

FARMINGTON BIKE + PED PLAN



JUNE 17, 2019

**Bicycle and Pedestrian Plan
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CHAPTER 1

INTRODUCTION

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Plan and Project Purpose

The following serve as the purpose of the Farmington Bicycle and Pedestrian Plan.

- » To address the future of a city-wide bicycle and pedestrian network, building off of the existing network.
- » To incorporate community feedback and community desires towards bicycle and pedestrian goals and while being balanced with City staff recommendations and Bicycle and Pedestrian Plan Committee feedback.
- » To identify best practices and guide the City in future facility and network investments.
- » To guide policy and programming improvements, such as wayfinding, bike parking and educational/encouragement activities.

Why Plan for Biking and Walking Today?

Over time, the purposes for biking and walking have changed dramatically. Walking is the original form of transportation. It has always been the cheapest and most environmentally friendly way of getting around. The introduction of the bicycle in the early 1800's carried many of the same benefits and allowed people to travel more efficiently, faster, and longer distances. After the advent of the personal automobile and its increased popularity in the 1920s and 30s, biking and walking for transportation purposes began to decline and was seen mostly for sport, exercise, or recreational purposes.

Today, biking and walking is again become more popular for multiple purposes as many people are recognizing the importance of living an active and healthy lifestyle. The following are some key reasons for planning for the future bicyclists and pedestrians in Farmington.

- » **Safety:** Evidence suggests that high-bicycling-mode-share cities are not only safer for bicyclists but for all road users. Further, bike facilities themselves act as “calming” mechanisms on traffic, slowing cars and reducing fatalities¹.
- » **Livability + Mobility:** Fifty percent of U.S. residents say that walkability is a top priority or high priority when considering where to live². Bicycling has become the country's fastest-growing form of transportation for commuters.



¹ University of Colorado Denver. (2019, May 29). Cycling lanes reduce fatalities for all road users, study shows: Roads are safer for motorists, pedestrians and cyclists in cities with robust bike facilities. *ScienceDaily*. Retrieved May 31, 2019 from www.sciencedaily.com/releases/2019/05/190529113036.htm

² Urban Land Institute: America in 2015: A ULI Survey of Views on Housing, Transportation, and Community. Washington, D.C.: the Urban Land Institute, 2015.

- » **Health:** The cost of obesity in Minnesota is \$3.2 billion per year³. Improving streetscapes and biking and walking facilities ensures that all community members can walk and bike safely and conveniently throughout the day.
- » **Household and Community Prosperity:** According to AAA, it costs an average of \$8,849 to operate the average car for 2018, or about \$737 per month⁴. Not all households can afford to own a car and some lower income households who do own a car because they feel that is the only way to get around may be sacrificing other basic needs in order to get by.
- » **Air Quality and Greenhouse Gas Emissions:** The transportation sector generates the largest share (28.9%) of greenhouse gas emissions⁵. Walking or cycling could realistically substitute for 41% of short car trips (less than 3 miles), saving nearly 5% of CO₂e emissions from car travel⁶.
- » **Recreation:** Trails and greenways provide facilities for recreational purposes. Trails provide a unique facility to serve a diverse population of a community that may otherwise have limited opportunities to access natural areas due to financial or transportation constraints.
- » **Parking and Transportation Networks:** As more people bike and walk to destinations such as retail, restaurants, entertainment, and work, the demand for vehicle parking decreases, allowing buildings to be closer to each other and become even more walkable. Encouraging active transportation and bringing travel origins and destinations closer together can help alleviate traffic congestion⁷.
- » **Regional Economic Competitiveness / Tourism:** As bicycling and walking networks have grown, so have active transportation-oriented developments and bike-friendly businesses. Numerous studies have shown that real estate values increase with proximity to bicycle paths and walking trails. Bike lanes also help companies score talented workers⁸.
- » **Sustainability / Resilience:** Because biking and walking doesn't



The amount of space 69 people occupy on bike, on-foot, and in 60 cars. Source: Cycling Promotion Fund

3 Trogon JG, Finkelstein EA, Feagan CW, Cohen JW. State-and Payer-Specific Estimates of Annual Medical Expenditures Attributable to Obesity. *Obesity*. 2012; 20(1):214-20 [Figure adjusted for inflation using 2017 dollars]

4 Your Driving Costs: How Much Are You Really Paying to Drive? [Brochure]. (2018 Edition) Heathrow, FL: AAA Association Communication

5 U.S. EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017. <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>

6 Neves, A., & Brand, C. (2018, August 31). Assessing the potential for carbon emissions savings from replacing short car trips with walking and cycling using a mixed GPS-travel diary approach. Retrieved May 31, 2019, from <https://www.sciencedirect.com/science/article/pii/S0965856417316117>

7 Wen, Liang; Kenworthy, Jeff; Guo, Xiumei; Marinova, Dora. 2019. "Solving Traffic Congestion through Street Renaissance: A Perspective from Dense Asian Cities." *Urban Sci*. 3, no. 1: 18.

8 "Protected Bike Lanes Mean Business," by PeopleforBikes and the Alliance for Biking & Walking

rely on burning fossil fuels they are more resilient to swings in fuel prices and are far cheaper to repair. From a sustainability perspective, bicycles can be produced for a fraction of the materials, energy, and shipping costs of a car. Biking and walk also saves taxpayers money by reducing road wear. A 20-pound bicycle causes less wear on the pavement than a two-ton vehicle.

Plan Objectives

The Farmington Bicycle and Pedestrian Plan focuses on a variety of objectives to holistically address bicycle and pedestrian issues. Objectives focus on physical infrastructure improvements, programmatic solutions, and policy-driven decisions. The following 13 objectives, broken down into five categories help guide the direction of the Farmington Bicycle and Pedestrian Plan.

Facilities / Infrastructure

- » Fill network gaps, address problem intersections and barriers
- » Find ways to make biking and walking safe, convenient, and easy
- » Define trail, sidewalk, and facility standards that are reasonable, enforceable, and sustainable for the City of Farmington

Address a Variety of Users

- » Define a cohesive, connected walking and biking network in Farmington that meets the needs of:
 - *Commuters*
 - *Recreational bicyclists, hikers*
 - *People with disabilities*
 - *People who don't have the ability or interest in driving*
 - *People who use public transportation*
 - *Children, young people*
 - *Seniors*

Make Connections

- » Better connect residents and visitors of Farmington to:
 - *Parks*
 - *Schools*
 - *Community Destinations*
 - *Employment Centers*
 - *Commercial Centers + Businesses*
 - *Neighborhoods*



Encourage / Educate

- » Identify programs and initiatives to support walking and biking in Farmington.
- » Promote Active Living
- » Identify ways to make biking, walking, and other passive forms of exercise part of daily routines

Prioritize and Implement

- » Define community goals and a vision for the future of walking and biking in Farmington
- » Recommend strategies for phasing and implementation of the Plan
- » Identify 'champions' or stewards for recommendations that can't be addressed by the City alone
- » Design the plan and plan process to assist with future fund-raising or grant-writing
- » Identify priority projects, projects that can be started right away

Plan Funding

To create this plan, the City received grant funding from the Dakota County Health Department through funding it receives from the Statewide Health Improvement Partnership (SHIP) grant program from the Minnesota Department of Health.

The City of Farmington and Dakota County have a history of working collaboratively on the design and construction of trails and sidewalks within Dakota County rights-of-way. In the last ten years, the City and the County have worked together to develop approved regional greenway master plans that will eventually connect the city to the county's regional park and trail system. Also as a result of the collaboration, 13 miles of trail, or approximately 30% of the existing trail system in Farmington is within Dakota County rights-of-way.

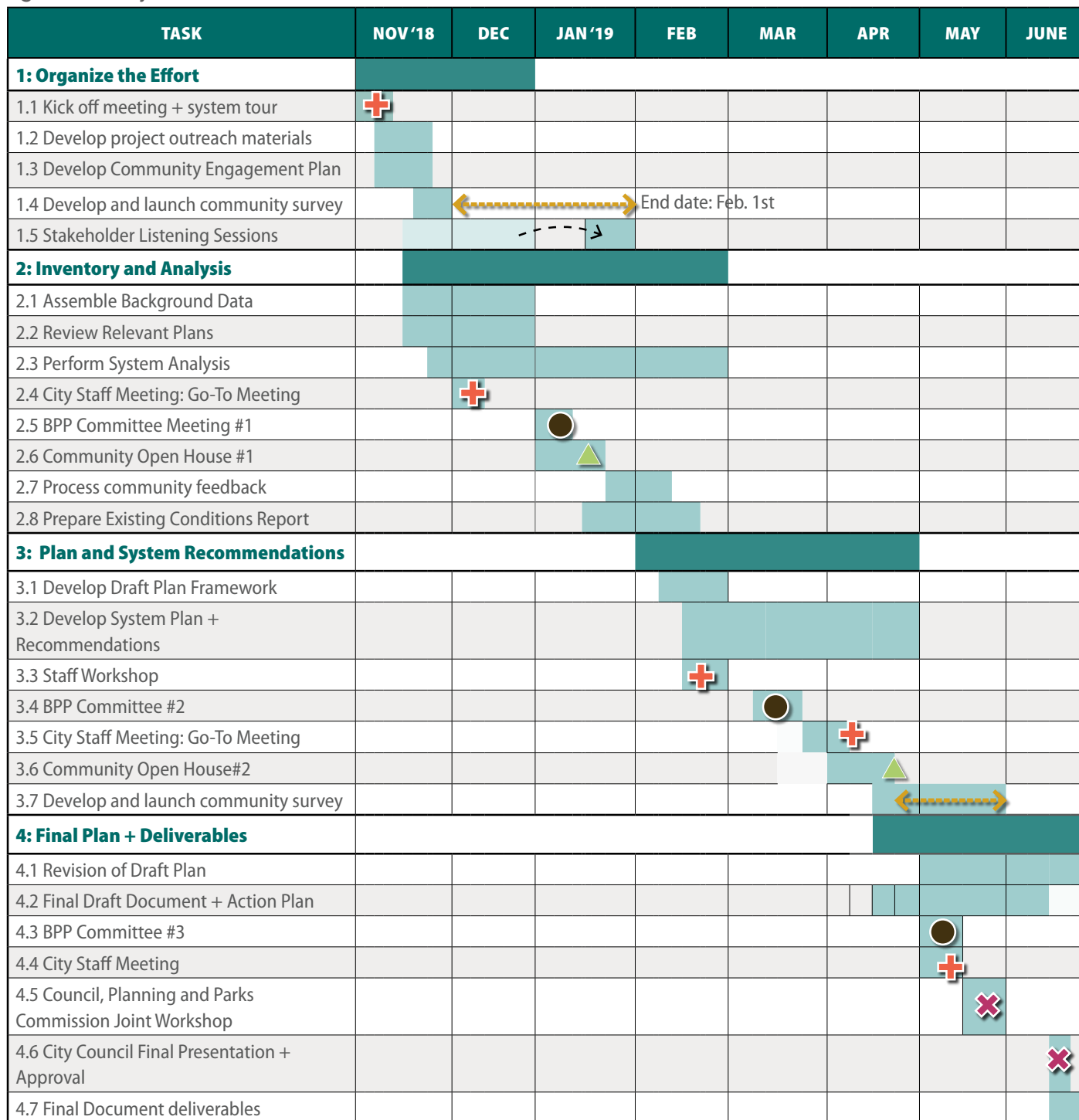
SHIP supports community-driven solutions to expand opportunities for active living, healthy eating and commercial tobacco-free living. Minnesota communities are working with SHIP to promote active transportation to provide safe and convenient opportunities for physical activity.

Active transportation can be encouraged through:

- » Sidewalks, walking paths and bike facilities
- » Safe and convenient pedestrian street crossing features such as crosswalks, stop signs, stop lights and other street crossing elements
- » Motorist traffic calming and speed-reduction measures



Figure 1.1 Project Timeline



Meeting Key



City Staff Meeting (5 total)



Community Survey (2 total)



BPP Committee Meeting (3 total)



City Council/Commission Meeting (3-4 total)



Community Open House (2 total)

- » Street landscaping and pedestrian-level street lighting
- » Bike racks, lockers, or other bike parking and storage facilities
- » Land use development patterns to locate homes, work sites, schools, stores and other community services and amenities within reasonable walking distances (pedestrian-oriented development) and within easy access to transit (transit-oriented development)
- » Signage that helps pedestrians and bicyclists navigate to their destinations.

Project Timeline

The Farmington Bicycle and Pedestrian plan was completed over an eight-month period (see Figure 1.1) from its kick-off in November 2018 to its completion in June 2019. Initial engagement efforts began in December 2018 and lasted until February 2019. After the preparation of the existing conditions report and the development of draft plan and recommendations, a second round of engagement took place from April 2019 to May 2019. The final draft of the Plan was completed and approved on June 17, 2019.





Photo Credit: Jenny Olmanson

CHAPTER 2

EXISTING CONDITIONS

- 2-2** Farmington in Context
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- 2-8** Relevant Plan Review
- 2-14** Existing Bicycle and Pedestrian Network
- 2-16** Level of Traffic Stress Analysis
- 2-25** Community Engagement Phase 1
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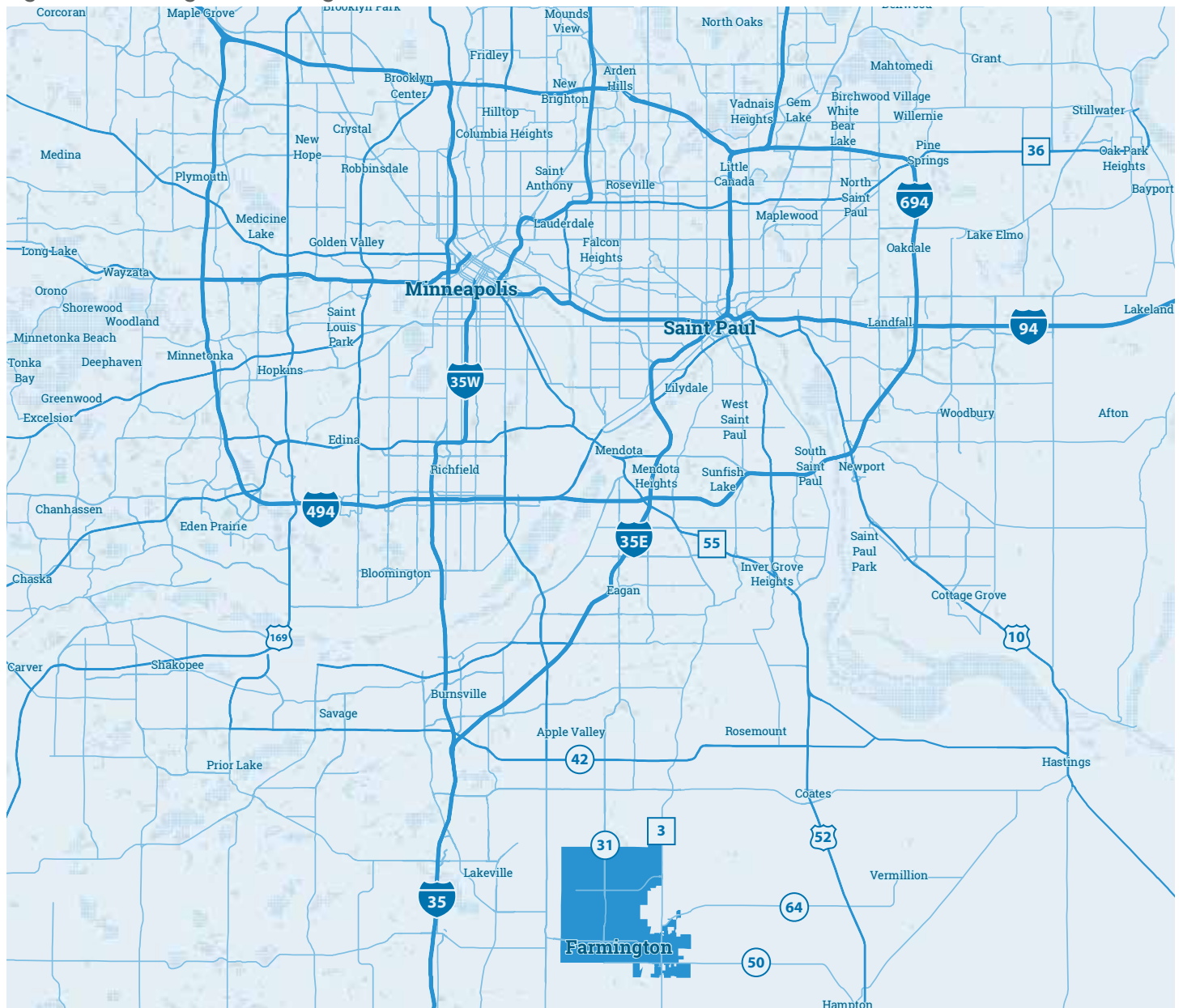
Farmington in Context

Development Context

The development of Farmington occurred originally because of the railroad system. The original town site, today's downtown area, was established at the intersection of two small rail lines - the Minnesota Central and the Hastings & Dakota - that ultimately became part of the Chicago, Milwaukee and St. Paul Railroad. The town's business district grew up adjacent to the Milwaukee Road Depot. Until the 1990s, Farmington's commerce and industry was focused upon agricultural production.

An area of Lakeville Township was annexed into Farmington in 1971. This major annexation immediately created a large gap of undeveloped land between the original town of Farmington south of the Vermillion River and this new residential area to the north.

Figure 2.1 Farmington in the Regional Context



With Farmington's location on the edge of the Twin Cities metro area (as seen in Figure 2.1), it experienced an unprecedented growth rate during the mid 1990s. New housing developments were primarily constructed in the city's northern portion closer to Lakeville than the original town of Farmington. These new developments consisted of typical suburban subdivisions of single-family homes laid out on curvilinear streets. This growth intensified the disconnection and development contrast between the northern and southern portions of the city. As a result, Farmington as a whole is often perceived to have two separate areas within the community, one north and one south.

Because the original development of Farmington occurred due to the railroad system rather than the Interstate Highway system, Farmington's downtown and surrounding residential neighborhoods consist of small, walkable, human-scale blocks with sidewalks. Immediately adjacent to the original location of Farmington is a newer residential development that duplicates the small-block roadway pattern. The curvilinear and disconnected street pattern of much of the newer development of the 1970s and afterward presents more difficulties for walking and biking because of the circuitous and indirect routes they create with gaps in the sidewalk and trail network.

Existing Funding Sources

The capital improvement projects in parks and trails have been funded over the years through two funding sources. The first funding source has been through funds received from residential, commercial and industrial development. These funds were received as cash in lieu of land through the park dedication process. The second source of funding has been through the City's municipal liquor store profit transfers.

The city implemented an annual pavement management program for trail maintenance in 2012. The pavement management program provides annual funding for crack sealing and fog sealing trails. The city is broken into five areas, which results in every trail in the city receiving maintenance work at least once every five years.

While there is annual funding in place for pavement management of trails, there is currently inadequate funding for replacement of trail sections that have so badly deteriorated that crack sealing and fog sealing hold no benefit. This is due to parts of the trail system being initially constructed more than 30 years ago. As a result, if the city wishes to continue to have a usable, safe and connected trail system, then a long term funding plan and source should be explored to be implemented in order to provide the funds needed to replace the city's existing trail infrastructure over time.

In 2017, a trail wayfinding signage program was initiated. Three different park and open space areas were identified that contained highly used trail loops. The wayfinding signage program was funded by the municipal Farmington Liquor Store operational profits.

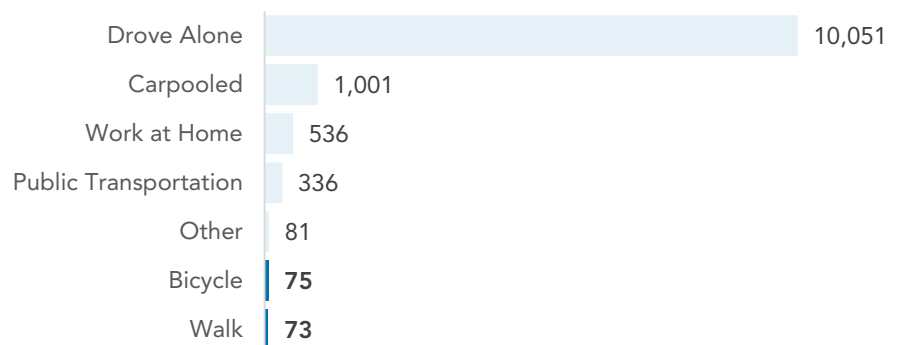
Existing Travel Behavior and Characteristics

Data available through the US Census Bureau and the Metropolitan Council help paint a picture of how Farmington residents are currently getting around the city and to other destinations. Analyzing data that signifies a greater potential for walking and biking, such as zero-car households or households in poverty, also helps Farmington understand how much demand may exist for better walking and biking facilities.

Bike and Walk Mode Share

Because trips to work make up a large majority of daily transportation, analyzing how residents get to work provides a good snapshot of typical mode share in Farmington. Mode share is the percentage of travellers using a particular type of transportation. Figure 2.2 highlights how Farmington residents get to work most days of the year. In most American cities, especially suburban cities, many residents drive to work alone. An estimated 83% of Farmington residents drive to work compared to 76% of all US citizens. Approximately 75 people bike to work in Farmington and an estimated 73 people walk to work. Non-motorized transportation accounts for 1.5% total in Farmington. Of note, the US Census does not account for partial trips so if a resident decides to bike to the nearest transit stop and take the bus to work, that trip will likely be counted as a transit trip if the transit portion of the trip is longer in length. One significant fact to note about travel is that every person, regardless of the main travel mode, is a pedestrian at one point in time whether it's walking (or rolling) from their car to their work entrance, walking to the transit stop, or walking to a neighbors house to carpool to work.

Figure 2.2 Means of Transportation to Work



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Table 2.1 Bike/Walk Mode Share Over Time

MODE	2000	2010	2016
Bicycle	0.0%	0.2%	0.6%
Walk	1.3%	0.7%	0.6%

Source: U.S. Census Bureau, Multiple Years

As seen in Table 2.1, walking and biking as a means of getting to work has shifted over time in Farmington. Generally, the amount of people biking to work has seen an upward trend since 2000. The percent of people in Farmington walking to work has declined since 2000. Both of these trends aren't necessarily unique to Farmington;

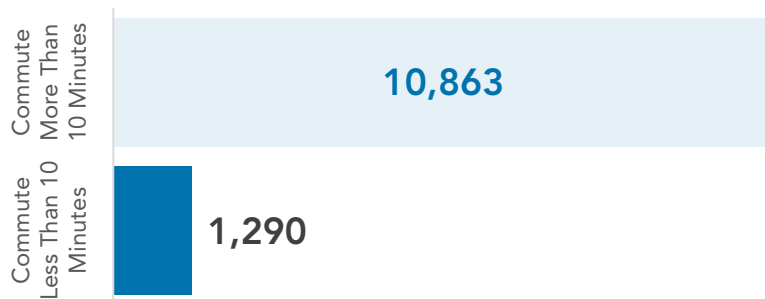
most US cities are seeing an increase in bike mode share as bicycling becomes a more attractive, acceptable, and safer mode of transportation.

Travel Distance and Destination

One of the largest determinants of how someone gets to their destination is the distance needed to travel. When a person is less than three miles from their destination, the chances of biking to their destination are more likely. Similarly when a person is less than a half mile away from their destination, they are more likely to walk. Even if individuals don't choose to bike or walk to their destination, chances are that they are far more likely to consider it as an option if the distance needed to travel is short, especially when quality bike and walking facilities are present.

According to a sample of individuals surveyed in the Metropolitan Council's 2010 Travel Behavior Inventory, half of all trips in Farmington are six miles or less. Nearly 30% of all trips made in Farmington are three miles or less and 7% are a half mile or less.

Figure 2.3 Travel Time to Work

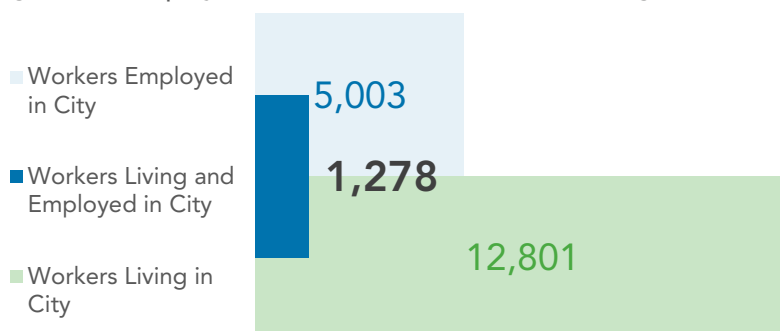


Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

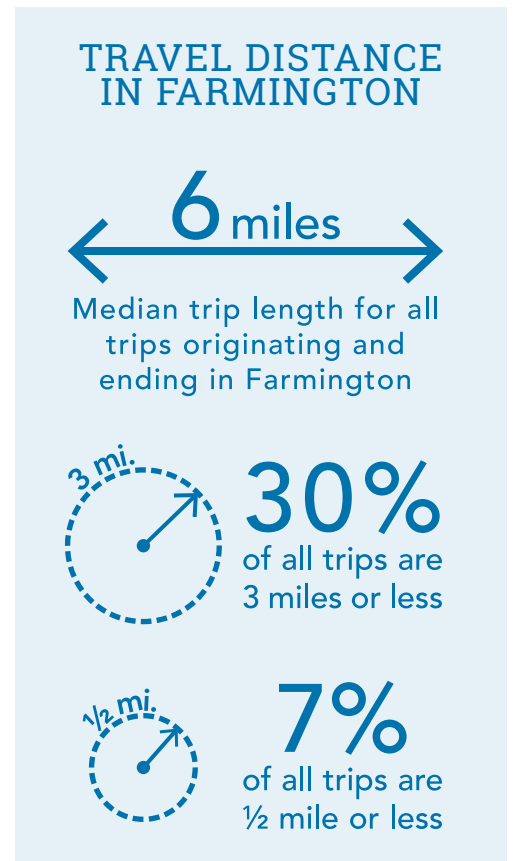
While Farmington residents, workers, and visitors may not be choosing to bike or walk for all their trips, there is great potential as a large number of trips are short and could easily be made by foot, bike, or other mobility assisting device other than an automobile.

As observed in Figure 2.3, for all modes of transportation, the majority of Farmington residents have a commute to work that is longer than 10 minutes. However, there are almost 1,300

Figure 2.4 Employment Inflow and Outflow in Farmington



Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics 2015



Source: HKGi, Metropolitan Council Travel Behavior Inventory 2010 Household Interview Survey

Farmington residents that have less than a 10 minute commute. This is further demonstrated in Figure 2.4 which shows that of the 12,800 workers that live in Farmington, there are almost 1,300 that also work Farmington. It can be assumed that those with less than a 10 minute commute both live and work in Farmington.

Because such a large gap exists between the amount of people who are currently walking and biking to work (148 people) and the amount of people who live and work in Farmington with less than

Table 2.2 Where Farmington Residents Work

WORK LOCATION	WORKERS	PERCENT
Farmington, MN	1,278	10.0%
Minneapolis, MN	1,199	9.4%
Eagan, MN	1,064	8.3%
Lakeville, MN	965	7.5%
St. Paul, MN	860	6.7%
Burnsville, MN	859	6.7%
Bloomington, MN	818	6.4%
Apple Valley, MN	780	6.1%
Rosemount, MN	322	2.5%
Edina, MN	274	2.1%
All Other Locations	4,382	34.2%
TOTAL	12,801	100.0%

Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics 2015

Table 2.3 Where Farmington Workers Live

HOME LOCATION	WORKERS	PERCENT
Farmington, MN	1,278	25.5%
Lakeville, MN	591	11.8%
Apple Valley, MN	334	6.7%
Rosemount, MN	173	3.5%
Burnsville, MN	170	3.4%
Northfield, MN	162	3.2%
Eagan, MN	150	3.0%
Minneapolis, MN	106	2.1%
St. Paul, MN	92	1.8%
Hastings, MN	67	1.3%
All Other Locations	1,880	37.6%
TOTAL	5,003	100.0%

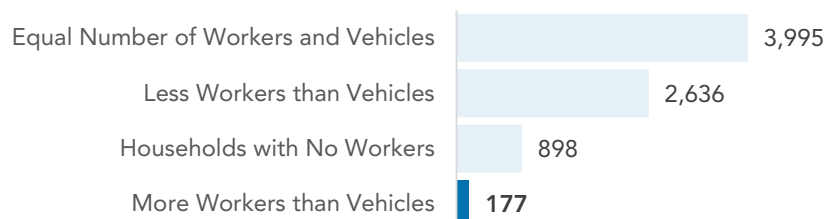
Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics 2015

a 10-minute commute (~1,300 people), there is great potential to increase the non-motorized transportation mode share with improved facilities. The availability and quality of biking and walking infrastructure in adjacent and nearby cities also matters because most Farmington residents work outside of the city and most Farmington workers live outside the city, as seen in Table 2.2 and Table 2.3.

All of the census data presented here points to an opportunity to increase the mode share of biking and walking as a viable means of transportation for a significant number of people living and working in Farmington.

Selected Household Characteristics

Figure 2.5 Vehicle Competitive Households in Farmington



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

When a household has more workers than it has vehicles, it is classified as a vehicle competitive household. People within a vehicle competitive household are oftentimes faced with the decision of how they are going to get around because they do not have the option to drive for every trip. When faced with conflicting travel situations, some people decide to work alternative work schedules, while others shift to a different means of transportation such as carpooling, transit, walking, or biking.

Figure 2.5 highlights the number of vehicle competitive households in Farmington. Knowing this data provides a clue as to how many workers could potentially benefit from a more connected bicycle and pedestrian network. It also highlights the fact that, within the right circumstances, not every eligible driver within a household in Farmington needs to own a car, as they can supplement some trips by walking or biking to nearby destinations.

The number of zero vehicle households, as presented in Table 2.4, brings attention to the fact that there are 144 households in Farmington that do not own a vehicle. These residents must rely

Table 2.4 Zero Vehicle Households

HOUSEHOLD TYPE	#	%
Number of Zero Vehicle Households	144	1.9%
Total Households	7,706	100.0%

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Table 2.5 Poverty Status of Farmington Residents

SUBJECT	TOTAL POPULATION	BELOW POVERTY LEVEL	% BELOW POVERTY LEVEL
Population Below Poverty Level	22,090	627	2.8%
White	20,088	439	2.2%
Black or African American	304	85	28.0%
American Indian	39	9	23.1%
Asian	708	7	1.0%
Hispanic or Latino	774	31	4.0%
Other	951	87	9.1%

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

on other means of transportation. Transit, non-motorized facilities, and mobility services all need to work in conjunction year-around to serve these households.

According to AAA, it costs an average of \$8,849 to operate the average car for 2018, or about \$737 per month¹. This amount factors in all costs of auto ownership over the life of the vehicle. For those living at or below the poverty level, vehicle ownership can be a significant cost burden. This cost burden can be eliminated or significantly lowered if a safe and convenient non-motorized transportation network exists.

As seen in Table 2.5, 627 (2.8%) Farmington residents live at or below poverty level. A disproportionate level of minority populations live below the poverty level in Farmington.

¹ Your Driving Costs: How Much Are You Really Paying to Drive? [Brochure]. (2018 Edition) Heathrow, FL: AAA Association Communication

Relevant Plan Review

A variety of plan documents were reviewed during the planning process. These plans and supporting planning/policy documents have been created over the last 10 years and provide a foundation to build the future bike and pedestrian network in Farmington. The following is an inventory of relevant findings from this plan review.



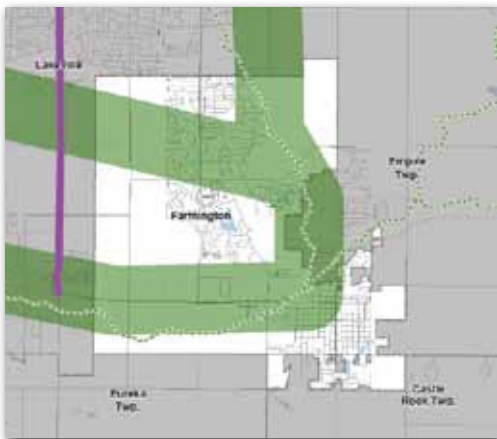
Cover of 2040 Comprehensive Plan DRAFT December 7, 2018. Source: City of Farmington

2040 City of Farmington Draft Comprehensive Plan (2018)

The City of Farmington updated its City-wide comprehensive plan in 2018. This plan will serve as a strategic guide for future development and public infrastructure to ensure a safe, well-designed and economical environment for residential, commercial, industrial and public activities. The draft plan was submitted to the Metropolitan Council in December of 2018. The following 2040 Draft Comprehensive Plan chapters contain relevant background and guidance for the Bike + Ped Plan:

Transportation

- » Stated goal to “promote transportation alternatives ensuring that non-motorized, transit, and motorized travel needs are met in a balanced manner consistent with community values.”
- » Current crash data shows that pedestrian crashes have been located within neighborhood streets or along more rural sections of roadways including Akin Road and Pilot Knob Road. Bicyclist crash data indicates facilities may be needed along CSAH 50 and TH 3.
- » TH 3 will likely expand into a 4-lane divided roadway.
- » There is no scheduled or planned public transit service within Farmington. An extension of the Red Line Bus Rapid Transit (BRT) will result in a future station at Cedar Avenue and 215th Street in Lakeville (closest transit station to Farmington).
- » Future collector roadways in Farmington will have a multi-purpose trail on one side, and a sidewalk on the other. Future local streets are to have sidewalks on one side of the road, both sides if conditions allow.
- » The Metropolitan Council has defined the Regional Bicycle Transportation Network (RBTN) in an effort to establish regional bike networks. Within the City of Farmington, three Tier 2 RBTN corridors have been identified: along CSAH 50 between the west city boundary and downtown, generally along a future alignment of CR 33 extension or North Creek, and an east/northwest connection from Farmington into Lakeville.



RBTN Network, as shown in the 2040 Comprehensive Plan Draft. Tier 2 Corridors are shown in green. Source: City of Farmington

Sustainability

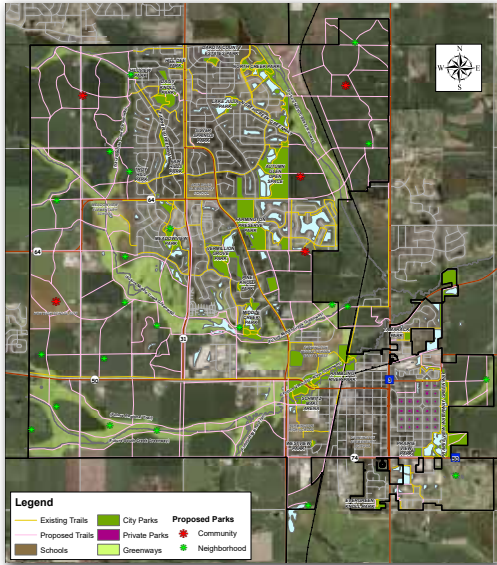
- » The City of Farmington is a member of Minnesota GreenStep Cities, and has been awarded Step 2 status, as of 2018.
- » There are at least (12) GreenStep actions related to improving the bicycle and pedestrian network that, if implemented, would contribute towards reaching Step 3 Status for the City.

Parks and Recreation

- » An updated Existing and Proposed Park, Trail and Open Space plan is included in this chapter
- » A recommendation includes development of a “Bike and Pedestrian Plan that can be used to identify where [trail] gaps currently occur along with ensuring that future new trails are connected to the existing trail network.”
- » The Five Year Parks and Trail Improvement Budget does not show any funding allocated for trail improvements, highlighting a need for a long-term funding strategy.



Existing and Proposed Park, Trail and Open Space Plan, per 2040 Comprehensive Plan Draft. Source: City of Farmington



Existing and Proposed Park, Trail and Open Space Plan, per 2030 Comprehensive Plan. Source: City of Farmington

2030 Parks and Recreation Master Plan (2009)

A detailed Parks and Recreation Master Plan was developed in coordination with the 2030 Comprehensive Plan Update in 2009. This plan has served to guide the last 10 years of parks, open space, and trail development in Farmington.

- » An Existing and Proposed Park, Trail, and Open Space Plan served as primary guidance for park and trail development from 2009-2018.
- » This plan indicated strong community and City support for expansion of the trail and sidewalk system
- » A trail classification system was created, which includes park trails, connector trails, bikeways, alternative use trails and greenways. This classification system does not appear to have been consistently employed over the last 10 years.
- » Trail priorities that were identified in this plan include construction of ADA compliant trails, loop trails of varying levels of difficulty, adding trail amenities (restrooms, benches, bike racks, drinking fountains) throughout the system, connecting future neighborhood trails to commercial and industrial areas, and developing a long-term financial plan for the development of parks, open spaces and trails.

Safe Routes to School: Meadowview Elementary (2018)

A number of Safe Routes to School plans were completed in 2018 for Farmington Area Public Schools, including Meadowview Elementary School. The purpose of this plan is to provide recommendations and strategies to make walking and biking to and around Meadowview Elementary School a safe, comfortable, and fun activity for all students and families. The plan is structured on the 6 E's (Engineering, Evaluation, Encouragement, Education, Enforcement) and was created through the MnDOT SRTS Planning Assistance program.

- » Per district policy, students must live at least 1 mile from their school to qualify for district-provided (bus) transportation
- » A survey of Meadowview students in Spring 2018 showed that over 50% of students take the bus to and from school, 36% are dropped off by family vehicle, 2% carpool, 6% walk, 2% walk, and 4% use other means of transportation.
- » According to a parent survey, distance, weather, speed of traffic and safety of intersections were the top reasons for not allowing their kids to walk or bike to school.
- » Infrastructure recommendations include a focus on safety improvements along 195th Street (CSAH 64) and creating another



(Above) Cover of Safe Routes to School Plan for Meadowview Elementary School. Source: Farmington Area Public Schools

trail connection to the Charleswood neighborhood to the east of the school.

Dakota County Pedestrian and Bike Study (2018)

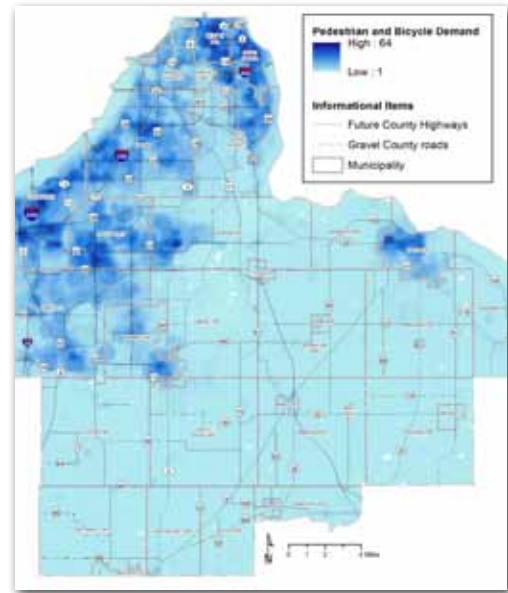
Dakota County completed a Pedestrian and Bicycle Study in 2018 as part of the Dakota County 2040 Transportation Plan Update (to be completed in 2019). The purpose of the Pedestrian and Bicycle Study is to create a unified vision for county-wide walking and bicycling networks and to identify policies, strategies and tools to encourage active living and improve community health.

- » The study shows that within Farmington, there is moderate demand for biking and walking in the downtown area, as well as residential areas north of Highway 64 (195th Street) near Pilot Knob Road and surrounding Farmington High School.
- » A Level of Traffic Stress Analysis was performed, identifying comfort levels for existing county trails.
- » The Planned County Bicycle Network shows Pilot Knob Road and Highway 64 included as planned and existing shared use (county) trails through Farmington

City of Farmington Development Code

Development standards per City of Farmington Development Code were reviewed for specific items pertaining to bicycle and pedestrian facilities. The following are key findings from this review:

- » Sidewalks shall be no less than 5' in width, and provided where City Council deems it appropriate.
- » Trails shown in the Comprehensive Plan shall be no less than 8' in width.
- » All trails shall have at least 20' wide access where the trail connects to a street or sidewalks.
- » Developers are responsible for construction of trails as shown in the Comprehensive Plan.
- » Trails shall connect with existing trails or sidewalks.
- » The Planning Division, Parks and Recreation Department, and Engineering Department shall determine feasibility for trail construction near wetland or ponds.
- » Specific design standards exist for the Spruce Street Commercial, Mixed Use and Business/Flex Zoning Districts. These standards include provisions for sidewalks, pedestrian walkways, and pedestrian amenities. Notably, bike parking shall be installed at 10% of the total number of automobile spaces within developments in these districts.



Pedestrian and Bicycle Demand Analysis, per Dakota County Pedestrian and Bicycle Study. Source: Dakota County



Example of community input comment gathered through a Social Pinpoint web survey for the Highway 3 Corridor Plan. Source: City of Farmington

Highway 3 Corridor Plan (2019)

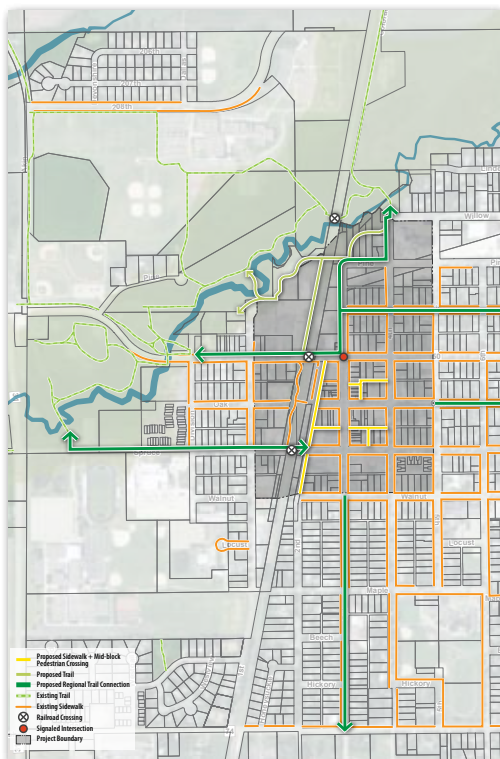
Concurrent with the development of the Bike + Ped Plan, the City of Farmington is developed a Highway 3 Corridor Plan, which was adopted by the City Council on June 3rd, 2019. Highway 3 (TH 3) is a state highway with existing land use incompatibilities including a mix of residential homes and businesses. Several smaller redevelopment efforts and projects involving new construction or redevelopment of existing buildings have occurred in recent years. The purpose of the plan is to identify unique re-development opportunities with the understanding that Highway 3 will likely expand into a divided 4-lane highway.

- » The project area consists of an approximately 2-mile stretch of TH 3 north of 225th Street and south of Vermillion River Trail (CR 66)
- » Community input gathered during this planning process includes a number of issues raised related to biking and walking in Farmington, including a concern for high vehicular speeds.
- » Today, frontage roads along the highway serve as informal ways for bicyclists and pedestrians to travel along the corridor, in addition to portions of paved wide shoulders along TH 3.
- » In general, there is a need for improved pedestrian crossings at major intersections, as well as dedicated pedestrian facilities along the corridor

Downtown Redevelopment Plan (2016)

A Downtown Redevelopment Plan was created and adopted in 2016. This plan serves as a guide for the City Council, Economic Development Authority, and other advisory commissions to identify opportunities in the downtown area for redevelopment. The study area encompasses 20 blocks between 1st Street, Walnut Street, 5th Street and the Vermillion River.

- » Within the study area, an inventory of existing sidewalks and trails show a lack of trails within the downtown area, although most streets are served by sidewalks on both sides of the street
- » Downtown Core Redevelopment Initiatives include improving the pedestrian environment, adding bike trail facilities to the river and regional trail connections, completing a downtown trail network, and improving Highway 50 crossings for pedestrians and bicyclists.
- » The Bike and Pedestrian Network Plan in this study shows a proposed trail connection along the railroad to Pine Street, connecting to Rambling River Park, as well as sidewalk connections along 2nd Street between Highway 50 and Walnut Street.



Bike and Pedestrian Network Plan, per the Downtown Redevelopment Plan. Source: City of Farmington

North Creek Greenway Master Plan

North Creek is a tributary of the Vermillion River that connects Eagan, Apple Valley, Lakeville, Farmington and Empire Township. The 14-mile North Creek Greenway will connect important regional destinations, such as Lebanon Hills Regional Park, the Minnesota Zoo, downtown Farmington, the Vermillion River and Whitetail Woods Regional Park. Today, portions of the regional trail are completed within Farmington:

- » Section through North Creek Park, Jim Bell Park and Preserve Park crossing 195th Street with a tunnel and traveling further south along North Creek.
- » Section along Rambling River Park from Schmitz-Maki Arena to where the railroad corridor crosses the Vermillion River, following the railroad north to 205th Street



Downtown Farmington and Rambling River Park Concept Plan, per North Creek Greenway Master Plan. Source: Dakota County



North Creek Greenway Segment Concept Plan, per North Creek Greenway Master Plan. Source: Dakota County

Existing Bicycle and Pedestrian Network

The city currently owns and maintains 47 miles of paved asphalt trails, one mile of natural surface trails and about a half mile of boardwalks and bridges. Consistently community surveys show trails are one of the most used and most popular park/recreational facilities in cities. Farmington residents overwhelmingly appreciate and use the existing trail network, according to information gathered through community engagement for this plan. There are 31 miles of concrete sidewalks in Farmington, most of which are located in the older neighborhoods of Farmington. All of these facilities are illustrated in Figure 2.6 and quantified in Table 2.6.

A majority of the paved trail system was constructed during the peak of development in the city, which that occurred from the 1980s through 2006. As a result, the City did not provide capital funding to build most of the current trail system. The city has made an effort to fund the construction of paved trails where gaps have occurred.

Since the city began constructing trails in the 1980s, it has placed a requirement that all trails be accessible according the requirements outlined in the Americans with Disabilities Act (ADA). The ADA requires trails to be relatively flat with a slope of 5% or less. In situations where ADA requirements could not be met, the city has provided a secondary or alternative trail route that accommodates people of all ages and abilities to use the trail system.

A number of segments of the North Creek Greenway, a regional trail, have been constructed throughout Farmington. A segment of the trail exists along the north side of Farmington, running through North Creek Park, Jim Bell Park and Preserve, crossing CSAH 64 via a tunnel underpass and continuing about a quarter mile south. Another segment exists through Rambling River Park, alongside the Vermillion River. Another segment has been constructed along the Vermillion River in Empire Township, east of Farmington city limits.

Table 2.6 Existing Facility Length

FACILITY TYPE	LENGTH (FT)	LENGTH (MI)
WALKING ONLY		
Sidewalk	163,502	31.0
Natural Surface	5,301	1.0
Boardwalk	1,489	0.3
MULTI-USE		
Bridge	1,258	0.2
Paved Trail	246,888	46.8
TOTAL MULTI-USE	248,146	47.0
TOTAL BIKE AND WALK FACILITIES	418,438	79.2

Source: HKGi, City of Farmington

* Only includes paved trail and bridge facility types

FARMINGTON BIKE AND PEDESTRIAN PLAN 



Level of Traffic Stress Analysis

Comfort Levels of Biking

Not all people have the same level of comfort when it comes to bicycling. Originally developed by Roger Geller at the City of Portland (OR) the “Four Types of Bicyclists” (see Figure 2.7) are meant to guide efforts in assessing what certain segments of a population require or want in a bikeway facility. Geller suggested that most people can be categorized into the following four groups:

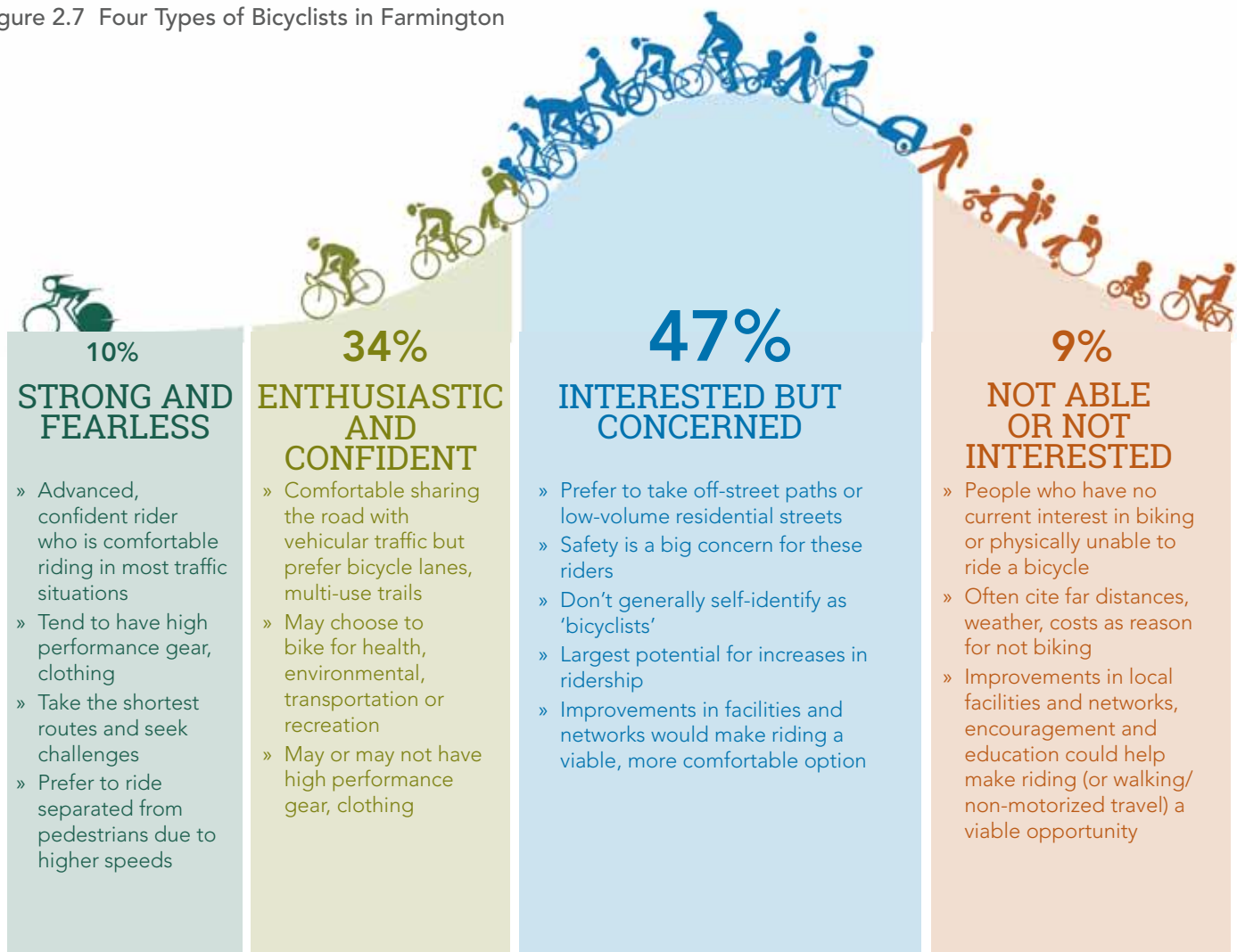
- 1. Strong and Fearless:** People willing to bicycle with limited or no bicycle-specific infrastructure
- 2. Enthusiastic and Confident:** People willing to bicycle if some bicycle-specific infrastructure is in place
- 3. Interested but Concerned:** People willing to bicycle if high-quality bicycle infrastructure is in place
- 4. Not able or Interested:** People unwilling to bicycle even if high-quality bicycle infrastructure is in place

These typologies help us identify which segments of the population need lower stress facilities to try bicycling or to bicycle more often. Most cities find that as they build safer and more comfortable bicycle facilities, the number of people bicycling increases. This is due to the fact that one of the largest groups of bicyclists identify as “Interested but Concerned” with biking. *When bicycle facilities are built to the needs of the “Interested but Concerned”, the results of investment yield the highest number of users.* Additionally, when more people start bicycling because of a more comfortable network, biking becomes safer due, to the fact that motorists are more aware of the bicyclists presence.

Level of Traffic Stress

Riding a bicycle should not require bravery, courage, or expensive specialized gear. Yet, this is often the perception among cyclists and non-cyclists alike. For a bicycling network to attract the widest

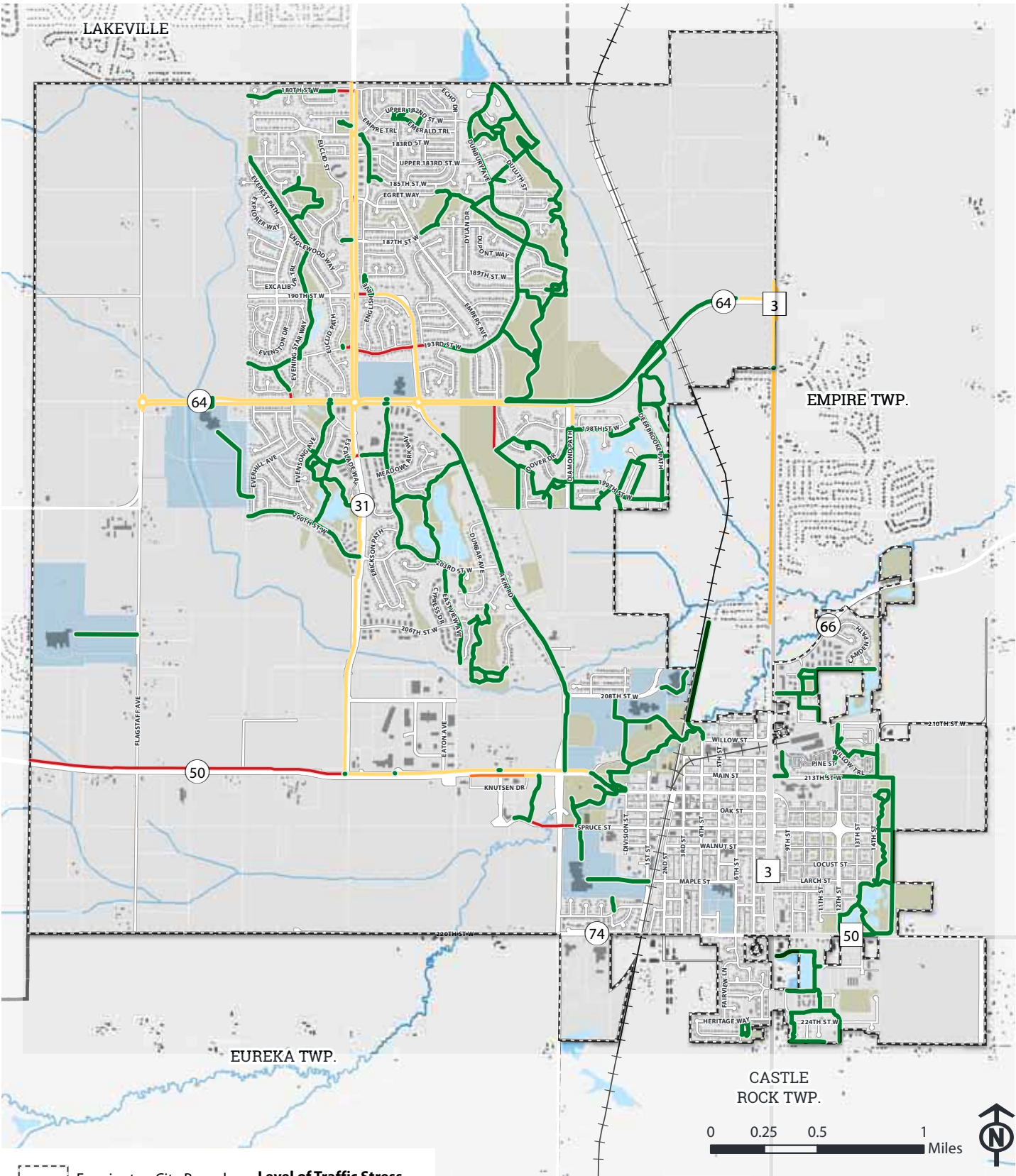
Figure 2.7 Four Types of Bicyclists in Farmington



FOUR TYPES OF CYCLISTS IN FARMINGTON:

Farmington residents were presented with the four types of bicyclists concept as a part of the community survey for the Farmington Bicycle and Pedestrian plan. Survey participants were then asked to categorize themselves based on what type of cyclist group they thought they belonged in. Those results are displayed as percentages in Figure 2.7. Those that classify themselves as "Interested but Concerned" make up the largest cohort. This trend is typical among most cities in the US and indicates that as more safe and comfortable bicycle and trail facilities are built Farmington, the more people will begin to try bicycling or bicycle more often.

Figure 2.8 Level of Traffic Stress Analysis (All Levels of Comfort)



possible segment of the population, there should be an excellent network of 'low stress' routes. These routes provide separation, through distance and/or physical barriers, between bicyclists and vehicles and directly connect destinations. Level of Traffic Stress (LTS) is an objective, data-driven approach to evaluating bikeways by matching up roadway design, traffic volumes, and motor vehicle speeds to individual perceptions of bicyclist comfort and a willingness to travel out of ones' way to maintain that level of comfort. Levels of traffic stress range from 1 to 4, and are defined as follows:

» LTS 1:

- *Strong separation (physical barrier such as curb and distance between bicyclist and vehicle) from all vehicles except low speed (<25 mph), low volume traffic (<2,000 vehicles/day), even at*

Figure 2.9 Criteria for Determining Level of Traffic Stress

	VOLUME	SPEED	SEPARATION	CROSSING
LTS 1				
LTS 2				
LTS 3				
LTS 4				

intersections

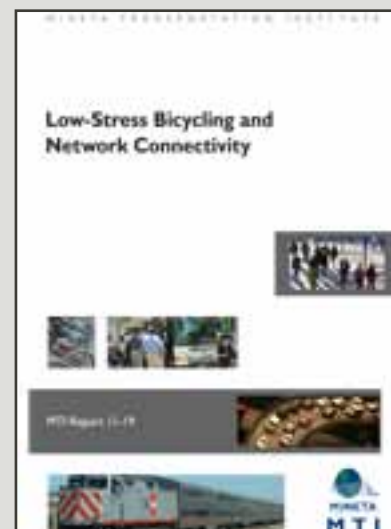
- *Simple crossings (low traffic volumes, short crossing distance, traffic control device present, low traffic speed)*
- *Demands little concentrated attention from cyclists and is attractive enough for a relaxing bike ride*
- *Suitable for children and those who are "Interested but Concerned"*

» LTS 2:

- *Except in low speed / low volume traffic situations, cyclists have their own place to ride that keeps them from having to interact with traffic except at formal crossings*



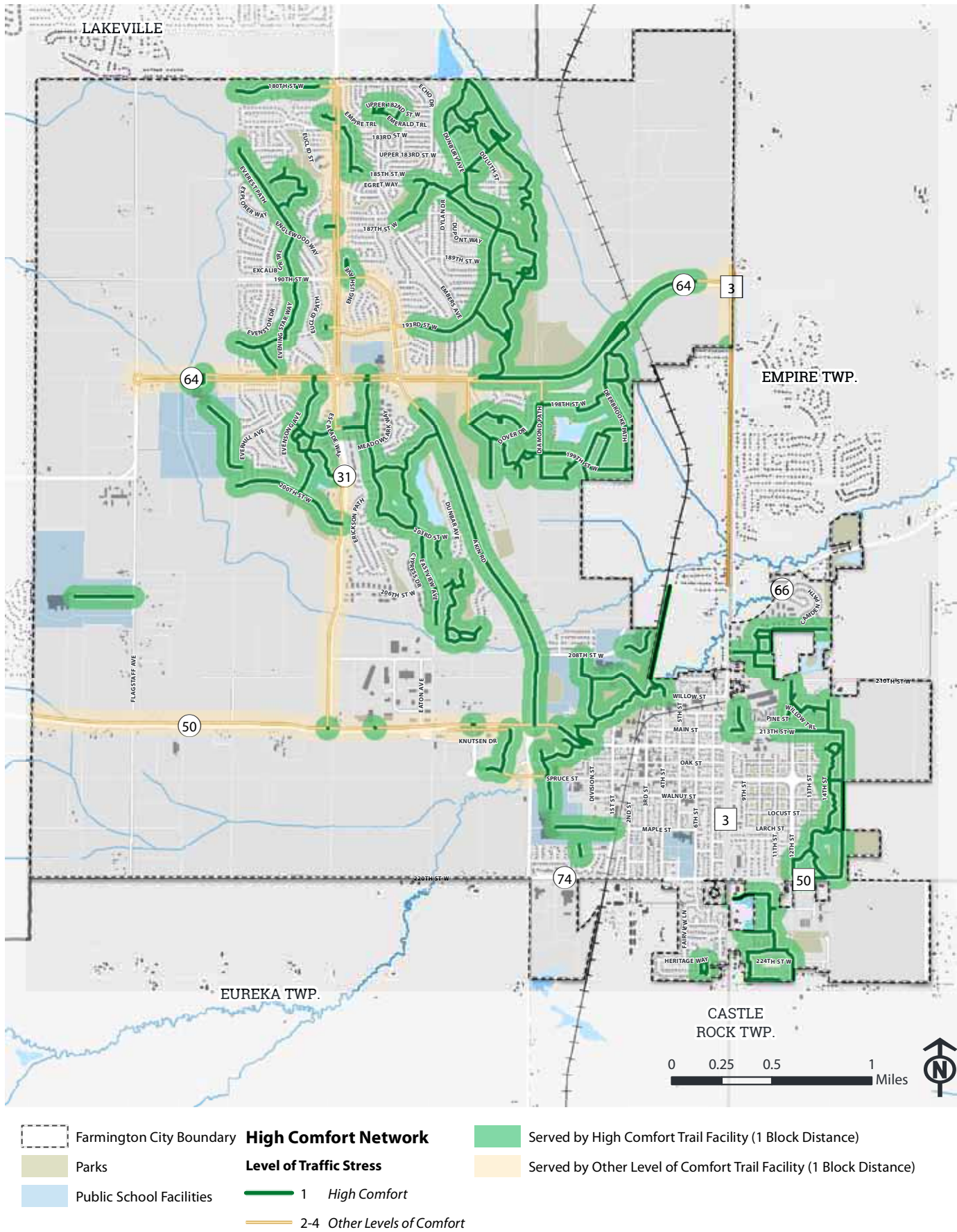
DETERMINING THE LOW-STRESS BICYCLE NETWORK:



Criteria adapted from "Low-Stress Bicycling and Network Connectivity" by Mekuria, Furth, and Nixon published by the Mineta Transportation Institute were used to perform the level of traffic stress analysis for the Farmington Bicycle and Pedestrian Plan. For a deeper dive into the criteria developed in this report go to the link below.

<http://transweb.sjsu.edu/research/low-stress-bicycling-and-network-connectivity>

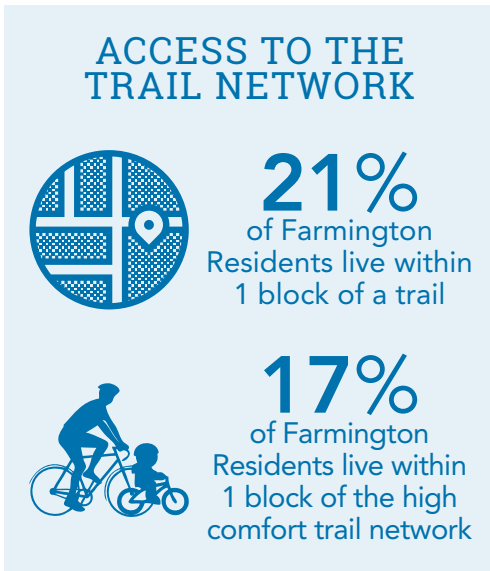
Figure 2.10 High Comfort Network Service Area



- *Physical separation from higher speed and multi-lane traffic*
 - *Crossings that are easy for an adult to negotiate, children with help*
 - *Demands more attention than might be expected from children*
 - *A level of traffic stress that most adults can tolerate, particularly those who are “Interested but Concerned”*
- » LTS 3:
- *Involves interaction with moderate speed or multi-lane traffic, or close proximity to higher speed traffic*
 - *A level of traffic stress acceptable to those classified as “Enthusiastic and Confident” but still prefer having their own dedicated space*
- » LTS 4:
- *Involves interaction with higher speed traffic or close proximity to high speed traffic.*
 - *A level of stress acceptable only to those who identify as “Strong and Fearless”*

Table 2.7 breaks down Farmington’s existing bicycle network into the four levels of traffic stress. Of the 49.5 miles of bicycle and pedestrian network in Farmington, 68% is classified as a high comfort facility, made up of trails that are separated from high volume roadways. Displayed in Figure 2.8, the high comfort bicycle network is spread throughout the city with the exception of the older areas of Farmington around downtown where bike facilities are absent. Overall, approximately 21% of Farmington residents live within one block (325 ft) of a trail. As observed in Figure 2.10, when only accounting for the high comfort trail network, 17% of Farmington residents are within one block (325 ft) of a facility.

A bicycle trip is only as comfortable as the most difficult intersection crossing. Because of this, many of the trail segments in Farmington that would have been classified as high comfort (LTS 1) have been downgraded to LTS 2, LTS 3 or LTS 4, primarily because they cross high volume and high speed roadways where there is little or no protection from automobile traffic. Crossing arterial roadways such as Highway 3, Pilot Knob Road (County Highway 31), 195th Street (County Highway 64), and 212th Street (County Highway 50) is particularly dangerous and stressful for bicyclists and pedestrians; trails that cross these roadways and run along side of them are stressful as well.



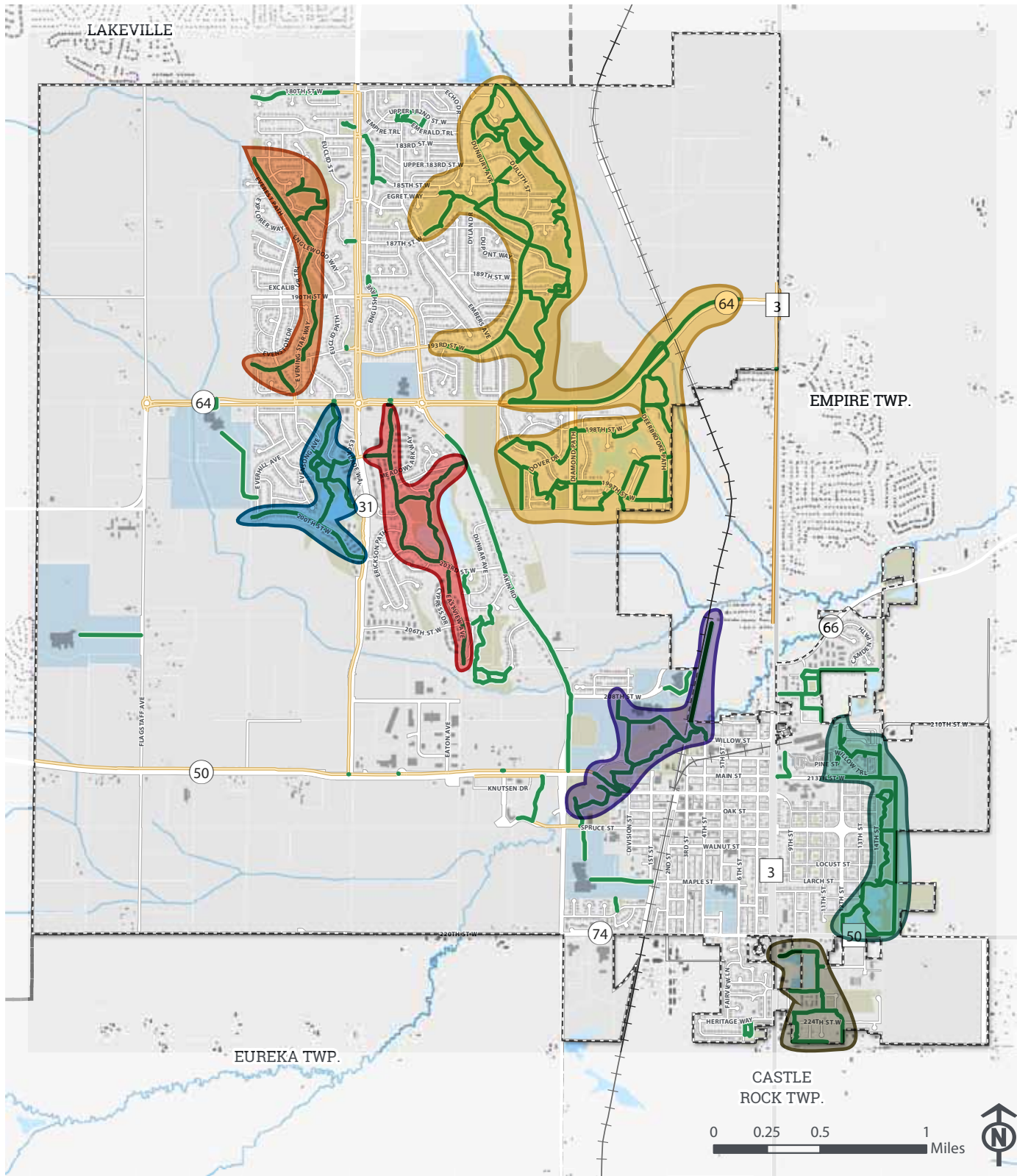
Source: HKGi, US Census Block Group Data, Met Council Generalized Land Use Data

Table 2.7 Level of Traffic Stress Analysis

LTS SCORE	LENGTH (MI)	%
1 - High Comfort	33.7	68%
2	12.6	25%
3	0.3	1%
4 - Low Comfort	2.9	6%
TOTAL	49.5	100%

Source: HKGi

Figure 2.11 High Comfort Network Service Area Islands



- Farmington City Boundary
 - Parks
 - Public School Facilities
- High Comfort Network**
- Level of Traffic Stress**
- 1 High Comfort
 - 2-4 Other Levels of Comfort

High Comfort Islands* (Bicycle)
 *For illustrative purposes only and do not represent actual bicycle travelsheds.

While the LTS analysis doesn't directly measure level of comfort for pedestrians, bicyclists have more aspects in common with pedestrians than they do motor vehicles and there pedestrians and bicycle share many of the same planning needs. Also, pedestrians may benefit from the level of stress analysis because most bike facilities in Farmington are multi-use facilities.

High Comfort Islands

Taking into account high stress crossings, Farmington's high comfort bicycle network becomes less of a network and more of a series of islands, isolated from other trail connections. Figure 2.11 shows seven distinct high comfort islands that exist within Farmington. Many high quality loop trails exist for recreational bicycle riding within these islands, but moving throughout the city by bicycle becomes much more difficult and dangerous. A person living within the blue high comfort island will feel comfortable biking anywhere within the blue area, but will feel separated from the rest of the bicycling network even though some stressful crossing exist. The same is true for each of the other six islands.

Some high comfort islands are larger than others, signifying a more connected high comfort network. For example, the yellow high comfort island is the largest of all the islands. There is a high comfort crossing that exists underneath the 195th St. bridge at North Creek. Because of flooding and snow cover, this area may be difficult to cross during spring and winter, separating the high comfort island into multiple pieces. Grade separated crossings increase safety in areas like these, however, cost and site constraints limit viability in all cases.

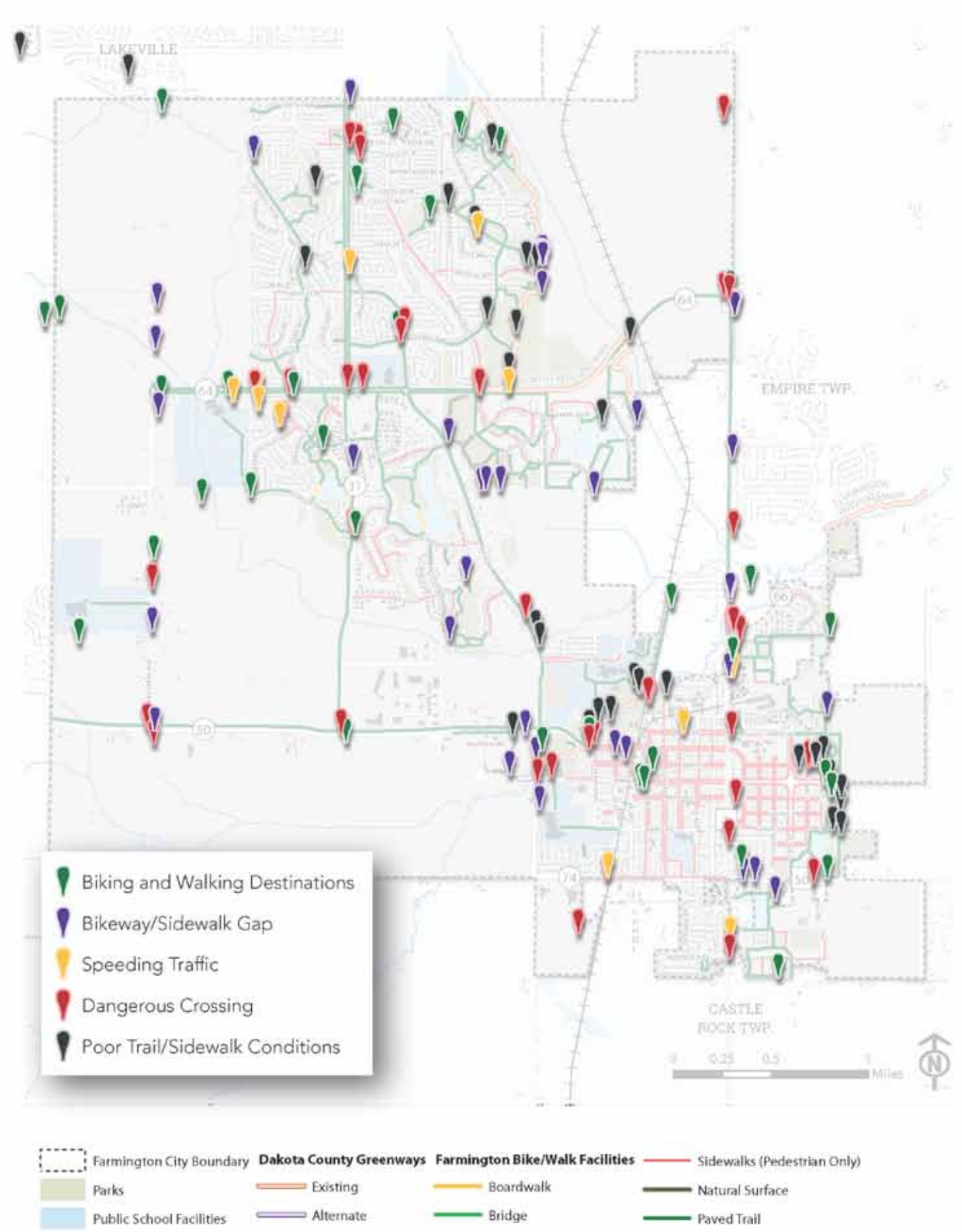
Figure 2.11 shows that most parks in Farmington are served by the trail network. However, there are some parks that aren't connected to the full high comfort network. Schools are generally connected to a trail network, with the exception of Farmington High School. However, only one school is connected to a high comfort network (Levi P Dodge Middle School in the purple island). Schools, in particular, should be targeted for connection to high comfort trail networks, in order to best allow children to walk or ride to school.

Some of the high comfort islands in Farmington exist adjacent to each others. For example, the blue and red islands exist on opposite sides of Pilot Knob Road and the orange island is adjacent to the blue island on the other side of 195th St. Future improved intersection or mid-block crossings could significantly combine these areas to create one large high comfort island. Larger high comfort islands mean that people can safely and comfortably travel to more destinations in Farmington by bike. When executed correctly, safety improvements to bicycling infrastructure improves safety for walking as well, especially at intersections.



While many of the trails in Farmington are classified as high comfort facilities, the roads they have to cross make them feel more stressful.

Figure 2.12 Social Pinpoint Community Feedback



Community Engagement Phase 1

Community engagement uses community voices to influence and shape the planning process. A robust community engagement process paves the way for community support for the final plan and makes implementation of plan elements easier. This section highlights the comments of community members as they participated in the variety of community engagement opportunities throughout the planning process.

Social Pinpoint

Social Pinpoint is a map-based online engagement tool that allows community members to leave comments on specific areas of the city via a map. Participants are then able to interact with each other, by 'liking' or 'disliking' other comments, or replying directly into a comment thread.

Social Pinpoint was used during the first phase of community engagement to identify areas in the city where:

- » people currently or would like to bike and walk to,
- » gaps in the bikeway and/or sidewalk network exist,
- » speeding is a common issue,
- » people feel unsafe while trying to cross the road as a bicyclist or pedestrian, and
- » segments of existing trails or sidewalks that need to be replaced

In total, Social Pinpoint was open for comment for two months from December 2018 to February 2019. Over this period of time, 389 unique users visited the website, 174 comments were left by 50 people, and an average time of 14.5 minutes spent on the site by visitors.

Locations of comments gathered from Social Pinpoint are shown in Figure 2.12. The largest number of comments provided identified dangerous crossings. The majority of these comments were placed along the arterial roadways that run through Farmington, mainly Highway 3, Pilot Knob Road (County Highway 31), 195th Street (County Highway 64), and 212th Street (County Highway 50).

Participants indicated that Farmington schools and downtown Farmington were two of the most desired destinations to walk and bike to. Currently, there is a large bike network gap in and around downtown and many schools lack high comfort biking and walking facilities.

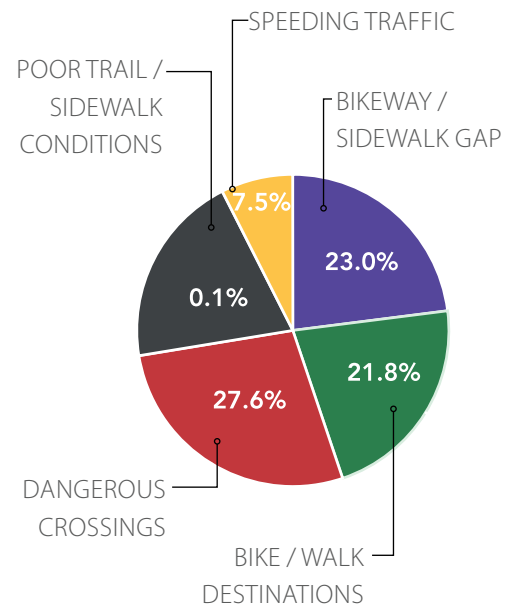


Figure 2.13 Social Pinpoint Comments Gathered by Category

TRANSPORTATION TRIPS:



Transportation trips can be classified as all trips whose primary purpose isn't for exercise and recreation and are destination focused. Examples of transportation trips include trips to:

- » visit friends/family
- » shopping/run errands
- » restaurants, bars, and other entertainment
- » cultural, religious, or community events
- » work
- » school
- » make connections with transit

Online Survey

Another way the community was engaged was through an online survey on Survey Monkey. The survey consisted of 11 questions and focused on individual preferences regarding biking and walking as well as what respondents thought of Farmington's current and future bike/walk network. In total, the survey was open for collection for 2 months from December 2018 to February 2019 and there were 650 responses recorded. A summary of the survey is highlighted below.

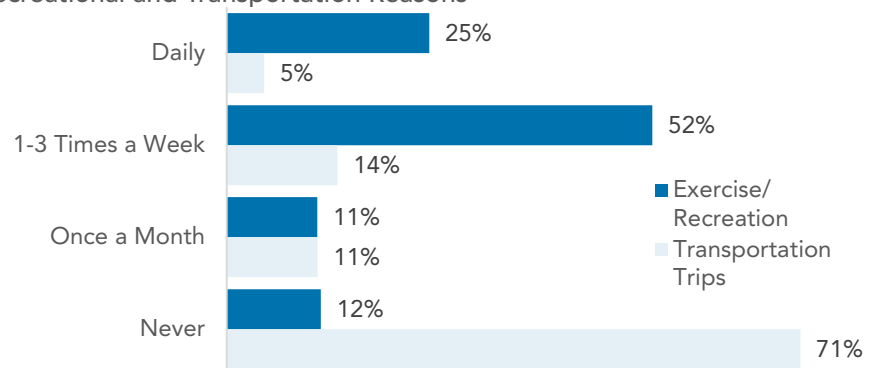
When survey respondents were asked how often they bike or walk for exercise/recreational purposes vs. transportation purposes (Figure 2.14) respondents indicated that they walk and bike for recreational and exercise purposes far more often than they do for transportation purposes. This may be, in part, due to the fact that the current sidewalk and trail system in Farmington lends itself to being more of a recreational based network due to the limited connectivity as discussed earlier in the Level of Traffic Stress Analysis.

Similar to the results received via the online mapping tool, survey respondents feel that the most important destinations that they would like to bike and walk to are parks, schools, and other residential areas.

In the survey Farmington residents were presented with the four types of bicyclists concept, survey participants were then asked to categorize themselves based on what type of cyclist group they thought they belonged in. Those results are presented earlier in the chapter in Figure 2.7 on page 2-17.

Survey participants were asked "What keeps you from walking or

Figure 2.14 How Often do Survey Respondents Bike and/or Walk for Recreational and Transportation Reasons



biking more in Farmington?” The top responses include:

- » My destinations are too far apart
- » There are no trails or sidewalks where I want to go
- » I don't feel safe walking or biking near motorized traffic
- » I don't feel safe crossing busy intersections
- » Trails and sidewalks are too icy or snowy in the winter months
- » Trails and sidewalks are lacking lighting

With the exception of 'my destinations are too far apart' all of these identified barriers to walking and biking in Farmington can be addressed through improved network connections, intersection improvements, trail amenities and year-round maintenance.

When asked how willing residents are to supporting a tax increase or referendum to fund future bicycle and pedestrian facilities in Farmington, the responses were varied. A weighted average showed that fewer than half of residents would support these measures.

An open-ended question solicited general ideas from survey participants to improve conditions for biking and walking in Farmington. Over two hundred ideas were shared, which shows the support and dedication of Farmington residents to improving the existing network and conditions for biking and walking.

Bike + Ped Plan (BPP) Committee

A Bike + Ped Plan Committee was formed to serve an advisory role during the planning process. This group was formed by the Parks and Recreation Department, and a robust effort was made to include representatives from a variety of interest groups and perspectives on the Committee.

Over the course of the plan process, the Bike + Ped Plan Committee met three times. Committee members were tasked with providing input and ideas during key points during the plan process, as well as assisting with outreach and community engagement efforts.

Open House at the Community Expo

A community open house was hosted in conjunction with the Farmington Community Expo in January of 2019. This was an opportunity for people to interact one-on-one with the plan consultant and Parks and Recreation Director, to share ideas, concerns and ask questions about the Bike + Ped Plan. Hundreds of people attended the Community Expo, and approximately 55 people stopped by the Bike + Ped Plan booth to share their ideas.

TOP 5 BARRIERS TO BIKING AND WALKING IN FARMINGTON

- 1 Icy/Snowy Trails and Sidewalks
- 2 Destinations are too Far Apart
- 3 Feel Unsafe at Road Crossings
- 4 Feel Unsafe Near Traffic
- 5 Trails and Sidewalks are Incomplete

Source: Farmington Bicycle and Pedestrian Plan Survey, February 2019



Farmington Parks and Recreation Staff gather ideas from residents at the Farmington Community Expo, January 2019. Source: HKGi

Community Engagement Phase 2

Community Engagement Phase 1 centered around gathering information from the community about their ideas, thoughts, and concerns on the future of walking and biking in Farmington. From this information, the draft Network Plan and System Recommendations were created, with guidance from City staff and the BPP Committee, as well as through collaboration with Dakota County and MnDOT.

In April of 2019, Community Engagement Phase 2 was launched. This effort focused on sharing the draft plan with the community and interested stakeholders and gathering feedback on the draft Network Plan and System Recommendations. With this feedback, this draft document was revised and the Implementation Plan was created.

Community Engagement Phase 2 consisted of a public open house, an online survey, and a joint Council Work Session.

Public Open House

To officially launch the Draft Plan, an public open house was held at Farmington City Hall on Thursday, April 25th. This open house was advertised through social media, word-of-mouth through the BPP Committee, and through City electronic communications.

The open house featured presentation boards that outlined the plan process, results from the previous phase of community engagement, existing conditions, the draft Network Plan and System Recommendations. Participants were asked to provide specific feedback on the boards or through comment cards.

Because attendance at the open house was low, the presentation boards were displayed in the lobby of City Hall for two weeks to allow more people the ability to view and comment.

Online Survey

An online survey was conducted in coordination with the Open House and launch of the Draft Plan. The survey was advertised alongside the public open house.

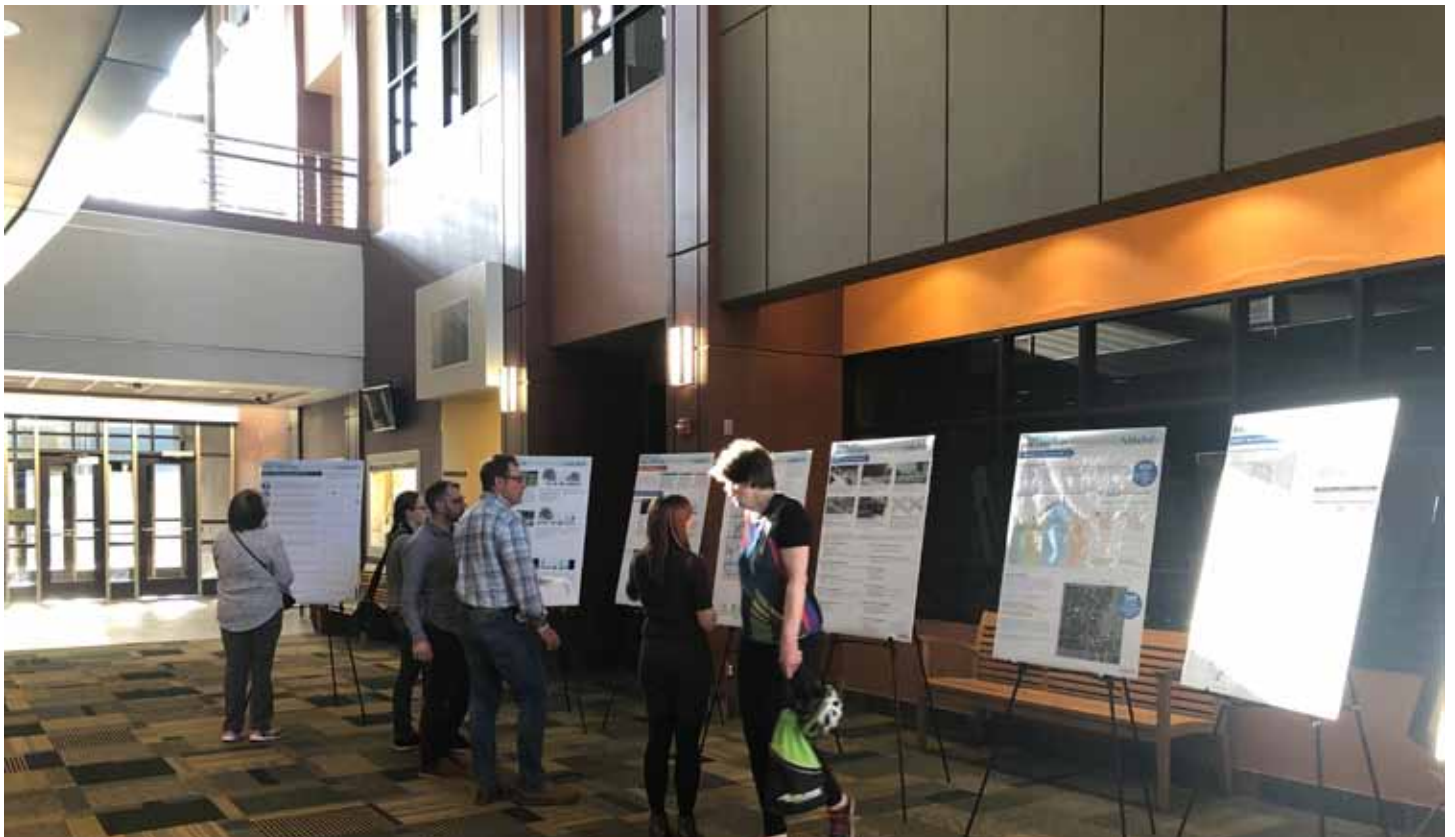
Community members were encouraged to visit a web link to view the Draft Plan and System Recommendations and weigh in on how much they support the goals and system recommendations. Participants were also asked to provide general comments and feedback about the plan.

148 people participated in the online survey, which was open for two weeks. In general, people expressed support for the ideas presented, and gave specific suggestions to improve wording and legibility of the plan.

Joint Council Work Session

A joint Council Work Session was hosted at City Hall to present the Draft Plan, System Recommendations, and In-progress Implementation Plan to the City Council, Planning Commission, and Parks and Recreation Advisory Committee. Members of the BPP Committee were invited, as well as the general public.

Participants were invited to engage in discussion and provide written feedback to the project team, which helped to inform final revisions of the Draft Plan.



Public Open House at City Hall as part of Community Engagement Phase 2



CHAPTER 3

Network Plan

- 3-2** System Goals
- 3-2** Draft Network Plan
- 3-4** Network Plan Elements
- 3-9** Intersection Treatments
- 3-11** System Recommendations

System Goals

The following goals provide direction for the overall bicycle and pedestrian network in Farmington. The goals are broad statements that are meant to be a guide for decision makers when vetting future city projects, policies, and programs.

Goal 1

Design, construct and maintain a comfortable, safe, and connected bicycle and pedestrian network suitable for those who are 'interested but concerned' and considerate of people of all ages and ability levels in Farmington.

Goal 2

Building off of the existing system, improve conditions for pedestrians and bicyclists to connect to key community destinations such as parks, trails, schools, civic and commercial areas.

Goal 3

Make biking and walking a viable choice for transportation within Farmington, as well as for recreational purposes to encourage an active and healthy lifestyle.

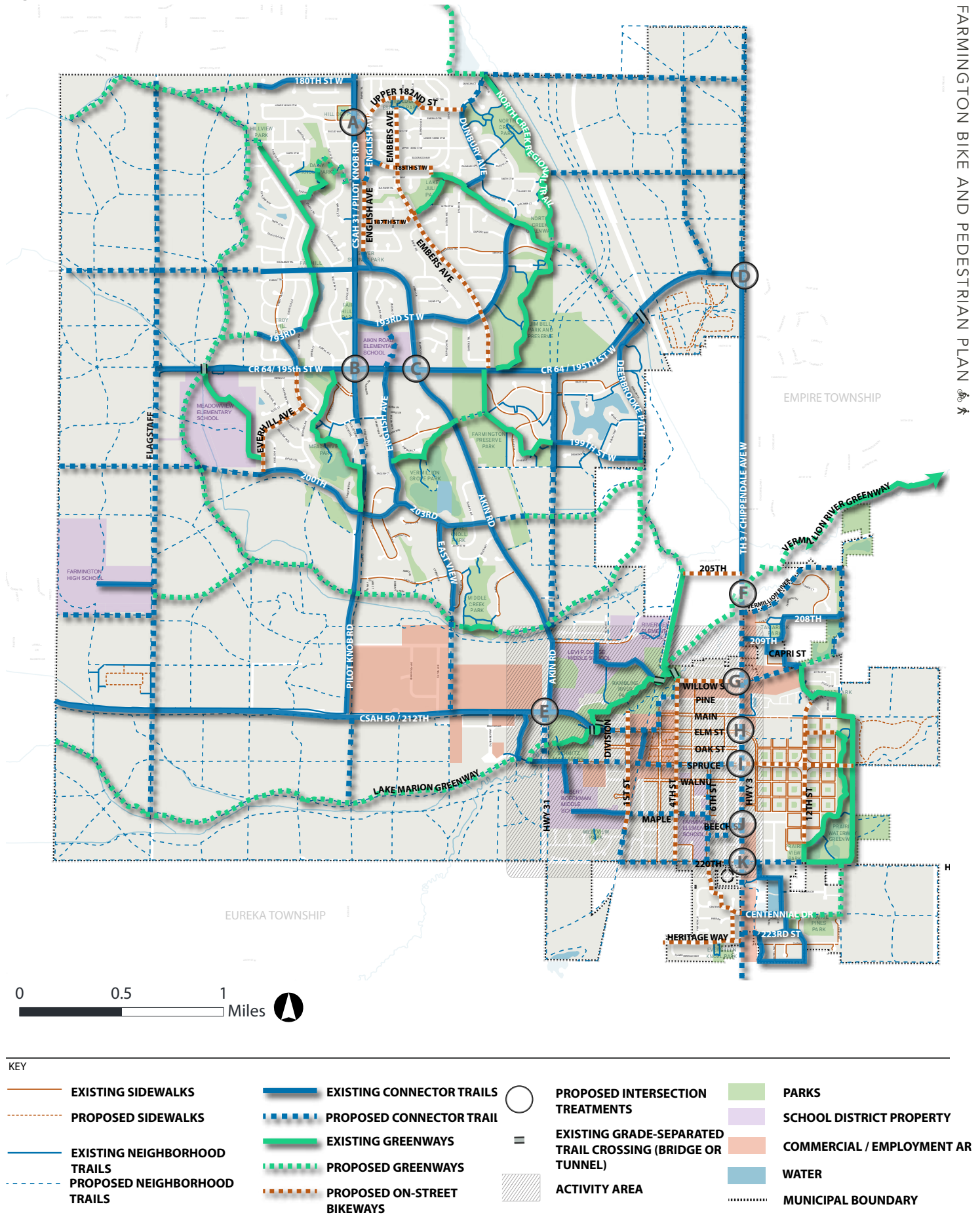
Draft Network Plan

The Draft Network Plan builds off of the existing trail and sidewalk network, and identifies priority segments that will improve connections throughout Farmington. The Plan shows:

- » Connector Trails
- » Neighborhood Trails
- » Sidewalks
- » Greenways
- » On-Street Bikeways
- » Intersection Treatments

The following pages provide detailed descriptions and recommendations for the network plan elements and intersection treatments as shown on the Draft Network Plan.

Figure 3.1 Draft Network Plan



Network Plan Elements

The following Network Plan Elements are shown in the Draft Network Plan.

Neighborhood Trails

Neighborhood Trails are multi-use paved trails that connect residential areas to local parks and to the connector trail network. These trails exist today within established Farmington neighborhoods and are generally aligned with low-volume roadways. These trails are intended for use by pedestrians and bicyclists. Future neighborhood trails are indicated in alignment with the 2040 Comprehensive Plan, and future developments are required to build trail connections in new neighborhoods according to these general alignments.

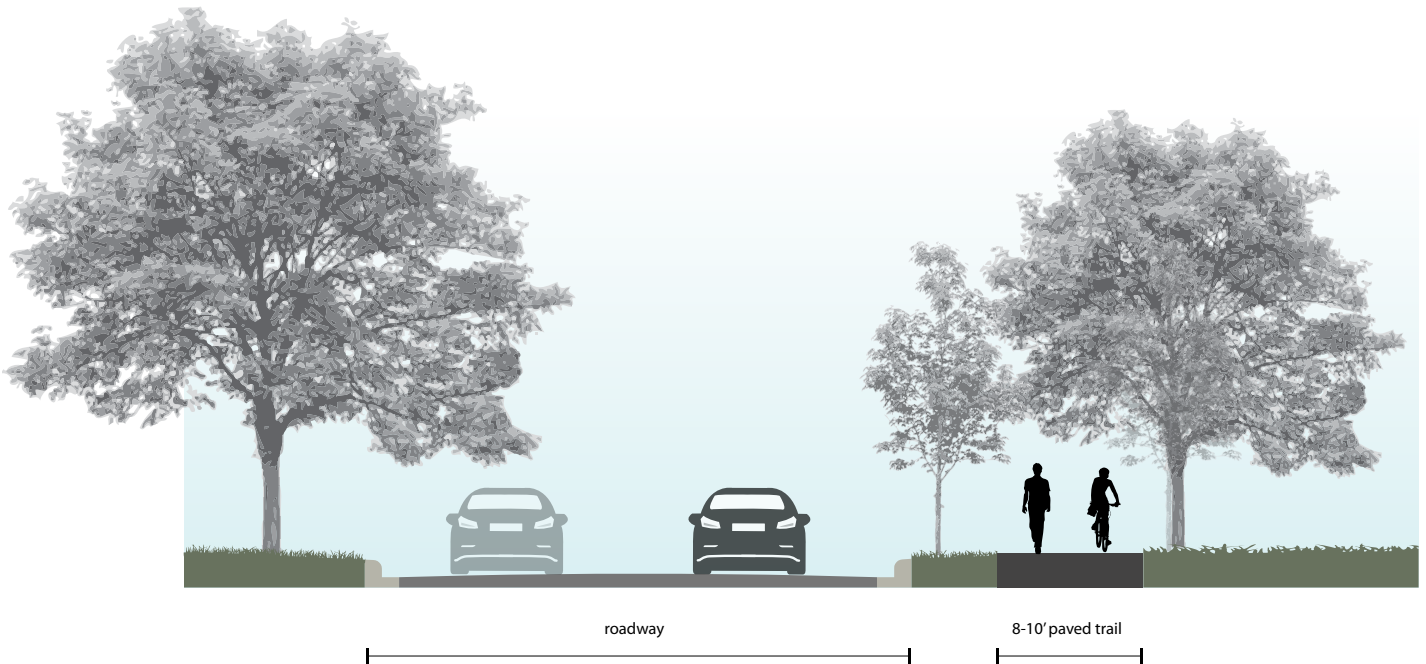


Figure 3.2 Typical Neighborhood Trail Section

Neighborhood Trail Recommendations

- » 8-10' wide asphalt-paved trails, to meet neighborhood development standards set by the City of Farmington
- » Curb ramps at all intersection crossings
- » Trail amenities such as lighting, wayfinding, and benches to be determined as needed by neighborhood association or per City of Farmington recommendation
- » Future funding/implementation: Owner/Developer

Connector Trails

Connector Trails are multi-use paved trails that connect longer distances across the city. Connector Trails are generally in alignment with higher volume roadways, such as Pilot Knob Road, Aikin Road, and Highway 50. These trails are intended to serve as major connections to schools, parks, commercial, employment and civic areas, as well as provide connections to neighboring communities. Connector Trails, in combination with Farmington Greenways, create a legible, continuous system that provides high-quality trail experience with a rough grid network connection at half mile intervals throughout the entire city.

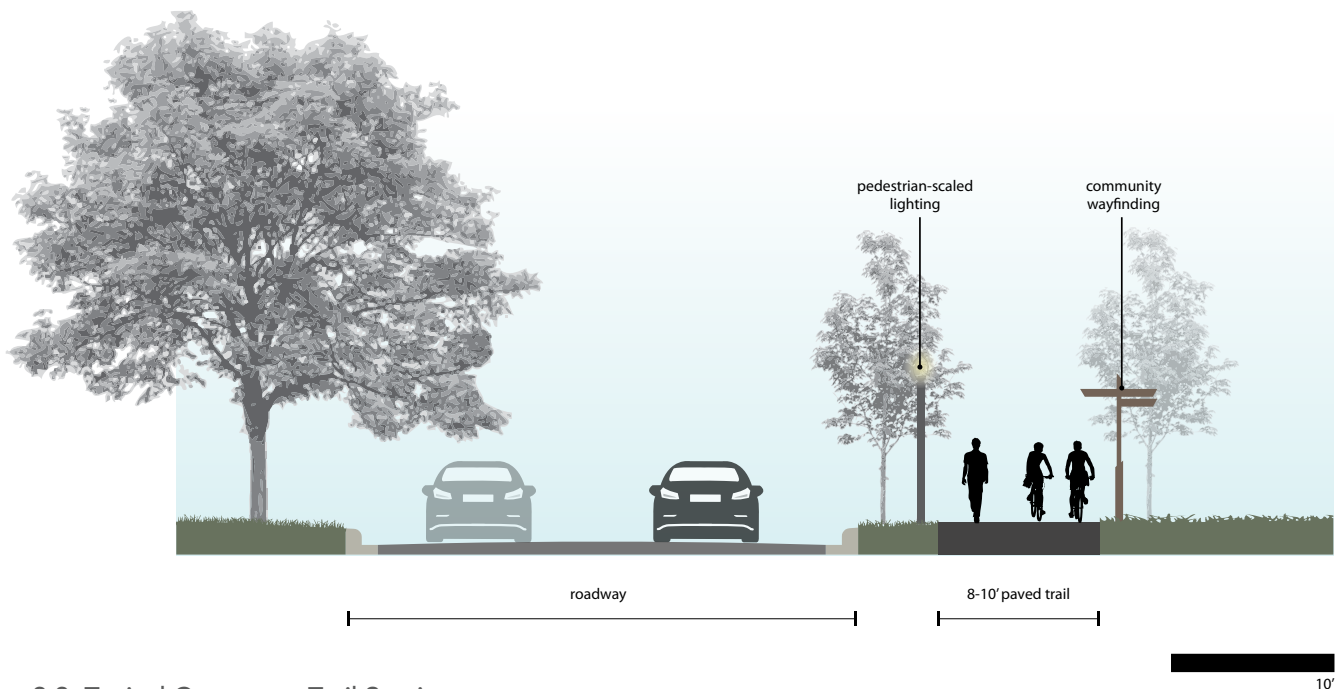


Figure 3.3 Typical Connector Trail Section

Connector Trail Recommendations

- » Trail lighting (lower, pedestrian-scaled lighting or bollard-style lighting)
- » Community wayfinding at key intersections, directional signage to key community destinations
- » High visibility crosswalk markings and curb ramps at roadway crossings
- » Benches/seating as needed
- » Maximum separation between the roadway and trail for added comfort/safety for trail users
- » Year-round availability (snow clearing) performed or enforced by the City (phased approach)
- » Minimum 8' (preferable 10'+) width should be maintained, with potential lane markings
- » Future developments that are adjacent to or contain plans for future Connector Trail network segments should align future trails as closely as possible as the plan shows, with the understanding that these trail segments are part of a larger city-wide trail network.
- » Where feasible, consideration of grade-separated crossings at intersecting high-volume roadways
- » **Future funding/implementation:** Developers, City of Farmington, regional and local trail/SRTS grant funding, Dakota County, MnDOT

Greenways



Greenways are multi-use paved trails that are located in scenic, natural, parkland, open space, or undeveloped areas. Greenways are primarily located independent of an existing roadway. These trails are intended to provide recreational opportunities for bicyclists and pedestrians, with opportunities to connect to the rural or natural landscape. Regional trails, such as the Vermillion River Greenway and the North Creek Greenway exist today in Farmington. This plan proposes and supports the continued completion of these trail networks, as well as introduces a few key greenway segments that could provide direct connections to local schools. Farmington's Greenways, in combination with Connector Trails, create a legible, continuous system that provides high-quality trail experience with a rough grid network connection at half mile intervals throughout the entire city.



Figure 3.4 Typical Greenway Section

10'

Greenway Recommendations

- » Trailhead locations with on-street or dedicated parking
- » Trail identification (name) and signage at trail access points and at key intersections
- » Minimum 8' (preferable 10'+) width should be maintained with a 2' buffer (mowed/cleared area) on either side of the trail
- » Interpretive or educational signage at key locations to inform trail users about local attractions, native plants and wildlife habitat, or cultural/historical markers
- » Benches and seating at key vistas or viewpoints. Preferably located every half-mile along the trail
- » Where feasible, consideration of grade-separated crossings at intersecting high-volume roadways
- » Emergency call boxes in remote locations
- » Year-round availability (snow clearing) performed or enforced by the City (phased approach)
- » Future funding/implementation: City of Farmington, state/regional/local trail grant funding, outdoor/recreational trail grant funding, Dakota County

On-Street Bikeways

On-Street Bikeways are signed bike routes that provide key connections and fill network gaps in the connector trail network. On-Street Bikeways are located along existing roadways with low volume traffic, wide right-of-way widths, and low instances of on-street parking. Today, it is understood that bicyclists are able to use any roadway in Farmington, provided that the bicyclists follow the rules of the road. For the purposes of this plan, On-Street bikeways are not intended to be striped with dedicated bike lanes. However, with future increased use, the City of Farmington may consider upgrading these roadways with dedicated bike lanes upon future evaluation.

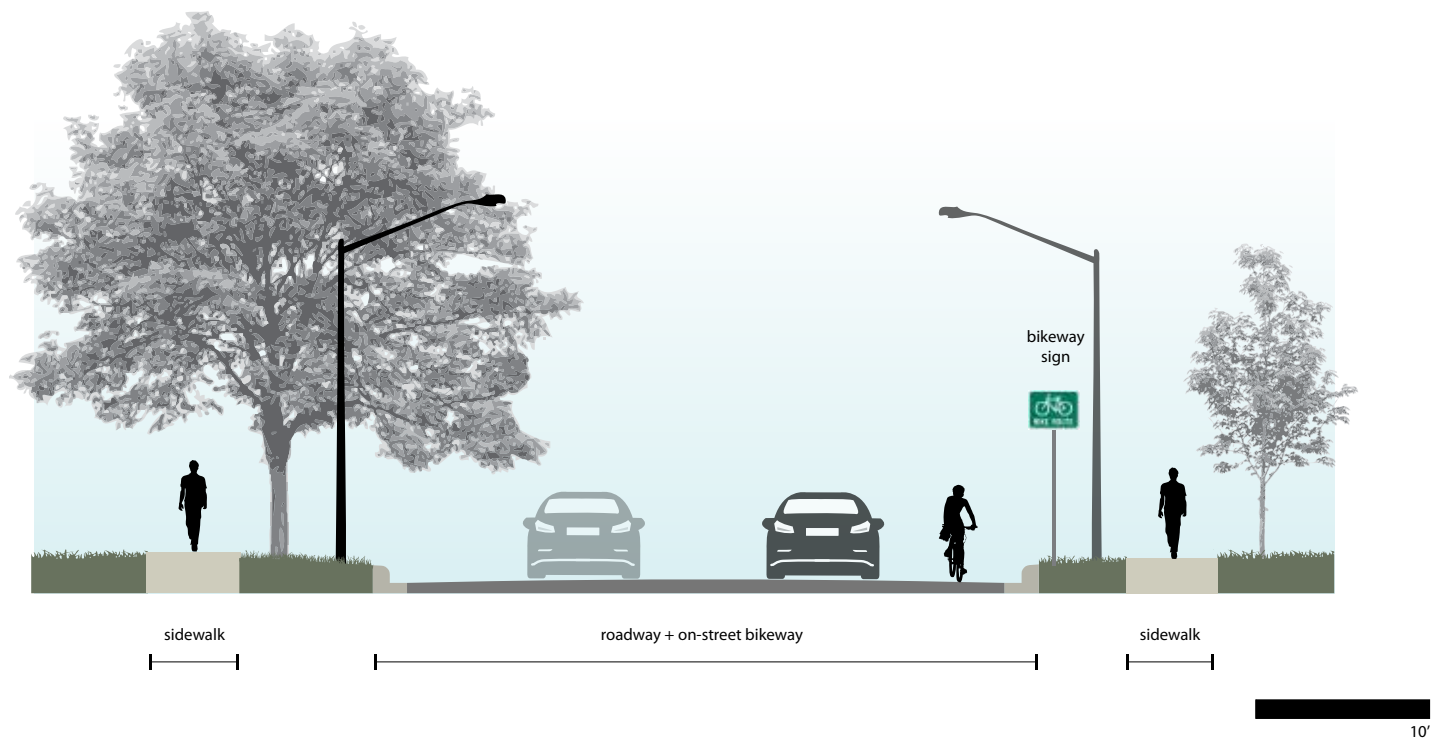


Figure 3.5 Typical On-Street Bikeway Section

On-Street Bikeway Recommendations

- » Bikeway signage, to be visible to drivers and bicyclists, located at key intersections and along roadways
- » Roadway markings, where necessary
- » Consistent street lighting throughout bikeway
- » Future funding/implementation: City of Farmington

Sidewalks + Activity Areas

Sidewalks are concrete paved walkways, intended for use by pedestrians to connect within residential areas and commercial areas. Sidewalks are essential in urbanized areas to allow for people of all abilities to gain access to businesses, schools, and community destinations. In Farmington, sidewalks are required in new developments along one side of the street. Sidewalk connections exist in some parts of the existing neighborhoods north of downtown, and a nearly complete network of sidewalks exist (on both sides of the street) in downtown and in the neighborhoods east of TH3. A number of Activity Areas have been identified in Farmington; these are areas where there is a high demand for increased pedestrian safety and comfort.

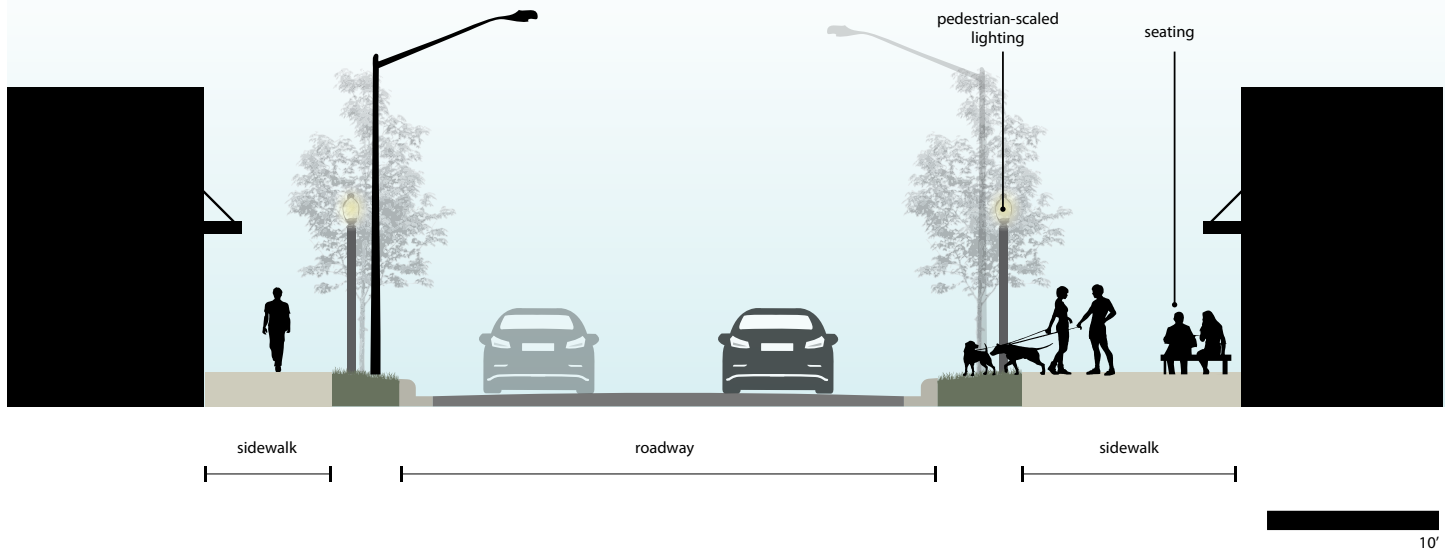


Figure 3.6 Typical Activity Area Section

Sidewalk + Activity Area Recommendations

- » On-going effort to complete sidewalk network gaps
- » Enforcement by the City of Farmington for businesses and residents to keep sidewalks clear in the winter
- » Pedestrian-scaled lighting
- » Curb ramps at all intersections
- » High visibility crosswalk markings + forward stop bars at major intersections in the downtown commercial area
- » Wayfinding and distance markers to community destinations
- » Seating, planters, and placemaking elements located within commercial areas
- » Sidewalk replacement/repair schedule as needed
- » Future funding/implementation: Business owners, property owners, City of Farmington, streetscape/pedestrian/urban design grant opportunities

Intersection Treatments

A number of intersections have been identified for future treatments to improve crossing and visibility for pedestrians and bicyclists. Below are recommended treatments at each intersection (keyed on the Draft Network Plan). To the left are examples of some of the treatments recommended below.

A Pilot Knob Rd and Upper 182nd St

- » High visibility crosswalk markings
- » Forward stop bars
- » Potential for decreased curb radii
- » Leading Pedestrian Interval for ped walk signal
- » Intersection was identified in the Dakota County Bike Ped Plan for potential grade separated crossing
- » Requires coordination with Dakota County



Reduced curb radii: slows traffic at turns and decreases the distance required of pedestrians to cross intersections.

B CR 64/195th Street and Pilot Knob Rd

- » 'Pedestrian Crossing' signs to be installed on the right side of approach to intersection at pedestrian crosswalk
- » Requires coordination with Dakota County



User-activated signal: pedestrians use a button to activate a lights, signalling to vehicles to stop and yield.

C CR 64/195th Street and Akin Rd

- » 'Pedestrian Crossing' signs to be installed on the right side of approach to intersection at pedestrian crosswalk
- » Requires coordination with Dakota County



Pedestrian crossing signs: to be placed at the approach of roundabouts, alerting drivers of pedestrian crossings

D CR 64/195th Street and Highway 3

- » 'Pedestrian Crossing' signs to be installed on the right side of approach to intersection at pedestrian crosswalk
- » Requires coordination with Dakota County + MnDOT



High visibility crosswalks: make pedestrians more visible within crosswalks.

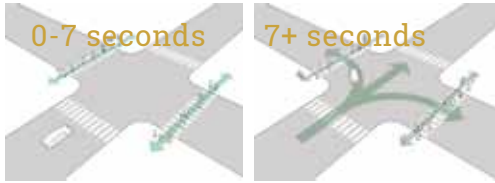
Forward stop bars: increase buffer between stopped vehicles and crosswalks at intersections

E CSAH 50 and Akin Rd/Denmark Ave

- » High visibility crosswalk markings
- » Forward stop bars
- » Requires coordination with Dakota County

F (Future) Vermillion Greenway and Highway 3

- » High visibility crosswalk markings
- » Forward stop bars
- » Requires coordination with Dakota County



Leading pedestrian intervals: updated signal timing allows for pedestrians to cross a roadway before vehicles. This allows pedestrians the ability to get a head start on crossing the intersection while all traffic is stopped.



Grade-separated crossings: trail overpasses or tunnels that allow trail users to avoid crossing intersections with vehicular or rail traffic.



Pedestrian Islands: concrete barriers or raised curbs that provide protection for pedestrians at crosswalks. Pedestrian islands decrease the distance required for pedestrians to cross a busy roadway.

- G Willow St and 8th Street (at Dairy Queen/Highway 3)**
- » High visibility crosswalk crossing Willow Street, to be coordinated with future shared use path aligned with Highway 3

- H Elm St and Highway 3**
- » High visibility crosswalks (existing)
 - » Forward stop bars
 - » Leading pedestrian interval / signal countdown
 - » Improve pedestrian Island
 - » Requires coordination with MnDOT

- I Spruce St and Highway 3**
- » Potential location for future user-activated signal, such as RRFB or HAWK signal
 - » Requires high visibility crosswalks
 - » Requires lowered speed limit to 35mph or lower along Highway 3
 - » Requires coordination with MnDOT

- J Beech St/Maple St and Highway 3**
- » Potential location for future user-activated signal, such as RRFB or HAWK signal, to connect students to Farmington Elementary School
 - » Requires high visibility crosswalks
 - » Requires lowered speed limit to 35mph or lower along Highway 3
 - » Requires coordination with MnDOT

- K CR 50/220th St and Highway 3**
- » High visibility crosswalks (existing)
 - » Forward stop bars
 - » Leading pedestrian interval
 - » Pedestrian crossing to connect to future trail connection east of Highway 3
 - » Requires coordination with MnDOT

System Recommendations

The following system recommendations have been developed to augment and support the Network Plan:

1. Trail alignments within new developments may vary from the Bike + Ped Network Plan and the 2040 Comprehensive Plan, but should generally follow the alignments shown to connect to adjacent trails, per guidance from City of Farmington planning, engineering and parks staff.

- » Future trails are shown in the 2040 Comprehensive Plan (2018). These trails are also shown in the Bike + Ped Network Plan (2019), along with future trails and sidewalks per the Downtown Redevelopment Plan (2016). In general, new developments in Farmington are required to include sidewalks and trails, per the City of Farmington Development Code. It is important that these new trails and sidewalks connect to adjacent and/or existing trails and sidewalks to contribute to a continuous and comfortable bike and pedestrian network, with neighborhoods that are well connected to other neighborhoods and destinations throughout the city.

2. The City of Farmington will be responsible for winter snow removal along Connector and Greenway Trails as designated in the Bike + Ped Network Plan.

- » The Connector Trail Network is intended to serve the largest number of people throughout the year to connect residents and visitors across the city to important community destinations such as parks, schools, and commercial areas. Greenways are intended to provide recreational connections to scenic and natural areas. By committing to year-round trail access, the City of Farmington is extending the use of their existing network, while providing opportunities for people with disabilities, children, seniors, and others to choose walking or biking as a viable mode of transportation year-round.
- » Today, much of the existing Connector Trail and existing Greenway Trail network is cleared year-round by the City of Farmington, with four levels of plowing priorities. Downtown sidewalks and the 195th Street trail are first priority, with trails leading to schools and/or bus stops as second priority. Outdoor rinks are third priority and other trail loops are fourth priority. As this system functions today, generally existing Connector Trails are first or second priority, and Greenways are fourth priority. As new trails are constructed, the City will need to evaluate the plowing priority for new segments.
- » Future evaluation of this recommendation may lead to extending City-sponsored snow removal for Activity Areas.



- » Today, all Farmington residents are responsible for clearing of snow and ice for sidewalks and trails within their property; future evaluation of this recommendation may lead to changes in this City-wide policy.



3. All Farmington Schools will be connected to trail and/or sidewalk facilities to ensure Safe Routes to Schools. The City of Farmington will coordinate with the Farmington School District to ensure bicycle and pedestrian connections are continued to each school's main entryway.

- » Today, schools in Farmington are accessible by biking and walking to varying degrees; some Farmington schools are located where there are significant challenges to walking and biking to school by students. The Network Plan prioritizes connections to all schools in Farmington through future trail and sidewalk connections, as well as enhanced intersection treatments.
- » Events at schools, such as athletic events or performances draw an increased amount of vehicular traffic and on-street parking near schools. To accommodate safe roadway and parking lot access for pedestrians and bicyclists, special consideration should be made with high visibility crosswalk markings and other enhanced safety measures beyond the immediate school boundary.
- » The City will encourage all schools to participate in Safe Routes to School program, and participate in Safe Routes to School planning and implementation where possible.



4. Establish pedestrian priority zones to support design standards that encourage walking in destination-filled locations. These locations are noted in the Network Plan as Activity Areas, and include:

- » Downtown Farmington
- » Emerging activity centers (to be determined with future development)
- » Within the Activity Areas, it is important to provide a continuous and comfortable network for pedestrians, to allow movement between clusters of destinations, such as parks, local businesses, and civic centers. Today, Downtown Farmington has an established grid street network that lends itself well to pedestrian connections, however there are gaps in sidewalks and trails today, and the railroad poses a barrier to east-west travel. In the future, as roadways are re-constructed and improved in Activity Areas, sidewalks, trails, and other pedestrian amenities should be considered within the design.
- » Continue to establish Rambling River Park and the Depot Way Art walk as an "Active Gateway" to the city and enhance their connection to Downtown Farmington.

5. Consider enhanced safety measures for Connector and Greenway Trails at all roadway crossings where traffic volumes are high or where safety for all roadway and trail users is a concern.

- » High-volume roadways are generally defined have more than 10,000 vehicles per day.
- » Safety measures for Connector and Greenway Trails at these intersections may include:
 - *Grade-separated crossings such as tunnels or bridges*
 - *High-visibility crosswalks*
 - *User-activated signals or signal-timing upgrades (Leading Pedestrian Intervals)*
 - *Increased signage*
- » Future intersection upgrades should be coordinated with the appropriate agencies and may need further study to determine the appropriate safety measures.



6. Improve communication of the bike and ped network.

- » Develop a coordinated wayfinding and signage strategy to communicate priority and greenway trail networks
- » Create and post updated trail and bikeway routes using City communications



7. Develop encouragement and educational programs that promote a culture of biking and walking in Farmington.

- » Work with Rambling River Center to develop walking and biking clubs for seniors and families
- » Expand the bicycle fleet in use today by the Farmington School District to support programming developed by the Rambling River Center, or Community Education
- » Work with the Farmington Police Department to host bike rodeos or safety demonstrations at community events
- » Coordinate an Open Streets event in Farmington where a block or two of roadway is closed to vehicle traffic for an afternoon or day and outdoor community events are hosted.
- » Promote bike racks at local businesses and civic buildings, and provide information through the chamber of commerce to promote bicycle-friendly business practices.





CHAPTER 4

Implementation

- 4-2** Implementation Plan
- 4-2** Implementation Recommendations
- 4-4** Phasing Strategy
- 4-12** Operations + Maintenance
- 4-13** Funding Strategies

Implementation Plan

The Bike + Ped Plan for the City of Farmington outlines goals for the walking and biking network and system plan for the next 10 years. The Implementation Plan focuses on how to transform the plan into reality. First, some general Implementation Recommendations are outlined, which are intended to provide guidance for policy and coordination of implementation efforts. A phasing strategy is outlined, which breaks tasks down into priority, on-going, and long-term projects. Next, a breakdown of projected costs for capital projects as well as maintenance and operations are outlined. Finally, a number of funding resources are identified in this chapter.

Implementation Recommendations

The following recommendations have been developed to assist with policy and implementation of the plan:

1. Coordinate with other agencies (MnDOT, Dakota County, Empire Township, Lakeville, Eureka Township, Castle Rock, Farmington School District, Community Ed) to incorporate Farmington Bike + Ped Plan elements into their planning and areas of responsibility.

- » An annual bike + ped planning meeting could be hosted by the City of Farmington to evaluate and identify collaborative projects.
- » The City of Farmington and Dakota County have a history of working collaboratively on the design and construction of trails and sidewalks within Dakota County right-of-ways. In the last 10 years, the City and County have worked together to develop approved regional greenway master plans that will connect the city to the county's regional park and trail system.
 - *Today, 30% (13 miles) of the existing trail network in Farmington is within Dakota County right-of-way.*
 - *In the planning process for the Bike + Ped Plan, Dakota County Transportation staff worked with the project team to identify specific intersection treatments at roundabouts on county roadways.*



- » State Highway 3 has been identified as a significant barrier to cross-city travel by bicyclists and pedestrians, both through this planning effort as well as through the recent Highway 3 Corridor Plan.
- *In the planning process for the Bike + Ped Plan, MnDOT Transportation staff worked with the project team to identify future trail connections along Highway 3, as well as the potential for a lowered speed limit along Highway 3 through Farmington. With future decreased speed limits, there is possibility of implementing user-activated and high-visibility crosswalks to connect bicyclists and pedestrians across Highway 3.*

2. Regularly evaluate progress of the implementation of the Plan.

- » Annually update City GIS files
- » Annually Review progress on recommendations
- » Determine projects to include in CIP, projects to pursue grant funding
- » This plan is intended to provide guidance for the next 10 years; consider a Bike + Ped Plan Update in coordination with the 2050 Comprehensive Plan Update.

3. Consider an on-going Bicycle and Pedestrian Committee, potentially alongside the City Parks Commission

- » Role to assist with implementation and evaluation of plan elements
- » Consider rotating members, terms of service, role/charge, diverse viewpoints.



Phasing Strategy

Identifying priorities and demonstrating visible, measurable progress is essential to implement the plan to maintain momentum to reach longer-term goals.

Priority Projects

Recommended priority projects have been identified through community outreach, as well as with input from the BPP Committee and City staff. These priority projects are projected to have the biggest impact for improving safety and comfort for pedestrian and bicycle movement in Farmington. Priority projects are intended to be completed or have substantial progress towards completion in the next 1-5 years. See Figure 4.1 and Table 4.1 for a keyed plan and table of Priority Projects.

» Intersection Treatments:

- *Coordinate with Dakota County Transportation to install high visibility crosswalk markings and pedestrian crossing signs at the approach of round-about intersections along 195th Street.*
- *Coordinate with Dakota County Transportation to address intersection treatments at Pilot Knob Road / Upper 195th Street and at Akin Road/CSAH 50.*
- *Coordinate with MnDOT to implement enhanced intersection treatments at Elm Street and TH3.*

» TH3 Pedestrian Safety and Connector Trail:

- *A trail connection along TH 3 from 205th Street to the southern City limits along with enhanced safety for pedestrian crossings at a number of intersections along TH 3 in Farmington have been strongly identified by the community as priority projects.*
- *Coordination with MnDOT is key to moving forward. While it may not be feasible to construct the TH3 trail in the next 1-3 years due to lack of funding, progress can be made towards working with MnDOT to lower the speed limit through this area, which will pave the way for implementation of intersection treatments, such as user-activated signals at Spruce Street and Maple Street.*

- » Connector Trail and On-street Bikeways within Downtown Farmington:
 - *On-Street Bikeway on Willow Street and 4th Street*
 - *On-Street Bikeway along 205th Street (funded and planned for implementation 2019)*
 - *Connector Trail from Akin Road and CSAH 50/Denmark Avenue to Spruce Street, Spruce Street from Denmark Ave to TH 3 (Denmark Ave to Division Street funded and planned for implementation 2021/2022)*
- » Connector Trail and Greenway Trail Connections
 - *Connector Trail along Flagstaff Ave from 195th Street to CSAH 50) to serve Farmington High School, including connection to 200th Street south of Meadowview Elementary School*
 - *Connector Trail missing segment on west side of Pilot Knob Road south of 197th Street (Identified by Dakota County as a High Priority Trail Gap)*
 - *North Creek Greenway connection to Lakeville and boardwalk section at North Creek Park (funded and planned construction for 2021)*
- » Wayfinding Plan
 - *Complete a city-wide wayfinding and signage plan to correspond with the Bike + Ped Network Plan*
 - *To include locations and design of wayfinding*
- » Educational and Encouragement Programs
 - *Work with Rambling River Center to develop walking and biking clubs for seniors and families*
 - *Expand the bicycle fleet in use today by the Farmington School District to support programming developed by the Rambling River Center, or Community Education*
 - *Work with the Farmington Police Department to host bike rodeos or safety demonstrations at community events*
 - *Coordinate an Open Streets event in Farmington where a block or two of roadway is closed to vehicle traffic for an afternoon or day and outdoor community events are hosted.*
 - *Promote bike racks at local businesses and civic buildings, and provide information through the chamber of commerce to promote bicycle-friendly business practices.*

Figure 4.1 Phasing Plan: Priority Projects

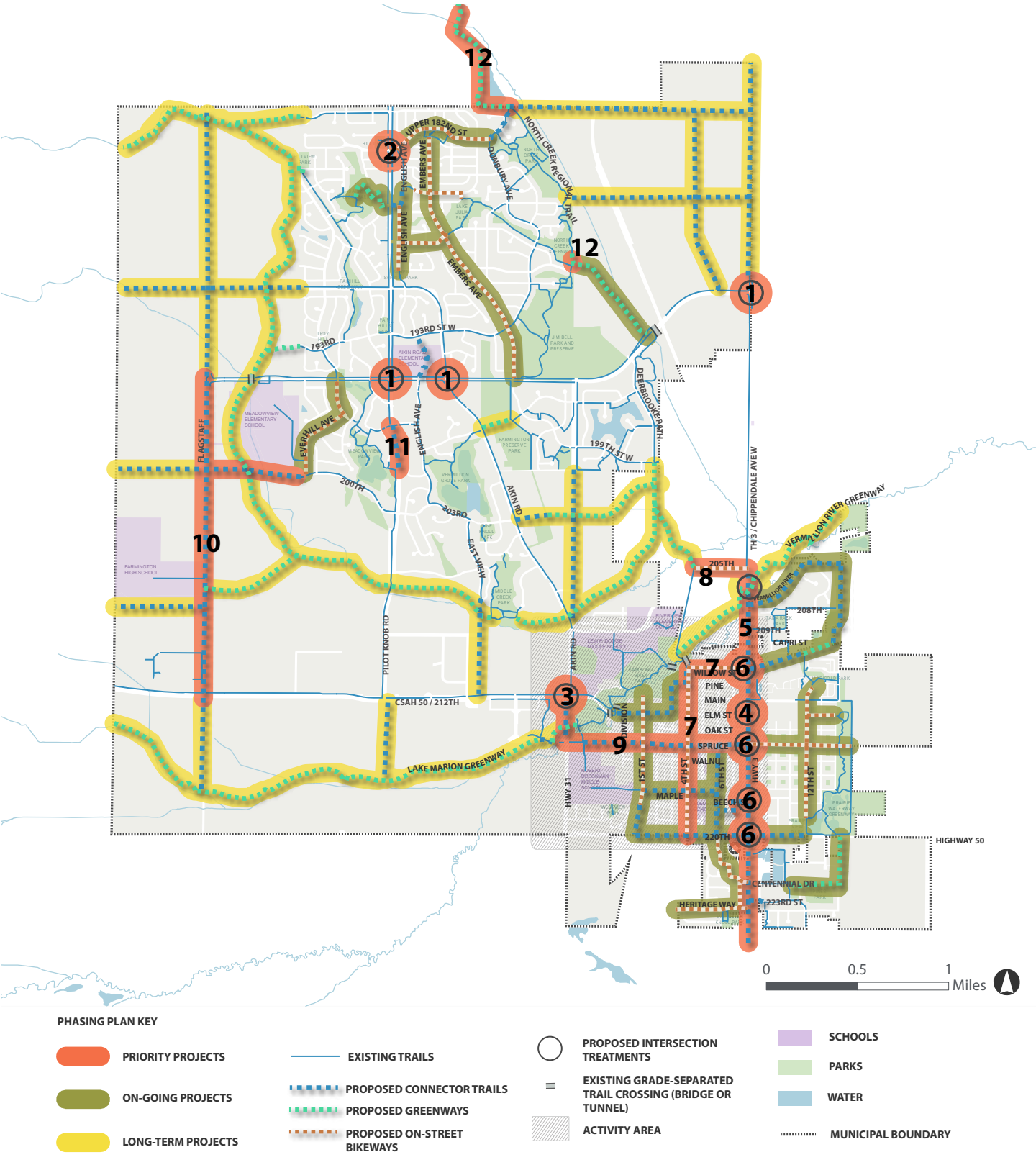


Table 4.1 Capital Costs: Priority Projects

Priority Projects Capital Costs					
Map Key	Project Description	Potential Collaborators	Estimated Costs	Length/Qty	Potential Funding Strategy
1	Intersection treatments at round-abouts along 195th Street	Dakota County	\$10,000 - \$12,000	(4) signs with pavement markings x 3 intersections	General Funds (Dakota County)
2	Intersection treatment at Pilot Knob Road/Upper 195th Street	Dakota County	\$2,000 - \$5,000	pavement markings, curb extensions	General Funds (Dakota County), State Aid Funds
3	Intersection treatment at Akin Road/CSAH 50	Dakota County	\$500 - \$1,000	pavement markings	General Funds (Dakota County), State Aid Funds
4	Intersection treatments at Elm Street and TH3	MnDOT	\$2,000 - \$3,000	pavement markings, signal timing	General Funds (MnDOT), State Aid Funds
5	TH 3 Connector Trail	MnDOT	\$630,000 - \$850,000	2.0 miles	General Funds (MnDOT), State Aid Funds
6	Intersection Treatments on TH3 (Willow Street, Spruce Street, Maple/Beech Street, CSAH 50)	MnDOT, Dakota County	\$6,000 -	pavement markings, signal timing, curb extensions, user-activated signals	General Funds (MnDOT), State Aid Funds
7	On-Street Bikeway on Willow and 4th Streets		4,000 - \$5,000	6,600 LF	General Funds (City of Farmington)
8	On-Street Bikeway on 205th Street	Empire Township	n/a (funded)	\$1,600 LF	n/a (funded)
9	Connector Trail from Aikin Road/CSAH 50 to Spruce Street, Spruce Street from Denmark Ave to TH3)	Farmington Public Schools	\$450,000 - \$600,000	7,500 LF	General Funds (City of Farmington); partially funded and planned for construction in 2021/2022, Local Trail Connections Grant, Regional Solicitation Grant
10	Connector Trail on Flagstaff Avenue from 195th Street to CSAH 50, Connection to 200th Street	Farmington Public Schools	\$1,200,000 - \$1,600,000	20,000 LF	General Funds (City of Farmington) Safe Routes to School Infrastructure Grant, Regional Solicitation Grant, Local Trail Connections Grant
11	Connector Trail segment on Pilot Knob Road south of 197th Street	Dakota County	\$84,000 - \$112,000	1,400 LF	General Funds, State Aid Funds
12	North Creek Greenway Connection to Lakeville and boardwalk section at North Creek Park	Dakota County	n/a (funded)	2.1 miles, boardwalk connection	Funded through Regional Solicitation Grants for implementation 2021/2022
13	Wayfinding Plan	Dakota County	\$15,000 - \$25,000	Plan to guide wayfinding locations and design	SHIP Funds, General Funds (City of Farmington), Regional Solicitation Grant
14	Educational and Encouragement Programs	Rambling River Center, Community Education, Farmington Police Department, Farmington Public Schools, Farmington Chamber of Commerce	n/a	n/a	SHIP Funding, General Funds (City of Farmington), Grant funding, Safe Routes to School

On-Going Projects

The following projects have been identified as medium-priority, to be completed as funding or opportunities become available. See Figure 4.2 and Table 4.2 for a keyed plan and table of On-Going Projects.

- » Connector Trail, On-Street Bikeways, and Greenway Trails around Downtown Farmington:
 - *On-Street Bikeways along 1st Street from Rambling River Park to CR 50, 12th Street and Spruce Street in Prairie View Park, Centennial/Evergreen Knoll Park*
 - *Connector Trails on Maple Street, 6th Street, CR 50, Vermillion River Trail, Elm Street/3rd Street/Pine Street*
- » Other Trails and On-Street Bikeways:
 - *On-Street Bikeway on Everhill Avenue to 195th Street*
 - *On-Street Bikeways on Embers Avenue, English Avenue, 185th Street W and Upper 182nd Street W*
 - *Greenway Trail through Farmington Preserve Park*
 - *Greenway Trail to Daisy Knoll Park from Pilot Knob Road*
 - *Greenway Trail from North Creek Park to tunnel under 195th Street*
- » Sidewalk and Activity Area improvements in Downtown Farmington
 - *To be completed as roadways are improved/reconstructed*
- » Trail Recommendations:
 - *High visibility crosswalks, curb extensions, and forward stop bars at Connector and Greenway Trail intersections*
 - *Lighting, seating, and interpretation along Connector and Greenway segments*
- » Complete Safe Routes to School Plans for all schools in the district

Long-Term Projects

The following projects have been identified as long-term projects. These projects will require larger fundraising efforts and collaborative planning with Dakota County, neighboring townships, and future development. See Figure 4.2 and Table 4.2 for a keyed plan and table of Long-Term Projects.

- » Lake Marion, North Creek, and Vermillion River Greenway segments in Farmington (in coordination with Dakota County)
- » Greenway loop from Northwest Farmington to future North Creek Greenway
- » Connector Trail extensions on Flagstaff Avenue north of 195th Street and south of CSAH 50, Eastview/Eaton Avenue, 200th Street, 190th Street W, 203rd Street, Diamond Path, and future roadways in northeast Farmington as development occurs

Figure 4.2 Phasing Plan: On-Going and Long-Term Projects

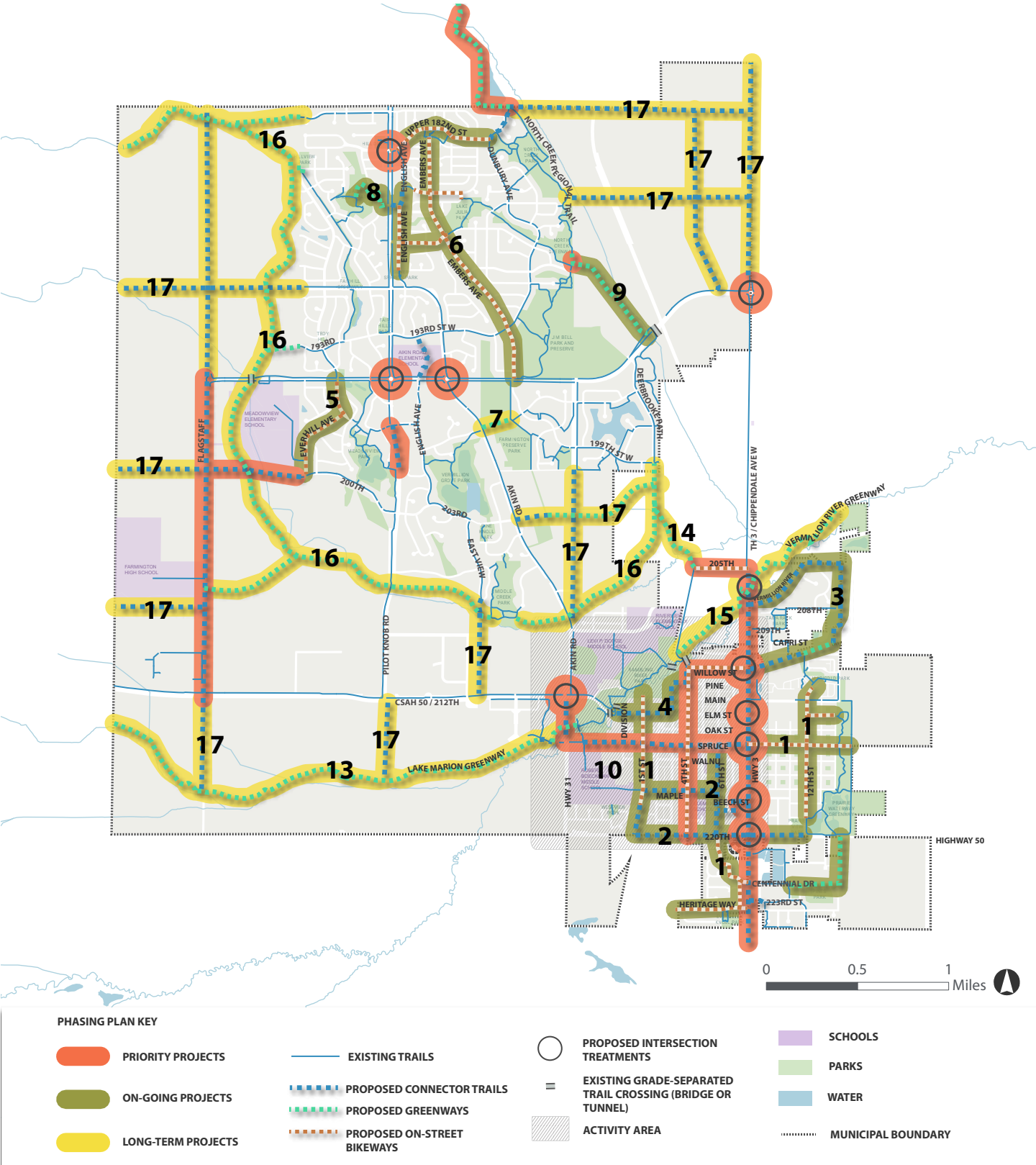


Table 4.2 Capital Costs: On-Going Projects

On-Going Projects Capital Costs					
Map Key	Project Description	Potential Collaborators	Estimated Costs	Length/Qty	Potential Funding Strategy
1	On-Street Bikeways on 1st Street, 12th Street and Spruce Street, and in the Centennial neighborhood	Downtown Businesses	\$7,000 - \$9,000	11,400 LF	General Funds (City of Farmington)
2	Connector Trails on Maple Street, 6th Street, CR 50, Beech Street near Farmington Elementary and Middle Schools	Farmington School District	\$700,000 - \$950,000	11,800 LF	Safe Routes to School Grants, Local Trail Connections, General Funds (City of Farmington)
3	Connector Trail on Vermillion River Trail, Willow Street	Downtown Businesses	\$500,000 - \$720,000	9,100 LF	Local Trail Connections Grant, Development
4	Connector Trail on Elm Street, 3rd Street, Pine Street near Rambling River Park		\$195,000 - \$270,000	3350 LF	Local Trail Connections Grant, MnDNR Natural and Scenic Area Grant, General Funds (City of Farmington)
5	On-Street Bikeway on Everhill Avenue		\$2,000	3000 LF	General Funds (City of Farmington)
6	On-Street Bikeways on Embers Avenue, English Avenue, 185th Street W and Upper 182nd Street W		\$10,500	15,800 LF	General Funds (City of Farmington)
7	Greenway Trail through Farmington Preserve Park		\$49,000 - \$66,000	820 LF	General Funds (City of Farmington), MnDNR Outdorr Recreation Grant
8	Greenway Trail to Daisy Knoll Park		\$114,000 - \$152,000	1,900 LF	General Funds (City of Farmington), MnDNR Outdorr Recreation Grant
9	Greenway Trail from North Creek Park to tunnel under 195th Street	Dakota County	\$186,000 - \$248,000	3,100 LF	Regional Solicitation Grants, General Funds (City of Farmington), MnDNR Natural and Scenic Area Grant
10	Sidewalk and Activity Area improvements in Downtown Farmington	Downtown Businesses			General Funds (City of Farmington), Regional Solicitation Grant
11	Trail Recommendations (intersection treatments, lighting, seating, interpretation)	Dakota County, Farmington School District, Downtown Businesses			Regional Solicitation Grants, Local Trail Connections, General Funds (City of Farmington)
12	Safe Routes to School Plans	MnDOT, Farmington School District			MnDOT Safe Routes to School Planning Assistance
Long-Term Projects Capital Costs					
Map Key	Project Description	Potential Collaborators	Estimated Costs	Length/Qty	Potential Funding Strategy
13	Lake Marion Greenway	Dakota County	\$875,000 - \$1.2M	14,600 LF	Regional Solicitation Grants, MnDNR Natural and Scenic Area Grant, General Funds (Dakota County, City of Farmington)
14	North Creek Greenway	Dakota County	\$270,000 - \$360,000	4,500 LF	Regional Solicitation Grants, MnDNR Natural and Scenic Area Grant, General Funds (Dakota County, City of Farmington)
15	Vermillion River Greenway	Dakota County, Empire Township	\$430,000 - \$575,000	7,200 LF	Regional Solicitation Grants, MnDNR Natural and Scenic Area Grant, General Funds (Dakota County, City of Farmington)
16	Farmington Greenway Loop	Developers, Farmington Public Schools	\$2.0M - 2.8M	34,500 LF	Regional Solicitation Grants, MnDNR Natural and Scenic Area Grant, General Funds (City of Farmington), Developers
17	Connector Trail Extensions (Flagstaff Ave, Eastview/Eaton Ave, 200th Street, 190th Street, 203rd Street, Diamond Path, future roadways in northeast Farmington)	Developers, adjacent Townships and cities, MnDOT	\$3.2M - \$4.2M	53,000 LF	Developers, Local Trail Connection grants, General Funds (City of Farmington, MnDOT)

Operations + Maintenance

Today, the City of Farmington maintains 46.8 miles of asphalt trails, along with 31.0 miles of sidewalks, 1.5 miles of natural surface trails, boardwalks and pedestrian bridges. These facilities all vary in anticipated life cycle, and required maintenance.

Snow/Ice Removal

Snow and ice removal are key to providing safe access to trails and sidewalks year-round. In Farmington, residents are responsible for maintaining clear paths for sidewalks and trails adjacent to or within their property. The City of Farmington clears trails, sidewalks, and outdoor rinks that are indicated on the Snow Removal Plan. This plan prioritizes sidewalks in Downtown, the trail along 195th Street, and trails leading to schools and bus stops.

This plan recommends integrating all newly constructed trails into the Snow Removal Plan as necessary. Connector and Greenway Trails are recommended for future clearing/plowing by the City. An evaluation of the Snow Removal Plan should be performed annually to revise routes and priorities, ensuring that connections to key community destinations are cleared of snow and ice throughout the winter.

Pavement Management

In 2012, the City implemented an annual pavement management program for asphalt trail maintenance. This program has been successful in providing annual funding for crack and fog sealing of trails. The city is broken into five areas, resulting in trail maintenance occurring every five years for each segment.

However, this system may have been put into place too late for many of the older segments of trails that were installed over 30 years ago. These sections have deteriorated past a point of repair and will likely need to be replaced in the coming years. These replaced trails will then be on-track to receive regular maintenance as part of the pavement management program.

This plan recommends a phased approach to replacement of existing trails over the next 5-10 years, along with integrating existing and future trails into the pavement management program. The table below shows projected maintenance and capital costs.

Table 4.4 General Operations, Maintenance and Capital Costs

	Quantity (Miles)	Quantity (Feet)	Annual O + M Cost	Total O+M Annual Cost	Capital Cost	Total Projected Capital / Replacement Costs	Estimated Life	Notes
Existing Asphalt Trails	46.8 Miles	247,104 Feet	\$1,200 - \$2,000 / Mile	\$56,160 - \$93,600	\$60 / LF	14.8 M	30 years	Assumes trails 8' wide or less
Proposed Asphalt Trails	35.9 Miles	189,663 Feet	\$1,200 - \$2,000 / Mile	\$43,080 - \$71,800	\$80 / LF	\$15.2 M	30 years	Assumes 10' wide trails
Proposed On-Street Bikeways	7.9 Miles	41,832 Feet			\$3,500 / Mile	\$27,650	30 years	Assumes (2) signs every 600'
Existing Sidewalks	31.0 Miles	163,502 Feet			\$45 / LF	\$7.4M	15-30 years	Assumes a 6' wide sidewalk

Funding Strategies

Achieving the vision for a well-connected bicycle and pedestrian network in Farmington will take significant funding, not only for construction of new facilities, but also for on-going maintenance of existing and future facilities.

Capital improvement projects in parks and trails have been funded over the years in Farmington through two funding sources:

- » Funds received from residential, commercial and industrial development, received as cash in-lieu of land through the park dedication process
- » Transfers through the City's municipal liquor store profit

With most capital funding tied to new development, investment has been inconsistent over the years. Most of the Priority Projects, as identified in this plan, will need to be funded independently of private development, through collaborative efforts, grants, and potential increase in funds allocated through the city's general funds.

General Funds

General funds should be used as a primary source for on-going maintenance, operations, and amenities for the bike and pedestrian system. Capital improvements can also be funded through general funds. General funds are often used as a match for grant funding.

Dedicated Tax Levy

A city can hold a referendum for a dedicated tax levy with proceeds directed specifically for parks and recreation. This levy can be used for capital projects as well as operations and maintenance. The proceeds may be in place of or supplement general funds. The advantage of a dedicated tax levy is that parks and recreation receives a more stable source of funding and does not have to compete with other city priorities for funding on an annual basis.

Bonding

General Obligation Bonds and Revenue Bonds provide another source of implementation funding for new facilities, and in some cases, can provide funding for repairs and upgrades of existing facilities.

Residents can decide to raise revenue through a permanent or temporary tax increase dedicated for specific purposes such as park, trail, and bikeway improvements and maintenance. These funds are usually provided through bonds approved as part of a voter referendum.

State Aid Funds

State aid funds are available for pedestrian and bicycle improvements on state aid roadways. This funding source is particularly useful at the time of street construction or reconstruction.

Partnerships

Public and private partnerships have the potential to provide a wide array of funding opportunities beyond the traditional municipal models. Partnerships with Dakota County have proven to be successful in building the existing trail network in Farmington. Further partnerships with Farmington School District, Community Education, and local businesses will be important for implementation of events and programming, and can support future grant writing efforts as well. Organizations with partner funding can also provide assistance with design, outreach, or maintenance/stewardship of facilities. Partnerships and relationships with local businesses can result in easements, use agreements, or donated funds for future bike and ped facilities.

Donations

Private donations are a potential funding source; these may be from individuals or area corporations, or donations of labor from recreation clubs or use agreements. "Adopt-a-Trail" programs, memorial bench donations, and incentives for local businesses to provide bike racks are all examples of how organizations, businesses, and individuals could help with maintenance and funding, while raising awareness and enthusiasm of the bike/ped system.

Grants

Grant funding throughout Dakota County has had a positive impact on the implementation of local and regional bicycle and pedestrian network. Grant funding generally requires a match by the City, likely through general funds. Grant funding also typically favors larger, capital projects over maintenance and operations funding. Grant funding might also require evidence of partnerships and community engagement and support for specific requests. The following are some grant opportunities that could be pursued for implementation of plan elements, along with links for more information:

Regional Solicitation Grants for Bike/Ped Facilities

The Metropolitan Council allocates federal funds through Regional Solicitation Grants. Funding priorities include multi-use trails, bicycle facilities, grade-separated crossings, filling network gaps, intersection/crossing treatments, sidewalks, streetscaping, ADA improvements, and Safe Routes to School infrastructure projects. These grants are available on 2-year funding cycle, with the next solicitation for grant applications anticipated in early 2020.

<https://metro council.org/Transportation/Planning-2/Transportation-Funding/Regional-Solicitation-NEW.aspx>

Local Trail Connections (LTC)

Local Trail Connections grants are administered through MN DNR. These grants fund relatively short trail connections between where people live and desired community destinations, and are not intended for funding significant new trails. Funding prioritizes projects with significant connectivity, high expected use, and attractive integration of cultural and natural resources.

https://www.dnr.state.mn.us/grants/recreation/trails_local.html

Safe Routes to School Grants (MnDOT)

MnDOT administers grant funding to support Safe Routes to School (SRTS) Planning Assistance and plan development to support schools' effort to promote safe biking and walking for students on a daily basis. Small micro-grants are occasionally available to fund educational or encouragement programs such as bike fleets and bike rodeos. SRTS Plans are generally used as a foundation for cities and school districts to apply for SRTS Infrastructure grants. Infrastructure grants support capital funding for projects that promote and encourage biking and walking to school, such as trails, sidewalks, and other bike/ped facilities near schools. Other example projects include traffic calming, crosswalk signals, bicycle parking and ADA improvements. SRTS Planning Assistance and Infrastructure Grants are generally available on an annual basis.

<http://www.dot.state.mn.us/saferoutes/grants-funding.html>

MN DNR Natural and Scenic Area Grants

The MN DNR Natural and Scenic Area Grants are intended to protect and provide public access to high quality natural and scenic areas. Example projects include trails, overlooks interpretive displays, benches, wayfinding and trailhead parking. All projects must align with the State Outdoor Recreation Plan (SCORP). This grant is typically available annually, with an application deadline in early spring.

<https://www.dnr.state.mn.us/grants/land/natural-scenic-app-cycle.html>

MN DNR Outdoor Recreation Grants

The MN DNR Outdoor Recreation Grant is intended to fund projects that increase and enhance outdoor recreation facilities in local and community parks throughout the state. All projects must align with the State Outdoor Recreation Plan (SCORP). Example projects include internal park trails and trail amenities. This grant is typically available annually, with an application deadline in early spring.

https://www.dnr.state.mn.us/grants/recreation/outdoor_rec.html

