include adults, children, and seniors using conventional, tandem, and tag-along bicycles, cargo and utility bicycles, and tricycles - whether conventionally-powered, or as is becoming more commonplace, assisted by electric power (e-bikes).

Designing for bicycle riders means providing facilities that are safe, comfortable, direct, clearly marked and understandable, and part of a cohesive, connected network to encourage use by Chaska residents of all ages and abilities. Facilities that provide comfortable separation from motor-vehicle traffic as well as safe and comfortable travel through busy intersections, and supportive elements like wayfinding, connections to transit, and parking and other end of trip facilities will support growth of bicycle travel in Chaska.



Bicycle riders include seniors, children, and adults using a variety of types of bicycles or tricycles.

Spatial characteristics of conventional bicycles



Vehicle dimensions shown; minimum safe operating space is larger, depends on specific context and facility, and is shown in the accompanying Toolbox of Facilities and Treatments. Image: NACTO Global Street Design Guide.

Spatial characteristics of cargo bicycles

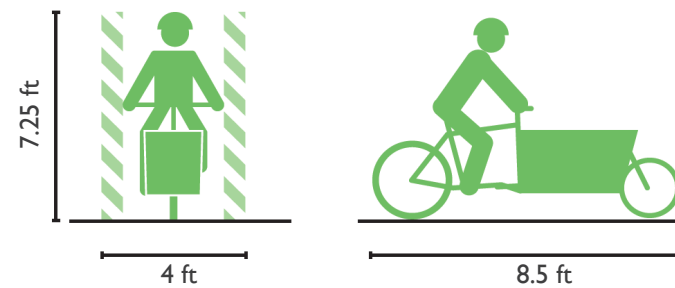


Image: NACTO Global Street Design Guide.

All Ages and Abilities: Planning for a Variety of Users

Growing walking and biking in Chaska will depend on addressing the needs of existing walkers and bicyclists and on attracting new users (those who would like to walk or bike today, but feel uncomfortable or unsafe using the current system).

One useful system for understanding people’s need for comfort or safety from traffic stress is the “[Four Types of Bicycle Riders](#)” framework.

In general, research has established that a city’s population includes four main groups of potential bicycle riders:

Interested But Concerned (about 60% of adults)

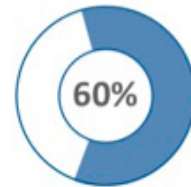
This is the largest group of potential bicycle riders in a community, but also the least likely to regularly ride a bicycle because the facilities generally provided exceed their tolerance for traffic stress. Addressing their needs is the key to growing bicycling in a community. Facilities that provide greater separation from motor-vehicle traffic (like trails) and simpler / shorter travel through intersections will invite members of this population into biking.

Enthusiastic And Confident (about 8% of adults)

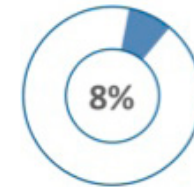
People in this group can share the road with motor vehicle traffic, but prefer to ride on bike lanes or other designated bikeways. Members of this population account for the increase in bicycle riding in communities that have invested in bicycle lanes. The minimum facility that will invite them into biking is designated bicycle lanes.



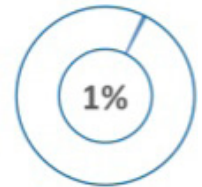
Interested but Concerned



Enthusiastic and Confident



Strong and Fearless



Thinking about users and their needs will help orient the types of facilities provided.

Strong And Fearless (about 1% of adults)

People in this population ride regularly, even when no facilities are provided. Their expectation for their riding environment is different from that of the majority of other current or potential riders. Separation from people walking or slower bicycle riders may be as important to these riders as separation from people driving.

Not Able / Not Interested (about 30% of adults)

This group includes people who have no current interest in bicycling, or who are physically unable to bike. Some members of this group could transition into the “interested but concerned” group if general conditions or their personal circumstances changed.

Designing Facilities for Chaska’s Land Use Contexts

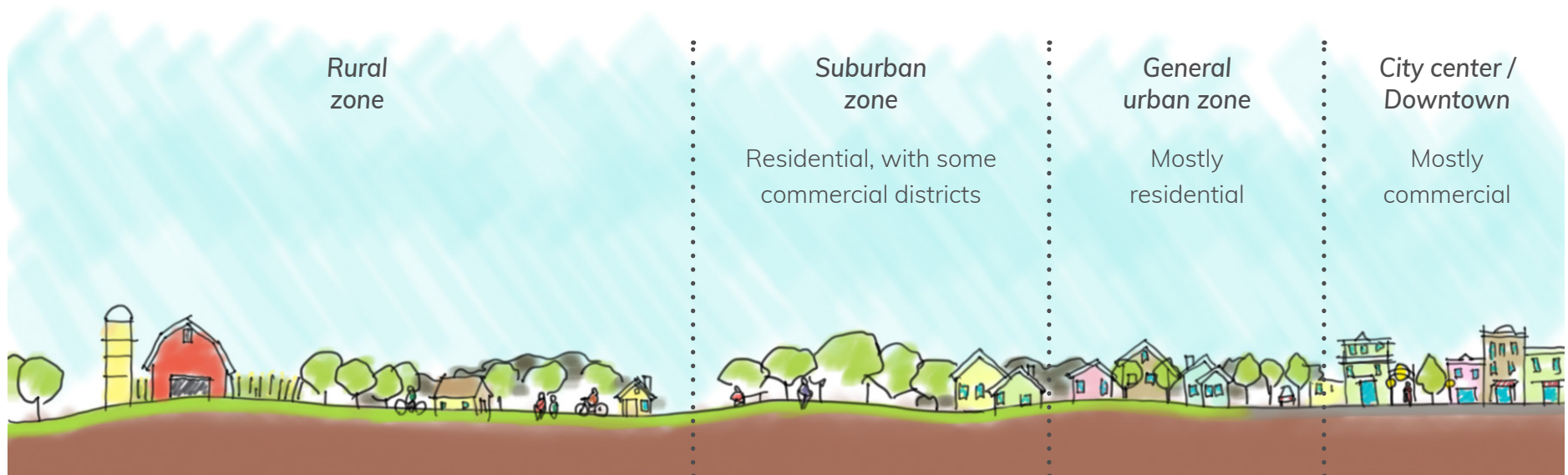
Although Chaska is officially designated as a “Suburban Edge” community by the Metropolitan Council, this doesn’t mean that its land uses and contexts are uniformly suburban throughout.

Its downtown, for example, is as urban, dense, and active as many neighborhood nodes in Edina, Hopkins, or Minneapolis. Areas around Chestnut Street and Pioneer Trail are more typically suburban, with large parking lots and big-box retail. Some residential areas include five-story apartment buildings and modest single family homes, while others feature winding roadways and housing on large lots. Natural preserves and agricultural land round out the city’s contexts.

An “All Ages and Abilities” network needs to provide facilities that offer safe, comfortable, and inviting facilities in each of these contexts - considering density of destinations, types of land uses, traffic levels, and space available, among others.

More “urban” areas of the city with more traffic and destinations (for example, downtown) will need facilities that are similar to what is used in other urban areas of the region, while suburban areas will require trails and considerations for protected intersection movements.

[MnDOT's Land Use Contexts Technical Memorandum](#) offers a useful methodology for identifying these zones in the city.



Types and intensity of land uses vary across Chaska’s landscape. Responding with context-appropriate facilities will help support walking and biking in the city.

The 6 E's of Pedestrian and Bicycle Planning

Growing walking and biking requires a comprehensive approach combining on-the-ground infrastructure improvements with a wide range of supportive social, educational, and enforcement campaigns and programs.

The “6 E's” framework organizes recommendations by each of the six topic areas (or E's) below:

Engineering (and Planning) initiatives are the “on-the-ground” improvements that people most often associate with walking and biking networks - facilities like roads, sidewalks, bikeways, intersections, and end-of-trip facilities.

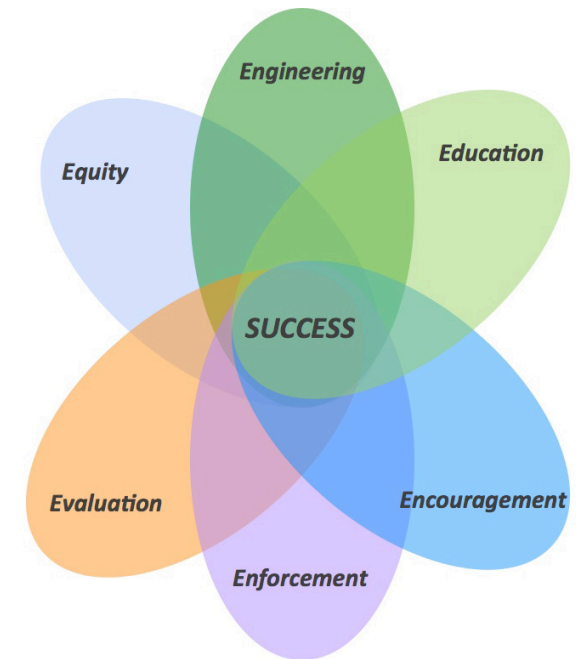
Education programs share information for safely accessing and using existing facilities and amenities, about the rules of the road, and about benefits associated with walking and biking investments. Education initiatives include network maps, pedestrian and bicycle safety trainings, and educational campaigns, among others.

Encouragement programs inspire more people to try walking or biking through fun and inviting activities including friendly competitions, incentives, group rides, and community-wide events like Open Streets.

Enforcement programs focus on enforcing traffic safety laws like speed limits, parking regulations, and safe roadway behavior from all users, often including the participation of local law enforcement.

Evaluation measures the success of investments at achieving desired outcomes. Evaluation helps establish a baseline and track progress over time for outcomes like network safety, public perception, behavioral changes, and modal shifts.

Equity ensures that investments are distributed fairly so that residents of all neighborhoods and population groups have equitable access to high-quality facilities and programs. Equity includes intentional efforts for implementing infrastructure and programs to overcome economic, geographic, social, and physical barriers to walking and biking.



A comprehensive “6Es” approach provides a solid foundation for successful outcomes.

One more E: Engagement

An intentional and proactive process of community engagement helps ensure that facilities and programs address community issues and aspirations. A key component is intentional engagement with a variety of socio-economic, ethnic, cultural and age populations, including young people and seniors.

Design Guidelines for the City's Walk / Bike Network

Design guidelines offer practices, considerations, and standards to develop a community's facilities and walk / bike network.

Over recent years, two things have become clear to communities across the US:

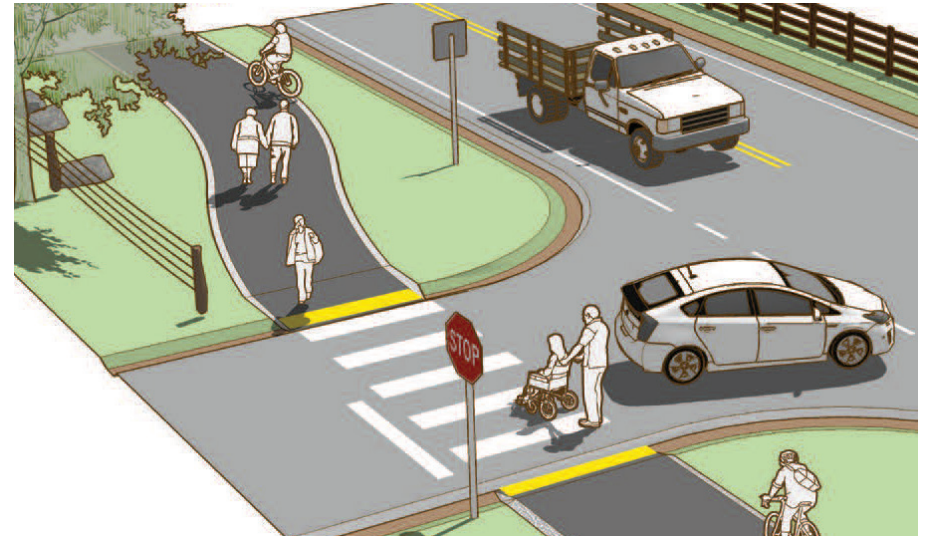
- 1) An All Ages and Abilities focus is essential for growing walking and biking
- 2) Effective design guidance responds to the specific context of the place where it is to be applied, distinguishing between urban, suburban and rural contexts, community size, resources and setting

Recommendation

Several state and national guides provide best practice design guidance for pedestrian and bicycle facilities. This plan recommends that they become the main design references for facility and network design in the City.

These guidelines are:

- » [MnDOT Bicycle Facility Design Manual](#)
- » [MnDOT Best Practices for Pedestrian and Bicycle Safety](#)
- » [FHWA Small Town and Rural Multimodal Networks](#)
- » [NACTO Urban Bikeway Design Guide](#)
- » [NACTO Urban Street Design Guide](#)
- » [NACTO Intersection Design Guide](#)
- » [MnDOT Metro District Bicycle Plan](#)

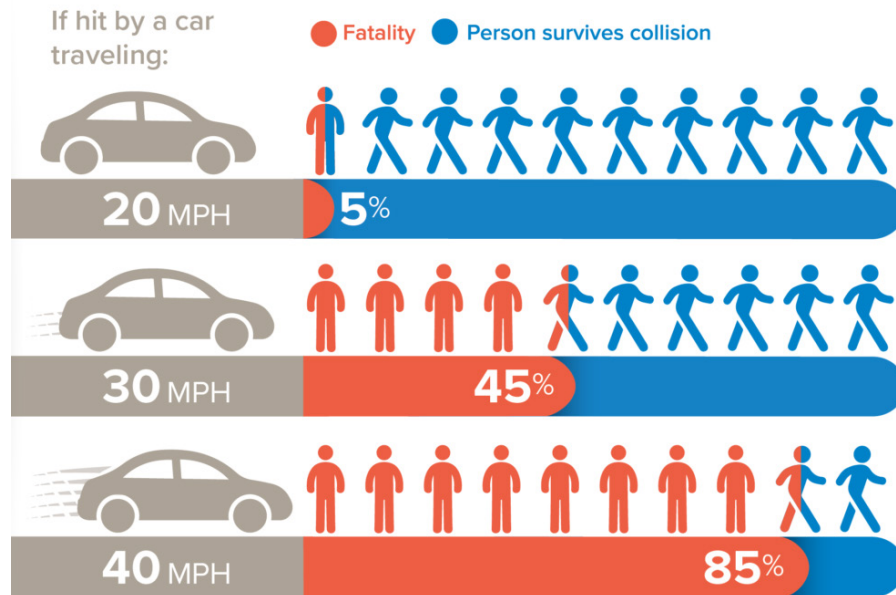


Recommendation for a crossing for a SUP (shared-use path, or pedestrian and bicycle trail). Image from FHWA's Small Town and Rural Multimodal Networks Guidelines.



Low-cost, quick implementation of a separated walk/bike facility on a residential neighborhood in Richfield, Minnesota. Image courtesy of SHO.

Addressing Speed and Safety



The impact of speed on a pedestrian's chance of survival in a crash. Image courtesy of National Traffic Safety Board and Smart Growth America.

Pedestrians and bicycle riders are vulnerable users of the transportation system. Unlike drivers, who are surrounded by more than a thousand pounds of structural steel designed to dissipate crash energy through crumple zones, with airbags and restraining systems to absorb crash energy and reduce trauma on occupants' entire bodies, they are unguarded and in direct contact with their surrounding environment and potentially with multi-thousand pound objects moving at high speed next to or across their paths.

Understanding the implications of this reality is one of the insights needed for growing walking and bicycling in a community. In short, people will only engage in activities that feel safe to them - regardless of how safe these activities or conditions actually are.

Speed and the Three Components of Safety

It is helpful to think of safety for pedestrians and bicycle riders as including these three elements:

- » Actual safety: The actual probability or risk of experiencing a crash
- » Perception of safety: How safe or unsafe a person feels, in relation to traffic risk, while traveling on or across a given facility
- » Social safety: How safe or unsafe, in relation to public safety or crime, a location feels for a person using a given facility

These are discussed in greater detail under the Enforcement chapter of this 6Es plan. But focusing on the first two, which are more acutely affected by traffic speed, it is important to note that:

- » Actual safety is generally the focus of design when infrastructure is considered, and is a key component of efforts like [Vision Zero](#) that seek a safer transportation system. The speed of motor vehicles impacting a pedestrian or cyclist has an exponential effect on the severity of the injury that the crash will cause (please see figure on top left).
- » Traffic speed also has an outsize effect on the perception of danger or safety that a person walking or biking experiences. Increases in walking and biking won't materialize unless perception of safety is addressed effectively.

An effective way of addressing both of these important components - and making increases in walking and biking possible - is to reduce speed limits in residential and other areas [as now allowed](#) per [Minnesota Statutes](#).

Planning the City's Network

The most important component of a city's pedestrian and bicycle transportation system is the quality of its network - from its reach or extent, to how well its individual routes and facilities connect to each other to facilitate access to destinations, and how they function as a user-friendly, inviting and comfortable framework for mobility across a community's landscape.

Successful pedestrian and bicycle networks respond to people's daily needs and provide efficient, comfortable, and inviting means for their travel.

Five key considerations for planning Chaska's pedestrian and bicycle network include:

- » **Coherence:** A continuous, complete, and understandable network, with simple routes providing access to destinations
- » **Directness:** Routes are laid out to connect destinations in ways that reduce the time and distance needed to reach them
- » **Safety:** The network's routes avoid or minimize conflicts with crossing traffic; reduce speeds at conflict points; offer separation between vehicle types; and offer recognizable facilities that are easily understood and correctly used
- » **Comfort:** Stress from and interactions with motor vehicles are minimized through separation of facilities and treatments at intersections; clear and easily understood wayfinding is provided; the network and its routes are easy to comprehend
- » **Attractiveness:** Routes travel through locations that are enjoyable, attractive, and where people want to be

Considerations for the City's Pedestrian Network

Chaska's [Municipal Code](#) assigns its City Council authority over the design and placement of sidewalks. Some language updates that may be useful include consideration of:

- » Making explicit, and continuing the requirement for construction of sidewalks in all new developments
- » Development, adoption and regular update of a sidewalk plan and map of sidewalk routes

One Potential Framework for Sidewalk Planning

To facilitate future sidewalk investments, it may be useful to classify sidewalks as destination-related, connectors, or local, with their priority for construction and repair linked to their classification:

- » **Destination-related Sidewalks** provide access to parks, apartments, retirement complexes, local schools, medical clinics, and commercial / business areas. Sidewalks should be installed or retrofitted within a half mile radius of these destinations.
- » **Connector (Arterial / Collector) Sidewalks** are located on both sides of all arterial streets, thoroughfares, some collector streets, and streets on elementary school walkway routes.
- » **Local / Neighborhood Sidewalks** provide access from residential areas to the connector (arterial / collector) sidewalks, and directly to destination-related sidewalks when nearby.

A future recommended step for Chaska is to evaluate this framework, identify how existing sidewalks should be classified, and develop policies for funding for prioritization.

Framework for the City's Bicycle Network

This plan proposes a distributed network of primary and secondary bicycle routes to provide an “All Ages and Abilities” route within a quarter mile of any location in the built-up areas of the city (routes are spaced no more than a half-mile from each other). These routes also help organize wayfinding and travel across the city.

Primary Routes

Primary Routes are located within close proximity of population concentrations, provide convenient access to community destinations (including schools, shopping, and recreation), and are part of or connect to regional networks. Primary Routes are distributed at intervals of approximately one mile from each other, and include a higher level of treatment to provide a useful “All Ages and Abilities” network. Designation of a corridor as a Primary Route indicates a commitment to rebalance priorities and address the needs of people riding bicycles along these corridors. In some cases, it may be necessary to modify existing roadway features to provide the space required for use by bicycle riders.

Secondary Routes

Secondary Routes supplement Primary Routes to establish a finer-grained network of routes. They connect to Primary Routes and also facilitate some local trips. In many cases, these routes travel through residential neighborhoods and extend the reach of Primary Routes. Secondary Routes are distributed at intervals of approximately one half-mile from each other, ensuring access within a quarter mile of any location in the built-up area of the city.

Future recommended steps for Chaska include evaluating this proposed framework, designating primary and secondary routes, and analyzing gaps in the network.

Planning Policies for Consideration

Several planning policies can help the City address existing gaps and guide future development, while ensuring walkability and bikeability are addressed right from the start:

Sidewalks and Trails

- » Require sidewalks on both sides of all “urban” (curb and gutter) streets - especially if within one half mile of a school.
- » Require a shared-use path / trail on at least one side of “rural” streets (no curb and gutter) designated as collector or above.
- » Assess costs for sidewalk and trail construction using the same formula used for road construction assessments.
- » Develop a policy and dedicated funding source to build out the City's sidewalk and trail network.

Speed Limits

- » Consider decreasing speed limits in residential areas to 20 mph in accordance with new Minnesota laws.

Parking (Bicycle and Automobile)

- » Consider use of an in-lieu-of ratio for providing bicycle parking in place of automobile parking for commercial and residential uses in Downtown and adjacent areas where off-street parking is currently required.
- » Consider requiring bike parking minimums as a percentage of total automobile parking spots provided.
- » Use the Association of Pedestrian and Bicycle Professionals (APBP)'s [Bicycle Parking Guidelines](#) when planning parking.



5

Engineering and Planning

Engineering and planning focus on “on-the-ground” improvements - including the planning, design, construction, and maintenance - of roads, sidewalks, bikeways, intersection treatments, signage, and end-of-trip facilities.

In this section:

- » Introduction and Framework
- » Pedestrian Network
- » Bicycle Network
- » Transit Integration, Bikeshare, and Mobility Hubs
- » Wayfinding
- » Facility Maintenance
- » Bicycle Parking
- » Policy Recommendations

Introduction and Framework

Engineering - and the changes in the physical environment that its planning and design activities make possible - is a key contributor for facilitating the use of walking and bicycling in a community.

Facilities must be safe, convenient, accessible, comfortable, and well maintained - and they must also be well integrated with land use activities, and other transportation systems and frameworks.

An All Ages and Abilities Network

Guidance from Chaska residents was very clear: connecting to schools, parks, neighborhoods and Downtown with safe and comfortable walking and biking facilities is a top priority. Depending on the specific location, this may require the development of facilities that haven't previously been used in the City, or that are more costly or complicated to build than other designs.

It's important to keep in mind that these will be investments toward the City's goals of improving safety for all users and increasing use of walking and biking in the City.

Part of the strength of the City's 6Es approach is that it's possible to test out and pilot many of these improvements inexpensively as described in other chapters of this plan, and to verify potential gains through an evaluation campaign conducted before, during and after demonstration campaigns.

An Incremental Approach

Chaska has many assets for walking and biking today. The goal of recommendations in this chapter is to address gaps in the network,



Improvements can be inexpensively implemented as demonstration projects and tested for their effectiveness. Image: MnDOT Demonstration Project Implementation Guide.

increase user comfort for existing and future facilities, and provide a supportive framework for maintaining current assets and for making future investments to increase walking and biking.

One key component of the plan's approach for future improvement is to identify smaller, incremental steps that can be quickly implemented and tested and prepare the foundation for future, permanent infrastructure improvements.

Recommendations are based on network analysis, site visits, best practices, and engagement with City Staff, the plan's Project Steering Committee, and the general public.

Please note: Additional investigation and design for each specific project must be completed by a licensed engineer prior to implementation.

A Brief Introduction to Pedestrian and Bicycle Facilities

Numerous types of facilities and treatments exist for addressing the needs of people walking and biking in our cities.


Four facility types are discussed here as they make up the majority of facilities recommended in this plan. In addition, a brief introduction to intersections and their role in facilitating a safe and inviting “All Ages and Abilities” network is also provided.

Raised Crosswalks | Intersection Design Techniques | General Intersection Elements

What is their purpose?
 Raised crosswalks combine a marked crosswalk with a speed table that extends the full width of the crossing. A speed table is a mid-block traffic calming device that raises the entire wheelbase of a motor vehicle. This type of vertical deflection can have a positive effect for bicyclists and pedestrians, as it reduces motor vehicle speeds.

Are they a proven strategy?
 Based on FHWA research, raised crosswalks are a **PROVEN** strategy to reduce pedestrian crashes, and are a good candidate treatment for unsignalized intersections on roads with posted speeds 30 mph or less and AADT of 5,000 or less.

Where would we use them?
 The same considerations for installing a marked crosswalk should also be made prior to installing a raised crosswalk. Reference MNDOT's Traffic Engineering Manual, Chapter 13 for more information on where a marked crosswalk is appropriate.
 Typically, raised crosswalks are placed at mid-block locations where a marked crossing exists. Locations with the following characteristics are also good candidates, with examples including:
 • At locations with high pedestrian or bicycle activity, such as at school crossings, park entrances, and commercial shopping districts
 • At roundabout crossing locations
 • At locations where shared use paths cross commercial driveways or ramps
 In Minnesota, raised crosswalks have been implemented sparsely and they may not be appropriate on major streets, truck, or transit routes. A majority of installations to date have been on minor streets, often on the stop-controlled leg of an intersection.



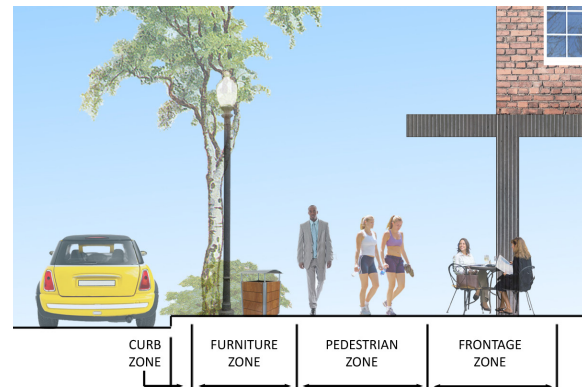
18 Best Practices for Pedestrian & Bicycle Safety | January 2021

MNDOT MINNESOTA DEPARTMENT OF TRANSPORTATION

MnDOT's “[Minnesota's Best Practices for Pedestrian and Bicycle Safety](#)” is a toolbox of pedestrian and bicycle treatments and best practices with an extensive selection of facilities with potential for application in Chaska.

Sidewalks

Used for: walking network



Sidewalk in a commercial district, described using the “four zones” approach to address pedestrian mobility and streetscape needs.

Sidewalks are paved concrete or asphalt paths designed for pedestrian use. A well-connected sidewalk network is the foundation of pedestrian accessibility. The quality of connections between sidewalks (across roadways) determines the overall usefulness of the walkways provided. High quality sidewalks provide level and unbroken surfaces, ADA-compliant curb ramps, and comfortable separation from motor vehicle traffic. Trees and plantings, and additional facilities like benches, waste receptacles, and public art provide additional user comfort and interest.

Shared-Use Paths

Used for: walking & bicycling network



A shared-use path provides a space that can be used by people walking or bicycling.

A shared-use path (SUP or trail) provides a shared space for people walking and biking that is separate from motor vehicle traffic. Shared-use paths work better when they include fewer intersections with motorized traffic.

Shared-use paths are often provided along busier roadways when on-street bicycle facilities are not desirable, at locations along streams and railroads, and through parks or scenic routes. SUPs provide comfortable separation from motor vehicle traffic. Striping of SUPs helps clarify passing lanes and identify lanes for people walking or biking in high use areas.

Separated / Protected Bicycle Lanes

Used for: bicycling network



A barrier-separated protected bicycle lane in Glenwood MN (population 2,560).

What do they look like?



Cycletrack in Glenwood MN (population 2,560) Image courtesy of MnDOT.

Separated / protected bicycle lanes (also known as “cycletracks”) are on-street or roadway-adjacent facilities that:

- 1) Offer a designated space for bicycle riders, and,
- 2) Are separated from motor-vehicle travel lanes by a buffer distance and by vertical elements like bollards, planters, or concrete walls.

By separating bicycle riders from cars they increase rider and driver comfort, and invite greater use of bicycling by a wider range of the population. This is the type of facility that is generally recommended for Chaska’s bicycle network in more congested or more urban locations of the city.

Separated bicycle lanes can be quickly and inexpensively deployed using temporary materials including plastic bollards, paint and reflective roadway tape.



MnDOT “quick install” (temporary installation) of a cycletrack in Wahkon MN (pop. 310). Image: T.A. LeBrun and Mille Lacs Messenger.

Neighborhood Slow Streets

Used for: walking & bicycling network

Neighborhood Slow Streets (sometimes known as Neighborhood Greenways or Bike Boulevards) are residential streets that are lightly modified to calm motor-vehicle traffic and prioritize bicycle travel.

They work best along residential streets and other locations where traffic counts are below 3,000 motor vehicles per day.

Special traffic-calming measures (like bump-outs, traffic circles, speed tables, or others) help keep cars at speeds that are compatible with safe and comfortable conditions for people walking and biking (25 mph or less).

Wayfinding signs, pavement markings, and the orientation of stop signs help highlight the street as a route that works well for bicycle riders.

Neighborhood Slow Streets improve safety for users of all modes (including drivers) and improve connectivity for people walking and biking.

What do they look like?



A Neighborhood Slow Street that includes a traffic circle, a speed table, and reoriented stop signs while continuing to accommodate two-way car traffic and residential on-street parking.



A traffic circle helps calm traffic through a neighborhood and improves conditions for walking and biking.



Prominent markings help communicate the types of use for the street along the facility.

Intersections

Used for: walking & bicycling network

A walk/bike network's potential for success is limited by the quality of the connections it provides across roadways: the best protected bicycle lane or trail will fail to invite users or improve safety if crossing streets or roadways while using it feels stressful or unsafe.

There are three main components of intersection design:

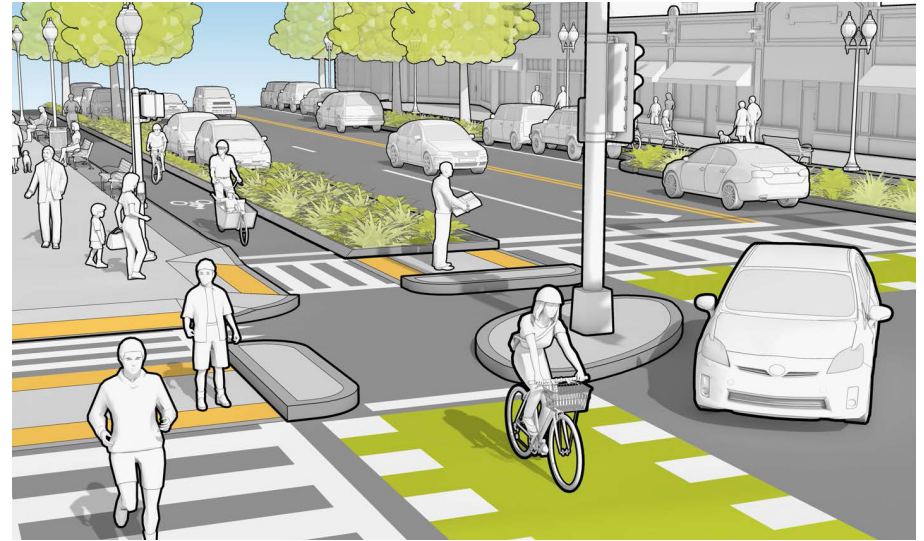
- » Geometry (how the intersection and its approaching roadways are shaped and arranged)
- » Signals (like traffic lights or beacons)
- » Signs and markings (like roadway and crosswalk striping, and warning signs)

A protected intersection (like the one shown on the top right of this page) uses all three of these elements, with an emphasis on the geometric design of the intersection, to calm traffic, improve visibility for all users, and increase actual safety and perception of safety for people walking, biking, and driving.

A variety of tools and approaches, including elements of protected intersections, are recommended for installation in Chaska to make pedestrian and bicycle travel easier and safer.

A recommended resource for selecting and designing specific intersection improvements is MnDOT's [Minnesota's Best Practices for Pedestrian and Bicycle Safety](#).

What do they look like?



*The geometric design of a protected intersection facilitates the safe and comfortable movement of people walking and biking across the intersecting roadway.
Image: Massachusetts DOT Separated Bike Lane Planning & Guide.*



Innovative signals, like the Rectangular Rapid Flashing Beacon (RRFB) shown here, help facilitate pedestrian travel across a busy roadway in Edina.

Pedestrian Network Recommendations

Recommendations for the City's pedestrian network respond to these two priorities:

- » Address safety and user-comfort issues at priority intersections identified through analysis, community engagement, and consultation with Chaska staff
- » Identify a pedestrian network that incorporates and responds to the facilities included in the following adopted city planning policies and documents:
 - 2020-2040 Comprehensive Plan
 - 2012 Downtown Master Plan

The goal is to support the continued development of a well-connected, dense, and equitably distributed network of sidewalks and shared-use paths providing safe and comfortable crossings and connections to everyday destinations.

What It Can Look Like



Rectangular Rapid Flashing Beacon (RRFB) facilitating a crossing along a busy roadway.



Pedestrian-activated HAWK signals help pedestrians to safely and comfortably cross multiple lanes of traffic.



A "bull-nose" pedestrian crossing island facilitates a crossing and protects walkers from turning vehicles.



Curb extensions ("bump-outs") shorten the crossing distance and increase visibility for pedestrians.

Proposed Pedestrian Network

What the Map Shows

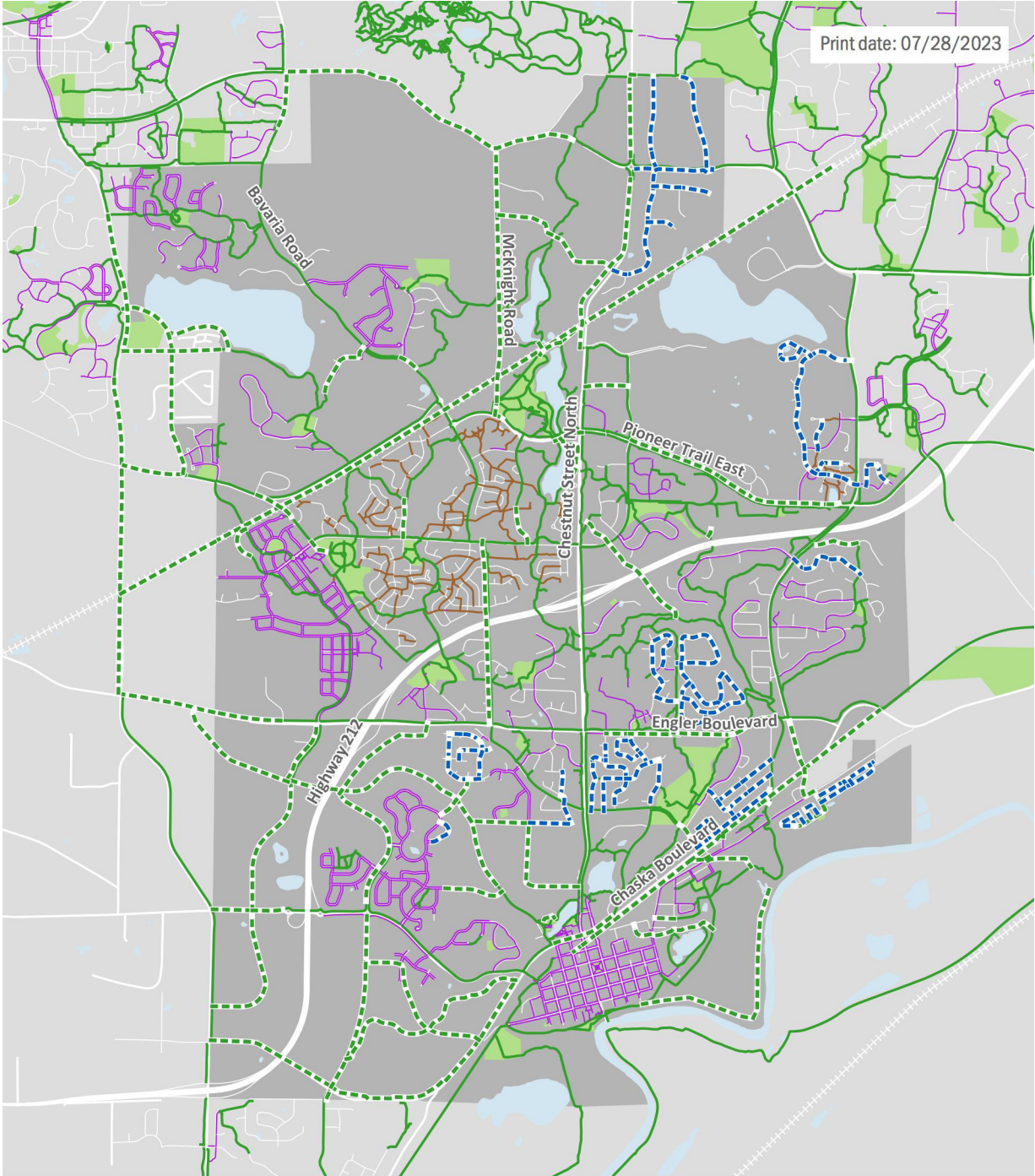
A network of walking facilities is proposed to expand from and connect to the existing network. Combined with existing sidewalks, and existing and proposed trails, connectivity for people walking is provided across the entire city.

The proposed network was identified based on a review and analysis of the existing network, and land use and development conditions across the city.

Recommendations were refined through guidance obtained from the plan’s public participation process, and conversations with City staff, members of the Project Steering Committee (PSC), and other stakeholders.

Legend

- Existing Sidewalk
- Existing Walk / Bike Trail
- Existing Jonathan Walk / Bike Trail
- - - NEW Shared Use Path / Trail
- - - Current Walk Facility Gap



Additional Recommendations for Walkability

Street Crossings and Intersections

- » Provide safe, marked opportunities for people walking or biking to cross the street at least every half-mile along minor arterials, and every quarter-mile in neighborhoods and adjacent to commercial or retail development, schools, and parks.
- » Install ADA-compliant curb ramps at all marked and unmarked crosswalks.
- » Establish guidelines for use of raised crosswalks and median refuge areas for crossing areas.
- » Install curb extensions (“bump-outs”) where possible, including commercial districts, neighborhoods, near schools, and where on-street parking is permitted.
- » Design intersections with smaller turning radii to slow traffic speeds, to allow perpendicular curb ramps to be positioned parallel to crosswalks and perpendicular to curb, and to shorten overall crossing distance.
- » Design channelized turn lanes and median refuges with attention to biking and walking movements.

- » Avoid multiple turning lanes when possible.
- » Include advanced stop bars to improve safety and encourage motorists to position further away from crosswalks. Always include advance stop bars when a pedestrian is expected to walk across more than one lane of same-direction traffic (this help reduce the probability of “hidden threat” crashes).

Pedestrian Crossing Signals

- » Update pedestrian crossing signals to include audible pedestrian signals (APS) and countdown timers.
- » Deploy user-activated technologies for traffic control including Rapid Rectangular Flashing Beacons (RRFB), Pedestrian Hybrid Beacon (PHB or HAWK), and others.
- » Implement Leading Pedestrian Intervals.
- » Ensure that clearance intervals are properly timed to allow pedestrians enough time to safely cross the street - particularly older adults or children who may walk slower than most adults.

Trees and Sidewalk Furnishings

- » Add street trees, vegetative buffers, and street furnishings to make a more inviting and comfortable streetscape, control stormwater, and provide shade.
- » Add elements that enhance the pedestrian environment including pedestrian-scaled lighting, public art, wayfinding, vegetation, among others.



This plan's online survey (with over 900 participants) showed that providing additional space between roadways and sidewalks (which also accommodates street trees) greatly increases sense of safety and comfort for people walking.

Downtown Streets

The Downtown Plan (adopted in 2012) makes several recommendations for improving walkability, including enhancing intersections to offer safer and more convenient pedestrian connections.

Continuing to implement the plan's recommendations for creating inviting downtown streets, with comfortable and inviting sidewalks and trails connecting residents and visitors to this important community destination is an important priority for the City. This includes the plan's vision for "Complete Streets" that provide for the safe and convenient movement of pedestrians, bicyclists, and drivers throughout and to and from the downtown.

Sidewalks

- » Continue to require sidewalks in new development, and retrofit their installation in existing neighborhoods and developments.
- » Review / modify sidewalk policies to include the goal of providing sidewalks on both sides of urban (curb and gutter) local streets including new development and retrofits on existing streets, (including dead-ends) to provide cut-throughs or park/trail connections.

Walkability in Larger Sites

Navigating the parking lots of larger commercial or employment sites on foot can be unsafe and uncomfortable, and hinder use of walking or biking to and around these destinations.

Consider working with developers from the start by adopting a walkability checklist into the City's zoning code to help improve design choices regarding basic requirements for walkability and bikeability (for example, by reviewing orientation of sites, building entrances, and parking lots to facilitate walking and transit access).



A clear connection safely leads people through a large parking lot to the front door of a major employer in Bloomington, Minnesota.

Driveways

- » Limit the width, number, and location of driveways through consolidation and other means.
- » Design driveways, particularly in the downtown area, so that they ramp up to sidewalk level (instead of having sidewalks ramp down to driveway level). This emphasizes the priority of pedestrian travel and helps slow vehicle speeds.



Example of a location where a level sidewalk across a driveway could improve conditions for pedestrians.

Events and Placemaking

- » Accommodate commercial activities (like night markets, food trucks, and events) that invite walking and add activity and interest to key areas in the city.

Bicycle Network Recommendations

Recommendations for Chaska's bicycle network build on existing investments to provide a dense and equitably distributed "All Ages and Abilities" network that increases access to parks, neighborhoods, and the City's downtown.

Context-dependent recommendations include on- and off-street facilities that:

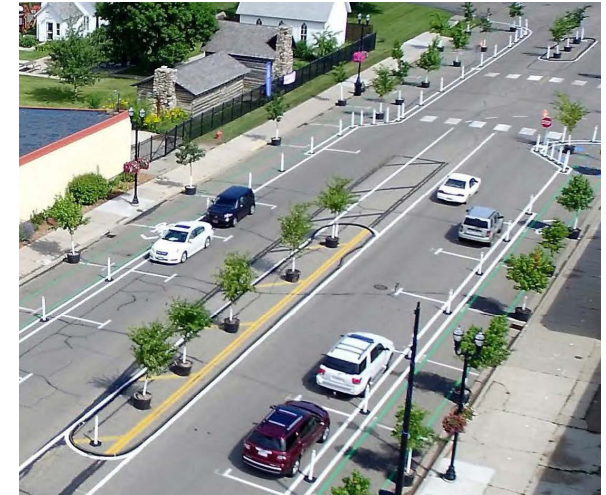
- » Expand the City's shared-use path network,
- » Offer trail-like protected on-street facilities that comfortably accommodate riders in higher-traffic areas,
- » Improve connections to schools, parks, commercial areas, higher-density housing, and transit corridors to facilitate bicycle travel within neighborhoods and throughout Chaska.

The proposed bicycle network was identified based on a review and analysis of the existing network, recommendations from community members, land use and development context, and conversations with City staff, the Project Steering Committee (PSC), and other stakeholders.

What It Can Look Like



A Protected Bicycle Lane in Glenwood Minnesota (population 2,500) supports bicycle travel in downtown.



Pilot installation of Protected Bicycle Lanes in Alexandria Minnesota (population 14,000).

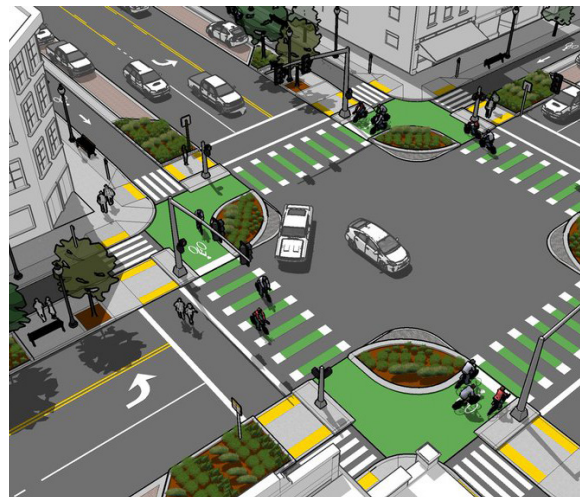


Diagram for a Protected Bicycle Intersection in a Main Street / downtown setting.



The Artery, a walking, biking, and driving connection to downtown Hopkins Minnesota (population 18,500).

Proposed Bicycle Network

What the Map Shows

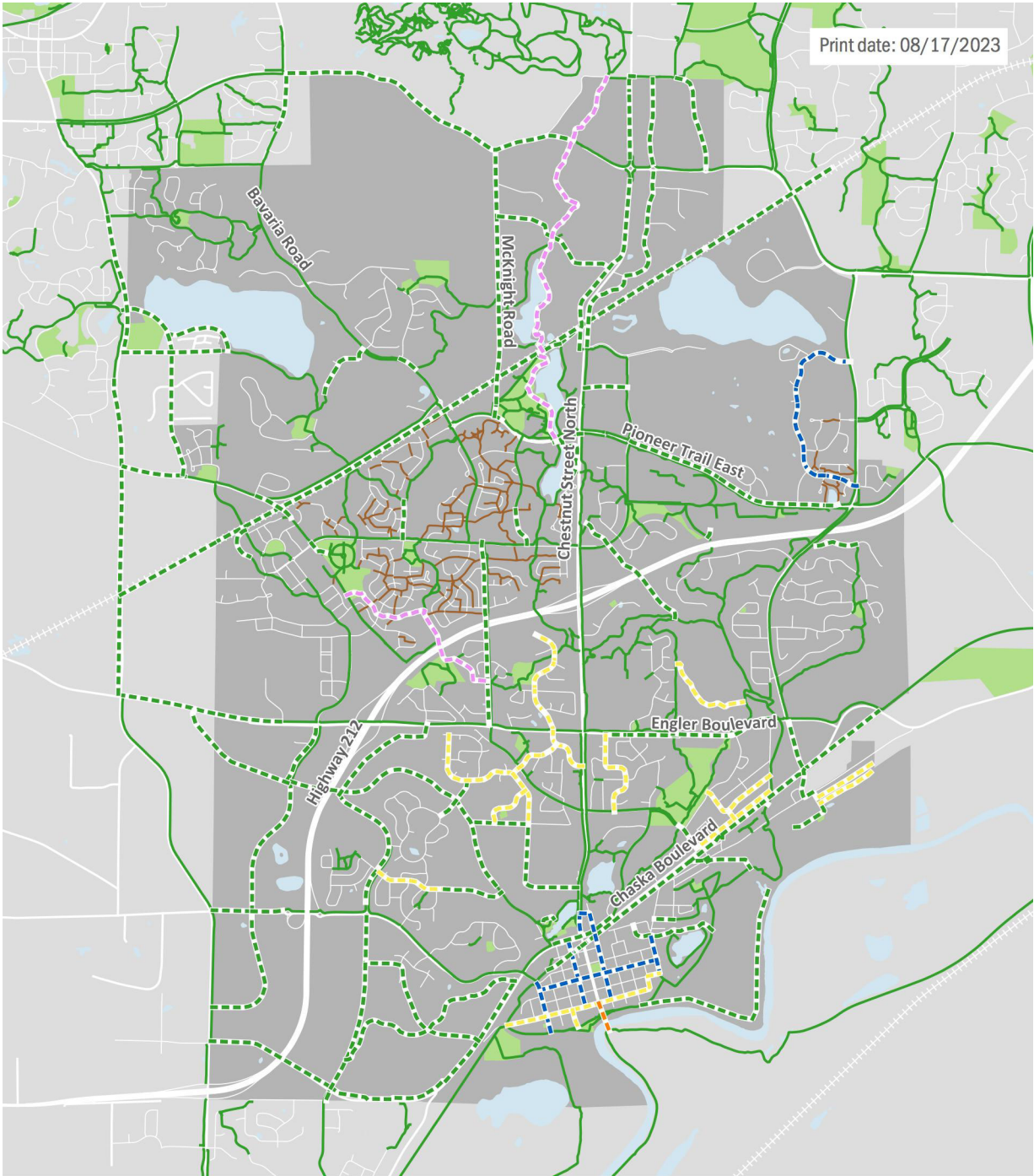
A network of comfortable and inviting “All Ages and Abilities” bicycling facilities provide convenient connections throughout the city.

Protected bicycle lanes and shared-use paths (trails) in denser, higher-traffic areas provide a safe, comfortable and inviting experience, while a network of Neighborhood Slow Streets provides comfortable connections into neighborhoods.

Several bicycle connections are shown for downtown, a key destination. However, project-specific engagement should occur before specific routes or facility types are finalized (please see additional discussion later in this chapter).

Legend

- Existing Trail
- Existing Jonathan Trail
- - - NEW Shared Use Path / Trail
- - - NEW Protected Bicycle Lane
- - - NEW Neighborhood Slow Street
- - - NEW Facility: Type To Be Determined
- - - UPGRADE Existing Shared Use Path / Trail



Additional Recommendations for Bikeability

Treatments at Intersections and Trail Crossings

- » Develop / install [Protected Intersections](#) at locations where heavily-used bikeways cross major roadways.
- » Highlight bicycle lanes across right-turn lanes and through intersections by the addition of color (green paint or epoxy), chevrons, and/or dashed lines.
- » Develop and adopt guidelines for installing medians or raised crosswalks at trail crossings and intersections.
- » Include bicycle detection (loop detectors or camera detection) along bikeways when signals are installed or updated.
- » Include bicycle-specific signal phasing, especially at larger or complex intersections.

Facility Maintenance

- » Establish bicycle facility maintenance guidelines for ongoing and seasonal maintenance including street cleaning, vegetation maintenance, snow and ice removal, and re-striping.
- » Develop a public-facing document providing an overview of the City's current snow and ice removal policy for key trails and links, and publicize the existing "Winter Network" of priority routes for snow and ice removal along pedestrian and bicycle facilities.

Lighting of Trails and On-Road Facilities

- » Establish policies for providing lighting along on- and off-road facilities, and in tunnels and other areas along trails as needed.

Bicycle Network Design

- » Draw on latest best practices for full selection of bikeway facilities. Sources include: [MnDOT Bicycle Facility Design Manual](#), [MnDOT Best Practices for Pedestrian and Bicycle Safety](#), [FHWA Small Town and Rural Multimodal Networks](#), [2012 AASHTO Guide for the Development of Bicycle Facilities](#) (new edition forthcoming), [NACTO Urban Bikeway Design Guide](#), and others.

Bicycle Parking

- » Partner with Carver County Public Health to support installation of bicycle parking using Statewide Health Improvement Partnership (SHIP) funding
- » Establish an ongoing "Request-a-Rack" program for business areas, employers, and individual businesses throughout the City.
- » Develop bicycle parking requirements for new developments
- » Install bicycle parking at existing destinations including commercial and employment centers, recreational areas, schools, and other community destinations.
- » Develop and adopt bicycle parking guidelines - a good reference is the [Hennepin County \(MN\) Bicycle Parking Guidelines](#)

Rest Areas / Stops

- » Establish guidelines for installation of rest stop facilities including benches, water refill stations, short-term parking, bicycle maintenance stations, trash and recycling, and restrooms.

Priority Pedestrian and Bicycle Projects

Top 10 Priorities for Implementation

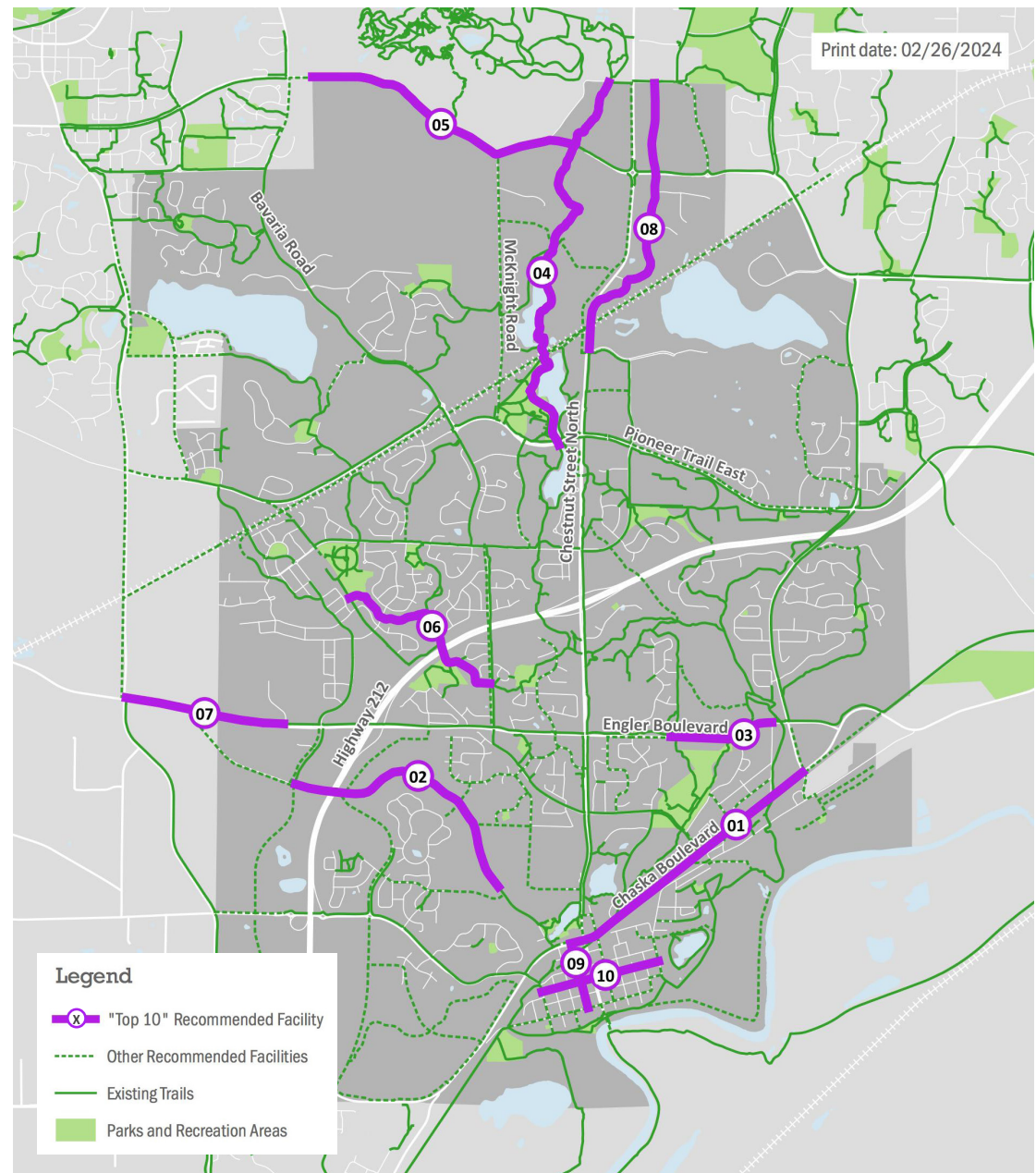
Numerous recommendations for bicycle and pedestrian routes and investments are described in this plan.

A set of “**Top 10**” routes and facilities was selected from those recommendations for priority implementation.

Please note that funding for the facilities and programs identified by this plan (including the “Top 10” facilities) has not yet been secured, though it is anticipated that the main source of funds will be grants from state, federal, and county sources supplemented by a mix of City resources. A listing of potential funding sources is included on the next page and also in the plan’s implementation chapter.

Top 10 routes were selected responding to several factors, including:

- » Whether they would serve a regional connectivity role according to Metropolitan Council’s Regional Bicycle Transportation Network (RBTN)
- » The number of key destinations (including schools, parks, library and transit) they connect
- » Requests for routes along their alignments during the plan’s community engagement process through the Wikimapping engagement portal



Funding for “Top 10” and Other Facilities and Programs

Planning-level cost estimates for implementing the “Top 10” facilities are provided in the table below. Please note that funding for the facilities and programs identified by this plan (including the “Top 10” facilities shown here) has not yet been secured, though it is anticipated that the main source of funds will be grants from state, federal, and county sources supplemented by a mix of City resources. A listing of potential funding sources is included in the plan’s implementation chapter.

Map Ref #	Route Name	From	To	Length (miles)	Facility Type	* Cost Estimate (\$)	MetCouncil RBTN?	# of Key Destinations
1	Chaska Blvd	Pine St N	Audubon Rd	1.56	SUP / Trail	\$561,600	Yes	3
2	Creek Road	Chaska Creek Blvd	Vista View Dr	1.48	SUP / Trail	\$532,800	Yes	1
3	Engler Blvd (eastern)	Ridge Ln	Old Audubon Rd	0.57	SUP / Trail	\$205,200	Yes	3
4	McKnight Lake Trail	Lyman Blvd	Pioneer Trail West	2.45	Upgrade Existing	\$502,250	Yes	3
5	Bavaria Rd/82nd St W	Ali Ln	McKnight Lake Trail	1.55	SUP / Trail	\$558,000	Yes	1
6	Clover Ridge Connector	Molnau Court trail	Bavaria Road	1.09	Upgrade Existing	\$223,500	No	3
7	Engler Blvd (western)	Carver Pkwy E	West Creek Ln	0.86	SUP / Trail	\$309,600	Yes	1
8	Peavey Road	Norex Drive	Hazeltine Blvd	1.64	SUP / Trail	\$590,400	Yes	3
9	Pine St (downtown)	Chaska Blvd	W 1st St	0.35	TBD (pending engagement)	-	Yes	5
10	W 3rd Street (downtown)	N Hickory St	Beech St	0.65	TBD (pending engagement)	-	Yes	5

** Cost estimates are based on MnDOT’s Metro District Bicycle Plan (March 2019), which were derived from statewide average bid prices. To reflect current conditions, including higher costs due to inflation, post-Covid supply chain disruptions, and other factors, future project costs should be inflated relative to a base year of 2017. Cost estimates shown here do not include an allowance for engineering, utility, or right-of-way costs, but do include a 40% contingency that may account for some of those costs. Please note that these estimates are only intended to be used at a planning level and should be refined throughout the project development phase of each individual project.*

Considerations for Downtown

Chaska's downtown is an inviting destination for residents of the city and surrounding communities. Its unique combination of walkable urbanism, restaurants, shopping, boutiques, and historic architecture make for a thriving destination and a key location for economic activity in the city. Making walking and biking easier within, and to and from the downtown, will support the continued success of local businesses and is a key recommendation from the Chaska's Downtown Plan, adopted in 2012.

Over the years, Chaska has implemented many of the 2012 plan's recommendations. However, the Downtown Plan's bicycle network was not implemented due to community concerns about limited space and automobile parking.

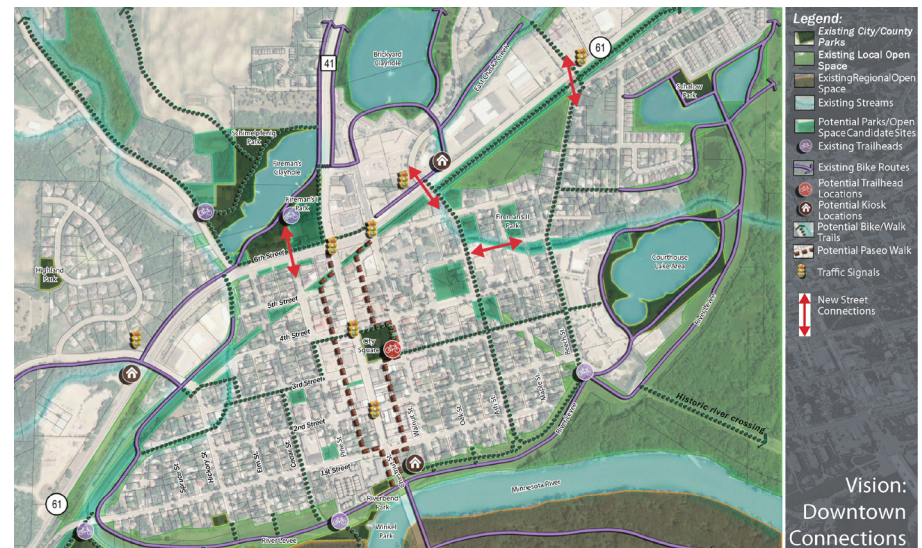
Project-specific engagement should occur before any bicycle routes or facilities are planned or prepared for implementation in the City's Downtown. Soliciting guidance and considering and addressing concerns from downtown businesses will be key to future success; some issues to consider include ensuring an adequate parking supply and facilitating access to storefronts.

At the same time, and consistent with the Downtown Plan's "Complete Streets" vision, it will be important to consider routes or facilities that improve safety for all users, including people walking, bicycling, taking transit, and driving.

In the end, improving bicycle connectivity in and around the downtown will support greater use of bicycling in the city and will also support increases in economic activity and overall desirability for downtown as a place to visit, live in, and develop businesses.



Chaska has implemented many of the Downtown Plan's recommendations. Image courtesy of HKGI.



The Downtown Plan includes recommendations for a network of trail-like facilities throughout downtown and connecting to other places in the city.

Potential Bicycle Routes in Downtown

Several potential downtown bicycle routes are identified to respond to priorities received from Chaska residents during this plan's community participation process, to improve safety and connectivity, and to address the recommendations of the City's adopted 2012 Downtown Plan.

Note that specific facility types for the downtown are yet to be determined. Additional route- and project-specific engagement with downtown businesses and the wider Chaska community will need to be completed before specific route or facility recommendations are finalized.



Legend

— Existing Trail

- - - NEW Shared Use Path / Trail

- - - NEW Protected Bicycle Lane

- - - NEW Neighborhood Slow Street

- - - NEW Facility: Type To Be Determined

Considerations for North-South Bicycle Routes

- » A north-south bicycle connection through Chaska's downtown is a regional priority according to the Metropolitan Council's Regional Bicycle Transportation Network (RBTN).
- » Plans for the 2023 reconstruction of TH 41/Chestnut St through downtown do not include bicycle facilities along this stretch, but do include a tunnel crossing under TH41 just south of Chaska Boulevard that can be leveraged to develop north-south routes:
 - Two N-S bicycle routes (Walnut St and Pine St) should be provided to accommodate north-south connectivity through the downtown while avoiding the need to cross TH41. These routes would connect with the new tunnel, while also providing access to existing trails north of Chaska Blvd and the Minnesota River crossing to the south.
 - » Both routes would connect to Chaska Blvd; Pine St would also provide access to the Firemen's Lake area.
- » Given the size of the downtown area, additional N-S routes would be beneficial; given existing traffic volumes, these can be easily provided as Neighborhood Slow Streets:
 - Hickory St provides direct connection to the existing trail at Big Woods Blvd
 - Cedar St provides direct connection to Winkel Park and the river trails (the gate currently there to restrict vehicle traffic could be replaced with removable bollards that allow people bicycling or walking to pass through, with the ability to accommodate access for work vehicles when needed).
 - Beech St link will link several existing and planned E-W routes to river trails.

Considerations for East-West Bicycle Routes

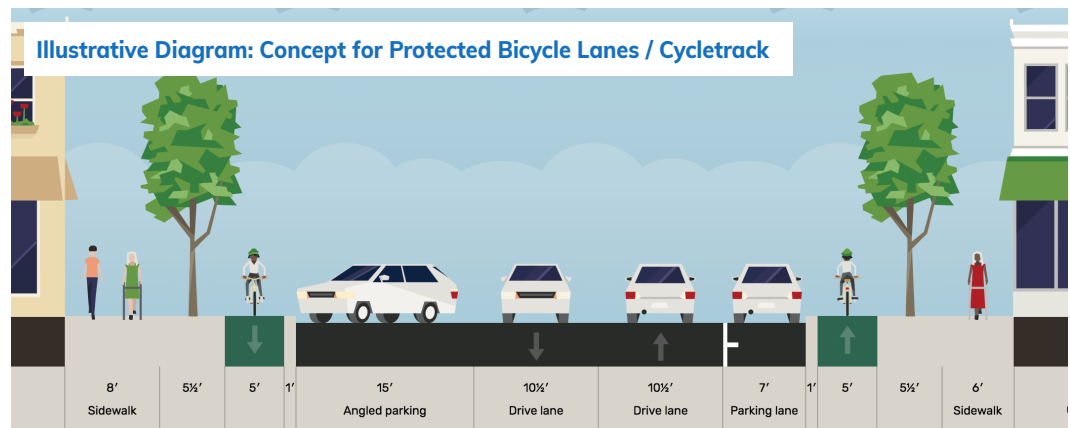
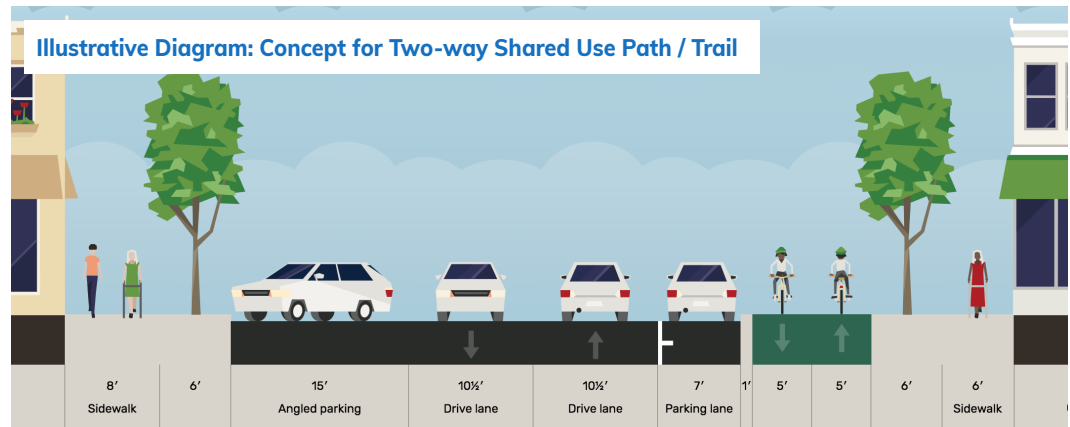
- » Given the size of the downtown, two east-west links are recommended.
- » 1st St would provide an E-W link away from downtown traffic with low level of effort to implement as a Neighborhood Slow Street. This route would create linkages to N-S routes that the existing river trail can't provide due to the levee.
- » 3rd St is centrally located and is identified in the 2012 Downtown Plan (with a small section on 4th Street). 3rd St does not have a signalized crossing of TH41, but the final TH41 reconstruction plans for this intersection include a comfortable median and limited turning movements, which would facilitate crossing.

Concepts for Potential Configurations

The width of right-of-way available in the downtown is 80 ft, for both N-S and E-W streets. Several types and configurations of bicycle facilities could be implemented in this space while heeding the guidance of the adopted 2012 Downtown Plan and accommodating recent streetscape investments.

Planning and decisions regarding specific types of facilities should only be considered after route- and project-specific engagement with downtown businesses and the wider Chaska community is completed.

The diagrams provided on this page are for illustrative purposes only.



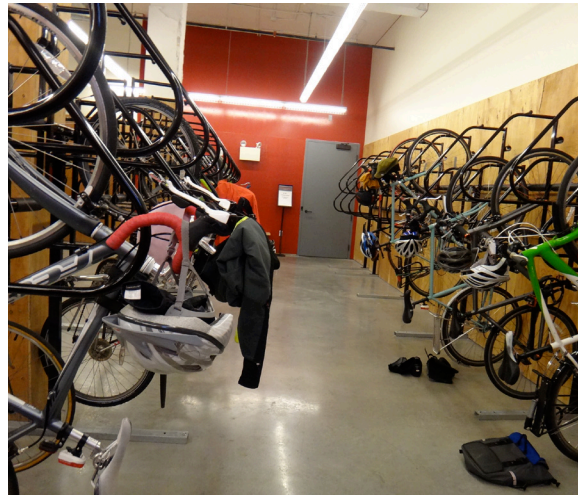
Other Considerations for Downtown

Downtown Hopkins is already a thriving and successful destination attracting visitors from near and far. Continuing to work on improving its orientation to walking and bicycling will pay dividends for downtown's success and for the city overall.

Some potential "quick wins" for downtown include:

- » Bicycle parking:
 - Provide multiple racks along each block face
 - Develop one or two locations for secure long-term bicycle parking (like a staffed facility or bicycle lockers)
- » Enhance wayfinding for people walking and biking
- » Promote a "park once and walk" strategy for visitors to downtown shopping and parks
- » Continue development of bicycle trails connecting into and around downtown
- » Consider enhanced crossing treatments where warranted (for example, consider adding RRFBs or a second HAWK system in the downtown area)

What do they look like?



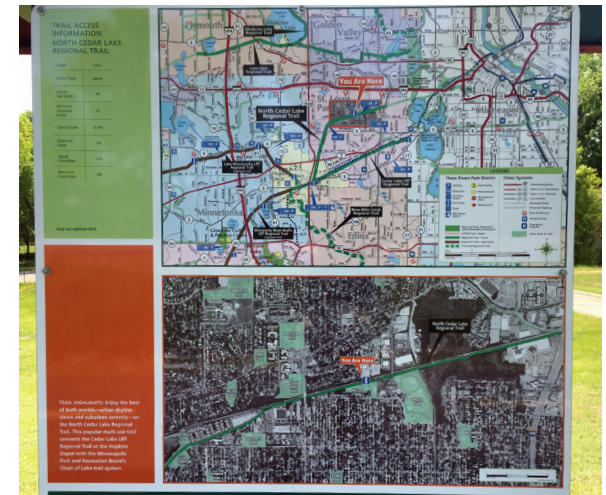
A secure, longer-term bicycle parking facility.



Ample bicycle parking provides convenience for visitors.



A wayfinding marker placed on a sidewalk orienting visitors to a useful destination.



A wayfinding system helps visitors get a sense of where they are and how to get to where they want to go.

Shared-Use Mobility: Bikeshare, Micromobility, and Mobility Hubs

Shared-Use Mobility

Shared-use mobility is an approach to transportation that provides access to options that are shared among users - like public transit, bikeshare, scooter fleets, carshare, carpools, taxis and app-based ride-hailing services. These options can increase convenience and access for residents while reducing the need for private car ownership.

Shared-use mobility systems are not just for metro-area cities: smaller communities, college towns, national parks, and tourist destinations can be successful locations for these innovative options.

Smaller and suburban edge communities like Chaska have great potential to benefit from shared-use approaches because they offer advantages (in terms of distance and concentration of activities) over larger metro areas. In addition, these options offer potentially greater benefits to residents of smaller communities, as they can greatly reduce the need for automobile ownership and the attendant expenses they imply.

Bikeshare



Nice Ride (the Twin Cities bikeshare system).

A Bicycle Share (“bikeshare”) system is a shared transportation service where bicycles are available for use to individuals on a short-term basis for a price.

Bicycles can be standard or electric, and are returned to special racks (“docks”), parked at designated areas or corrals, or parked anywhere within a system’s service boundary (for a “dockless” system).

Bikeshare is a mature technology, and has been successfully used in our region - both in large and smaller communities. Nice Ride (the Twin Cities bikeshare system), started operations in 2010, and has continued to



Great Rides, in Fargo ND, is one of the best-performing bikeshare systems in the nation.

grow and introduce new technologies since then - including, most recently, electric-assist bikes and dockless rentals.

Great Rides, in Fargo ND, is a small system (11 stations and 100 bikes) but one of the most successful in the nation in terms of utilization (each bike gets used about 7 times per day, about the same rate as NY City’s). Great Rides serves the needs of residents, visitors and the City’s student population, and offers an important example for potential implementation of a bikeshare system in Chaska.



Mobility Hubs could be developed in Chaska. Image courtesy of Sophia Von Berg.

Mobility Hubs

A Mobility Hub is a place where people can access multiple transportation modes in a safe, comfortable, and accessible environment that facilitates convenient and reliable travel.

Mobility Hubs:

- » Bring together elements of the shared-use mobility model,
- » Provide convenient access to multiple modes of transportation,
- » Are located within an environment that offers placemaking qualities, walkability, and density of uses and destinations.

Access to a Mobility Hub can help local households keep more of their income and build wealth - for example, by helping a three-car household become a two-car household, or helping a two-car household become a one-car household.

A successful shared-use mobility approach for Chaska would integrate several systems: shared scooter and bicycle fleets, fixed stops for public transit, carshare and ridesharing services, compact and efficient land use, and supportive walk / bike networks that, taken together, offer new options for residents and visitors to connect to destinations in and around the City.

Recommendations

- » Explore development of a small bikeshare system in the city. Potential characteristics for the system's configuration could include:
 - Docked system
 - 50 bikes / 5 docks
 - Potential dock locations include Downtown (2-3 docks, with one at City Square), Firemen's Park, Courthouse Lake, Chaska Community Center, and the future library
- » Explore development of a Mobility Hub in the city's Downtown
- » Invite providers of shared-use mobility options (bikeshare, scooters, carshare and ride-hailing apps) to offer options in the city.
- » Locate shared-use mobility options in areas with excellent walk / bike access
- » Serving destination-rich neighborhood nodes can help kick-start shared-use mobility options in Chaska and support the development of denser housing and mixed-use buildings - increasing the efficient use of land and increasing convenient access to transportation options for people living in those districts and in nearby traditional single-family neighborhoods.

Wayfinding

Please note: **Appendix 1 - Toolbox of Facilities and Treatments** includes additional guidance for wayfinding.

A wayfinding system is a comprehensive network of signing and pavement markings that provide useful information including direction, time and distance to a destination along preferred routes.

A comprehensive and user-friendly wayfinding system is a key part of successful pedestrian and bicycle networks. Wayfinding elements, including signs, markings, maps, and informational kiosks make a network approachable, understandable, and usable. They make it easier for existing and potential pedestrians, bicyclists, and transit riders to use the City's walking and biking facilities to reach their destinations.

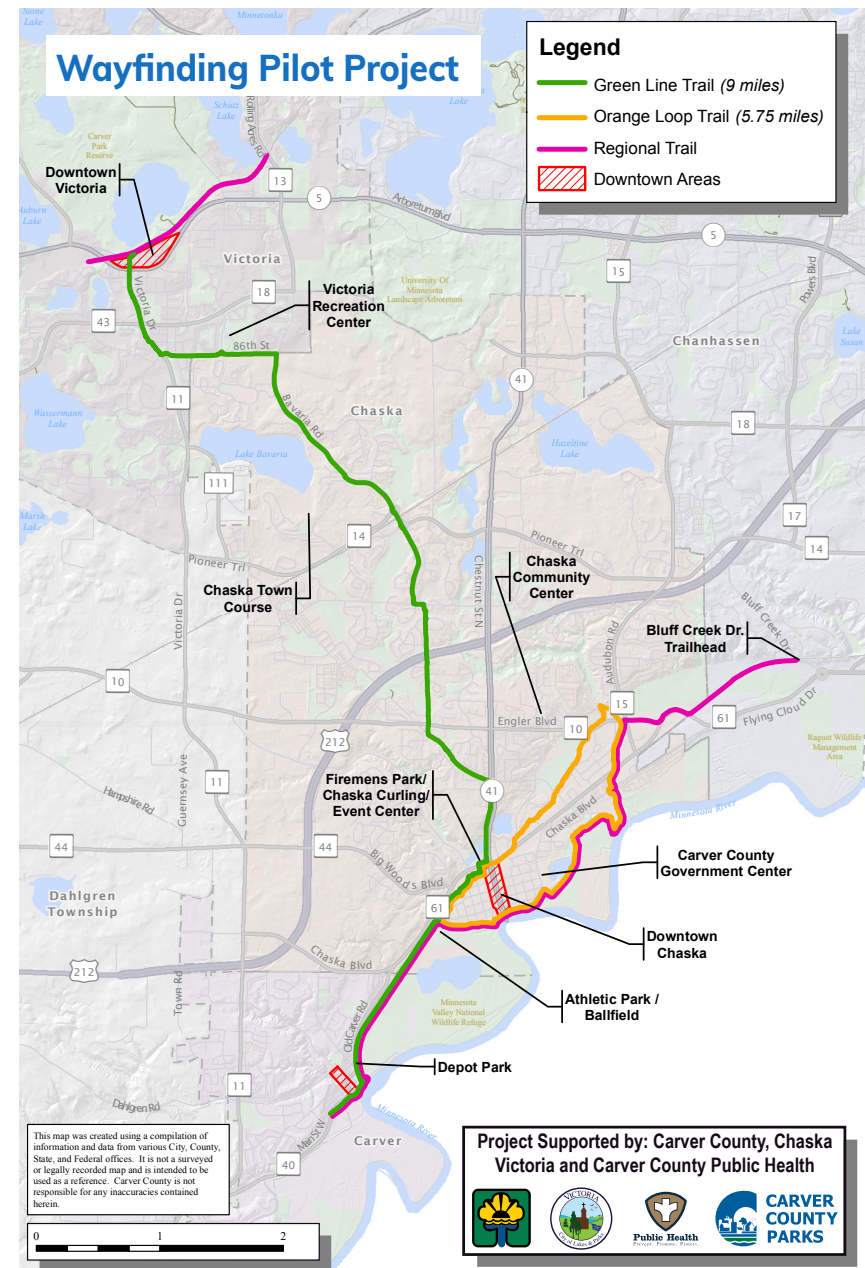
Wayfinding for Routes

Chaska has many existing and planned assets that could be linked as transportation and recreation routes and loops. The City's All Ages and Abilities network is an ideal framework for connecting destinations across the city (and to nearby trails and communities).

Recent Planning

The City of Chaska has a Comprehensive Wayfinding Master Plan as well as a [Local and Regional Trails Wayfinding Pilot Project](#) in collaboration with Carver County Parks, Carver County Public Health, and the City of Victoria.

Recommendations from both documents are incorporated into this plan's recommendations for wayfinding and network development.



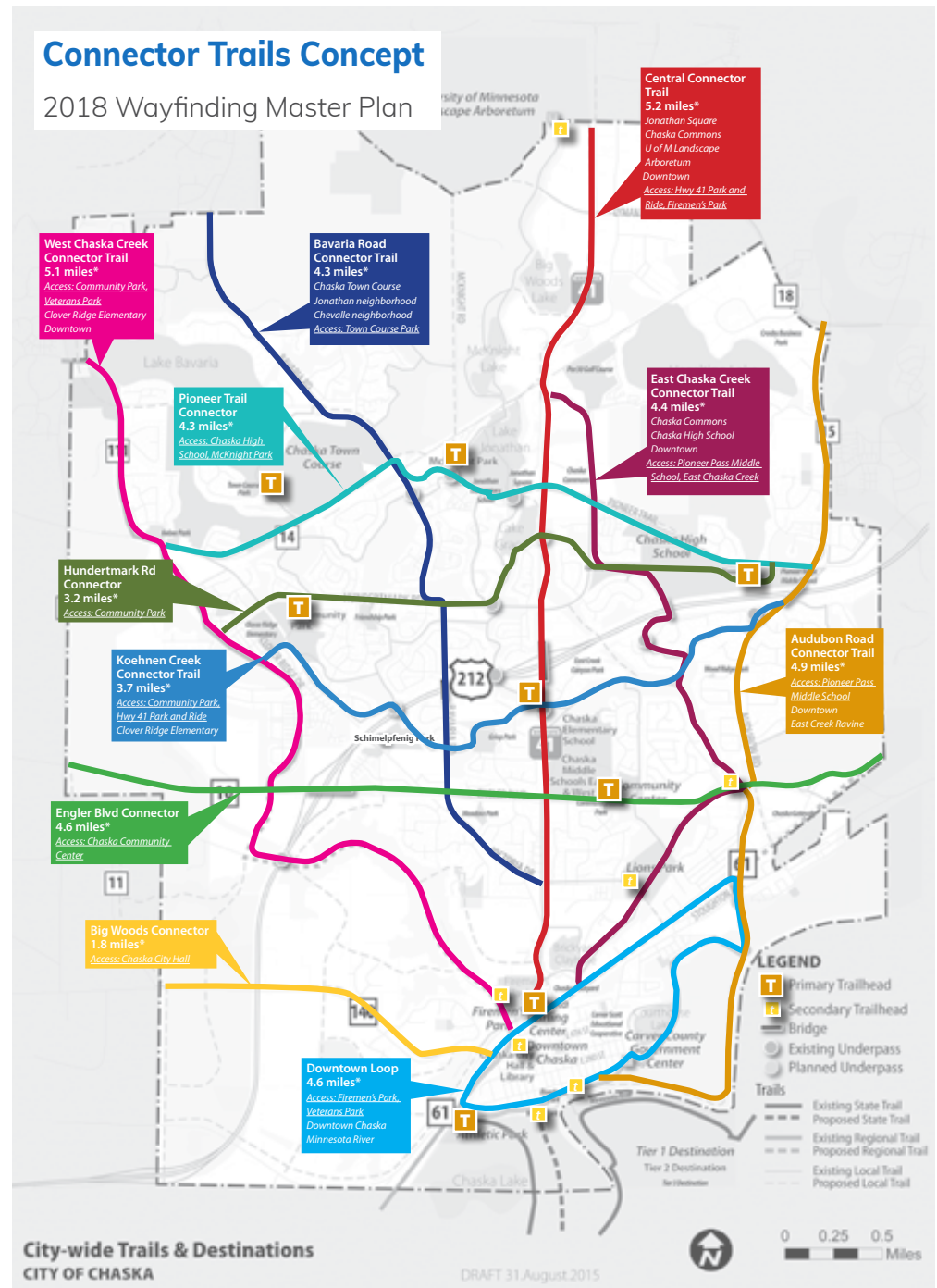
Types of Destinations

Destinations to include and highlight in the city's system include:

- » Other trails or bikeways (to support system connections)
- » Local or regional parks and trails
- » Downtown
- » Schools
- » Loops

Other Wayfinding Recommendations

- » Print and distribute network maps: Network and route maps communicate the city's walking and biking network to both current and potential users. Include safety tips, information about different facility types, and bicycle traffic laws.
- » Make route map and GIS data publicly available: Publishing pedestrian and bicycle related data including planned projects, construction information, pedestrian and bicycle detours, and safety information helps keep the public informed, and allows for development of third party applications that incorporate up-to-date information about the city's walking and biking network.



Facility Maintenance

Maintenance of walk / bike facilities includes two key activities:

- » Upkeep and repair of the facilities themselves so they continue to serve in their intended condition (e.g., repainting crosswalks to maintain visibility, or patching trail surfaces), and,
- » Ensuring that environmental, climatic, and other factors don't hinder access to the facilities or to their intended functioning (e.g., removing snow from priority pedestrian corridors).

Proactive and responsive maintenance of pedestrian and bicycle assets is a key practice for successful pedestrian and bicycle systems, and a major contributor to the development of safe, comfortable and inviting non-motorized networks that grow walking and biking.

Why It's Important

Adequately maintaining walking and biking facilities:

- » Protects the City's investments and helps ensure that they serve the needs of residents and visitors well into the future
- » Reduces hazards, improves user visibility and safety, and invites greater use of facilities
- » Improves reliable, year-round connectivity for users of non-motorized modes

User Needs

People walking, especially people who use mobility devices like walkers and wheelchairs, depend on level, slip-resistant surfaces for their travel. Walking surfaces that are free from unexpected



Proactive maintenance of walking and bicycling facilities protects community investments.

bumps, holes or cracks, ice, or other slippery materials are paramount for people's safety and comfort.

Surfaces that are adequate for people driving can be hazardous for people walking or biking: gravel can deflect a bicycle wheel; a crack in the pavement or an incorrectly-oriented drainage grate can trap a bicycle wheel or trip walkers; wet leaves, ice, and gravel in walkways and bikeways can result in a fall, limit access for people using mobility devices, create unfriendly conditions, and reduce system use.

People walking and biking also depend on motorists' ability to anticipate and respond to their presence when crossing streets - visible and working signs, signals, and pavement markings help improve their safety.

General Considerations

Management Plans

A management plan is a tool to identify maintenance needs and responsible parties. A management plan that includes the maintenance component for a proposed facility should be in place before construction. Additionally, a management plan should include a means for users of the system to report maintenance and related issues and to promptly address them.

Management plans for pedestrian and bicycle facilities have significant overlap with management plans for a city's other transportation assets. Some of the issues typically addressed include:

- » Filling potholes
- » Removing downed or dangerous trees
- » Responding to vandalism and trespassing
- » Removing litter
- » Replacing stolen or damaged signs
- » Watering and weeding landscaping
- » Protocols for communication
- » Coverage of expenses



A management plan includes protocols for addressing common and potentially serious problems like incorrectly-placed drainage grates that can trap a bicycle wheel.

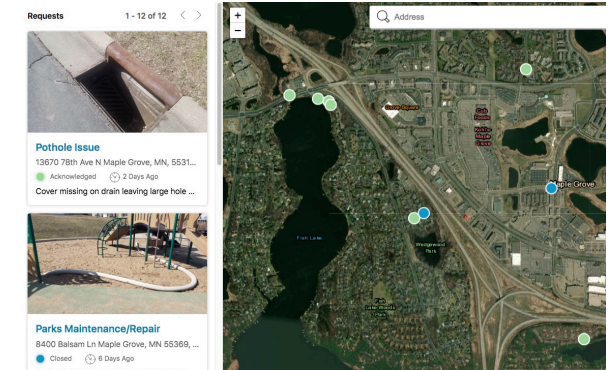
Maintenance Budget

Preventive maintenance reduces hazards and future repair costs. Maintenance costs and responsibility for maintenance should be assigned when projects are planned and budgets developed. As with streets and roadways, typical annual maintenance costs for walk / bike facilities range from 3 to 5 percent of infrastructure replacement costs - for example, a \$100,000 facility should include a \$5,000 annual maintenance budget. Life-cycle cost analysis is recommended to determine the net value of using longer-lasting, higher-quality materials during construction if they reduce yearly maintenance expenditures.

User-Initiated Maintenance Requests

Users of the Chaska pedestrian and bicycle network will likely be the first to notice hazards, maintenance issues, and opportunities to improve the system.

A formal mechanism for receiving requests for maintenance can help focus and prioritize investments, avert deterioration of facilities, and reinforce resident-ownership of the City's walk/bike network.



See-Click-Fix user-initiated report for a missing drainage grate (top left) in Maple Grove.

Deploying a web and app-based tool like “See-Click-Fix” (or “Report-a-Pothole” or similar) will facilitate user-initiated maintenance requests. Supporting implementation of this tool through a supportive education / public marketing campaign will help increase public awareness and use of the tool.

Routine Maintenance

Street sweeping

Loose gravel, sand, leaves, and other debris on the surface of bicycle lanes, paved shoulders, and paved sections of shared use paths should be removed at minimum twice per year - once in the spring and once in the fall.

Sweeping is an important activity for usability of on-road bicycle infrastructure (bike lanes, separated bike lanes, and others) as automobile traffic will tend to sweep debris into these facilities. This is especially true for bicycle lanes that are located directly adjacent to a curb, where debris collects already.

Markings

Signs and pavement markings are important features of streets, walkways, and bikeways. They help ensure continued safe and convenient use of these facilities. Signs, striping, and legends should be kept in a readable condition.

Some recommendations to address these elements include:

- » Regular inspection of walkway and bikeway signs and legends, including an inventory of signs to account for missing or damaged signs, with prompt

replacement of defective or obsolete signs

- » Regular inspection of striping, with prompt reapplication as needed. Bike lanes may require annual re-striping if located on higher-volume streets; consider durable cold plastic for skip-striping bike lanes across right turn lanes
- » Consider using ground-in preformed thermoplastic pavement markings and tape rolls, which are less prone to getting scraped away by snow plow blades

Vegetation

Vegetation encroaching into and under a sidewalk, SUP, or trail crossing can create a nuisance and hazard for people walking (especially for those with sight or mobility impairments) and biking. To provide long-term control of vegetation, its management should be considered during design and construction of facilities.

Vegetation management helps to maintain smooth pavement surface, as well as clear zones, sightlines, and sight corners to promote pedestrian and bicyclist safety. City maintenance staff are generally responsible for vegetation management and should inspect the trail system monthly during the growing season. Regular seasonal maintenance activities should

include mowing of turf areas within the trail right of way, annual trimming of vegetation, weed control, rain garden maintenance and sweeping and blowing of vegetation and turf debris from the trail surface and root cutting as needed.

Vegetation management issues identified by users (e.g. tree roots causing heaving of sidewalk surfaces, encroachment and maintenance issues) will likely be reported through the user-initiated maintenance request program.



Keeping markings in good condition helps support safe interactions between users of all modes.

Winter Maintenance

Snow and Ice Removal

Winter maintenance is a key component for facilitating year-round use of pedestrian and bicycle networks. The presence of snow or ice on sidewalks, curb ramps, or bikeways will deter pedestrian and bicyclist use of those facilities to a much higher extent than cold temperature alone.

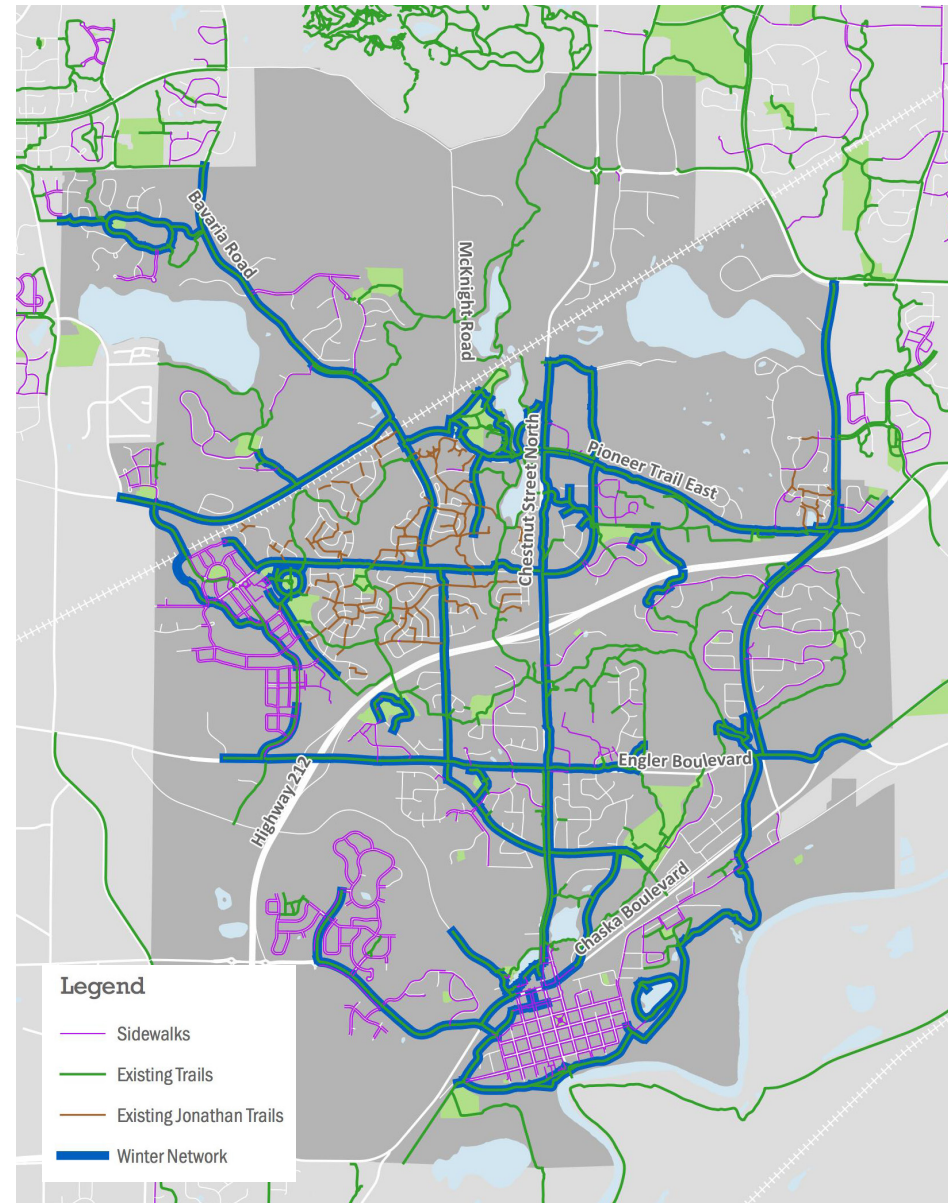
Seniors and persons with mobility issues will avoid walking in locations where ice or snow accumulation creates slippery conditions that may cause a fall. Curb ramps that are blocked by ice or snow effectively sever access to pedestrian facilities for wheelchair users and seniors.

Additionally, inadequately maintained facilities may force people walking or biking to take a route that is unsafe or inconvenient - e.g., forcing pedestrians and bicyclists into the roadway or motor-vehicle lanes.

When the surface of a road is covered by snow, the pavement markings that guide and warn people walking, biking, or driving may be difficult to see. Clearing snow from the entire roadway surface will help keep pavement markings identifiable, and will provide space so people walking and biking can comfortably travel as far to the right as possible.

Walking and bicycling generally decrease during the cold winter months as slippery infrastructure and unpleasant weather conditions create barriers for pedestrians and bicyclists. However, continuing infrastructure maintenance can facilitate the convenience of walking and biking as well as provide new opportunities to encourage more people to be outside more often.

Chaska's Existing Winter Walk/Bike Network



Chaska's Winter Network (routes marked in blue), where City of Chaska Public Works crews currently clear snow and maintain usability of trails and walking facilities year-round.

The City of Chaska has already developed a “Winter Network” of walking and biking facilities that are maintained by the City. Over time, and as resources are found to cover expenses for these maintenance operations, this network could grow to include a greater share of the City’s facilities.

Other Maintenance Considerations

Construction Detours

Keeping sidewalks free of obstructions, and providing detours during nearby construction activities can make pedestrian travel easier. Construction on sidewalks and trails should include similar considerations as other construction projects, with appropriate signage and provision of detours as needed.



Clearing of snow and ice from sidewalks and trails can help facilitate wintertime walking and biking.



Clearly mark detours when construction projects block established routes.

Bicycle Parking

Visible, secure bicycle parking is essential for making bicycling a viable option for transportation purposes. If it is not provided, many users will next time choose a different mode for arriving or may choose another destination altogether, even if the provided bicycle routes are perfectly safe and convenient. Others will improvise by locking bikes to anything that seems secure - which can result in damage to trees and fixtures, and create hazards to people walking.

Two types of bicycle parking are generally provided: short-term and long-term. They differ in their placement, security and purpose.

Short-Term Bicycle Parking

Short-term parking accommodates visitors, customers, employees, and others who arrive at a destination with the intention of leaving within a few hours. Securely anchoring and locating standard inverted-U racks near primary entries is the recommended practice. Ensuring that ample short-term parking is available at neighborhood parks, schools, employment

centers, and commercial areas is also strongly recommended.

Long-Term Bicycle Parking

Long-term parking accommodates employees, students, residents, commuters, and multi-modal travelers. Long-term parking should be secure, weather-protected, and provided in a visible and/or convenient location. Long-term parking may be provided using inverted-U racks in a secured or supervised area, or by bicycle lockers, bike stations, or bike rooms. Long-term parking should be provided at large employment locations and major transit hubs, and can be easily implemented by designating a “bike room” within buildings and destinations.

Placement and Function

Parking areas should be visible and prominent, located near a building’s main entry, and located clearly and conveniently along a bicycle riders’ natural path to access a site.



“Inverted U” bicycle racks are a preferred configuration for user-friendly, cost-effective parking options.

Recommendations

- » Provide parking at key locations including schools, parks, commercial nodes and destinations near bicycle trails
- » Develop and maintain an inventory of bike parking facilities
- » Deploy parking at the same time segments of the City’s “All Ages and Abilities” network are implemented to support use
- » Develop a [“Request-a-Rack” program](#) to add bicycle parking at local businesses (the business pays 50% of the cost, and the City installs the rack)
- » Use the [APBP Bicycle Parking Guidelines](#)

Recommendations for City Planning Ordinances

Planning policies exert a powerful shaping influence on the City’s future form and can greatly strengthen a community’s orientation for facilitating walking and biking as it grows and develops.

Develop and Adopt a Complete Streets Policy

A Complete Streets Policy asserts the City’s commitment to considering the needs of all users (including pedestrians and bicycle riders) when planning transportation investments. Developing and applying a “Complete Streets checklist” that identifies walk/bike impacts from every potential transportation investment will support this plan’s goals while enhancing community identity, supporting economic vitality, and increasing opportunities for active living and better health.

Adopt an “Active Living Design” Checklist

Navigating large parking lots on foot or bike can be unsafe and uncomfortable, and hinder use of these modes. Providing clear access from the street to the building entrance, not only from motor vehicle parking lots, but also from the routes pedestrians and bicyclists use to access a site, can make the destination more inviting.

Chaska can include requirements for these considerations (including bicycle parking and other ancillary facilities) in building and zoning codes, particularly for development at key employment and retail destinations.

A productive approach to guide developers during the site development and review process - especially regarding orientation of sites and parking lots to walking and transit access - is to develop and adopt a checklist that helps proposers and City Staff review how well a potential development

BUILDING DESIGN

Buildings should be oriented and designed at an appropriate scale to frame and enclose the adjacent streets or right-of-ways, provide opportunities for pedestrians to enter and access buildings; with ideal access to pedestrian level infrastructure and elements.

<input type="checkbox"/>	1. Proposed Buildings are being built near the front street (ROW) line wherever possible, with entrances situated or located along this front edge.	5
<input type="checkbox"/>	2. Proposed Buildings are sited in ways to make the entries or intended uses clear to and convenient for pedestrians.	5
<input type="checkbox"/>	3. Proposed Buildings are connected to public streets via sidewalks that are part of the development.	5
<input type="checkbox"/>	4. Pedestrian level building windows front the street and entrances are well-lit for user security.	5
<input type="checkbox"/>	5. Proposed parking lots are encouraged to be underground, in parking structures or located behind buildings if possible; and designed to be facilitate shared parking between uses.	5
<input type="checkbox"/>	6. Proposed building locations and site connectivity decisions were made using CPTED (Crime Prevention Through Environmental Design) principles, including connection to well-lit sidewalks that are buffered by street trees or other amenities.	5
Sub-Total Points (A):		

PEDESTRIAN CONNECTIONS

<input type="checkbox"/>	1. Parking facilities are designed to accommodate pedestrian and bicycle access to the buildings.	5
<input type="checkbox"/>	2. Building site has sidewalks and crosswalks to connect parking to allow for safe pedestrian movement through the parking lot.	5
<input type="checkbox"/>	3. Pedestrian connectivity is incorporated to link buildings within the site.	5
<input type="checkbox"/>	4. Pedestrian connections should be made to the existing public sidewalk system.	5
<input type="checkbox"/>	5. Benches or seating should be provided for residents, visitors, and/or pedestrians.	5
<input type="checkbox"/>	6. Striping and signage of crosswalks will be made at all intersections.	5
<input type="checkbox"/>	7. Outdoor seating areas and outdoor sales areas should be planned or incorporated where appropriate. Such areas shall utilize a unified theme and approach to the defining elements (structural elements, railings, shading, paving, lighting, landscaping) for the creation of these exterior spaces.	5
Sub-Total Points (B):		

BICYCLE CONNECTIONS

City will consider and support an adjustment to the required parking standards or required number of vehicle spaces if a development demonstrates or provides on-site bicycle parking.

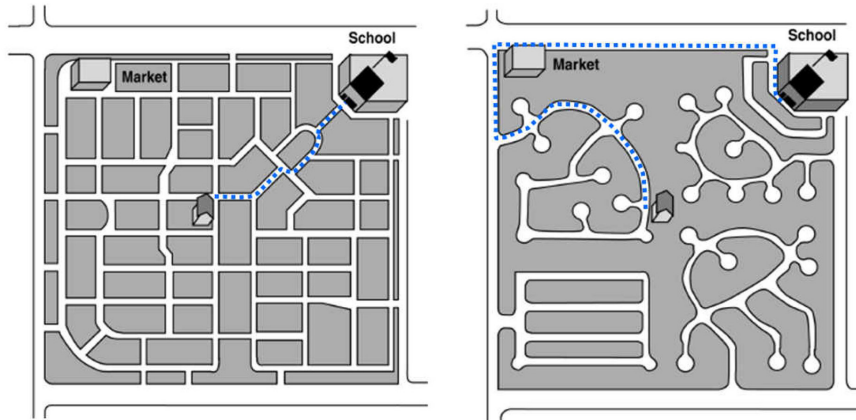
<input type="checkbox"/>	1. Bike parking is being provided in close proximity to primary building entrances or in prominent areas that serve multiple businesses.	5
<input type="checkbox"/>	2. Bike racks are being installed that supports the wheel and frame of the bike.	5
<input type="checkbox"/>	3. Indoor bicycle racks, controlled-access bicycle storage room, bicycle lockers, and bicycle corrals are secure parking options.	5
<input type="checkbox"/>	4. Trail connections are planned and connected to any existing overpass system.	5
Sub-Total Points (C):		

TOTAL POINTS: A _____ + B _____ + C _____ =

Development checklist. Image courtesy of Hennepin County Active Living.

addresses the basic requirements for walkability and bikeability. This checklist can then serve as a tool for negotiating improvements from the developer and evaluating alternative designs.

Adopt Connectivity Standards for New Development



Connected streets make walking and bicycling more convenient and inviting for daily travel. Image courtesy of Kentucky Transportation Cabinet.

An essential component for making walking and biking more useful and inviting is having a network of connected streets and sidewalks that offer shorter and more direct paths to neighborhood and community destinations. Retrofitting streets after a new development is built is much more expensive than providing that connectivity right from the start. Adopting street connectivity standards for new development and subdivisions can help ensure that as the city grows its street network remains compatible with walking and biking.

» [Overview and sample model ordinance](#)

Adopt a Compact Development Ordinance

Commercial and employment areas are and will continue to be important destinations for daily trips in Chaska. New Mobility transformations have high potential in the City. Developing a Compact Development ordinance (similar to Transit-Oriented Development (TOD) ordinances in larger communities) focusing on key current and future employment and commercial activity hubs will help guide their evolution towards types of development and land use that maximize the role that walking and biking can play in their long-term form.

A Compact Development Ordinance would provide standards for developing attractive, compact, walkable, mixed-use centers near key locations and creating live/work/play areas that provide easy access to local and regional walk and bike networks. An ordinance could regulate building orientation and design, provision of pedestrian and bicycle facilities and parking, and establish measures to accommodate motor vehicles and parking in a way that minimally impedes pedestrian and bicycle mobility. This includes traffic calming measures, high-comfort walking and biking facilities, attractive landscaping, and other strategies that can facilitate growth of walking and biking in the city.

Consider Adoption of a Form-Based Zoning Code

Form-based codes regulate the way in which building placement, scale and articulation shape and address a City's public spaces and public realm - which are key considerations for improving a city's orientation to walking and biking. Exploring how form-based codes may support long-term transformations of key commercial corridors as well as locations for new development may have long-lasting positive impacts for the growth of walking and biking in Chaska.

6

Education



Education initiatives like network maps, pedestrian and bicycle safety trainings, and educational campaigns, help people learn how to safely access and use existing facilities.

In this section:

- » Current Initiatives
- » Communicating the City's Network
- » Using the City's System
- » Safe Routes to School (SRTS)
- » Recommendations

Education: Current Programs in the City

The Chaska community currently hosts and conducts several education initiatives. Key partners delivering education programs and initiatives include the City of Chaska, the Chaska Police Department, and Eastern Carver County School District (ISD 112). A brief selection of current and recent efforts by key partners includes:

The School District

- » Uses their fleet of 40 bikes for cycling education and training for Middle School students
- » The District's bike fleet is also made available for other community events and bike rides
- » Coordinates the [Chaska Chan Mountain Bike Team](#) open to all students entering 7th through 12th grade in Chanhassen, Chaska, Victoria, Carver, East Union, and Eden Prairie as well as the "Development Team" for 4th through 6th grade students

Chaska Police Department

- » Coordinates the "Final Answer Friday" series Bike rodeo
- » Sponsors helmet fitting events to ensure bicycle riders know how to properly wear a helmet
- » Regularly shares information about the "rules of the road" and safety through the department's social media

City of Chaska

- » Publishes a map of Chaska trails - including a [PDF](#) and a [mobile-friendly version](#) that cyclists can use while on the road



The school district's bike fleet is made up of 40 high quality bikes. The bikes are transported in a trailer and are available for use by students throughout the district.



Chaska Police Officer Julie Janke fits a new helmet during a bike rodeo. Image courtesy of SW News Media.

Communicating the City's Facilities and Network

Communicating and growing awareness of the Chaska walking and biking network will help increase the number of people who regularly use it as part of their travel.

People who will immediately benefit from greater awareness of facilities providing connectivity across the city include:

- » Residents who would like to walk or bike to work, shopping, or community destinations
- » Recreational users (people who walk or bike for exercise)
- » Parents and students connecting to schools

Some effective tools and approaches for communicating the city's network include:

Network Maps

The City has a great foundation already with the existing PDF and mobile-friendly maps it has developed. Using this information to develop and distribute paper maps can be a high-benefit, low-cost option for facilitating walking and biking. Notably, requests for improved wayfinding were a key issue reported through the

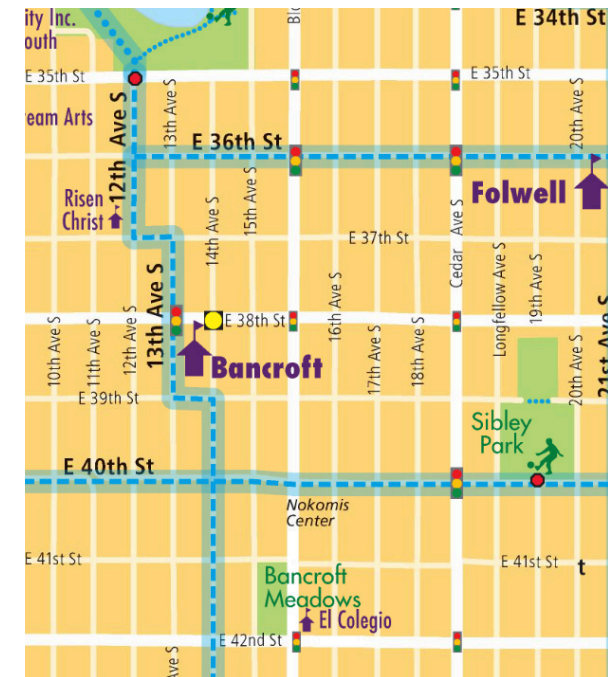
plan's engagement. Maps will help people identify best routes to local destinations, including schools, parks, businesses and events.

Network maps can also include information covering rules of the road, bicycle safety and maintenance, and local destinations (some [print vendors](#) can subsidize the cost of maps through sale of advertisements).

Integrating web-based trip planner services with walk / bike routing options (like Google Maps or [Open Route Service](#)) into the City's website or events pages can help people plan their trip on foot or bike. Additionally, moving the existing mapping tools into the front page of the City's website can help increase visibility of these assets.

Media Campaign

- » Conduct media campaigns to highlight the latest additions to the City's network of walk / bike routes, noting the additions' advantages as well as the benefits of the already-existing network. Other campaigns can highlight Safe Routes to School and upcoming community walk/ bike events (like Open Streets or National Bike to Work Day).



Maps that identify recommended routes and crossings can help families connect to schools, parks and community destinations. Image courtesy of [City of Minneapolis Safe Routes to School](#).

- » Partner with Carver County and nearby cities to highlight regional advances as well as relevant safety and awareness messages.

Communicating How to Use the System

Sometimes what keeps people from walking or biking more often (or from safely driving near people who are) is lack of knowledge about how to use the existing facilities or network and interact with users of other modes. Media campaigns, peer learning, and demonstrations at community events can be useful strategies to share information with residents. Three audiences to keep in mind, along with some sample issues to communicate for each, are:

Pedestrians

How to use a new signal or facility, like a HAWK signal or an RRFB, might not be immediately clear to someone who has not encountered one before. Knowing how to activate the signal, and what to expect (in terms of yielding behavior from motorists) can help people walking feel more comfortable about a route they use. Learning how to communicate their intention to cross while confirming drivers' yielding can also help reduce anxiety at intersections.

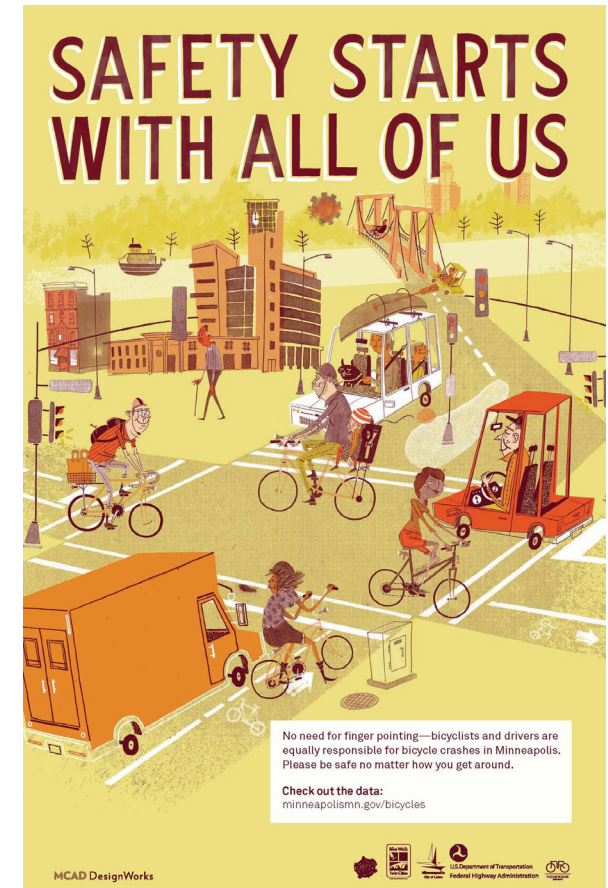
Bicycle Riders

Learning how to communicate their intention to drivers (for example, when making a turn) can help bike riders feel more comfortable and be safer when riding to local destinations. When using trails, learning how to courteously share space with pedestrians, rollerbladers, and families can improve safety and comfort for everyone. Learning how to use bike racks in buses can help bicycle riders combine their travel with transit. Brief videos can be inexpensively prepared, easily distributed through social media, and can be very helpful for all audiences.

Drivers

Some drivers may be unfamiliar and unsure of what to do near new treatments like HAWK signals or on-street facilities like separated bicycle lanes, and may not know about minimum safe passing distance when overtaking bicycle riders.

Making sure that drivers are one of the focus audiences when rolling out new walk / bike investments will reduce confusion and improve safety for all users.



Safety campaign in Minneapolis reminding all road users of their shared responsibility for safety. Posters by Bill Rebolz.

Setting up educational materials at the Chaska License Center may be an effective way of reaching drivers and sharing walk / bike safety information

Safe Routes to School (SRTS) in Chaska

Safe Routes to School (SRTS) is a worldwide movement aimed at making it safe, convenient, inviting, and fun for children to walk and bike to school. Starting in 2005, Safe Routes to School funding became part of US federal transportation bills, including the recently approved 2021 Infrastructure Investment and Jobs Act.

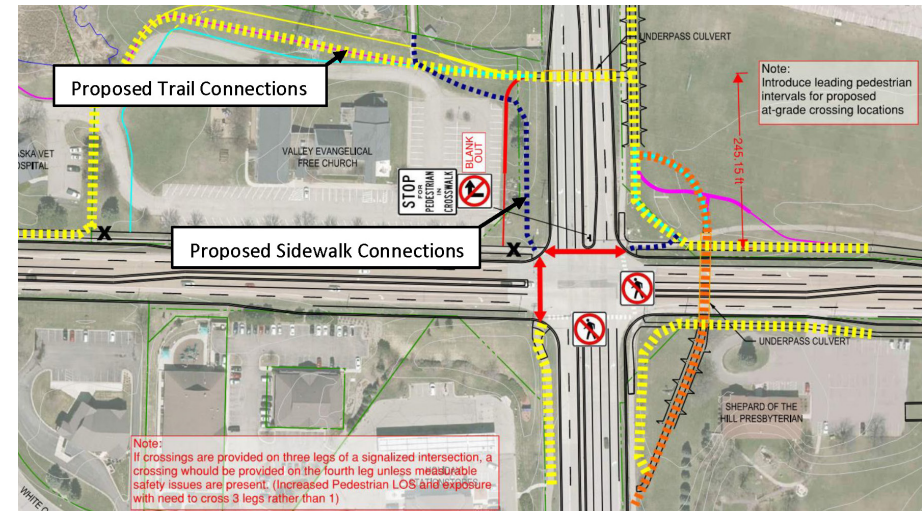
[MnDOT administers state and federal funds dedicated to the program](#), including for planning, implementation of programs, and infrastructure development, and also maintains the [Minnesota SRTS Resource Center](#) with program and funding information.

Why Is It Needed?

Nationally, fewer students walk or bike to school today than in the past. Some reasons for this downward trend include parent concerns about traffic safety, low availability of sidewalks and trails along routes to schools, parent fears about their children's personal safety, and changes in school siting priorities that result in more students living farther away from school.

As more students are driven to school in personal vehicles, congestion and traffic safety concerns in school zones increase, resulting in conditions that further deter students and their parents from walking or biking to school.

Based on a 6Es model relying on a suite of [infrastructure and programming](#) improvements, Safe Routes to School initiatives seek to address these concerns. SRTS can increase the number of students who are regularly able to safely walk and bike to school, bringing significant benefits to the students, their families, their school, and their community at large.



There are numerous opportunities to increase safe walking and biking to Chaska schools.
Image: plans for improving Engler Blvd, near Chaska Middle School and La Academia.

Safe Routes to School in Chaska

The City of Chaska does not currently have a Safe Routes to School (SRTS) plan in place, but will begin to develop a plan for Clover Ridge Ridge Elementary School in fall 2023.

Recommendation

- » This plan recommends that the City, Eastern Carver County School District, and MnDOT partner to develop and implement a Safe Routes to School Plan for each school in the community. Each plan should include active participation of School District leadership and school staff, as well as City staff who will work with the district to implement the plan's infrastructure and programming recommendations.

7

Encouragement



Encouragement inspires people to test walking or biking through fun and inviting activities including friendly competitions, incentive programs, and inclusive community events.

In this section:

- » Current Initiatives
- » Community Events
- » Incentive Programs
- » Recognition for Accomplishments

Encouragement: Current Programs in the City

Encouragement programs invite people into trying walking or biking through fun activities like community-wide events, friendly competitions, or incentive programs.

Numerous encouragement events take place in Chaska every year. A brief selection of current and recent efforts includes:

- » The annual [Cycle Chaska](#) event - which also includes a helmet giveaway and safety information
- » Promotion and participation in National Bike to Work Day - including close coordination between Carver County and the City's events
- » Promotion of the local [Tour de Tonka](#), the west metro area's largest ride (with about 3,500 riders)
- » Active Walks in the Park as part of the City's [Active Older Adults \(AOA\)](#) programs
- » The City's [Community Center](#) coordinates several Running Clubs
- » Chaska is one of two [ParkRun](#) communities in Minnesota - convening a free and timed 5k run/jog/walk every Saturday, open to all ages and all abilities, and part of an international celebration
 - Chaska's inaugural [ParkRun at Courthouse Lake](#) was held on September 18 2021!
- » Chaska's Stop the Clock program lets City employees take fifteen minute walk/bike breaks at anytime during the workday



Chaska is an active participant in National Bike to Work Day.



The Active Older Adults (AOA) group walking in Firemen's Park. Image courtesy of Val Preston.

Community Events

Special community events, like Open Streets and Bike to Work Day, offer an opportunity to bring attention to practical, fun, and healthy aspects of walking and bicycling as tools for transportation, recreation, and health.

Because these events are community-wide and of limited duration, people participate without feeling like they have to commit to making a long-term change in their travel or recreation habits - but sometimes that's all that is needed to open the door to adopting new travel behaviors over the long term.

Chaska is already active in implementing a variety of walking and biking-related events. Continuing to dedicate efforts and resources to these activities will ensure their continued success and growth of walking and biking in the community.

Open Streets

Open Streets events close car traffic for a day on one (or several) of a city's prominent streets - and open it for use by people walking, biking, sitting, exercising, eating, shopping, and enjoying.



Edina's Open Streets event takes place at 50th and France, and is successful (and growing) every year.

Open Streets bring people of all ages together to enjoy the collective experience of using their city's public space without concerns about traffic or safety, and thus help people to reimagine their relationship with walking and biking in their community.

Though there are several important and well-loved walk-bike events in Chaska (like the annual [Cycle Chaska](#) event or [Tour de Tonka](#)), a true Open Streets event has not yet been implemented.

One potential location for an Open Streets event in Chaska, for example, might be Chestnut Street between Chaska Boulevard and 1st Street. That entire stretch of Chestnut Street might be closed

to car traffic for one Saturday or Sunday during the summer, but open for something that most people don't usually do because current car traffic makes it uncomfortable: walk or bike along that stretch of Chestnut and connect with vendors, music, and enjoyment - something like a linear version of River City Days.

This plan recommends that the City explore implementation of one such Open Streets event. If successful, the City may wish to consider increasing the number of yearly events (by adding one or two additional events) or varying their location. This may help increase the number of Chaska residents who are able to easily access and participate in the events.

Walk or Bike to Work / School Events

Walk and bike to work and school days are coordinated national (and international) events that encourage people to try a different way to commute just once in the year. They help people experience how safe, quick and enjoyable a new way of getting to their work or school destinations can be.

These events help raise the profile and potential for walking and bicycling in a community. Bike to Work Week, for example, typically includes special publicity, route guidance to first-time bicycle commuters, and group breakfasts where novice and experienced commuters can casually share commuting tips and route recommendations. These events offer an opportunity to try bicycling to work in a safe, relaxed and fun environment, and to do so without having to commit to a more permanent change in commuting habits. Nevertheless, many people who participate in Bike to Work Week as first-time commuters eventually become regular bike commuters.

Bike to Work Week is held each year as part of National Bike Month, typically in mid to late May, with Bike to Work Day usually held on the Friday of that week. These events have been celebrated in Chaska and many other Minnesota communities over the last several years.

Walk / Bike to School events work on the same principle, and help parents and students experience how safe, easy and fun it is to walk or bike to school in their community. National Walk and Bike to School Day is usually held in the fall (in October). An additional Walk and Bike to School Day is held in Minnesota in the spring (in May). Walk and Bike to School Day is coordinated by MnDOT's [Safe Routes to School program](#).



Wintertime walk / bike events help bring new walkers and bicyclists into considering year-round active transportation.

Group Rides with City Staff and Elected Officials

Monthly group rides with the Chaska City Council, Mayor or other local personalities can help raise the profile of biking in the community and invite residents to join. Expanding the practice to also include walking tours at key locations (and inviting City engineering, planning and maintenance leaders) will help raise the profile of walking and biking in the city, grow communication with residents, and guide improvements for the city's network.

Winter Walk / Bike Events

Winter is a significant part of the year in Minnesota. Luckily, Minnesotans embrace winter: ice fishing, hockey, cross-country skiing, skating and snowmobiling are a normal part of our culture. Winter walking and biking events can help people experience walking and biking as part of their travel to work or school. [Minnesota Winter Walk to School Day](#) is usually held every year in early February.

Walk and Bike Incentive Programs

Bicycle-Friendly Business Districts

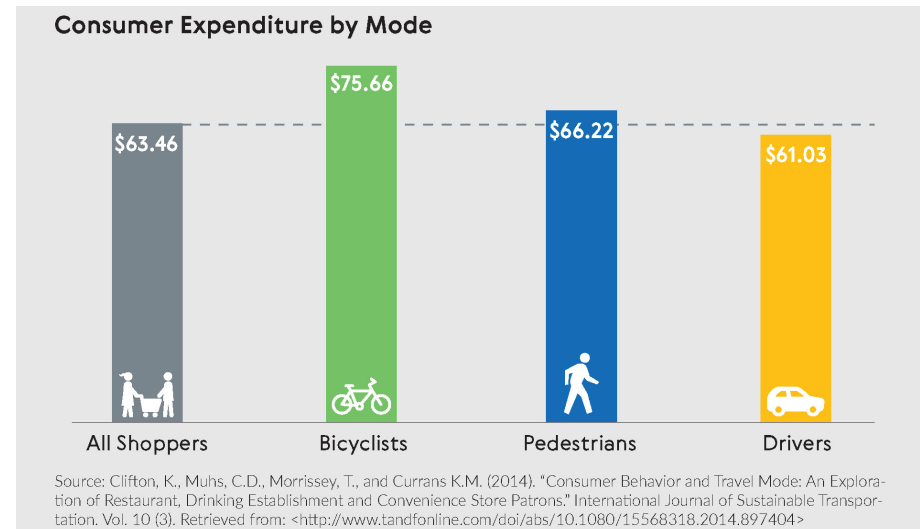
[Bicycle Friendly Business Districts \(BFBDs\)](#) offer discounts to customers who arrive by bicycle (or walking or transit). A BFBD program supports local businesses by marketing participating businesses and growing community support for walking and bicycling. Participating businesses benefit by gaining new customers and additional exposure. BFBDs support local economic development while rewarding pedestrians and bicyclists.

Successful BFBD programs are built on partnerships between businesses, local governments, business organizations, and community groups.

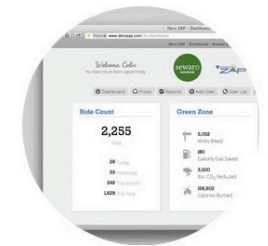
Citywide Walk and Bike Incentive Program

A citywide walk and bike incentive program could encourage and measure the use of walking and biking by residents and visitors traveling to work, shopping and recreation locations in the city.

Automated systems like [DeroZAP](#) that work with RFID technology and sensors at key locations, and offer prizes to participating individuals and organizations, would support and promote active transportation in the city while allowing the measurement of growth and volume of walking and biking along key routes. Such a program would directly encourage use of these modes while also providing robust real-time data that could supplement the city's other measurement programs and support investment in walking and biking infrastructure.



Encouraging pedestrian and bicycle travel to and patronize commercial corridors can grow economic activity.



Components of the DeroZAP platform:

Left image: A tamper-proof RFID tag attaches to the front wheel of each registered bike. Hand-held tags are available for people who walk to work

Middle image: A Dero ZAP Station detects tags as they pass by.

Right image: A web app reports on the data received from each station and assigns points to each user.

Gaining Recognition for the City's Accomplishments and Efforts

Chaska has developed numerous and excellent facilities, events and programs over the years, investing significant resources to improve people's experience of walking and biking in the City.

Gaining accreditation as a [Walk Friendly Community](#) and as a [Bicycle Friendly Community](#) will help strengthen walking and biking as important components of the City's identity and encourage residents, visitors and businesses to try walking and biking as part of their experience of the City.

Additional benefits of applying for accreditation

There are several additional benefits for applying for designation as a Walk Friendly or Bicycle Friendly Community, including:

Self-assessment of current conditions

The application process for each designation provides impetus for collecting all current pedestrian or bicycle related data in one location. This can help guide discussion about areas for improvement, and can also be helpful when applying for future grants and other applications.

Expert feedback

Regardless of outcome, applicant communities receive detailed feedback, which provides a third-party perspective and assessment on what the community is doing right and what can be improved. Those suggestions can then be built into current programs and future plans.

Justification

Positive feedback and accreditation can help demonstrate the value of the community's work and investments, while explanation of what is missing or could be improved can provide motivation for additional investment.

Recognition

Designation as a Walk Friendly or Bicycle Friendly Community sets a community up as an example among peer cities and raises local awareness about the value of supporting a walkable and bikeable environment.



Gaining recognition as a walk- or bike-friendly community can help increase momentum for continuing improvement

Bike Friendly State Facts

Currently, Minnesota is ranked as the #3 Bicycle Friendly State in the US. In Minnesota there are:

- » 33 Bike Friendly Communities, including: Saint Louis Park (silver), Fergus Falls (silver), Richfield (bronze), Edina (bronze), Hutchinson (bronze), St. Paul (silver), and Minneapolis (gold)
- » 105 Bike Friendly Businesses
- » 6 Bike Friendly Universities

8

Enforcement



Enforcement programs focus on enforcing traffic safety laws like speed limits, parking regulations, and safe roadway behavior from all users.

In this section:

- » Current Initiatives
- » System Safety
- » Public Safety at Trails
- » Safety Enforcement Methods
- » Progressive Ticketing
- » Adjusting Speed Limits

Enforcement: Current Programs in the City

Enforcement programs focus on safety and making sure that traffic laws like speed limits, parking regulations, and safe roadway behavior are enforced. These programs often include the participation and support of local law enforcement.

Several enforcement initiatives already take place in Chaska with the participation of the City's Police Department and other partners.

A selection of current and recent enforcement efforts in Chaska includes:

- » Installation of two new speed monitoring signs along Highway 41 to discourage speeding
- » Training and equipping the City's new Bike Patrol, which currently includes four officers on bikes
- » Regular deployment of Chaska's "Speed Wagon," a movable speed detection and monitoring sign to locations where speeding is reported to be an issue
- » Numerous outreach events coordinated by the Chaska Police Department to distribute bicycle helmets to children throughout the community
- » Chaska Police regularly distribute educational materials about bicycling, and hand out "tickets" for a free ice cream to children wearing helmets and exhibiting safe cycling behavior



Chaska's new Bike Patrol includes four officers on bikes.

System Safety

A successful pedestrian and bicycle network is safe and convenient for users - and importantly, also feels safe. Not feeling safe is a common concern among people who are wary of walking or riding a bike for more of their trips. Safe, comfortable and inviting (“safe-feeling”) facilities are essential in promoting and supporting walking and bicycling trips.

Three Components of Safety

Three measures of safety should be considered when designing facilities and assessing system improvements:

Actual Safety

Actual safety can be measured quantitatively by tracking the frequency and severity of collisions involving people walking or biking. What is the actual risk of being involved in a collision as a pedestrian or bicyclist, and how severe will it be?

- » Track frequency and severity of collisions involving people walking or biking
- » Prioritize and implement improvements in areas with high rates of collisions

Perceived Safety

Also called subjective safety, perceived safety is influenced by the speed, volume, and proximity of passing vehicles. Is it easy to cross the street? Does one have to bike fast in order to keep up with car traffic?

- » Provide separation between people driving, walking, and biking
- » Calm traffic along corridors where people walk and bike
- » Enforce speed limits and proper yielding behavior by motorists
- » Provide designated pedestrian and bicycle signal phasing at intersections
- » Highlight pedestrian and bicycle paths through intersections with crosswalks, colored paint, lighting, and refuge medians

Social Safety

Social safety is connected to public safety issues. Is the route well lit? Does the route feel isolated, or are there “eyes on the street”? Is crime or theft a concern?

- » Design tunnels so that people can see out of them as they enter

- » Address issues of harassment, crime and safety
- » Keep facilities clean, and free of litter and graffiti
- » Maintain vegetation to keep grass, shrubs, and trees from blocking visibility of walkways or bikeways
- » Keep walkways and bikeways well lit at night so that users can easily see obstacles, other people walking and biking, and be easily seen by people driving

Safety measures do not operate in isolation. Addressing one safety issue is likely to improve others. Calming traffic, for example, is likely to improve both perceived and actual safety, as slower moving drivers are more likely to stop for people walking and biking, and less likely to cause severe injuries in the case of a collision.

Recommendation

- » Provide an easy, user-friendly means for people walking and biking to report safety incidents or areas of concern, and establish a means for monitoring and addressing user conflicts and issues, including near misses.

Addressing Public Safety Concerns at Trails

People choose to be only in those places where they feel safe. People will only use a community's walk / bike trail network if they feel safe from crime while doing so.

Because much of Chaska's extensive trail network travels through areas that are relatively isolated it is important to provide tools and approaches that mitigate apprehension about safety from crime.

Infrastructure-related approaches include:

- » Providing emergency call boxes at regular intervals, especially at remote or isolated locations
- » Providing lighting that accommodates late afternoon or evening use of trails by commuters and local residents, especially near parks and residential concentrations

Programs-related approaches include:

- » Education and encouragement campaigns to encourage using trails with a friend or companion, especially in isolated areas or after dark
- » Enforcement initiatives including careful tracking of crime or harassment complaints and reports of suspicious activity from trail users

The relative cost of these measures will vary widely. Installation of safety infrastructure like lighting will have much higher costs than program-related approaches, but there are new approaches to pedestrian lighting that can be deployed at reduced cost.

Solar-powered LED lighting, for example, does not require trenching or cabling for installation and does not require connection or ongoing costs for electrical supply. Purchase cost per unit is about \$3,000. Units are generally installed every 100 ft along key portions of trails.

Similarly, blue-light emergency call box stations powered by solar energy with battery backup and cellular connectivity can now be less expensively installed and maintained. Typical purchase cost is about \$7,500 per unit. Units are generally installed every quarter-mile or so.

A trail safety program that includes a role for [trail safety ambassadors](#) as well as monitoring, reporting, and enforcement can go a long way toward addressing potential public safety concerns.



Lighting allows commuters and recreational users to use trail facilities after dark in the fall and winter months.



Blue-light emergency call box (shown at the left of the image) at the Midtown Greenway Trail in Minneapolis.

Methods for Addressing Traffic Safety Concerns

A variety of enforcement methods can help change unsafe behaviors, making it easier for people of all ages and abilities to walk and bike in Chaska.

Regardless of the method used, enforcement methods require consistency and follow-up in order to maintain effectiveness. To measure the effectiveness of an enforcement method, implement evaluation of behaviors *before and after* efforts. Studies may be as simple as measuring speeds or observing behavior of people driving, walking, and biking. If results are positive, continue with that method of enforcement. If results indicate little improvements in unsafe behavior, another method should be used.

Speed Trailers

Portable speed trailers display drivers' real-time speeds compared to posted speed limits. Devices help reduce driver speeds and increase awareness of local speed limits. Speed trailers are most effective when they flash "slow down," or flash lights that mimic photo speed cameras or police cars when drivers surpass the speed limit. Some trailers have the ability to collect

traffic data including vehicle counts and speed information, which can be used to identify times when additional enforcement may be needed. In some cases, back-up enforcement by police officers may be needed to stop and/or ticket individuals who are speeding.

Active Speed Monitors

Active speed monitors are permanent devices to keep drivers aware of speeds and remind them of the need to slow down in school zones. Speed monitors are typically displayed below school speed limit signs, and visually display drivers' speed in real time as they pass.

Traffic Complaint Hotlines

Traffic complaint hotlines or non-emergency numbers (311) allow community members to report traffic problems directly to City staff and local police. Comments can be used to identify problem traffic areas with the most frequent complains. Police may then follow up by providing concentrated enforcement in the area as needed.



The Chaska Police Department uses speed trailers to reduce and monitor traffic speeds.



Active speed monitors are permanently mounted to detect and read out motorist traffic speeds.

Progressive Ticketing

Issuing tickets is the strongest enforcement strategy, and is usually reserved for changing unsafe behaviors that other strategies fail to change. Progressive ticketing is a method of introducing ticketing through a three-stage process: educating, warning, and ticketing.

As Chaska's All Ages and Abilities network expands across different locations in the City, drivers will need to be reached through a variety of education efforts. Ensuring that new behaviors are established in the vicinity of these investments may require use of a progressive ticketing approach.

The components of this approach are:

Educate

First, community awareness of the problem must be established. Raising awareness of the issue will change some behaviors and will create public support for follow-up enforcement efforts.

Warn

Warning the public about the upcoming enforcement actions to be taken (and why they will be taken) is an important second step. Distributing flyers, posting signs, and sharing information using social and traditional media are key components of this step. Issuing warnings allows police to contact many more non-compliant motorists compared to writing citations. High frequency of stops also ensures that many other people witness warning stops, prompting them to obey the rules. It's important to give people time to change behaviors before ticketing starts.

Ticket

Finally, after the "warning" time expires, it will be useful to clearly announce when and where ticketing operations will occur. If offenders continue to violate the law, officers begin writing tickets. Ticketing gives the program credibility by establishing police follow-through.



A city's Police Department is a key partner in enforcement strategies. Police officers can issue warnings and citations for speeding motorists.

Adjusting Speed Limits



From Brian C Tefft "[Impact speed and a pedestrian's risk of severe injury or death.](#)"

Modifying speed limits along a city's streets is one of the most common requests received by Public Works departments - and a key tool for implementing [Zero Traffic Fatality safety approaches](#).

Minnesota Statutes have been recently updated to make it easier for Minnesota cities to change speed limits on any of the streets that they own without any additional process or requirements.

The new [Subd. 5h of Minnesota Statute § 169.14](#) authorizes any city to set speed limits without conducting an engineering and traffic investigation (previously, a city had to conduct a speed study

and defer to MnDOT when setting or adjusting speed limits on their own road facilities).

Many cities in Minnesota have already moved to reduce speed limits on local residential streets to 20 miles per hour, and to 25 miles per hour on arterial streets. Even larger cities in the State, including both [Minneapolis](#) and [Saint Paul](#) have already (since fall 2020) instituted these speed reductions.

Speed Enforcement in School Zones

Strict enforcement of speed limits in school zones can help improve safety and comfort for students and families walking and biking to school. A 'zero tolerance' policy for speeders in established school zones, and an increase in fines for drivers who violate posted school speed limits, are useful approaches. In Minnesota, drivers who violate speed limits in school speed zones are fined double the amount of the basic fine unless the ordinary fine is less than \$25, in which case the fine is automatically increased by an additional \$25.

Recommendation

Consider application of the new Minnesota Statute to support user safety, comfort and [Vision Zero](#) goals by updating speed limits in Chaska to the following:

- » 20 mph for local residential streets
- » 25 mph for larger, City-owned arterial streets where needed
- » Work with County and MnDOT partners to reduce traffic speeds as needed on streets under their jurisdiction

9

Evaluation



Evaluation measures the success of investments at achieving desired outcomes, and takes place before and after improvements to establish a baseline and measure progress over time.

In this section:

- » Current Initiatives
- » Performance Measures and Plan Targets
- » Counting Program

Evaluation: Current Programs in the City

Evaluation helps measure the success of investments at achieving desired outcomes. Evaluation takes place before and after programming and infrastructure improvements to establish a baseline and measure progress over time.

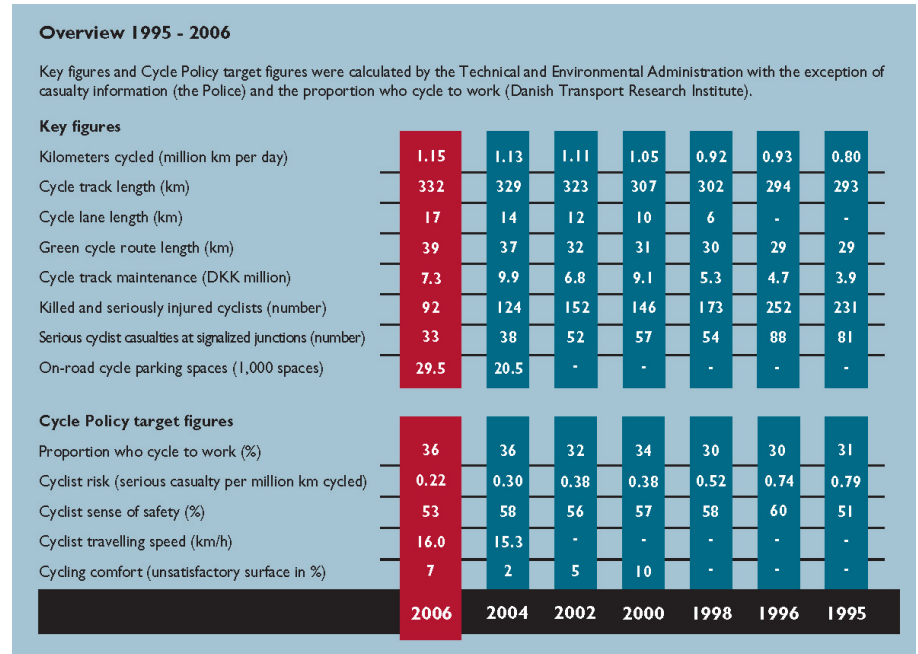
Currently, no evaluation efforts related to walking or biking take place in Chaska.

This plan offers an opportunity to develop an initial measurement and evaluation program that can grow sustainably and over time.

The information gathered through the City's evaluation efforts will help ascertain needs, demonstrate the value of the City's investments, and help support and grow a culture of walking and biking in the community.

Opportunities, discussed in more detail within this chapter, include:

- » Tallying of facility walk and bike miles developed in a given year, and summary of existing totals
- » Count of usage at downtown bike racks
- » Tallying of the number participants at City walk/bike-related events like Cycle Chaska
- » Tallying the number of Bicycle Friendly Businesses in the community
- » Working with ISD 112 and Chaska schools to conduct twice-yearly [student travel tallies](#)
- » Tracking of safety and comfort issues in the City's network



A sustained evaluation and measurement program is a key contributor to long-term improvement and success. Image: summary of trends over time, starting in 1996, for Copenhagen's biannual Bicycle Account.

Performance Measures

Performance measures are tools to assess the extent to which progress is being made in implementing a plan. They are a set of goals, trends or targets that are meant to be met at a certain point of time in the future - for example, to double the rate of walking and biking in Chaska within ten years of the adoption of this plan. Targets or trends can also be checked at recurring intervals, or at a closer or farther time in the future.

The performance measures recommended for tracking progress toward achieving the City's walking and biking vision address four broad categories:

- » Safety and user comfort
- » Use of facilities
- » Facilities and network
- » Community and municipal awareness and support

Goals should be set (and tracked) for all these categories, and evaluated every two years.

Safety and User Comfort

Pedestrian and bicycle crashes should be tracked. Fewer crashes per year indicate improved conditions, especially if more people are walking and biking for their daily trips.

- » Data related to crashes can be obtained from the City's Police Department, the Minnesota Department of Public Safety, and MnDOT's Minnesota Crash Mapping and Analysis Tool (MnCMAT).
- » Data related to pedestrian and bicyclist user comfort / sense of safety can be obtained through intercept surveys.

Recommended Performance Measures

- » Number of pedestrian-vehicle crashes
- » Number of bicycle-vehicle crashes
- » Pedestrian sense of safety (intercept or general community survey)
- » Bicyclist sense of safety (intercept or general community survey)

Optional Measures

- » Severity of pedestrian-vehicle crashes
- » Severity of bicycle-vehicle crashes
- » Automobile compliance and awareness / yielding behavior in areas with high rates of pedestrian and bicycle use (measured through observation)
- » "Near miss" reporting and tracking

Use of Facilities

Counts of people walking and biking are conducted in many communities throughout Minnesota to measure use and track changes in the number of people walking or biking along a given corridor, or through a specific intersection. Generally, counts are coordinated by individual cities and conducted by volunteers.

Chaska does not currently conduct consistent yearly counts at designated locations. Developing a counting program will provide a better picture of actual use and trends in the City. An increase in observed walkers or bikers would indicate an improved environment, especially if collisions involving people walking or biking decrease over the same period.

Recommended Performance Measures

- » Percent of residents who walk or bike to work
- » Percent of students who walk or bike to school
- » Percent of residents who walk or bike to other destinations
- » Annual pedestrian and bicycle counts at consistent locations

Facilities and Network

A city's inventory of facilities and the network they create are the foundation for making it possible for more people to actually use walking or biking for transportation. Tracking the progress made in the development of facilities helps support a healthy pace for plan implementation, and provides additional context for understanding potential gains in user safety and facility use that may occur as new facilities are added.

Recommended Performance Measures

- » Miles of sidewalks
- » Miles of off-street trails
- » Miles of on-street bicycle facilities (protected, buffered, and standard lanes)
- » Number of bicycle parking spaces
- » Miles of gaps in pedestrian network
- » Miles of gaps in bicycle network
- » Percent of planned facilities installed

Municipal Awareness and Support

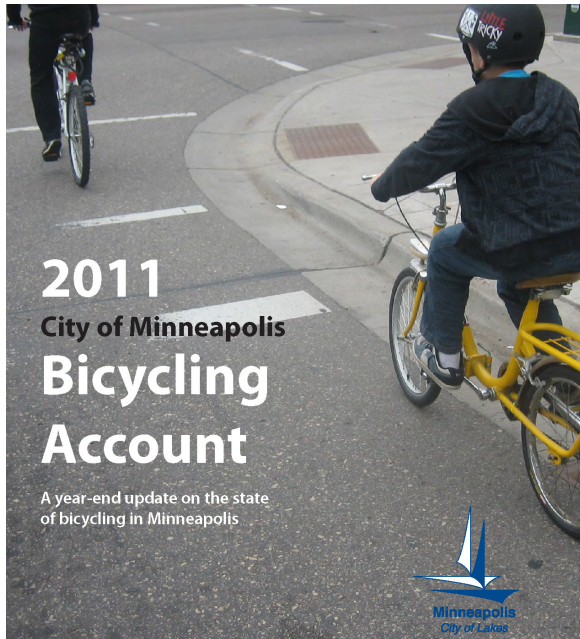
Implementation of this plan and the achievement of its goals require the participation of government, community partners, and the interest and engagement of the broader community. The performance measures included in this category describe the level to which walking and bicycle interests, attitudes, and practice are part of the City's culture. Measures to help evaluate awareness and support include:

Recommended Performance Measures

- » Pedestrian and bicycle counts are conducted annually
- » Pedestrian and bicycle maps and information are updated regularly and available to the public
- » Events promoting walking and biking (like Open Streets and Walk/Bike to School Day) are held regularly
- » Police enforce laws that protect people walking and biking
- » Dedicated City staff for managing walk/ bike / SRTS planning and implementation
- » Number of walk/bike interest or advocacy clubs active in or with membership in Chaska

Recommendations

Chaska Pedestrian and Bicycle Account



Minneapolis is one of many communities nationwide that track their progress in biannual Bicycle Accounts. A useful resource is available from LAB at https://bikeleague.org/sites/default/files/Bicycle_Account_Guidelines.pdf

A Pedestrian and Bicycle Account (a public summary of the results of each evaluation, typically published every two years) can be used to develop community understanding and support for next plan actions and investments.

It can also be a great tool to support future Bicycle-Friendly and Walk-Friendly Community applications by the City.

Recommended Plan Targets

This is a list of potential goals or targets to serve as a starting point for tracking progress and achievements in Chaska. It is important to review and update these goals as the plan begins implementation and the City's evaluation and measurement program develops.

These goals, and Chaska's success in achieving them, should be measured and reported every two years using a "Bicycle Account" or similar document, and widely shared with the community.

Goals for Safety and User Comfort

- » Number of crashes involving pedestrians or bicycle riders decreases by 10% every year
- » Intercept survey for pedestrians and bicycle riders implemented on a yearly basis
- » Perception of safety increases by at least 2% every year

Goals for Use of Facilities

- » Number of pedestrians and bicycle riders counted at each location increases by at least 2% every year
- » Number of children walking or biking to school increases by 4% each year

Goals for Facilities and Network

- » Number of intersections with ADA non-compliant curb ramps decreases by 2% every year
- » Implement at least 5% of the Chaska All Ages and Abilities network each year
- » Increase the total mileage of striped or separated bicycle facilities by 5% each year
- » Increase the number of bicycle parking spaces by 5% each year

Goals for Municipal Awareness and Support

- » Pedestrian and bicycle counts are conducted every year
- » Twice yearly "hand tallies" of student travel to school implemented in all Chaska schools
- » Pedestrian and bicycle maps and information are updated at least every two years and are distributed to the public
- » Events promoting walking and biking are held regularly
- » Heightened enforcement of laws protecting people walking and biking
- » Establish a Pedestrian and Bicycle Advisory Committee (PBAC)

Measurement (“Counting”) Program

An active pedestrian and bicycle counting program provides the guidance and orientation needed for successful and cost-effective implementation of walking and biking transportation investments.

Pedestrian and bicycle counts help discover where walking and biking are taking place in a community and whether a plan’s implementation is successfully growing use of non-motorized modes. This information helps a city evaluate the effectiveness of its investments, and guide how it should plan and implement infrastructure and programming initiatives.

Types of Measurement or Counting Activities

Effective measurement programs include two types of activities:

- » Counts of users, and
- » Evaluation of user attitudes

Counts of Users

Counts of users are generally conducted by observers (volunteers or staff) who are posted at specific locations and use manual counters to record types of users (walker or bike riders) as well as other easily observable characteristics (adult or child, helmet use, etc.).

Due to cost and logistical complications, observers are typically deployed only a few times per year, and for limited periods. In Minnesota’s Twin Cities, annual counts are generally held during the second week of September, from Tuesday to Thursday of that week from 4 pm to 6 pm. Results are then extrapolated using established methodologies to arrive at an estimated number of daily users for that location.

Counts can be made at specific locations or times to assess use for a given purpose: for example, a weekend measurement may be more useful for assessing the number of recreational users along a trail.

Automated counters can also be used to provide year-round daily counts at key locations in a city’s network. Current technologies for automated counts include



An automated bike counter near a key link across the Mississippi River in Minneapolis.

infrared sensors, pneumatic tubes, inductive loops and video detection systems.

New Approaches for Counting Users

Advances in technology are providing new approaches for conducting pedestrian and bicycle counts:

- » Results from self-reported, app-based fitness tracking tools like [Strava](#) (available for free to City agencies) can be aggregated and extrapolated to arrive at estimated counts for specific locations and help prioritize improvements

- » “Big-data”-based vendors, like [Streetlight Data](#) and [Replica](#) use anonymized, automatically-reported GPS positioning data from mobile phones to derive up-to-date counts for people walking, biking and driving along a city’s transportation network

Evaluation of User Attitudes

Collecting qualitative (attitudinal) information from users, including their perceptions about relative comfort and safety while using a community’s walking and biking network is as important as collecting quantitative (numerical) information about actual number of users.

Because people walking and biking experience their surrounding environment without any protective envelope or barriers, the stresses or discomforts they feel will play a determinant role in whether they become regular users of these modes of travel.

Surveys are the principal tool used to gather user attitude information. There are two main types that are differentiated by the method and timing of how respondents are gathered.

The first type is user intercept surveys, which are administered by staff or volunteers who are stationed along several trail or bikeway locations and flag down a sampling of people walking or biking on the facilities.

The second type is a general survey that may be distributed to a community overall (for example, as part of a survey sent to all Chaska residents) and which includes a set of questions related to their experience and perceptions of safety and comfort while using the City’s walking and biking network.

Recommendations

Counting Program

The City of Chaska does not currently collect year-to-year counts of people walking and biking at specific locations. Establishing a program and collecting counts of users will help demonstrate the effectiveness of investments and build support for next steps.

To facilitate data gathering for walk/bike planning efforts, each MnDOT district has [pedestrian and bicycle counting equipment](#) that it makes available to communities conducting counts, including tube counters for people on bikes, and infrared counters for counting people walking and people biking. Combined with community volunteers, these resources could provide a valuable starting point for a counting strategy for the City.

Yearly Pedestrian and Bicycle Counts

Conducting walk / bike counting activities at strategic locations, and committing to at least a yearly frequency will help the city evaluate whether goals are being met and if the infrastructure and programming initiatives in progress are effective or if they need to be reevaluated.

School Counts (Hand Tallies)

Work with the school district to establish twice-yearly [hand tallies](#) (counting of travel mode to and from school) to establish the utilization and direction of Safe Routes to School investments.

Strava and Streetlight Data

Use data from [Strava](#), and explore a subscription to [Streetlight Data](#) or [Replica](#) for collecting pedestrian and bicycle counts (as well as for motor vehicles for other City transportation purposes).



10

Equity

Equitably distributing facility and programming improvements throughout the City will ensure that people in all neighborhoods and population groups have access to high quality facilities and programs.

In this section:

- » An Equity-Focused Approach
- » Increasing Equitable Participation and Access
- » Americans with Disabilities Act (ADA) Considerations
- » Improving Access for Disparity Populations

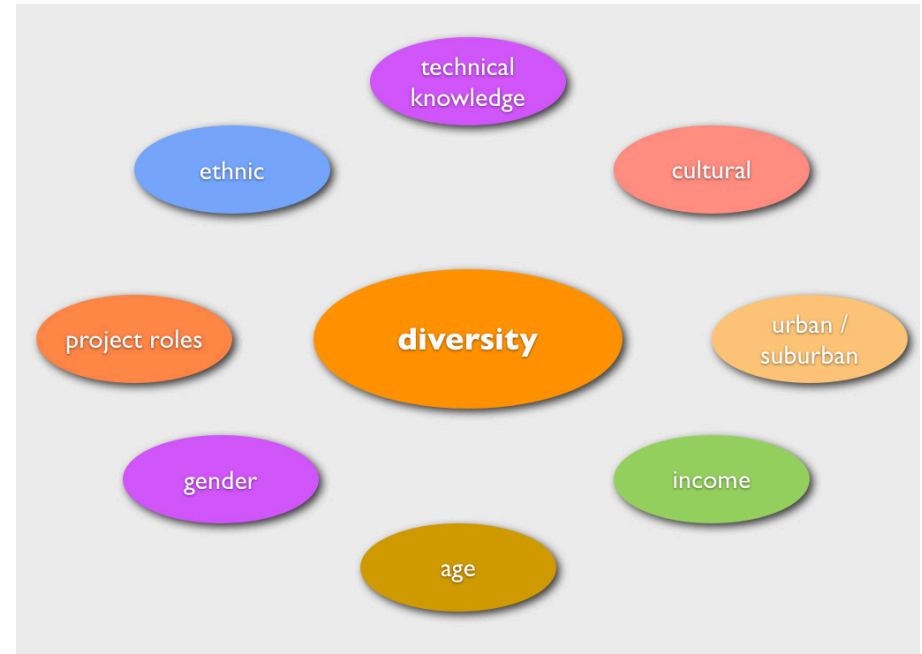
A Proactive Equity-Focused Approach

Walking and biking provide important transportation, health and quality of life benefits to the people and communities who are able to access and use these modes.

An equity-focused approach to implementation of walking and biking improvements focuses on fairly distributing access to high-quality facilities and programming improvements throughout a community to ensure that residents of all neighborhoods and population groups can equally benefit from these community investments.

An important component of an equity-focused approach includes making intentional efforts for engaging both a broad cross-section of potential users in a community's general population (for example, making sure that the interests of both commuter cyclists and families with young children are represented in planning and implementation priorities) and for connecting, engaging with and receiving comments and guidance from members of specific populations who reside or work in a community but may not often participate in planning processes (for example, members of ethnic or cultural minorities, young people, seniors, residents of multi-family housing, renters, people with physical or cognitive disabilities, or members of low-income populations, among others).

Intentional, proactive efforts to include participation from the broad range of diversities and populations who live and work in Chaska - both for planning and for implementation of improvements - will help the plan meet the community's needs and result in facilities and programs that are successful, well-used and well-loved.



Many kinds of diversities are present in among the residents of Chaska. Making proactive efforts to involve residents and workers from each of these (and other) populations will help ensure the plan is responsive and successful.

Increasing Equitable Participation and Access

Many populations who depend on walking (and biking) to reach destinations and transit - including young people, seniors, members of ethnic and cultural communities, low income populations, and people with physical or cognitive disabilities - have been historically overlooked in transportation planning processes and their needs not adequately met. These populations are sometimes identified as under-represented or under-served populations.

Equity in transportation seeks fairness in how mobility options are distributed and made available to meet the needs of all populations in a community.

Approaches for increasing equitable access include:

Proactively Engage Diverse communities

Bringing new populations into the planning process may require new methods for engagement:

- » Meet people where they are: go to events or locations where the focus population is likely to be - for example, connect with renters by setting up tables at or near multi-family housing
- » Work with the City's [Human Rights Commission](#) to develop connections with and engage members of ethnic, cultural, and socio-economic communities living in and working in the City
- » Proactively work to engage young people in conversations about walkability and bikeability

Review the Spatial Distribution of Planned Improvements

The recommendations in this plan aim to develop well-connected walking and biking networks that serve all neighborhoods and areas of the city, including areas with a high density of under-represented populations and relatively lower levels of existing facilities.

Locations with high proportions of multi-family residential development, seniors, immigrants and lower-income populations should be reviewed to ensure that equitable access to walking and biking networks is being provided or planned. For example, locations in the City with a larger number larger of apartment buildings, or a higher proportion of senior residents should be reviewed to ensure safe and comfortable access to walking and biking networks.

Diversity of Perspectives for Implementation of the Plan

Consult with a wide variety of Chaska residents when deciding priorities for implementation of individual segments or components of the City's walking and biking network. Connect with and consult with members of the city's ethnic and cultural communities, as well as young people, seniors, people with physical or cognitive disabilities, families with young children, residents of multi-family housing, and transit-dependent populations.

Americans with Disabilities Act (ADA) Considerations

The Americans with Disabilities Act (ADA) is a Federal civil rights law prohibiting discrimination against individuals with physical or cognitive disabilities and guaranteeing their access to all areas of public life, including jobs, schools, transportation, and all public and private places that are open to the general public.

Because transportation is such an important component of access, and given that approximately one out of five US adults has a disability, consideration of ADA requirements is a key component for equitable and effective pedestrian and bicycle planning.

Generally, cities have struggled to upgrade their inventory of pedestrian facilities to comply with ADA guidance.

Addressing ADA requirements is an important component of building the All Ages and Abilities network envisioned by this plan. Making sure that facilities are accessible by people with physical and cognitive disabilities improves access for them and also benefits other members of the community, including seniors, parents

with strollers, or transit passengers carrying heavy luggage, among others.

Design guidance for sidewalks and curb ramps is provided by the [Public Right-of-Way Accessibility Guidelines \(PROWAG\)](#) published by the US Access Board and by the [2010 ADA Standards for Accessible Design](#) published by the US Department of Justice.

Some key considerations for ADA compliance include:

Sidewalks

- » Minimum 4-ft wide clear travel path, with clear height of 80 inches
- » Provide a flat and level landing for each 30 inches of rise and at the top and bottom of ramped sidewalks
- » Provide a minimum 4-ft landing at turns in travel paths (minimum 4-foot by 5-foot turning space preferred)
- » Provide a 0.5 to 2% cross slope for drainage of sidewalks

Crosswalks and Curb Ramps

- » Provide curb ramps at all street crossings that involve a change in grade
- » Crosswalks must be accessible both to people using wheelchairs or wheeled mobility devices and to people with no or low vision
- » Design curb ramps and other travel paths to prevent or reduce the accumulation of water and snow
- » Ramps may not have a slope exceeding 1:12

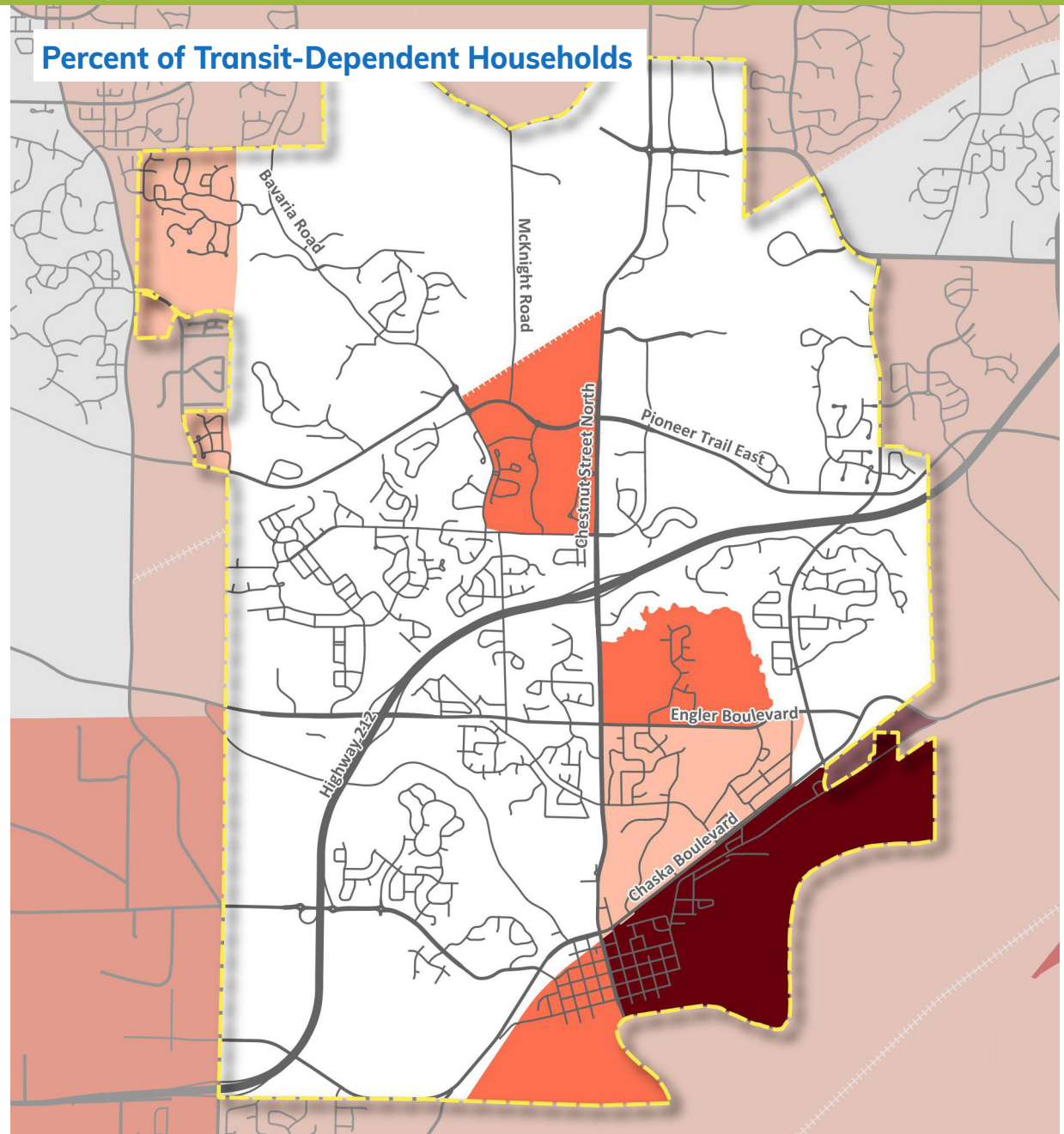


Curb ramp meeting ADA guidelines. Image courtesy of Dan Burden.

Improving Access for Disparity Populations

Even though Chaska is a prosperous community, there are locations within the City where transit-dependent households (households without access to a motor-vehicle) reside. Similarly, there are locations with higher proportions of low-wage workers and households, and locations where entry-level jobs are available.

Connecting these locations with high-quality walking and biking facilities is one way of increasing transportation access to benefit low-wage households - and leading to more equitable outcomes for residents of the City and surrounding communities.




Legend

% No-Vehicle HH per Block Group

- Less than 1%
- 1% to 3%
- 3% to 10%
- 10% to 20%
- More than 20%

11

Implementation



Effective plans facilitate and lead to action. This chapter provides guidance on how to implement the plan's recommendations so they lead to improvements that Chaska residents can enjoy as soon as feasible.

In this section:

- » Approaches to implementation
- » Engagement for implementation
- » A Pilot Project approach
- » Ped / Bike Coordinator
- » Implementing facilities
- » Implementing programs initiatives
- » Updating this plan
- » Potential funding sources

Approaches to Implementation

This Pedestrian and Bicycle Master Plan is intended to guide the development of walking and bicycle network, facility and programming improvements.

Knowing that Chaska residents, staff and leaders will want to implement as many of the plan's recommendations as possible within that timeframe, this chapter outlines several strategies to aid effective implementation, including:

- » Communicating with and engaging Chaska residents early on in the process will help build community understanding, participation and support
- » Developing a “test-run” of proposed projects by installing temporary pilot/pop-up versions of proposed changes - providing opportunity to measure impacts and gather comments from community members before a permanent investment is made
- » When refining concepts for specific facilities, it is necessary to not only include detailed engineering design, but also to check interactions with and concordance with land use and other recommendations found in the City's Comprehensive Plan
- » Funding for implementation of this plan's recommendations is available from multiple sources. A table of potential funding sources is provided later in this chapter.
- » It will be important to update this plan's priorities and recommendations as conditions and community priorities evolve, and implementation opportunities, and available funding arise. A process for updating the plan is included in this chapter



Temporary installations, also known as demonstration, pilot, or tactical urbanism projects, are useful for testing new ideas. Image: Test-run for a separated bike lane in Hopkins.



Early and frequent engagement with community members ahead of detailed planning or implementation helps build community understanding and support.

Engagement for Implementation

This plan's recommended network and set of walking and biking routes will be implemented over time, segment by segment, as opportunities arise and funding is secured.

Although the plan and its recommendations were developed through an extensive process of public consultation and have gone through a thorough process of public review (and in addition have included the active participation of the plan's Project Steering Committee (PSC), City Staff, Parks & Recreation Commission and City Council), it is always a good idea to begin the implementation process for each of the specific segments included by informing residents (both those living near and those living elsewhere the city) of the specific segment's purpose, need, impact and benefit (both in and of itself, and as part of the city's larger network).

Proactively engaging the broad community before implementation efforts begin will go a long way toward building community understanding and goodwill, and will over the long term lead to a more effective process for implementation of the network.

Tips and Key Approaches

Some tools, tips and techniques that may be helpful in Chaska include:

Inform the Larger Community

It's good to always inform nearby residents of a potential project - but making sure the larger Chaska community is also informed ahead of time about the project will allow residents who may not live near the proposed facility but who may use it for their travel or otherwise benefit from it to also participate and weigh in during community conversations. Some tools that may be used for this purpose include the city's electronic bulletins, articles in the newspaper, radio news, website content, or utility mailers.

Help Residents Envision the Planned Change

Sometimes it is difficult to understand a project's potential changes or benefits from a set of plans or diagrams. Providing richly-illustrated materials, with diagrams, 3D renderings or three-dimensional models may help to more quickly communicate a project's benefits.



A 3D view of a proposed intersection and trail improvement in Hennepin County helps residents understand the proposed change.

Other times, especially if a project is very different from what currently exists near a specific location, it may be useful to setup a demonstration or pilot project. A demonstration project builds the intended configuration using temporary and inexpensive materials to quickly show, in or near its final location and with close approximation to its final configuration, what a project intends to do. This allows neighbors and others to become familiar with the proposed change, and to experience potential benefits and tradeoffs.

Explain How to Use New Facilities or Programs

Many useful tools and approaches may be unfamiliar to residents and visitors. As much as possible, when implementing innovative treatments, make sure that information about how to use these new facilities or programs is available to residents well ahead of its implementation.

An active education effort will help people learn how to use the facilities, and will help safety and overall participation. Brochures, mailers and online materials (including videos) are excellent tools to familiarize residents with new facilities and how to use them, regardless of mode.

Proactively Communicate Changes to Area Residents

Most people, including residents who live near a proposed improvement may be apprehensive about potential changes in the vicinity of their homes. Making proactive efforts to communicate the proposed changes, and explaining purpose, tradeoffs and benefits may go a long way toward receiving their support for the change. Implementing a demonstration or pilot project is especially helpful for potentially controversial or easily misunderstood projects.

Invite a Cross-Section of Residents to Participate

Improved walking and biking options bring benefits to a wide range of residents who may live near or far from a proposed project. Making proactive efforts to invite young people, seniors, families, renters and homeowners to comment and weigh in on the implementation of specific projects will help bring a balanced view of proposed changes.

Expanding Engagement and Participation

To expand participation in implementation conversations across all residents and populations in Chaska, consider these approaches:

Neighborhood Block Parties

To inform residents near a proposed project and expand the number of those local residents directly reached by project information, answer their questions, and gather their comments, implement neighborhood block parties that bring project information and activities directly to them and encourage residents to socialize and discuss the proposal. Implementing a demonstration of some aspect of the project, even if very limited, will help build community understanding.

Pop-Up Information Sessions

Pop-Up sessions are friendly and casual mobile workshops that bring information about the project to places where people are already gathering - like parks, community centers and grocery stores - to expand the number of residents familiar with the project.

Reaching Young People, Seniors, and Other Communities

Going to schools, and working with organizations that gather members of the public with a common interest or affiliation (for example, members of a neighborhood organization, a seniors' walking group, or a young parents group) can help reach segments of the population that may not otherwise have a chance to hear about or understand a potential project.

Use Existing Online Channels

Using the City's existing online channels - like its website and social media accounts - to share news about a project's potential implementation can easily and inexpensively expand the number of residents who are informed (and potentially excited) about a planned project.

A Pilot Project / Tactical Urbanism Approach

One of the best tools to quickly and more fully communicate the configuration, benefits or tradeoffs of a potential project is a pilot or demonstration implementation.

There are two key components of a pilot or demonstration project: the first is making a plan for how to configure and assemble the demonstration, how long to keep the demonstration available, what materials to use, where to place it, and related considerations. Sometimes this is sufficient if a project's configuration is already finalized, is well-accepted, and has been funded to move forward to implementation.

Sometimes though, a demonstration project can be a great tool to test out ideas, build community interest and participation, and develop the most effective configuration for the improvement.

If this is the case, then a second key component is needed. This component, which actually should begin implementation before the demonstration is built, is setting up a measurement and evaluation program to see how effective the specific intervention is and if it meets the goals of the project.

For example (and to make use the illustration provided on this page), if a traffic circle is being recommended as part of a neighborhood traffic calming plan, there may be residents who don't understand the size and scale of what is being proposed and may be afraid of impacts to their boulevard or parking, and may confuse it with a roundabout or a traffic rotary. There may be other residents who may be skeptical of any of the claimed traffic calming benefits.



Explaining the configuration and impact of a neighborhood traffic circle can be a complicated task. A temporary version may increase community understanding and test its effectiveness. Image courtesy of Santa Monica NEXT.

An evaluation and measurement program would begin by, before any changes are made, setting up observations of the intersection in question, and measuring the overall rates of drivers' compliance with stop signs, as well as speeds, rates of speeding, overall mix of users (numbers of pedestrians, bicycle riders and drivers), and traffic volumes.

Then, during the time when the demonstration is implemented and in place (some can be left in place for several days or weeks, while others are sometimes in place for months or even up to a year), measurements are again taken to evaluate if the demonstration is indeed changing the condition that the project seeks to improve. In the case of the neighborhood traffic circle, these changes would include improved yielding behavior to pedestrians crossing the

street, decreased speeding, and maybe an increase in the number of pedestrians and bicycle riders using the street.

If there is a positive change toward the qualities that are sought, then the demonstration provides proof that the project will have the desired effect and may help persuade those who are skeptical of the project's effectiveness.

If there is no positive change toward the project goals, then this also is a valuable result, as it shows that the project won't be effective in reaching the city's goals, and that it should be reconfigured or rethought (and then tested again) if it is to be implemented and be an effective addition to the city's street network.

Regardless of which outcome occurs, the demonstration itself becomes a tool to share knowledge about the project and its goals, and helps build community understanding about the city's goals and process.

How to set up a demonstration project

Several guides are now available for setting up demonstration and pilot projects in communities. Three highly recommended ones are:

- » MnDOT's [Demonstration Project Implementation Guide](#)
- » People for Bikes' [Quick Builds for Better Streets](#)
- » The Tactical Urbanist's [Guide to Materials and Design](#)



Traffic calming and safety demonstration project in Alexandria, Minnesota (pop. 14,000).



Demonstration project for calming traffic and improving a midblock crossing in Pelican Rapids, Minnesota (pop. 2,600).

Implementing *Infrastructure*: General Guidance

Pedestrian and bicycle improvements can often be implemented as part of larger streetscape and roadway improvements. For this reason, it is difficult to provide precise phasing recommendations for network implementation. Regardless, identifying priority areas and projects can be helpful in moving implementation forward fairly and effectively.

As much as possible, consider the following when selecting, designing, and implementing infrastructure recommendations:

- » Coordinate pedestrian and bicycle improvements with scheduled road construction and repairs to avoid potential conflicts and take advantage of opportunities for simultaneous improvements and cost efficiencies.
- » Street resurfacing, restriping, and streetscape projects provide opportunities to stripe on-street bicycle facilities or improve off-street sidewalk and trail connections at minimal costs.
- » Treatments that require special consideration and careful design include raised crosswalks, channelized turn lane improvements, neighborhood slow streets with traffic calming elements, bicycle-specific traffic signals, and refuge islands.
- » Pursue additional funding to support the design, implementation, and maintenance of pedestrian and bicycle improvements on a regular, ongoing basis.
- » Act on opportunities to include pedestrian and bicycle improvements as part of development and redevelopment projects, or through spot improvements.

Implementing Pedestrian Network Recommendations

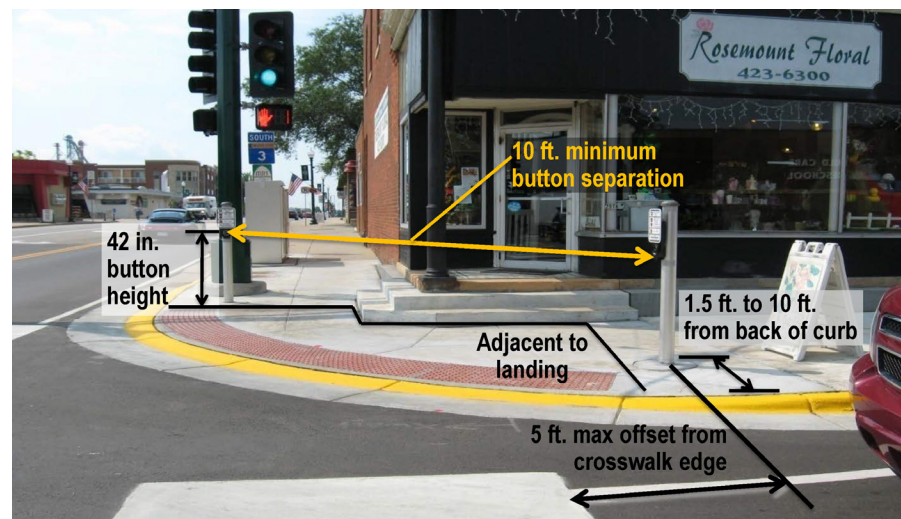
Providing a continuous network of sidewalks and trails is key for supporting safe and comfortable walking trips. The following improvements will help to increase overall safety and comfort for the city's network, and should be integrated into corridor projects to increase pedestrian comfort and accessibility:

- » Upgrading pedestrian signals to include countdown timers, Accessible Pedestrian Signals (APS), and revising timing to provide more time for pedestrians to cross.
- » Upgrading curb ramps to ADA standards.
- » Installing pedestrian-scaled street lighting along sidewalks and trails.
- » Providing pedestrian refuges through median retrofits and installation.
- » Providing sidewalks on both sides of all "urban" (curb and gutter) streets - especially if within one half mile of a school.
- » Providing a shared-use path / trail on at least one side of "rural" streets (no curb and gutter) designated as collector or above.

Implementing Bicycle Network Recommendations

Space for accommodating on-street bicycle facilities may be created within existing right-of-way by using one or more of the following methods:

- » Narrowing the width of existing travel and parking lanes:
 - 11 ft maximum recommended travel lane width
 - › 10 ft width adequate for speed limits ≤ 30 mph
 - › When posted speed limits are over 40 mph in State Aid roadways, continue using 12 ft width
 - 8 ft maximum recommended parking lane width
- » Reducing the number of travel lanes (“Road Diet” or Three-Lane Conversion):
 - On streets with four or more lanes, low to moderate through volumes (20,000 ADT and below), and high left-turn volumes, the two center-most lanes may be converted into a single dual-left-turn lane, improving ease and safety of left-turns, and freeing up space for on-street bicycle facilities. This conversion is often referred to as a “Road Diet” or safety conversion, and is recommended as a [Proven Safety Countermeasure](#) by FHWA by the 20% to 50% reduction in crashes it facilitates.
- » Removing or consolidating on-street parking where practical, feasible, and necessary.
- » Designating existing shoulders or excess roadway space for bicycle use.
 - Shared parking/bike lanes are not recommended, as they provide inconsistent and unpredictable conditions for both bicycle riders and motorists - bicycle riders may have to mix with traffic in order to pass parked vehicles.



Considerations for correct installation of accessible pedestrian signals (APS). Image courtesy of Todd Grugel, MnDOT.



Installation of new sidewalk along a busy roadway, Saint Paul..

Implementing Programming Initiatives

Effective program initiatives are a key component for the success of walk / bike plans, as they maximize the benefit of infrastructure investment and grow walking and biking.

The City's role in implementation of programming initiatives will vary depending on resources and capacity. The City may take the lead, provide support, or work in partnership with schools, neighborhood groups, local businesses or other organizations to initiate and implement a diverse array of programs.

Programs implementation should occur in coordination with infrastructure implementation and evolve as needed in the long term to:

- » Educate all roadway users on how to safely operate in shared spaces including travel-ways and intersections,
- » Promote use of new facilities through encouragement programming, and,
- » Support network safety through enforcement and facility maintenance.

When working to implement programs, the City of Chaska can:

- » Provide support to schools for Safe Routes to School (SRTS) planning and programming implementation at the school-, district-, and City-wide levels;
- » Leverage partnerships with governmental and nongovernmental agencies, community organizations, and local businesses to support education and encouragement programming;



Programs are often a key and cost-efficient investment for plan success. Crossing guards, for example, can make as much difference as new facilities in getting more students to walk and bike to school.

- » Work closely with local police to enforce traffic safety laws, lead safety workshops including community education classes or bike rodeos, and provide a positive example for safe driving and bicycling behavior; and,
- » Organize and coordinate a recurring measurement and evaluation effort to track plan implementation and success.

Pedestrian and Bicycle Coordinator

This Plan recommends the creation of a new “Pedestrian and Bicycle Coordinator” position within the City of Chaska to coordinate implementation of the Plan, to attend to and coordinate response to walk/bike network maintenance and operations issues, and to represent the needs and interests of pedestrians and bicyclists as transportation and land use projects are designed and implemented.

The position need not be full time, but should be permanently funded and allow a new or existing staff person to dedicate a minimum of 10 hours per week to walk/bike-related issues within and around the geographic area of Chaska.

Tasks and responsibilities would include:

Planning

- » Coordinate and integrate walk/bike planning and network implementation with other City, County, Regional and State programs, agencies and bodies
- » Review all roadway and land use plans for impact on walk/bike travel and conditions; make and pursue recommendations for improvement as needed before projects are finalized
- » Coordinate implementation of this plan’s recommendations as part of other transportation and land development projects
- » Provide advice to policymakers, including members of the Chaska City Council and Carver County Board, on transportation and land use issues with the aim of improving conditions for people walking and bicycling in and around Chaska

Maintenance and Operations

- » Manage a spot improvement / Walk/Bike Facility Maintenance Request program to reduce roadway hazards and respond to users’ requests for maintenance or repair of infrastructure

Education and Encouragement

- » Conduct workshops to improve walk/bike safety
- » Coordinate preparation and publication of network maps

Evaluation and Measurement

- » Collect and maintain walk/bike use data, including regularly monitored ped/bike counts, studies of origins and destinations, crash information and infraction data
- » Develop biannual “Walk/Bike Account” reports detailing use of walk/bike facility network and identifying focus areas for improvement
- » Monitor implementation of the plan’s recommendations

Engagement

- » Serve as liaison to the City of Chaska Bicycle Friendly Community (BFC) community, Pedestrian and Bicycle Advisory Committee (to be established), and other organizations working to improve walk/bike conditions

Fundraising

- » Pursue local, state, federal and private grants and funds for improving walk/bike infrastructure, for encouraging greater use of Chaska walk/bike network assets, and for conducting education and encouragement campaigns

Updating This Plan



Regularly reviewing and updating the plan will help it stay responsive to the needs of Chaska residents.

This plan is intended to guide the evolution of Chaska' walking and biking facilities and programs. It is anticipated that as Chaska evolves and conditions change the plan may require some modifications over its lifespan.

The following recommendations are presented to help make the process of update and modification easier and more transparent and accessible.

Key Parties

- » Pedestrian and Bicycle Coordinator (PBC) or other designated City staff
- » Chaska Parks & Rec Commission (CPRC)
- » Chaska residents

Process

The Pedestrian and Bicycle Master Plan should be reevaluated every two years to ensure that implementation is proceeding as planned, and to review opportunities for making updates or improvements to its recommendations. The City's Pedestrian and Bicycle Coordinator should maintain responsibility for this process, and determine the appropriate level of response to requests for potential changes.

Generally, three main processes are contemplated for updating the Pedestrian and Bicycle Master Plan:

- » Updates resulting from the plan's periodic re-evaluation
- » Updates recommended or requested by the CPRC or City Council
- » Updates recommended or requested by Chaska residents

Decision-Making and Incorporation Into the Plan

These are the steps that are recommended for gaining approval and adopting changes to this document:

Updates Resulting from the Plan's Periodic Re-Evaluation

The Pedestrian and Bicycle Coordinator (PBC) manages the process of re-evaluation. If the PBC determines that an update is needed, the PBC brings the proposed change to the CPRC. If the CRPC agrees with the change, the CRPC makes a recommendation to City Council for approval.

Updates Recommended or Requested by Chaska Residents

The PBC reviews the change proposed by the public. If the PBC agrees with the proposed change, the PBC brings it to the CPRC. If the CRPC agrees with the change, the CRPC makes a recommendation to City Council for approval.

Funding Implementation: Some Approaches

A key consideration for any plan is how to fund its recommended improvements so they can be implemented.

Four options for funding the recommendations from this plan include:

- 1) General City funds allocated to transportation, parks and recreation (for trails) or other City purposes
- 2) Grants available for specific types of walking and biking improvements recommended by the plan (a table of Potential Funding Sources is included over the next pages of this chapter)
- 3) Developing specific walk/bike links as part of land development activities in the area where those links are recommended
- 4) Funds from a dedicated source of funding for walk and bike related projects and improvements, including those related to safety, maintenance, and development of new routes and links

Option 4 on this list would require development of a new funding program. This option is highly recommended.

Developing a Dedicated Funding Source for Chaska Walk/Bike Investments

A dedicated funding source would allow the City to consistently plan and implement facility and program improvements, and make steady progress toward the changes needed to achieve the City and residents' future vision.

Expenses that could be funded by revenues from the fund include:

- » Construction costs of new walk/bike facilities
- » Maintenance costs for existing facilities
- » Legal and consulting services needed for construction and maintenance of facilities
- » Purchase of real property for right-of-way for new facilities
- » Staffing and operational costs for City staff dedicated to the task of maintaining, improving and expanding the City's walk/bike network
- » Development and implementation of 6Es programming - including consistent evaluation and measurement efforts

An Example: Edina's Pedestrian and Cyclist Safety (PACS) Fund

Edina's Pedestrian and Cyclist Safety Fund (PACS Fund) is a special fund created to provide a steady source of funding for pedestrian- and bicycle-related projects in the City.

Created in 2012, the fund has consistently raised about \$1.2 million a year for the construction and maintenance of non-motorized infrastructure in the City. In addition, it provides funding for a dedicated ped/bike planning staff as well as technical and consulting studies necessary for planning and implementing improvements for the City's walk/bike network.

The fund was structured to be largely funded by utility franchise fee revenues, though it can also receive funds from grants, gifts, special assessments and transfers from other City funds.

For more information:

- » [PACS Fund program description](#)
- » [2020 Edina PACS staff report](#)

Planning-Level Cost Estimates for Priority Projects

Funding for “Top 10” and Other Facilities and Programs

Planning-level cost estimates for implementing the “Top 10” facilities are provided in the table below. Please note that funding for the facilities and programs identified by this plan (including the “Top 10” facilities shown here) has not yet been secured, though it is anticipated that the main source of funds will be grants from state, federal, and county sources supplemented by a mix of City resources. **A listing of potential funding sources is included in the following page.**

Map Ref #	Route Name	From	To	Length (miles)	Facility Type	* Cost Estimate (\$)	MetCouncil RBTN?	# of Key Destinations
1	Chaska Blvd	Pine St N	Audubon Rd	1.56	SUP / Trail	\$561,600	Yes	3
2	Creek Road	Chaska Creek Blvd	Vista View Dr	1.48	SUP / Trail	\$532,800	Yes	1
3	Engler Blvd (eastern)	Ridge Ln	Old Audubon Rd	0.57	SUP / Trail	\$205,200	Yes	3
4	McKnight Lake Trail	Lyman Blvd	Pioneer Trail West	2.45	Upgrade Existing	\$502,250	Yes	3
5	Bavaria Rd/82nd St W	Ali Ln	McKnight Lake Trail	1.55	SUP / Trail	\$558,000	Yes	1
6	Clover Ridge Connector	Molnau Court trail	Bavaria Road	1.09	Upgrade Existing	\$223,500	No	3
7	Engler Blvd (western)	Carver Pkwy E	West Creek Ln	0.86	SUP / Trail	\$309,600	Yes	1
8	Peavey Road	Norex Drive	Hazeltine Blvd	1.64	SUP / Trail	\$590,400	Yes	3
9	Pine St (downtown)	Chaska Blvd	W 1st St	0.35	TBD (pending engagement)	-	Yes	5
10	W 3rd Street (downtown)	N Hickory St	Beech St	0.65	TBD (pending engagement)	-	Yes	5

* Cost estimates are based on MnDOT’s Metro District Bicycle Plan (March 2019), which were derived from statewide average bid prices. To reflect current conditions, including higher costs due to inflation, post-Covid supply chain disruptions, and other factors, future project costs should be inflated relative to a base year of 2017. Cost estimates shown here do not include an allowance for engineering, utility, or right-of-way costs, but do include a 40% contingency that may account for some of those costs. Please note that these estimates are only intended to be used at a planning level and should be refined throughout the project development phase of each individual project.

Potential Funding Sources

A variety of funding sources and programs are available to partially or wholly support the improvement of pedestrian and/or bicycle facilities in Chaska. This section presents a compilation that can serve as a starting point for future efforts.

Grant / Program Name	Organization	Description	More Information	Sample / Potential Project
Corridor Investment Management Strategy (CIMS)	MnDOT	A MnDOT program that supports quality of life improvements along MnDOT trunk highways.	www.dot.state.mn.us/cims	Improve pedestrian crossing at intersections between county roads and MnDOT trunk highways.
Federal Recreational Trails Program	DNR	Funds new trail and trailhead construction as well as maintenance and rehabilitation.	www.dnr.state.mn.us/grants/recreation/trails_federal.html	Longer trails connecting to parks.
Local Trail Connections Program	DNR	Funds short trail connections between where people live and desirable destinations.	www.dnr.state.mn.us/grants/recreation/trails_local.html	Short trail gaps.
Outdoor Recreation Grant Program	DNR	Provides matching grants to local units of government for up to 50% of the cost of acquisition, development and/or redevelopment of new or improved trails within park areas.	www.dnr.state.mn.us/grants/recreation/outdoor_rec.html	Trail segments within city parks.
Safe Routes to School Planning Assistance Grants	MnDOT	Funds for new or updated SRTS plans for one or more schools.	www.dot.state.mn.us/saferoutes/planning-grants.html	Sidewalks or crossings near schools.
Statewide Health Improvement Partnership (SHIP) grants	MnHealth	Funds opportunities for active living in Minnesota communities, including Active Transportation and Walk and Bike Friendly Communities	https://www.health.state.mn.us/communities/physicalactivity/index.html	Workshops and training, community assessments, Safe Routes programming at schools

Grant / Program Name	Organization	Description	More Information	Sample / Potential Project
Safe Routes to School Boost Grants	MnDOT	Funding to advance programs (non-infrastructure strategies) for schools that support making it safe, easy and fun for students to walk and bicycle to school.	www.dot.state.mn.us/saferoutes/boost-grants.html	Bike rodeos, maps, helmet give-aways, walk/bike safety events.
Active Transportation Infrastructure Grants	MnDOT	No local match required. Provides grant funding for the construction of pedestrian and bicycle infrastructure projects.	www.dot.state.mn.us/active-transportation-program/infrastructure-grants.html	Trails and sidewalks identified in the city's plan.
Active Transportation Planning Assistance Grants	MnDOT	Connects applicants with an active transportation planning team to conduct community, neighborhood, or corridor planning.	www.dot.state.mn.us/active-transportation-program/planning-assistance.html	Study of active transportation needs on a single segment of roadway.
Local Road Improvement Program	MnDOT	Funds improvements to local roads with statewide or regional significance and can include bicycle and pedestrian facilities.	www.dot.state.mn.us/stateaid/lrip.html	Roadway reconstruction with new trail/sidewalk.
Safe Streets and Roads for All (SS4A) Grant Program	USDOT	New program created by the Bipartisan Infrastructure Law (BIL). Provides funds to develop or update a comprehensive safety action plan (Action Plan), conduct planning, design, and development activities in support of an Action Plan, or carry out projects and strategies identified in an Action Plan.	www.transportation.gov/grants/SS4A	Pedestrian and bicycle safety improvements, including changes to roadway, signals, lighting, markings, etc.

Grant / Program Name	Organization	Description	More Information	Sample / Potential Project
Private Donations and Sponsorships	Varies	Private donations and sponsorships or park and trail facilities could be provided to implement key trail segments or trailhead facilities.	-	Trail segments, trail amenities, or trailhead facilities
Hazard Elimination and Railway-Highway Crossing Programs	Federal Highway Administration (FHWA)	Funding for safety improvements at public railway-highway grade crossings	https://www.fhwa.dot.gov/bipartisan-infrastructure-law/rhcp.cfm	Various railroad crossings throughout the city
National Highway Performance Program (NHPP)	Federal Highway Administration (FHWA)	Funds pedestrian and bicycle projects located along principal arterials and freeways that are part of the National Highway System (NHS)	https://t4america.org/maps-tools/map-21/nhpp/	Pedestrian and bicycle safety projects including crossing beacon/signal or refuge medians
Surface Transportation Block Grant Program (STBG)	Federal Highway Administration (FHWA)	Flexible funding for projects including pedestrian and bicycle infrastructure	https://www.fhwa.dot.gov/specialfunding/stp/	» New routes / facilities » Facility maps
Congestion Mitigation and Air Quality Act (CMAQ)	Federal Highway Administration (FHWA)	Intended to reduce air pollution and congestion by encouraging walking and biking through provision of facilities or other resources such as maps and education.	https://www.fhwa.dot.gov/environment/air_quality/cmaq/	» New routes / facilities » Streetscaping along routes » Bikeshare
Highway Safety Improvement Program (HSIP)	Federal Highway Administration (FHWA)	Intended to increase safety and reduce fatalities on the National Highway System. This includes pedestrian and bicycle facilities. A 10% local contribution is required.	https://highways.dot.gov/safety/hsip	

Grant / Program Name	Organization	Description	More Information	Sample / Potential Project
Transportation Alternatives Program (TAP)	Federal Highway Administration (FHWA)	Funds projects such as pedestrian and bicycle facilities, recreational trails, Safe Routes to School (SRTS) projects, and vulnerable road user safety assessments	https://www.fhwa.dot.gov/environment/transportation_alternatives	Sidewalk gaps throughout the city; bike lane projects, especially near schools and trails.
Land and Water Conservation Fund (LAWCON)	Department of Natural Resources (DNR)	Intended to protect local land and water resources in a number of ways including trails which promote the enjoyment and protection of resources via non-motorized transportation.	https://www.dnr.state.mn.us/aboutdnr/lawcon/index.html	Implementation of trails along wetlands and streams.
Rivers, Trails, and Conservation Assistance Program	National Park Service (NPS)	Guidance and support for recreational trails and greenways close to outdoor recreation areas.	https://www.nps.gov/orgs/1084/index.htm	Implementation of trails along wetlands and streams.
Federal Lands Access Program (FLAP)	Federal Highway Administration (FHWA)	Funds improvement to transportation facilities that provide access to, are adjacent to, or located within Federal lands, including provisions to pedestrians and bicyclists.	https://highways.dot.gov/federal-lands/programs-access	



A

Appendix



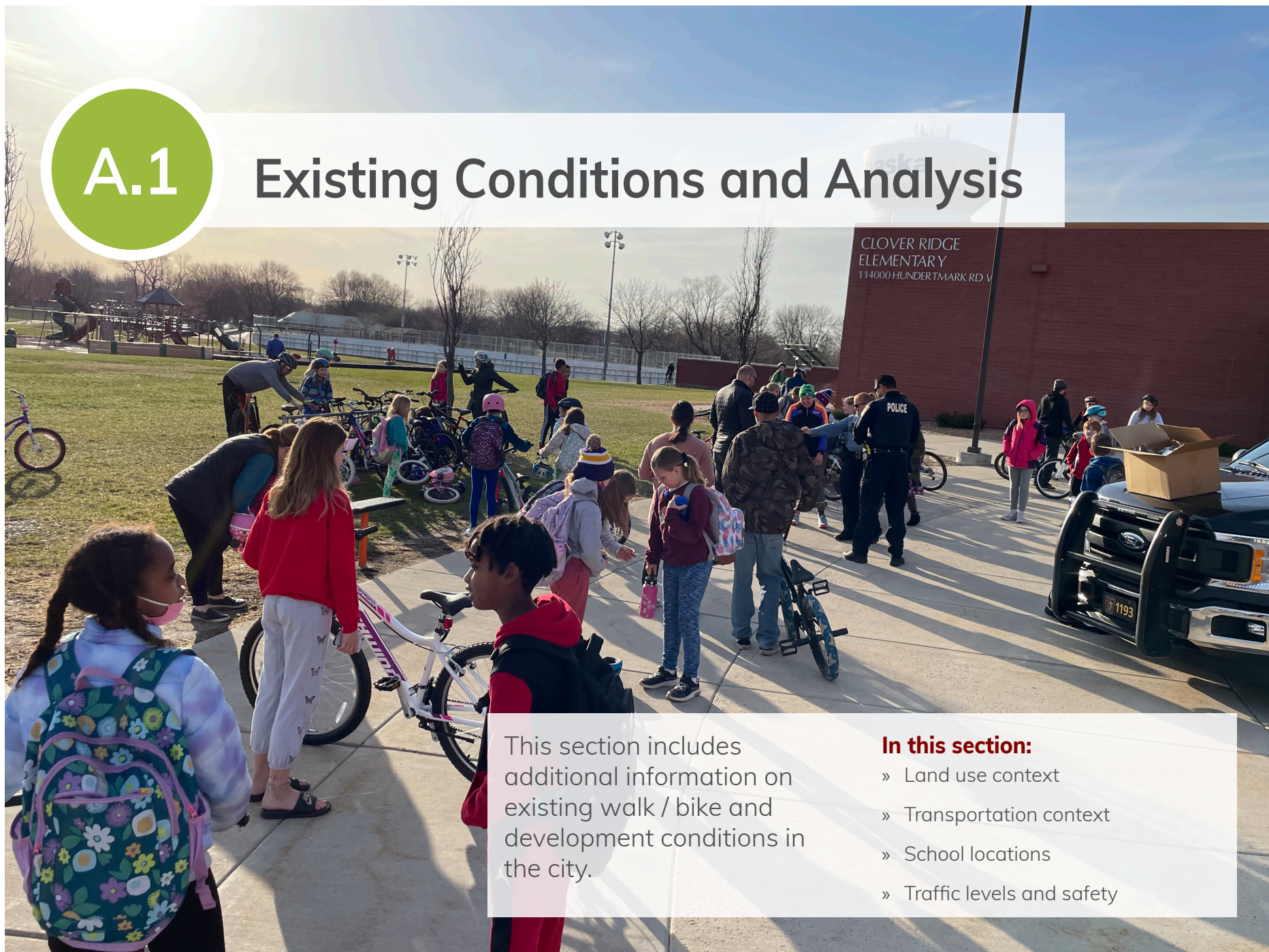
This section includes additional information and resources for the plan.

In this section:

- » Existing conditions and analysis
- » Unit prices for cost estimation
- » Community engagement results

A.1

Existing Conditions and Analysis



This section includes additional information on existing walk / bike and development conditions in the city.

In this section:

- » Land use context
- » Transportation context
- » School locations
- » Traffic levels and safety

Existing Land Uses

What the Map Shows

The City's pattern of large districts of single land use types is shown through the dispersed distribution of residential uses and the concentration of industrial uses (northeast corner) and commercial uses near its center. Downtown hosts a more compact and diverse set of uses.

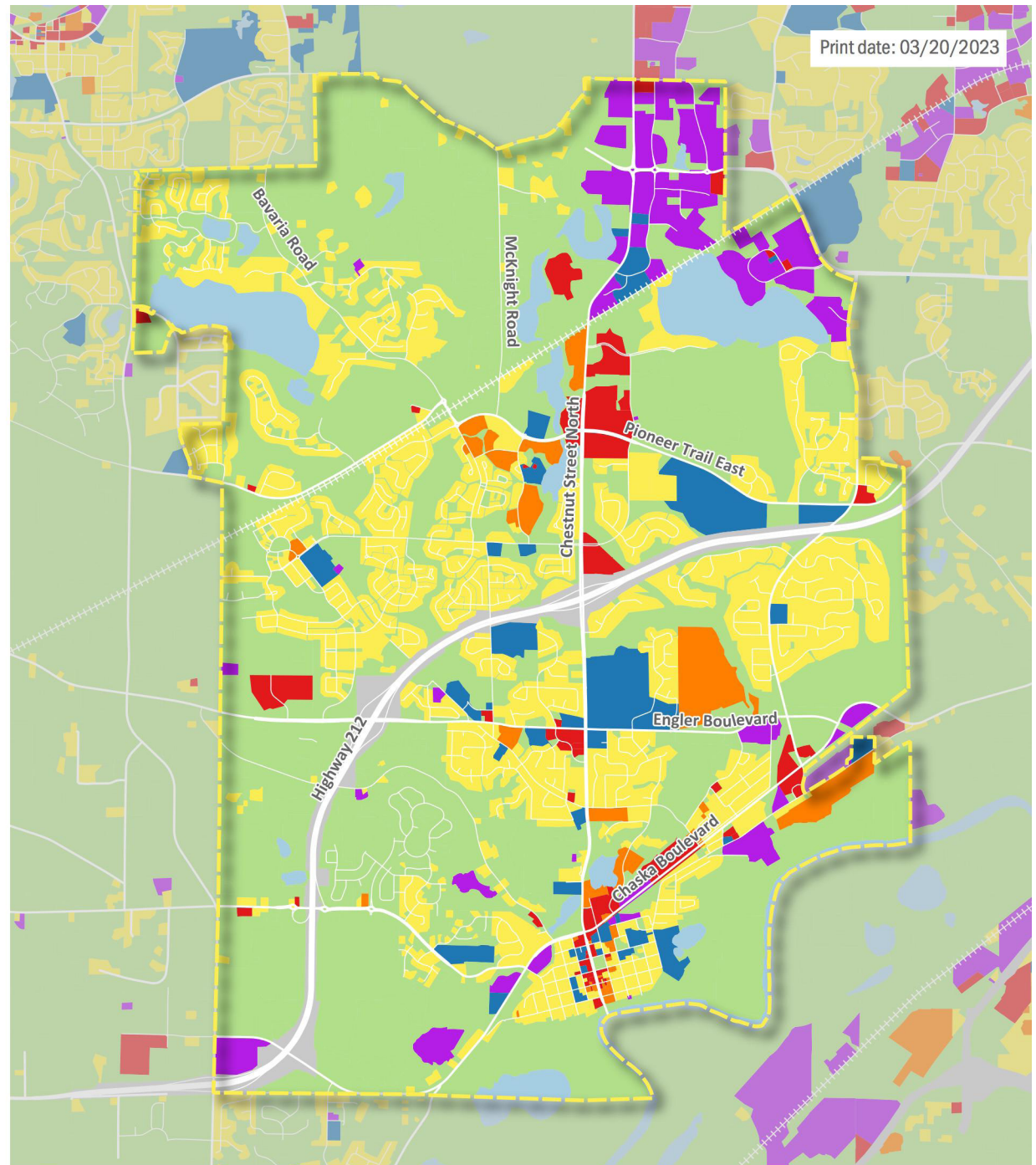
Implications for the Plan

Connecting residential districts to places of employment and shopping will require development of relatively long routes extending walk and bike networks from residential areas into these districts.

Legend

Land Uses

- Single Family Residential
- Multiple Family Residential
- Office, Commercial, and Retail
- Industrial, Utility, Extractive
- Institutional
- Agricultural and Undeveloped
- Open Water
- Transportation
- Parks and Recreation Areas



Street and Roadway Network

What the Map Shows

Downtown has a fine-grained and well-defined network of streets providing connectivity in all directions. Newer residential districts have fewer connections available for routing. A limited number of large roadways connect across the community, but also carry significant levels of car traffic.

Implications for the Plan

Making connections to community destinations, and commercial and industrial districts may be complicated by lack of existing streets and alternative routes. Connecting distances across the City may require using larger roadways; developing comfortable facilities along them, and providing safe and inviting intersections may require additional efforts.

Legend

-  City Area
-  Streets and Roadways



Building Footprints

What the Map Shows

Building density is high in and around the City's Downtown, with relatively small buildings sited closely together. North of Downtown, building density is lower, with higher separation. Residential districts are sited to follow curvilinear street patterns. Industrial and commercial areas near the City's center and northeast are made up of very large buildings, with high separation from other structures.

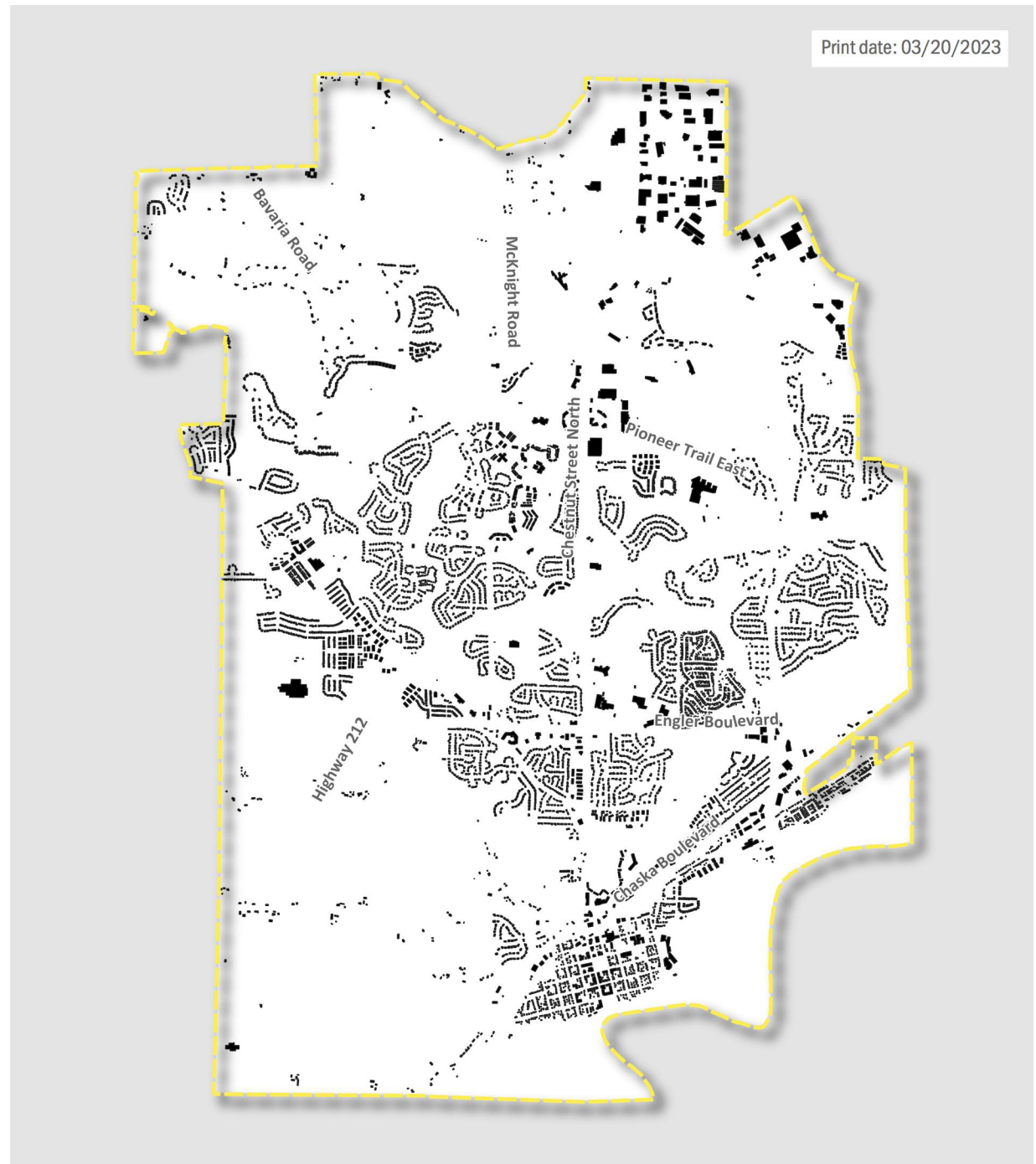
Implications for the Plan

Given low residential densities in most of the City, and because residential districts and everyday destinations are located at some distance from each other, it will be important to develop a network of fine-grained routes that residents can use to access desired destinations.

Downtown has numerous destinations located in close proximity to each other - developing easy connections between these points will support plan goals.

Legend

- Building Footprints
- City Boundary



Schools and Walking Radius

What the Map Shows




There are eleven public and several private schools and institutions in the City. Schools are located throughout the community, with the majority located within close proximity of State Highway 41 and other busy roads.

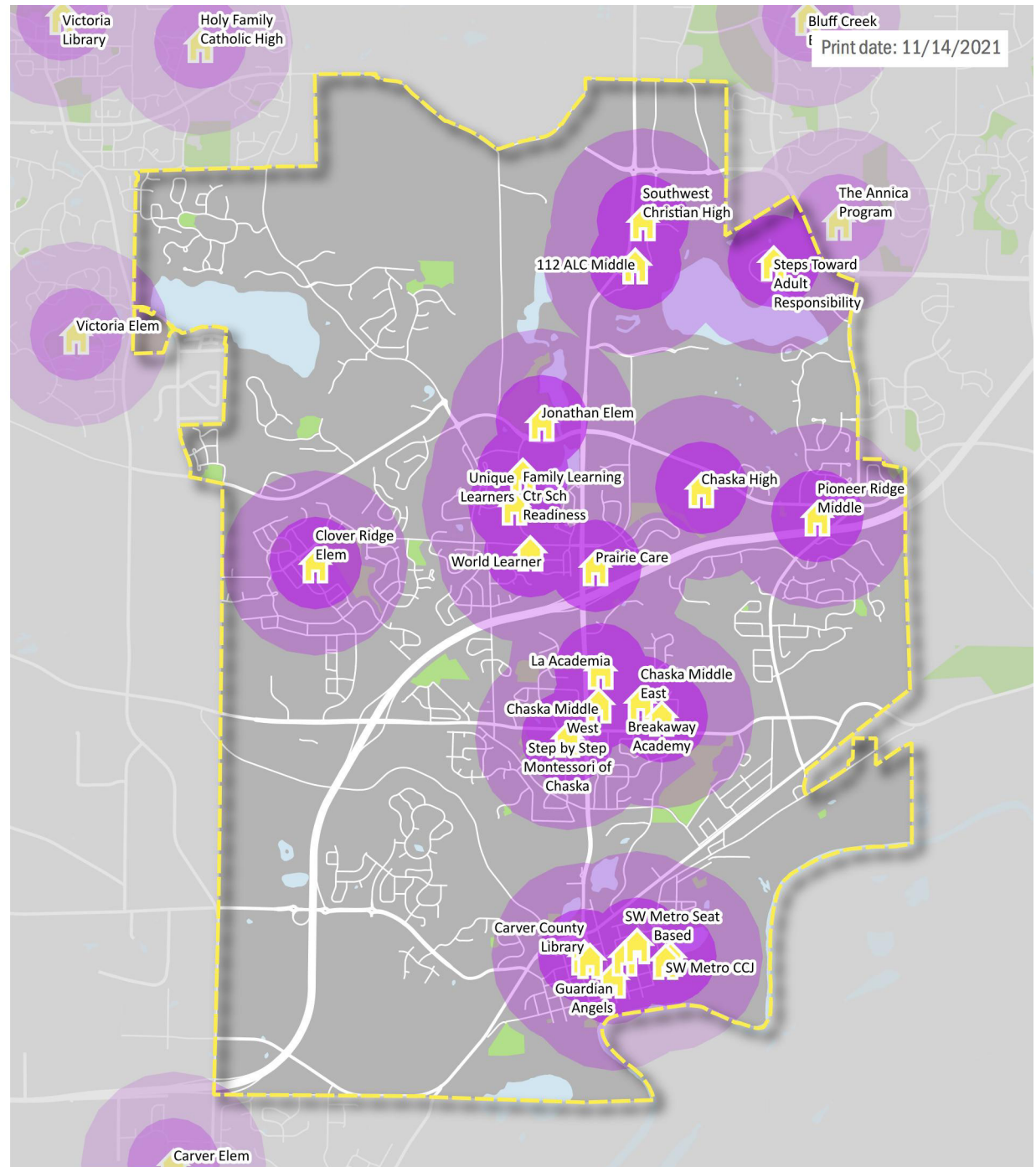
Implications for the Plan

With the approximately 6,200 students attending public schools (and several hundred in private schools) there is significant potential to address student travel and facilitate walking and biking to school.

Orienting walking and biking networks to simplify and improve students' daily travel experience can dramatically increase walking and biking in the City.

Legend

-  School name
-  0.25 mile (5 minute) walk radius
-  0.50 mile (10 minute) walk radius



Parks and Trails System

What the Map Shows

Parks are distributed through Chaska along a wide swath in a general southeast-northwest orientation. Existing trails are also provided in a generally southeast-northwest orientation, and connect to many of these parks.

In some portions of the city, east-west and north-south trail connectivity is limited.

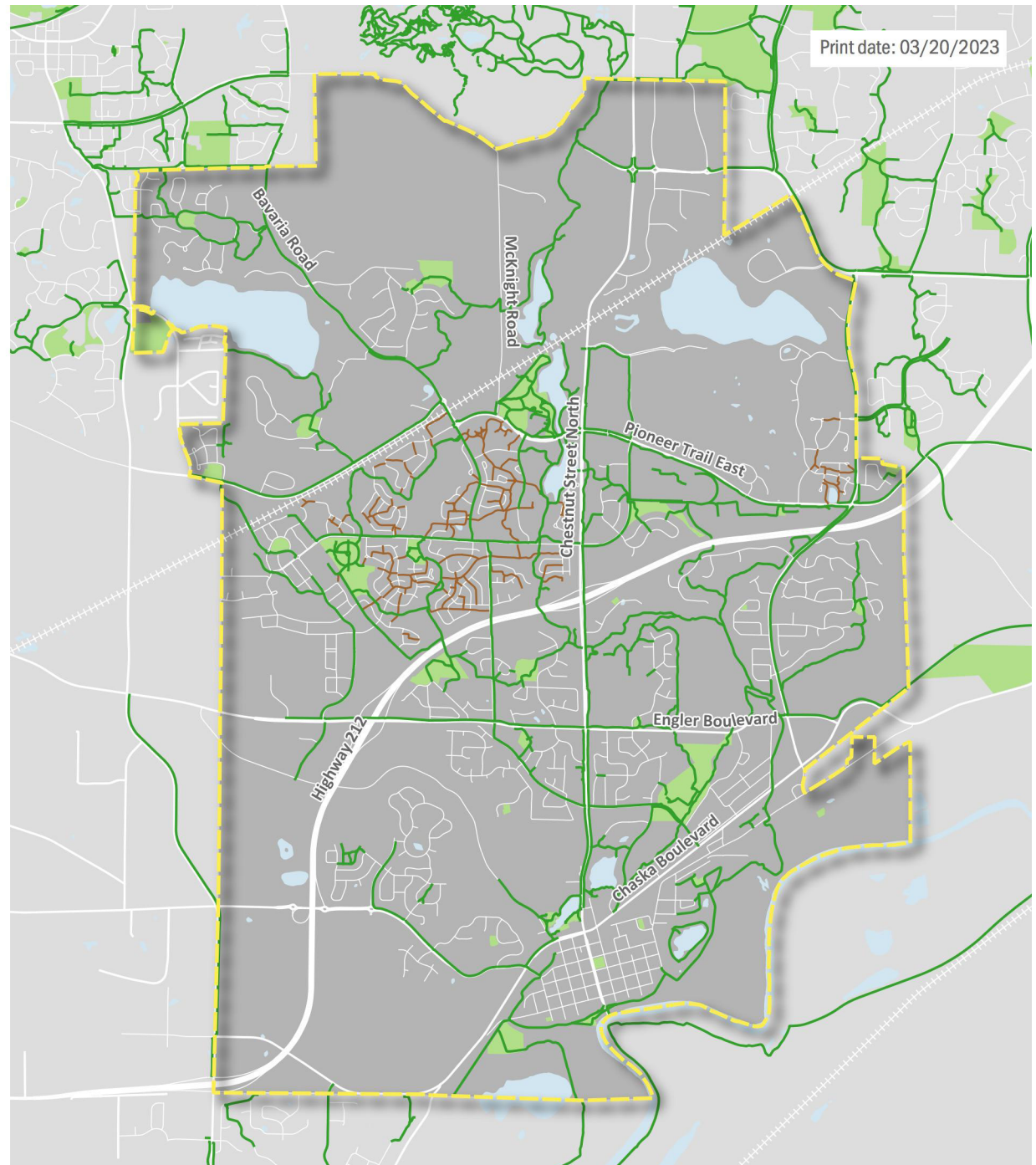
Several residential locations lack direct access to the existing trail network.

Implications for the Plan

Providing trail or trail-like facilities that are safe and comfortable for the majority of the population and connect residential concentrations to the City's network will leverage existing trails and form a key component of an All Ages and Abilities network.

Legend

- Existing Trails
- Jonathan Trails
- Lakes and Rivers
- Parks and Recreation Areas



Crashes Involving People Walking or Biking

Crashes between 2011 and 2021 were reviewed using MnDOT's [Minnesota Crash Mapping Analysis Tool \(MnCMAT2\)](#).

What the Map Shows

A total of 51 crashes involving people walking or bicycling occurred in Chaska between 2011 and 2021. Of those crashes:

- » 1 was fatal
- » 5 caused serious injury
- » 21 caused minor injury
- » 21 caused possible injury
- » 3 caused property damage only

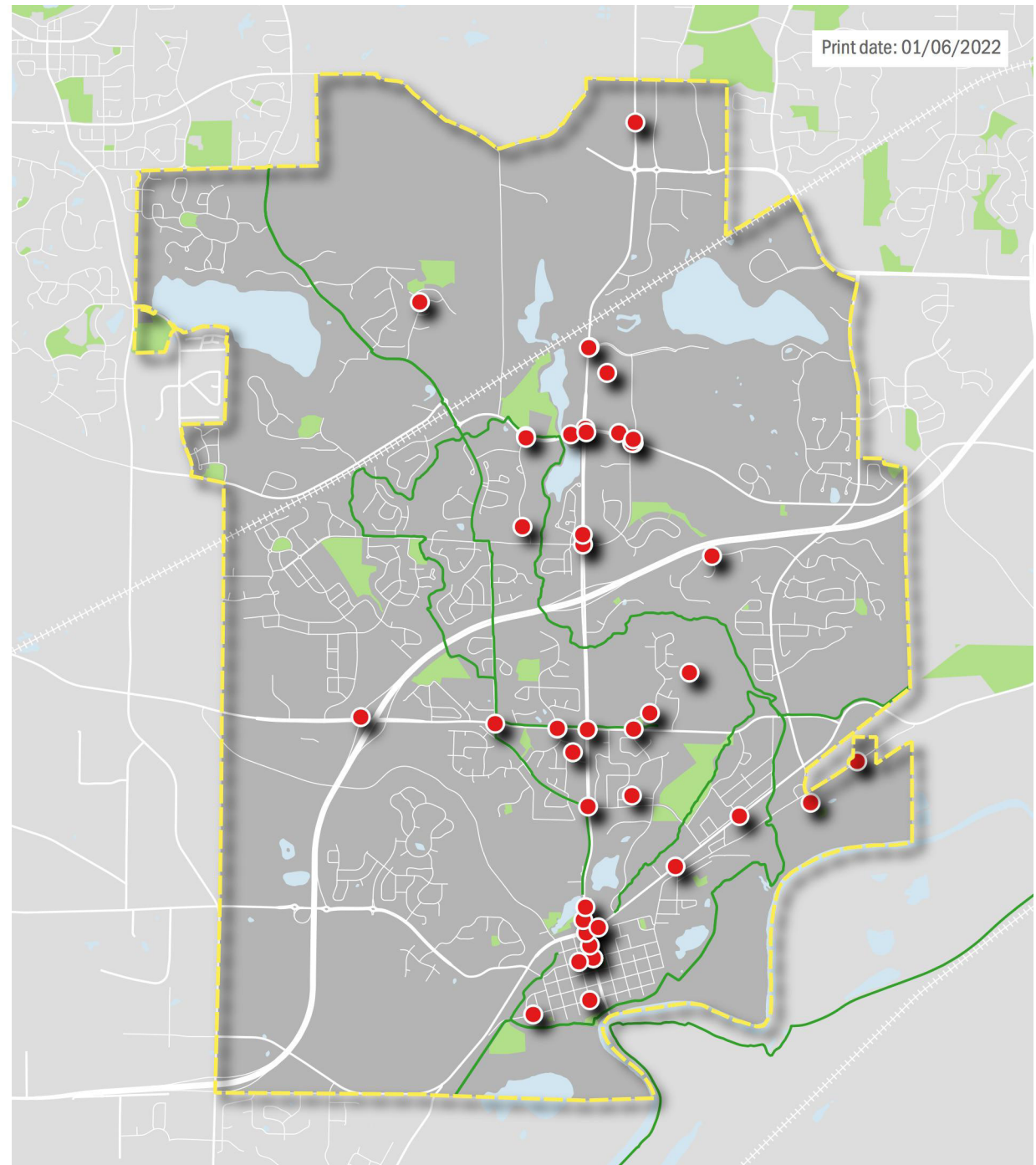
Almost all pedestrian crashes took place at intersections. Over half of bicycle crashes occurred at locations without facilities.

Implications for the Plan

To improve safety, user comfort, and reduce potential for future crashes and injuries, it will be important to provide facilities and intersections that address safety issues and user comfort.

Legend

- Walk or Bike-Related Crashes 2011 to 2021
- Existing Primary Trails / Shared Use Paths





A.2

Unit Costs for Estimation

Cost estimates support applications for grants and help implementation move forward.

In this section:

- » Costs for facilities
- » Costs for component elements

Costs for Facilities and Treatments

Costs and the availability of funding are often the main barriers for implementation of infrastructure improvements. The tables here can help plan and program the funds necessary to implement the City's network. Cost estimates are based on MnDOT's [Metro District Bicycle Plan](#) (derived from statewide average bid prices), and other industry estimates from a variety of Minnesota projects.

To reflect current conditions, including higher costs due to inflation, post-Covid supply chain disruptions, and other factors, future project costs should be inflated relative to a base year of 2017. Cost estimates shown here do not include an allowance for engineering, utility, or right-of-way costs. **Please note that these estimates are only intended to be used at a planning level and should be refined throughout the project development phase of each individual project.**

The funding table provided in the implementation chapter ("Potential Funding Sources") can help find partners to support the City's efforts.

General Costs for Typical and Multi-Component Facilities

Treatment	Unit	Cost (\$)
Sidewalk: concrete, 6ft wide, new	MI	\$175,000
Sidewalk and curb: concrete, 6ft wide, new	MI	\$800,000
Conventional on-street bicycle lane (no parking) <i>Includes 1 line on each side of street, 20 symbols per mile</i>	MI	\$14,000
Buffered bicycle lane (no parking) <i>Includes 2 lines (buffer) on each side of street, cross hatching in buffer, 20 symbols per mile</i>	MI	\$21,000
Temporary / Low-Cost Separated / Protected Bicycle Lane - Flexible Delineators <i>On-street, one-way lanes both directions (epoxy striping, signing, thermoplastic symbols, flexible delineators)</i>	MI	\$28,000
Permanent Curb-Separated Protected Bicycle Lanes <i>Includes relocation of existing sidewalks, construction of one-way bicycle paths both directions (grading, utility adjustment, stormwater, traffic control measures and construction on both sides of road)</i>	MI	\$1,900,000
Off-Street Trail / Shared-Use Path <i>One 10 ft asphalt path, signage, drainage, intersection crossing/curb ramp improvements, landscaping</i>	MI	\$250,000
Neighborhood Slow Street (assumes 8 blocks/mile) <i>Includes 16 symbols, 16 sign assemblies, 6 curb extensions, and 1 mini traffic circle per mile.</i>	MI	\$172,000

Costs for Component Elements

Intersection Treatments / Traffic Calming

Treatment	Unit	Cost (\$)
Median extension for pedestrian refuge (6 ft x 8 ft)	EA	\$7,500
Sidewalk Curb extension / Bump-out (6 ft x 20 ft)	EA	\$15,000
Green Curb extension (bio-swale)		\$30,000
Pedestrian refuge island, small (1100 sf)	EA	\$12,000
Pedestrian refuge island, large (2300 sf)	EA	\$25,000
Speed hump (raised pedestrian crossing)	EA	\$7,000
Traffic circle (neighborhood traffic circle)	EA	\$60,000
Protected intersection Total for four corners - each corner includes corner island, 2 medians with cut-through and tactile warnings, and corner pedestrian ramps for sidewalk	EA	\$45,000

Signs, Signals and Wayfinding

Treatment	Unit	Cost (\$)
Wayfinding sign (including post and base)	EA	\$400
Regulatory / warning sign (including post and base)	EA	\$300
Rectangular Rapid Flash Beacon (RRFB) - Pair	EA	\$25,000
Pedestrian hybrid beacon (PHB / HAWK)	EA	\$125,000
Bicycle signal: Two pedestal poles per intersection with a signal head facing each direction (4 total heads)	EA	\$10,000
Loop detector	EA	\$1,500
Audible Pedestrian Signal	EA	\$900
Countdown Timer Module	EA	\$2,000
Pedestrian Railing	LIN FT	\$100
LPI (assumes updated controller in place)	EA	\$400

Striping

Treatment	Unit	Cost (\$)
4" Dashed	LIN FT	\$1.00
6" Dashed	LIN FT	\$1.50
8" Dashed	LIN FT	\$2.00
4" Solid	LIN FT	\$0.70
6" Solid	LIN FT	\$1.20
8" Solid	LIN FT	\$1.70
Continental Style crosswalk marking - thermoplastic	SQ FT	\$19.00

Pavement Markings

Treatment	Unit	Cost (\$)
Bike lane symbol (paint)	EA	\$75.00
Bike lane symbol (thermoplastic)	EA	\$200.00
Bike Blvd symbol (thermoplastic)	EA	\$200.00
Shared lane marking (thermoplastic)	EA	\$230.00
Colored pavement marking - thermoplastic (green conflict zones)	SQ FT	\$20.00

Other / Miscellaneous Elements

Treatment	Unit	Cost (\$)
Unsecured Bicycle parking (inverted U)	EA	\$250
Unsecured On-street bicycle corral (for 10 bikes)	EA	\$2,500
Secured Parking (Bike Locker - 2 bike capacity) - not recommended	EA	\$2,000
Street lights	EA	\$4,500
Bench	EA	\$1,600
Bicycle Repair Station & Pump	EA	\$1,000
Trash/Recycling Receptacle	EA	\$1,500
Bollard (concrete)	EA	\$500
Flexible Delineator	EA	\$50
Underpass	SQ FT	\$120
ADA Curb ramp (multiply by 8 for intersection)	EA	\$1,500

A.3

Data from Community Engagement



An extensive community engagement effort was conducted as part of this plan. Reports and summaries are provided here.

In this section:

- » Public survey: brief summary
- » Wikimap summary
- » Public survey: full results