



City of Robbinsdale Pedestrian and Bicycle Plan



Adopted by the Robbinsdale City Council
September 2, 2014



Acknowledgements

We gratefully acknowledge the participation and support of Robbinsdale staff and residents, and of persons and organizations who helped set up, publicize, and host sessions for the work described in this report, including:

- Marcia Glick and Rick Pearson of the City of Robbinsdale; and
- City residents and others that participated in the in-person and online engagement opportunities.

We thank the many residents and community leaders who participated in engagement activities and shared their ideas, vision, and aspirations for walking and biking in Robbinsdale.

This project was funded through a Centers for Disease Control and Prevention (CDC) Community Transformation Grant.

Table of Contents

This report includes the following sections:

Section	Page
Executive Summary	2
1. Background	5
2. Community Engagement	19
3. Existing Conditions, Analysis, and Summary of Issues to Address	26
4. Recommendations	45
5. Toolbox	71
Appendix	130

Contact Information

For questions or comments about this report, or to request additional information, please contact:

Rick Pearson, AICP

Community Development Coordinator

City of Robbinsdale

4100 Lakeview Avenue N,

Robbinsdale, MN 55422

E-mail: rpearson@ci.robbinsdale.mn.us

Office: 763-531-1266

Executive Summary

Walking and biking are basic and sustainable forms of transportation and, when adequately accommodated, provide healthful and enjoyable mobility options for a wide range of individuals. Walkable and bikeable places provide convenient, functional and comfortable conditions for walking and biking and provide many benefits to individuals and communities.

This Plan provides a set of clear recommendations for improving conditions for walking and biking across Robbinsdale that can be incorporated into the work of city departments and implemented moving forward.

I. Vision

“The City of Robbinsdale is a place where walking and biking are safe, comfortable, convenient and inviting everyday activities - a place where people choose to walk or bike to nearby destinations and can easily access the new Bottineau Light Rail Transit line.”

II. Approach

This Plan is based on an Active Living approach that seeks to create conditions that invite more Robbinsdale residents to more often choose to walk or bike to their destinations, to use transit, and to easily include physical activity as part of their daily routines.

III. Plan Components

The Plan includes several components to support implementation of this vision. Recommendations are based on study of the city and its existing network, as well as comments and ideas from residents and city staff.

The Plan:

- Presents a recommended pedestrian and bicycle network that addresses network gaps and enhances overall connectivity;
- Identifies specific corridors and corridor improvements;

Purpose of this Plan

The purpose of this Plan is to improve conditions for pedestrians and bicyclists in Robbinsdale by improving the city’s pedestrian and bicycle transportation infrastructure, reducing hazards, and inviting more residents, employees, and visitors to incorporate walking and bicycling into their daily travel habits.

Why walking and biking matter

Walking is the most basic mode of travel, and is accessible to people through the widest range of ages, income levels, and physical abilities. Bicycling is an inexpensive, convenient and enjoyable way of accessing community destinations and assets.

Walking and biking are healthful and economical travel options that improve community health, increase access to local destinations, foster community connection, and help sustain healthy and prosperous local economies.

Places where walking and biking are comfortable and inviting are places where people want to live, work, and visit. Creating “Complete Streets” that are safer, more comfortable and accessible for pedestrians and bicyclists, also makes for safer, more comfortable and predictable streets for drivers of motor vehicles.

- Recommends specific on-road and off-road pedestrian and bicycle facilities;
- Offers a range of additional policy and programming guidance to further cultivate and support walking and biking in Robbinsdale; and
- Includes an Implementation Action Plan (IAP) to help prioritize improvements.

IV. Guiding Principles

The following goals and principles guide the recommendations included in this Plan:

Improving Comfort and Safety

Proactively address existing hazardous conditions, assigning dedicated space for use by pedestrians and cyclists, and alerting motorists of pedestrian and bicyclist presence will improve safety and comfort for all users of Robbinsdale's streets, sidewalks, and sidepaths.

Connecting to Local and Regional Destinations

Provide safe and convenient connections to recreational, commercial, employment, education, and transportation destinations within Robbinsdale and neighboring communities.

Leverage Future Light Rail Transit Investment

Capitalize on the upcoming Bottineau/Blue Line LRT Transit investment to leverage existing and planned Robbinsdale walk/bike assets to extend the range of destinations available to Robbinsdale residents, workers and visitors who travel by walking, biking and transit.

Comfortable and Convenient Routes for All

A successful pedestrian and bicycle transportation network responds to user needs for safety, comfort

and convenience, and invites users of all ages, physical abilities, and skill levels.

Walking and Biking as a Base for Community Health and Active Living

Provide facilities and programs that invite more people to choose to walk and bike more often as part of their daily routines to improve community health and facilitate active living.

Walking and Biking as a Useful Transportation Option in Robbinsdale

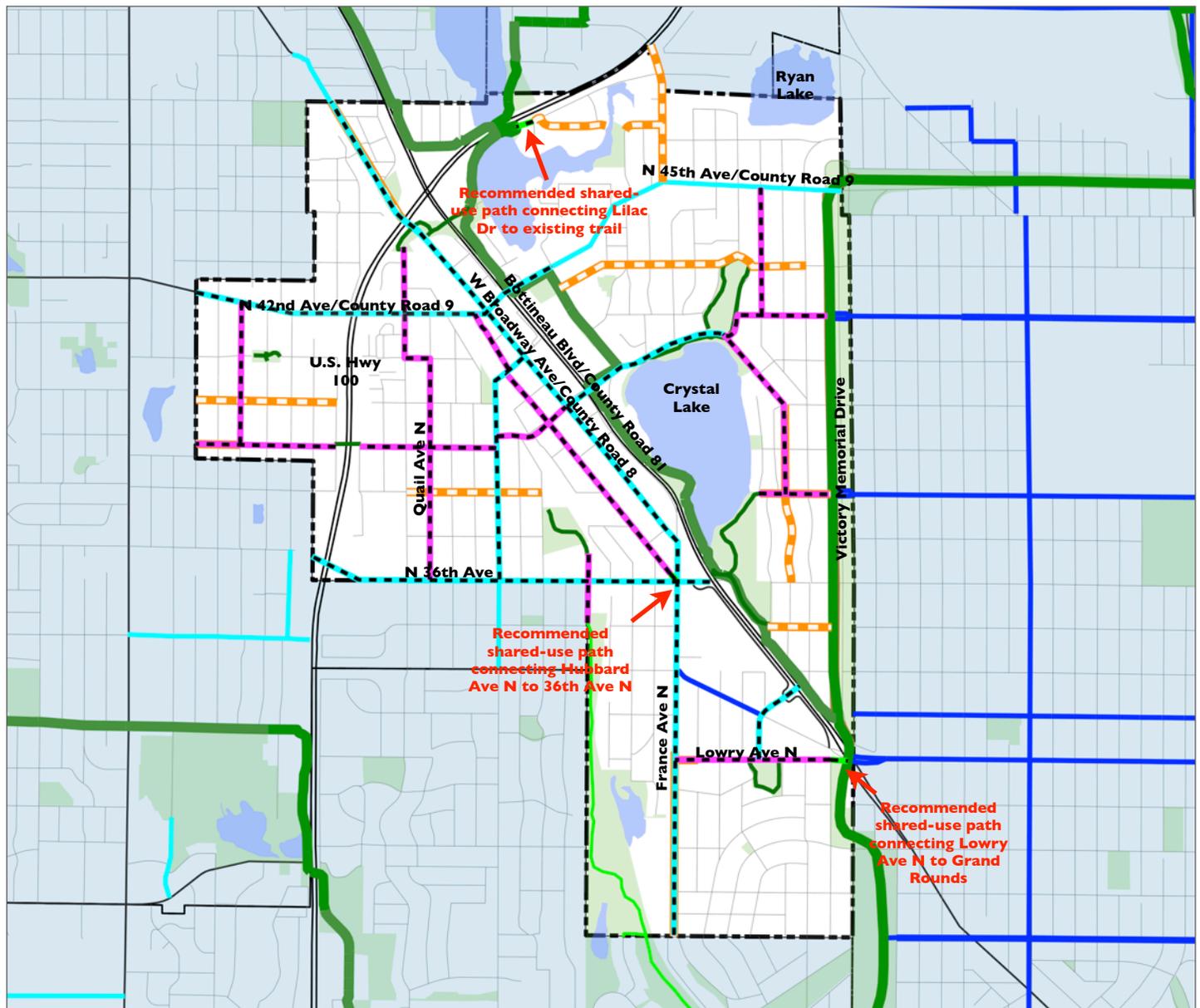
A high quality pedestrian and bicycle transportation network will make it easier and more convenient for more people to choose to walk or bike for their transportation and mobility needs in Robbinsdale.

V. Recommended Network

A **Recommended Network** (shown on the next page) was developed based on public comments, guidance from city staff, and network analysis and modeling, site observations, and current best practices.

This Recommended Network leverages existing facilities and includes new routes and links to address system gaps and improve overall network connectivity for pedestrians and bicyclists.

V. Recommended Network (continued)



Recommended Treatments

- - - Neighborhood Slow Street
- - - On-Road Bicycle Lane
- - - Off-Road Shared-Use Path
- - - Recommended Priority Sidewalk Locations

Existing Off-Road Facilities

- Paved Trails/Shared-Use Paths
- Unpaved Shared-Use Trails
- Existing (or Planned) Regional Shared-Use Trails

Existing On-Road Facilities

- On-Road Bicycle Lane
- Paved Shoulder Bicycle Facility

Data Source: City of Robbinsdale, MetroGIS



Background



This section provides background information including development patterns, demographic characteristics, and existing plans and policies as they relate to walking and bicycling in Robbinsdale.

In this section

- 1.1 – Purpose of this Plan
- 1.2 – Regional Context
- 1.3 – Urban Form and Development Patterns
- 1.4 – Demographics and Population Characteristics
- 1.5 – Relevant Policies and Plans

1.1 - Purpose of this Plan

Robbinsdale residents, staff and elected officials recognize the importance of walking and biking as basic forms of mobility and foundational elements for active living and quality of life in the city. A range of walking and biking assets exist across the city, and residents and visitors alike walk and bike frequently for recreation and transportation means.

The purpose of this plan is to provide practical and action-oriented guidance for the City of Robbinsdale to continue to develop its walking and biking assets into a network that offers safe, comfortable and convenient travel options for people of all ages and abilities, and that invites residents, employees and visitors to walk and bike as part of their daily travel routines to connect to city destinations and amenities.

Approach

This Plan is based on an Active Living approach that seeks to create conditions that invite more Robbinsdale residents to more often choose to walk or bike to their destinations, to use transit, and to easily include physical activity as part of their daily routines.

Vision

“The City of Robbinsdale is a place where walking and biking are safe, comfortable, convenient and inviting everyday activities - a place where people choose to walk or bike to nearby destinations and can easily access the new Bottineau Light Rail Transit line.”



Pedestrians walking across West Broadway Avenue in downtown Robbinsdale.

What is Active Living?

Active living is a way of life that encourages and includes moderate physical activity - such as walking or biking - as part of a person's daily routine.

Active living is important because it improves physical and mental health, reduces household expenses, improves air quality, builds strong and safe communities, and can help reduce the burden of common chronic conditions like diabetes, asthma, and heart disease.

Policy and design choices can result in built environments that encourage active living. The likelihood of walking to the grocery store, riding a bike to school, or meeting friends in the park depends on the environment in which they are attempted. By making improvements in the city's current infrastructure, policy, and programming approaches Robbinsdale can leverage its existing assets and become a model Active Living community.

1.2 - Regional Context

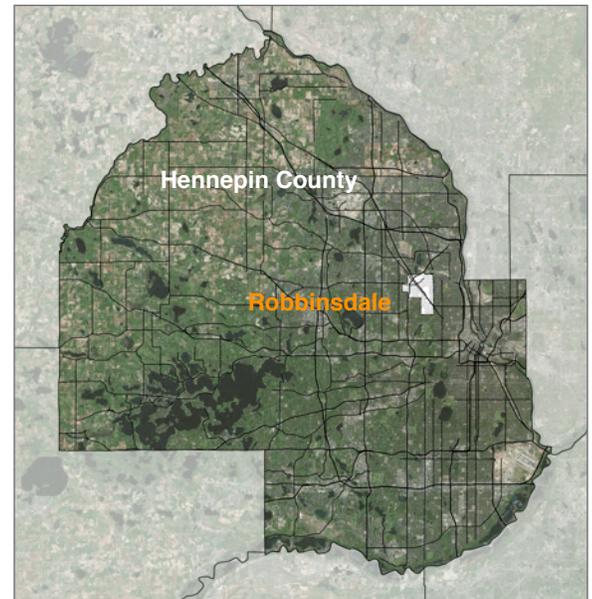
The City of Robbinsdale is a first-ring suburb located northwest of Minneapolis in Hennepin County. The city has a land area of approximately 3 square miles and a population of 13,953, according to 2010 U.S. Census data.

The city is located in central Hennepin County northwest of the City of Minneapolis. Robbinsdale is within close proximity of important regional destinations such as downtown Minneapolis, employment and commercial hubs, and Crystal Airport. The city is well connected to the region's road network. Minnesota State Highway 100 runs through the city's northwestern portion, and Hennepin County Road 81 transverses from the northwest corner of Robbinsdale to the southeast corner.

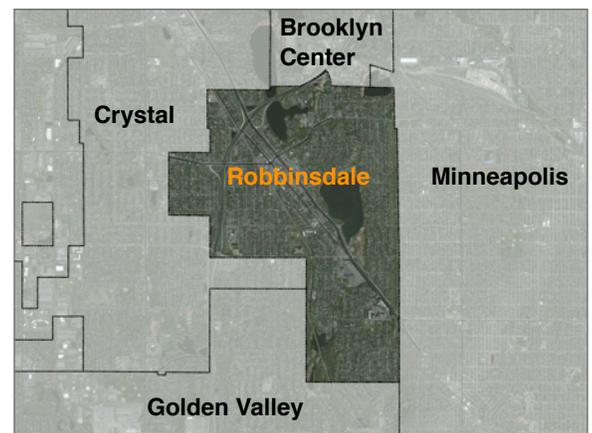
In addition to being home to many residents, Robbinsdale has two large employers: North Memorial Medical Center and the Robbinsdale School System. Over 300 employers and 6,000 employees reside in Robbinsdale, according to the U.S. Census American Fact Finder.

Robbinsdale is well-connected to the regional transit system, and currently served by several Metro Transit bus routes. The future Bottineau LRT Blue Line Extension will provide service from Robbinsdale to Crystal, Brooklyn Park, Golden Valley, and Downtown Minneapolis, and interlink with the existing Blue and Green Lines providing service to Bloomington, MSP International Airport, Mall of America, Union Depot, and Downtown Saint Paul. The existing Robbinsdale Transit Center / Hubbard Marketplace will serve as the Robbinsdale stop for the Bottineau LRT.

Several on-street bicycle facilities in Minneapolis stop at the eastern border of Robbinsdale. An important off-road bicycle connection is the Grand Rounds Scenic Byway trail, which runs along Victory Memorial Parkway on the city's eastern boundary. This trail provides connections to the Mississippi River, Downtown Minneapolis, and the larger regional bicycle network.



Robbinsdale's location (shown in white) within Hennepin County.



Robbinsdale is bordered by Crystal on the west, Brooklyn Center on the north, Minneapolis on the east, and Golden Valley on the south.

1.3 - Urban Form and Development Patterns

A city’s urban form can support or hinder pedestrian and bicycle trips. Robbinsdale has a well-gridded neighborhood street network with a walkable main street, and also includes several major transportation corridors including Highway 100, County Roads 8, 9, and 81, Burlington Northern Rail and the future LRT Blue line.

1.3.1 - Present Land Uses

Residential Uses

Residential uses make up about 47% of the total area of Robbinsdale: 43.4% low density residential (single to two-family units), and 3.2% high density (greater than two-family units). Residential neighborhoods are generally separated from other land uses and served by quiet local roads.

Commercial and Industrial

Commercial/shopping destinations within Robbinsdale are clustered along County Road 81 (Terrace Center at 36th Avenue, as well as 41st Avenue) and West Broadway Avenue (Old Town near 41st Avenue). After including mixed use and office destinations, these destinations make up just over 4% of the city’s land area.

Parks and Recreation

Parks, recreation, and open water areas make up over 16% of the city’s land area. This includes local destinations such as: Crystal Lake, Grimes Pond, Sochacki Park, Lakeview Terrace Park, and Sanborn Park.

Other Land Uses

Remaining land uses in the city include public institutions such as schools and churches, a hospital, road right-of-way, and industrial uses.



West Broadway Avenue is Robbinsdale’s walkable main street lined with shops and cafes.



Parks make up about 9% of Robbinsdale’s total land area.

1.3.2 - Connectivity

Robbinsdale benefits from a mostly gridded street network that provides residents with a variety of well-connected route options. Most streets include sidewalks. The City is engaged in an ongoing effort to address gaps in the sidewalk network to improve pedestrian connectivity. Several higher-speed, higher-volume roadways in Robbinsdale provide connections for automobiles but are not necessarily inviting or accessible to pedestrians and bicyclists. These roadways include Bottineau Boulevard and U.S. Highway 100, and to a lesser extent North 42nd Avenue North/Lake Drive and North 36th Avenue. A Burlington Northern rail corridor and the future Bottineau LRT line are also located within Robbinsdale.

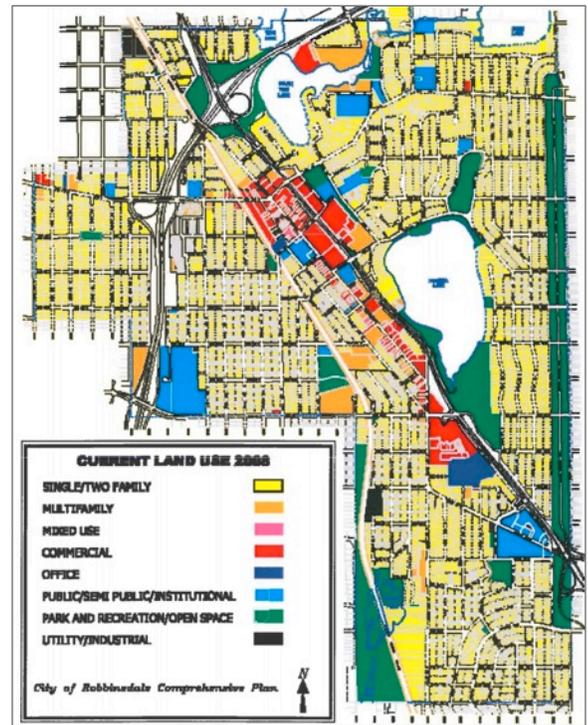
1.3.3 - Future Land Use

In the Robbinsdale 2030 Comprehensive Plan, future redevelopment is anticipated for several areas of the city, including downtown Robbinsdale, the Robin Center area, and the Terrace Center. Future land-use recommendations include an increase in mixed-use development to replace currently single-use commercial areas, and is concentrated along Bottineau Boulevard and West Broadway Avenue.

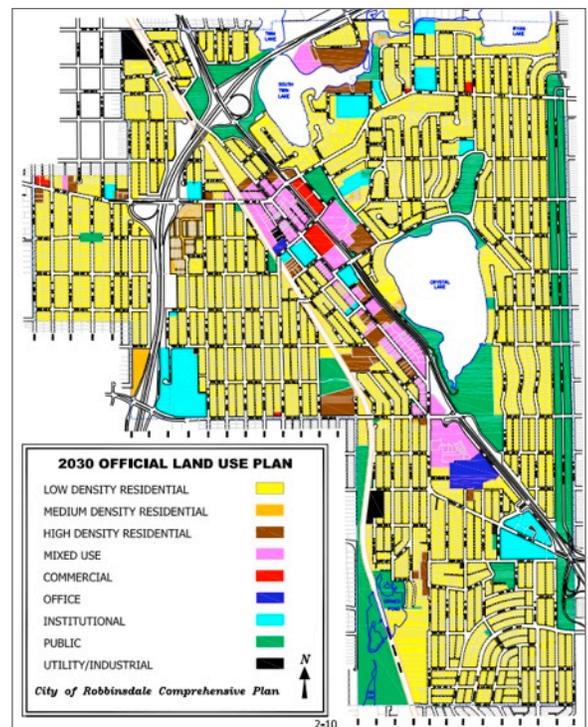
1.3.4 - Implications For This Plan

- Barriers to network connectivity in the form of wide and busy roadways should be identified, and treatment measures should be pursued along routes and at intersections and crossings to create a more comfortable environment for walking and biking;
- Comfortable and convenient walking and biking connections to schools, commercial and employment centers, and parks should be provided to give residents and visitors more mobility options for transportation and recreation trips;
- Downtown Robbinsdale and the Terrace Center should be a focus for enhanced multi-modal connections, including improved access and circulation related to business and buildings.

2030 Comprehensive Plan Land Use Recommendations



Robbinsdale land use as of 2008.



The 2030 Land Use Plan includes an increase in mixed use development (pink) and decrease in single-use commercial (red).

1.4 - Demographics and Population Characteristics

Demographic information including population density, age, income, and travel patterns helps to shape understanding about how Robbinsdale residents may interact with the transportation network, and rely on it to meet their daily mobility needs.

1.4.1 - Population Density and Households

The 2010 U.S. Census counted 13,953 people in Robbinsdale and 6,080 households across 2.79 square miles. This yields a population density of 4,999 persons and 2,179 households per square mile. By comparison, Hennepin County has an overall population density of 2,082 persons and 865 households per square mile.

Of the 6,080 Robbinsdale households in 2010:

- Average household size was 2.28 persons;
- Average family size was 2.99 persons;
- 67% were 1 and 2 person households;
- 56% (3,375) were family households;
- 28% (1,687) included individuals under 18 years of age;
- 22.6% (1,364) included individuals over 65 years of age

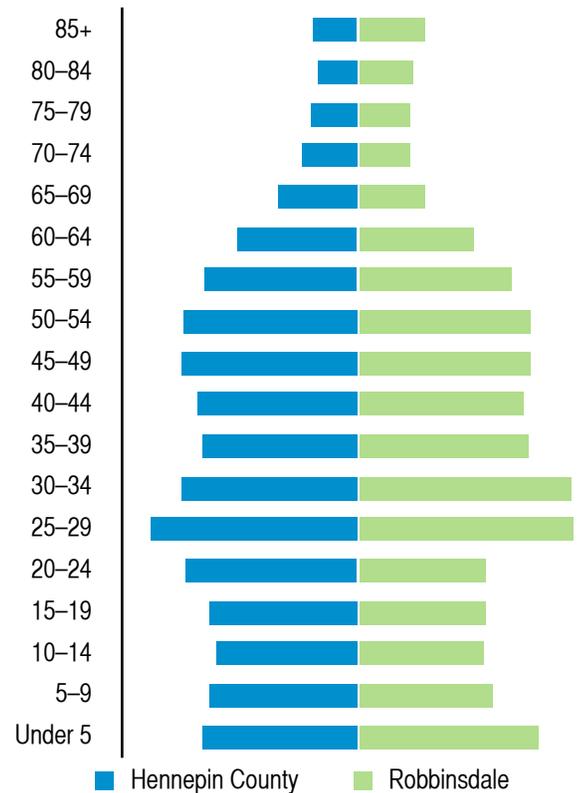
1.4.2 - Age Distribution

Almost a quarter of Robbinsdale’s population (22%) is less than 18 years of age, and about 15% of its population is of school age (between 5 and 18 years of age). Almost 12% of the population are senior adults 65 years of age or older. The median age for the city is 36.9 years.

1.4.3 - Income Levels

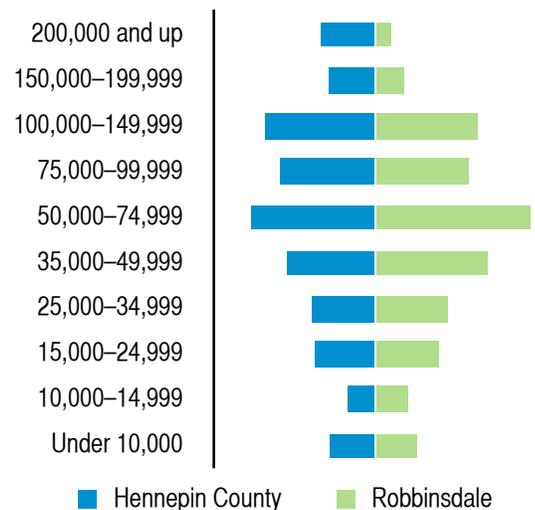
According to (2008-2012) U.S. Census American Community Survey 5-Year Estimates, the median household income in Robbinsdale was \$54,731. The same survey estimated that 10.0% of all persons residing in Robbinsdale fall below the poverty line. By contrast, Hennepin County has a median

Age Distribution



Robbinsdale has slightly fewer school-age children, and slightly more elderly residents than Hennepin County on a whole.

Income Distribution



Income levels in Robbinsdale are lower than Hennepin County as a whole.

household income of \$63,559 and an estimated poverty rate of 12.6%.

1.4.4 - Commuting and Travel Patterns

A total of 355 residents in Robbinsdale (about 4.2% of total employed Robbinsdale residents) also work in Robbinsdale, according to 2011 figures from the U.S. Census, Center for Economic Studies. This means that cities other than Robbinsdale are the most popular destination for commuters among locations for employment.

A total of 8,195 (95.8% of total employed) live in Robbinsdale but work outside of the city. Of these that commute to destinations outside of Robbinsdale, 1,864 work in Minneapolis, and 1,126 work in the nearby communities of Golden Valley, Plymouth, and Brooklyn Park. The rest commute to other locations, including St Paul, Bloomington, St Louis Park, Minnetonka, and others.

The U.S. Census (2008-2012) American Community Survey 5-Year Estimates can be used to determine the mode of travel among commuters. According to these figures, 7,480 Robbinsdale residents commuted to work, nearly 7% take transit and 2.4% walk, while only 0.3% bike. By comparison, according to the same data, 6.4% of Minneapolis commuters walk to work, and 4.1% bike to work. Portland, Oregon leads the nation among large cities with about 6% of employees biking to work. Small and mid-sized cities are experiencing significant increases in the rates of bicycling. Many of the cities that lead the nation in the rate of biking (and walking) to work are small cities between 20,000 and 100,000 people.

How do Robbinsdale residents get to work?

This is how employed Robbinsdale residents arrive to work, according to the 2010 US Census:

Means of travel	Number of workers	Percent of total
Drove alone	5,750	76.9%
Carpooled	697	9.3%
Public transit	515	6.9%
Walked	182	2.4%
Other (estimate*)	116	1.6%
Work at home	220	2.9%

** Includes employees who primarily travel to work by bicycle.*

Did you know?

- Almost one quarter (24%) of trips made by Dutch seniors 65 or older are made by bicycle
- Almost one out of every five trips (18%) made by German seniors are by bicycle
- About 0.2% of US senior trips are by bike

Source: John Pucher and Lewis Dijkstra, Promoting Safe Walking and Cycling to Improve Public Health: Lessons from the Netherlands and Germany. American Journal of Public Health, Vol. 93, No. 9, September 2003.

1.4.5 - Implications For This Plan

- Just over one-third of Robbinsdale's population is either under the age of 18 or over the age of 65. Providing safe, comfortable, and convenient walking and biking connections to schools, parks, recreation centers, and transit is an important focus for this plan.
- Connecting low-income populations with important destinations including transit, employment opportunities, school, community centers, and basic needs including pharmacies and grocery stores will help improve convenience and quality of life.



Pedestrians in downtown Robbinsdale.

1.5 - Relevant Policies and Plans

Current local, state and federal policies offer strong support for making improvements that benefit pedestrian and bicycle mobility throughout the Twin Cities metropolitan region. The following plans and policies have implications for pedestrian and bicycle planning in Robbinsdale.

1.5.1 - The Local Context

Complete Streets Policy

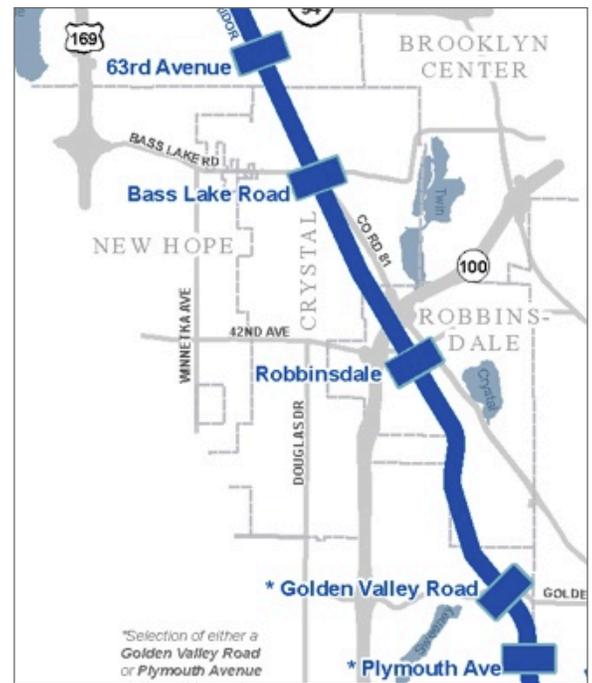
In July 2013, the City of Robbinsdale formally adopted a Complete Streets Policy and proclaimed its support for designing, constructing, and operating the city's transportation system to enable safe access for users of all modes of transportation, and of all ages and abilities. The City outlined specific principles including connecting system gaps and installing pedestrian and bike-specific infrastructure elements.

Comprehensive Plan

The Robbinsdale 2030 Comprehensive Plan establishes the city's direction for growth, redevelopment and infrastructure improvements, land use decisions, development requests and public investments based on projections to the year 2030. It includes detailed guidance regarding: land use, redevelopment, and community image; housing; transportation; public utilities including water, sewer, and solid waste; and parks and open spaces. The Plan briefly identifies walkway and bikeway systems, as well as barriers (all major transportation corridors) and potential opportunities.

Bottineau Boulevard Land Use and Transit-Oriented Development Plan

This document provides a vision for how Transit-Oriented-Development (TOD) goals and principles could be applied to areas that include automobile-oriented development. Key sites and strategic connections were identified to illustrate how the area may intensify over time but with minimal impact on uses not likely to change.



The Bottineau LRT Blue Line Extension will offer LRT service to Downtown Robbinsdale, increasing demand for walking and biking trips.
Image courtesy of metro council.org.

Bottineau LRT Transitway Station Area Pre-Planning Study

This study was a collaboration between Hennepin County, Metropolitan Council, and the six cities along the future Bottineau LRT Transitway, including Robbinsdale. The study establishes a corridor-wide vision to guide decision-making for future planning and implementation, and identifies key destinations, transit-oriented development opportunities, and important walking and biking connections.

Population and employment growth, combined with mixed-use redevelopment, means increased demand for walking and biking trips to connect to destinations in these areas. Integrated safe, connected, and comfortable facilities for walking and biking to and within these areas can support important increases in walking and biking trips.

1.5.2 - Metropolitan Council

The Metropolitan Council explicitly supports improvement and provision of bicycle facilities as part of transportation investments in cities within its jurisdiction.

2030 Transportation Policy Plan

The Metropolitan Council’s 2030 Transportation Policy Plan includes several policies that strongly recommend provision of pedestrian and bicycle facilities. Support for pedestrian and bicycle improvements are evident in the following policy:

Policy 15: Develop and Maintain Efficient Pedestrian and Bicycle Travel Systems

“Safe, high-quality, continuous, barrier-free pedestrian and bicycle facilities must be developed, maintained, and improved to function as an integral part of the region’s transportation system. Compact, mixed-use development with facilities for pedestrians and bicyclists helps reduce short automobile trips ... As recognized in the federal surface transportation law, well-developed pedestrian and bicycle systems help promote energy conservation, reduce the pressure on the highway system, and preserve the environment. In addition, recent research indicates that residents of places designed with accommodations for bicyclists and pedestrians are more active and therefore healthier than residents of other areas.”

Regional Bike System Master Plan

MetCouncil conducted a Regional Bicycle System Study in 2013 - 2014, which proposed a set of Priority Regional Bicycle Transportation Corridors. It also developed a set of guiding principles for identifying regional bicycle corridors. Candidate corridors include connection to Robbinsdale.

1.5.3 - Hennepin County

Complete Streets Policy

Robbinsdale is located within Hennepin County, which was the first county in Minnesota to adopt a [Complete Streets Policy](#). Adopted in July 2009, the purpose of the policy is to ensure that streets under the county's jurisdiction are designed and operated to assure safety and accessibility for all roadway users - including pedestrians, bicyclists, transit riders and motorists.

Pedestrian Plan

The first Hennepin County Pedestrian Plan was published in September 2013. The pedestrian plan ultimately became part of the overall 2030 Transportation Systems Plan, as well as supplementing the county's Complete Streets Policy. The City of Robbinsdale was identified as being a medium-high to high priority by the County for pedestrian improvements along county roads.

Bicycle Plan

Hennepin County is working with Three Rivers Park District to update the 1997 Hennepin County bike plan to reflect current and growing uses of cycling in the region. A final version of the plan is expected in early 2015.

Did you know?

Hennepin County dedicates funds every year as part of its capital budget to support the development of Complete Streets along its road network and bicycle system:

- **For sidewalks:** \$200,000 annual budget, providing up to 25% of the cost of a sidewalk along a county road;
- **For bikeways:** \$300,000 annual budget, providing up to 50% of the cost of trail or on-street bikeway identified on the Hennepin County bicycle system plan or gap map; and
- **For bikeway gaps:** \$300,000 annual budget, providing up to 50% of the cost of trail or on-street bikeway identified on the Hennepin County bicycle system gap map.

Several important streets in Robbinsdale are part of the Hennepin County road network, including Broadway Avenue W (CR 8), Lake Drive / 42nd Avenue N / 45th Avenue N (CR 9), and Bottineau Boulevard (CR 81).

1.5.4 - At the State Level

Minnesota Complete Streets Law

On May 15, 2010, Governor Tim Pawlenty signed the Minnesota transportation policy bill, which made Complete Streets part of Minnesota law. As defined under Minnesota Statute 175.74, Complete Streets is the “planning, scoping, design, implementation, operation, and maintenance of roads in order to reasonably address the safety and accessibility needs of users of all ages and abilities.”

Minnesota’s Complete Streets laws and policies direct state transportation agencies to design and operate Minnesota roads to enable safe access for all users, including pedestrians, bicyclists and motorists.

Other Minnesota Statutes

Chapter 174, Minnesota Transportation Goals

- *Promote and increase bicycling as an energy-efficient, non-polluting and healthful transportation alternative;*
- *Provide safe transportation to users throughout the state;*
- *Provide multi-modal and inter-modal transportation that enhances mobility, economic development, and provides access to all persons.*

Chapter 116D, State Environmental Policy

State government shall use all practicable means to:

- *Assure safe, healthful, and aesthetic surroundings for all citizens;*
- *Maintain variety of individual choice;*
- *Encourage styles of living that minimize environmental degradation.*

Lowering speed limits in Minnesota cities

Minnesota statutes currently allow cities and other jurisdictions to **lower speed limits to 25 miles per hour without need of any additional engineering or traffic study if a bicycle lane is provided.**

According to Minnesota Statute 160.263, Bicycle lanes and ways, Subdivision 4, Speed on street with bicycle lane:

“Notwithstanding section 169.14, subdivision 5, the governing body of any political subdivision, by resolution or ordinance and without an engineering or traffic investigation, may designate a safe speed for any street or highway under its authority upon which it has established a bicycle lane; provided that such safe speed shall not be lower than 25 miles per hour. The ordinance or resolution designating a safe speed is effective when appropriate signs designating the speed are erected along the street or highway, as provided by the governing body.”

Minnesota Department of Transportation (MnDOT) policies

The Minnesota Department of Transportation (MnDOT) is a national leader in Context-Sensitive Solutions (CSS) and is recognized for policies that strongly advocate for the provision of adequate facilities for pedestrians and bicyclists.

Americans with Disabilities Act Transition Plan

The MnDOT Americans with Disabilities Act Transition Plan, updated in July 2011, states: *“The success of making our transportation system fully accessible depends on the coordinated efforts of all levels of government, the public, and the policies and strategies outlined in this plan. MnDOT will continue to look for opportunities to involve citizens, stakeholders and partners in the implementation of this plan, future updates to the plan, and in policy decisions affecting accessibility. Together, we can realize a shared vision of an accessible, safe, efficient, and sustainable transportation system.”*

Minnesota Go Long-Term Comprehensive Transportation Plan

MnDOT is currently in the process of developing a comprehensive multi-modal statewide transportation plan. The Statewide Bicycle System Plan, currently underway, is a part of that larger plan. Pedestrian and transit focused plans are also anticipated to guide the transportation vision for the next 50 years.

MnDOT Reference Documents

The following list of reference documents have been prepared by MnDOT and are related to bicycle and pedestrian travel:

- 2007 Bikeways Facility Design Manual;
- 2013 Minnesota’s Best Practices for Pedestrian/Bicycle Safety;
- 2013 Best Practices Synthesis and Guidance in At-Grade Trail-Crossing Treatments.

1.5.5 - Federal Policies

AASHTO guidance

The American Association of State Highway and Transportation Officials (AASHTO) is a standards-setting body that publishes specifications and policies guiding highway design and construction practices throughout the United States. Its policies strongly support accommodation of bicyclists and recommend the provision of adequate bicycle facilities:

“All highways, except those where bicyclists are legally prohibited, should be designed and constructed under the assumption they will be used by cyclists. Therefore, bicycles should be considered in all phases of transportation planning, new roadway design, roadway construction and capacity improvement projects, and transit projects.”

In 2012, AASHTO released a new bicycle planning guide (Guide for the Development of Bicycle Facilities, 4th Edition). Developed with guidance obtained through the NCHRP (National Cooperative Highway Research Program), it supplements other guides such as:

- 2009 Manual on Uniform Traffic Control Devices
- 2011 Policy on Geometric Design of Highways and Streets, 6th Edition, “Green Book” (AASHTO)
- PROWAG (a formal set of public rights-of-way accessibility guidelines)
- 2010 Highway Capacity Manual

The new AASHTO guide covers paths and on-road bikeways and features bikeway level of service (LOS) considerations for roadway design. The guide:

- Authorizes the narrowing of motor-vehicle lanes - down to and including 10 foot and 11 foot widths - in order to better accommodate pedestrian and bicycle needs
- Provides nuanced guidance on bike lane design

- Is consistent with all applicable Federal / FHWA guidance, so that all projects designed in accordance with the 2012 AASHTO Bicycle Guide should be acceptable for and eligible for receiving federal funding
- Provides greater flexibility in the design process in order to better accommodate bicycling in urban contexts

AASHTO’s 2004 pedestrian planning guide (Guide for the Planning, Design, and Operation of Pedestrian Facilities, 1st Edition) is slated for an updated version in 2015-2016. Other potentially helpful reference manuals from AASHTO include: the 2014 Guide for Geometric Design of Transit Facilities on Highways and Streets, 1st Edition and the 2004 Guide for Park-and-Ride Facilities, 2nd Edition.

Federal agencies

The [Bicycle & Pedestrian Program](#) of the Federal Highway Administration's (FHWA) Office of Human Environment promotes bicycle and pedestrian transportation use, safety, and accessibility.

FHWA also sponsors resources such as the [Pedestrian and Bicycle Information Center](#) to provide information on a wide variety of engineering, encouragement, education, and enforcement topics. The Center was established with funding from the US DOT and is operated by the University of North Carolina Highway Safety Research Center.

The [FHWA Bicycle & Pedestrian Program](#) issues guidance and is responsible for overseeing that requirements in legislation are understood and met by the States and other implementing agencies. The FHWA also grants Interim Approval of new traffic control devices, a revision to the application or manner of use of an existing traffic control device,

or a provision not specifically described in the MUTCD. Of recent significance is the FHWA’s Interim Approval of the optional use of green colored pavement in marked bicycle lanes and in extensions of bicycle lanes through intersections and other traffic conflict areas (see [Interim Approval document IA-14](#)).

Federal law

MAP-21, the Moving Ahead for Progress in the 21st Century Act (P.L. 112-141), was signed into law by President Barack Obama on July 6, 2012. Funding surface transportation programs at over \$105 billion for fiscal years 2013 and 2014, MAP-21 is the first long-term highway authorization enacted since 2005. Although the law reduces direct Federal funding for biking and walking projects, it presents a mechanism for funding these projects through state and local governments to fully utilize available funds to make biking and walking safer and more convenient.



Community Engagement



This section includes a summary of community engagement conducted to collect public opinions and comments related to walking and bicycling in Robbinsdale.

In this section

- 2.1 – Introduction
- 2.2 – Engagement Activities
- 2.3 – Summary of Overall Results and Themes

2.1 - Introduction

Engagement with Robbinsdale residents and city staff served as the foundation for the recommendations in this Plan. The community engagement process was planned and facilitated to achieve the following objectives:

- Offer multiple opportunities for participation;
- Offer a combination of in-person and online engagement activities;
- Seek the participation of under-represented and health-disparity communities;
- Take engagement activities to places where residents were already gathering; and
- Provide useful guidance for development of the Plan, including guidance on policy priorities, Plan vision, network development, and facility designs.

The comments, questions and ideas generated through that engagement inform the recommendations presented and developed in this project.

This section provides an summary of engagement activities and results. A full report detailing all community engagement activities and results received is included in this Plan’s Appendix.



At the Robbinsdale Eggstravaganza.

With whom did we meet?

These are the in-person meetings that were held as part of this work:

Event	Date
City of Robbinsdale Project Steering Committee	2/3/2014
Robbinsdale Chamber Eggstravaganza at Robbinsdale City Hall	4/12/2014
Birdtown Half Marathon at Lakeview Terrace Park	5/17/2014

Participation: by the numbers

Robbinsdale residents were invited to provide their comments about walking and bicycling in the city both in person and online:

- **Over 100** residents provided comments in person at one of the community events;
- **90** people provided feedback using the online survey; and
- **40** people logged into the online map and provided over **80** comments.

2.2 - Engagement Activities

A variety of in-person and online activities were available to gather resident guidance and comments. A brief description is provided in this section.

2.2.1 - In-Person Engagement

Staff Steering Committee

The project team met periodically with City Manager Marcia Glick and Community Development Coordinator Rick Pearson throughout the project. In addition to project progress updates, the meetings offered the opportunity to enhance the understanding existing walking and biking assets and constraints in Robbinsdale, and develop the recommendations included in the plan.

At the February 3, 2014 meeting, the project team facilitated a set of formal activities and discussion with city staff. A summary of this meeting and the ideas and suggestions received is included as an Appendix to this report.

Community Events

Representatives of the consultant team were present with engagement materials at the Robbinsdale Chamber of Commerce Eggstravaganza on April 12, 2014, and the Birdtown Half Marathon on May 17, 2014. A summary of these community events, including comments received, is included as an Appendix to this report.

2.2.2 - Online Engagement

Project Website

A public website was created for the project (www.robbinsdalepedbikeplan.org) which included updates on project process and information, housed online engagement activities, and communicated project updates. The website was launched in late March/early April 2014 and included direct links to the online survey and online interactive map, discussed below.



At the Birdtown Half Marathon.



A public website (www.robbinsdalepedbikeplan.org) was set up to provide information and engagement opportunities for the public.

Online Survey

A survey was made available on the project website. The survey was provided so that all interested Robbinsdale residents could offer comments and ideas for the Plan without needing to attend in-person workshops. Survey questions closely mirrored the in-person engagement activities. The survey offered the ability for a respondent to answer solely walking questions or biking questions, or both.

Questions included those asking about:

- Walking and biking preferences, practices, and destinations;
- Perceived and real barriers to walking and biking; and
- Opinions about ways in which it can be made easier and more convenient to walk and bike in Robbinsdale.

Basic demographic characteristic questions were also asked of participants to help determine the extent to which the survey reached a cross-section of Robbinsdale residents.

Online Interactive Map

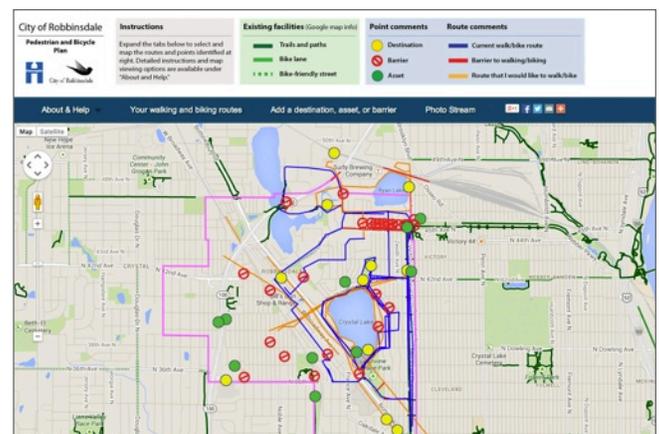
An online WikiMapping tool was made available to receive public comment at the project website. The tool was intended to gather ideas and suggestions in map format regarding current walking and biking routes and destinations, barriers, and gaps in the network.

Respondents were invited to use the tool to identify:

- Destinations;
- Barriers to walking and biking;
- Assets to walking and biking;
- Routes that participants currently take; and
- Routes that participants wish they could take.

The tool allowed respondents to place dots and lines on a map, and write comments associated with each feature added. All locations and description information provided by participants were digitized and transcribed into a geographic information systems (GIS) database and are summarized in Section 3 of this report. GIS data with all comments will be provided to the City of Robbinsdale.

This section provides an summary of engagement activities and results. A full report detailing all community engagement activities and results received is included in this Plan's Appendix.



The online mapping tool allowed participants to identify specific walking and biking routes, assets, and barriers using a familiar Google Maps interface.

2.3 - Summary of Overall Results and Themes

This is a summary of aggregate results for the mapping of destinations, assets, barriers, and routes in Robbinsdale across in-person and online engagement. Additionally, overall results and themes from the public engagement effort are discussed.

2.3.1 - Results from Mapping

Map comments pertaining to walking and biking assets, barriers, destinations, and routes in Robbinsdale were received at both in-person engagement sessions, as well as through the online WikiMap. The mapping exercise was available at the February 3 Staff Steering Committee Meeting, April 12 Eggstravaganza, and the May 17 Birdtown Half Marathon.

Process and instructions for this activity were kept constant, yielding results that can be aggregated with online results. Aggregating all of the results (online and in-person) on a single map yields a “heat” map of destinations, assets, barriers, and routes. **2.3.2** (on the next page) is useful as an approximation of general patterns for residents’ understanding and interaction with the city’s pedestrian and bicycle network.

Additionally, the map can help highlight where key route connections may be needed. These results inform recommendations for improvements needed at certain locations and for enhancing overall network connectivity.

All data points, and specific text comments associated with each point and line are included in the GIS shapefiles for mapping activity data.

Assets to walking and biking

Assets identified across all mapping exercises included the following, among others:

- Victory Memorial Trail;
- Pedestrian/bike tunnel under Bottineau Boulevard south of U.S. Highway 100;
- Path around baseball field at Robbinsdale Middle School;
- Flashing stop signs in Downtown Robbinsdale; and
- Pedestrian/bike bridge over U.S. Highway 100 at 39th Avenue N.

Destinations

Destinations identified included the following, among others:

- Downtown Robbinsdale;
- Lakeview Terrace Park;
- Sanborn Park; and
- North Memorial Medical Center.

Barriers to walking and biking

Barriers identified included the following, among others:

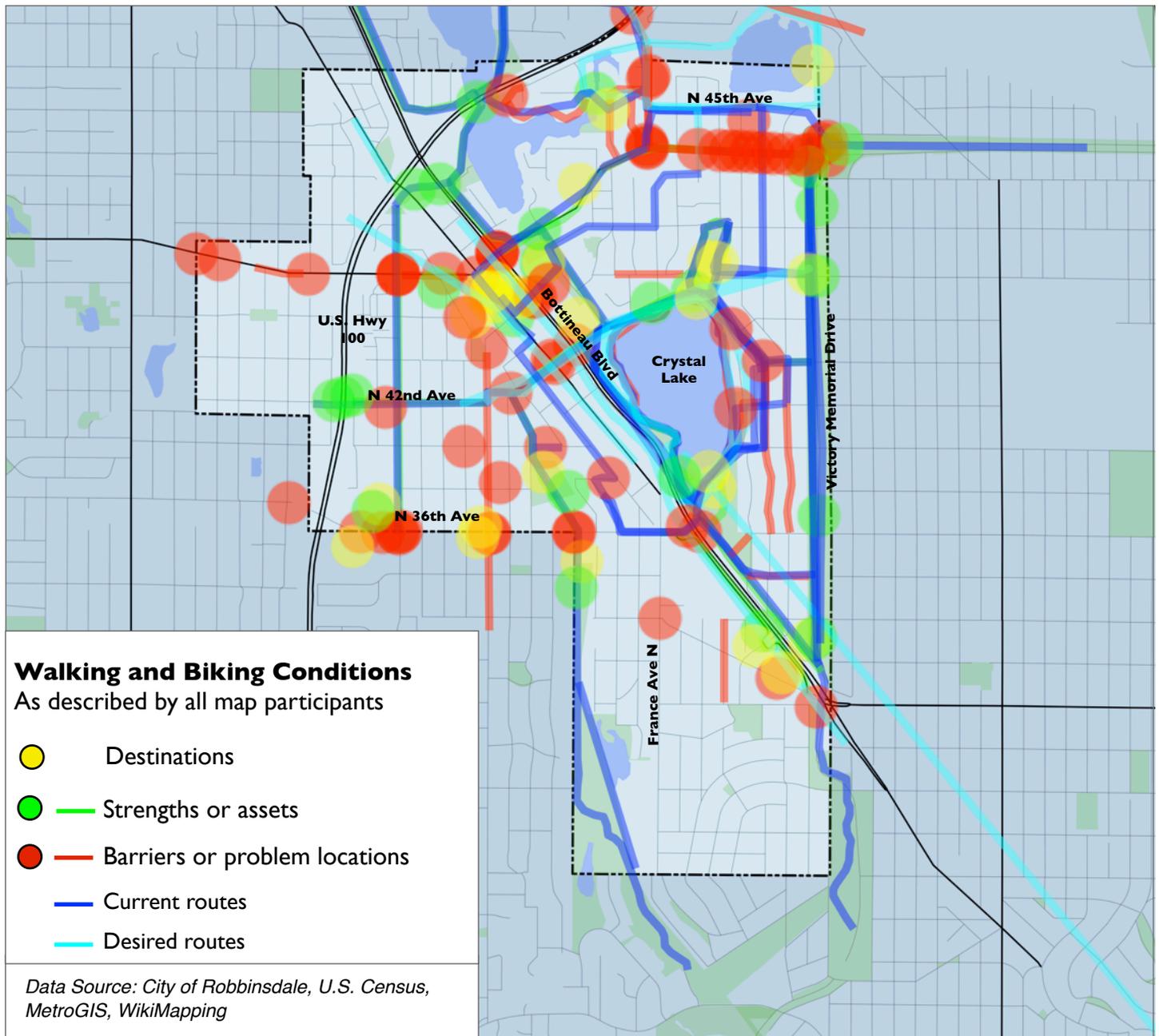
- Intersections along 42nd Avenue N/Lake Drive/45th Ave N/County Road 9;
- Bottineau Boulevard/County Road 81;
- Lack of continuous connection around Crystal Lake; and
- 36th Avenue North.

Current and desired walking and biking routes

Routes (current and desired) identified included the following, among others:

- Victory Memorial Trail;
- Around Crystal Lake; and
- 39th Avenue N → 40th Avenue N → Shoreline Drive → 42nd Avenue North.

2.3.2 - Aggregate of All Mapping Results - Walking and Biking Destinations, Barriers, and Routes



2.3.3 - Overall Themes

Several themes emerged from engagement with Robbinsdale residents, including:

Significant foundation for walking and biking in place today

Robbinsdale has an excellent foundation for walking and biking, and many current walking and biking assets that are enjoyed by residents and visitors. With a core downtown area, relatively compact size, grid street network, and good sidewalk coverage, Robbinsdale is inherently walkable and bikeable. In general, destinations are close by and can be reached easily on foot and by bike. Trails such as the Victory Memorial Trail can be accessed easily, and connections can be made to adjacent communities and recreation areas. The ability to walk and bike in Robbinsdale contributes to the small town feel and sense of community residents feel.

Greater separation from motor vehicles is desired

Participants expressed a general desire to be separated from motor vehicles when walking and biking. Many also expressed the desire for additional bike lane striping on certain roadways, giving bicyclists a defined space on the road. The desire for off-road trail connections was also expressed in many cases.

There are several key opportunities for improving conditions for walking and biking

Despite a positive opinion about the walking and biking conditions in Robbinsdale, engagement participants identified several issues that represent opportunities for improvement.

Address gaps in the network

Frequently, participants mentioned routes that were missing sidewalks or bike facilities, roads that are uncomfortable to bike or walk on, or connections to key destinations that are missing. The need for bike facilities along major roads was cited.

Improved bike connections to adjacent communities and destinations was also mentioned.

Intersection crossings

Many participants cited intersection crossings as being significant points of conflict with vehicles. These intersections have high motor vehicle volumes, multiple travel lanes, turning vehicles, and wide crossing distances. In many cases, intersection crossings were identified by participants as barriers to walking and biking.

Education and enforcement of traffic laws

Participants frequently mentioned the need for improved awareness of people walking and biking by drivers of motor vehicles. Participants also suggested improved education and enforcement of traffic laws so that all users safely interact with each other.

Bicycling parking

Increased bicycle parking at destinations was requested by many participants.

Consistent, on-going maintenance

Winter maintenance, particularly ice and snow removal, was mentioned by participants as a priority area for improvement.

Public safety as a barrier to walking and biking

Participants cited the need for improved safety measures along pedestrian and bicycle facilities, particularly at night. Improved lighting was mentioned as a potential area of improvement.



Existing Conditions, Analysis, and Summary of Issues to Address



This section summarizes the existing conditions of the walking and biking network in Robbinsdale. It also discusses the methods that were used to analyze the network and identify locations needing improvement. A summary of specific locations needing improvement is also presented.

In this section

- 3.1 – Introduction
- 3.2 – Existing Conditions
- 3.3 – Network Analysis: Understanding the Existing Walking and Biking Network and How Users Interact With It
- 3.4 – Network Vision

3.1 - Introduction

This chapter summarizes key learnings from:

- Information collected from site visits,
- Issues received from city staff, and
- Issues received from Robbinsdale residents,

and combines it with modeling and analysis completed to:

- Understand underlying patterns of demand,
- Determine the suitability of existing facilities to address the walking and biking needs of Robbinsdale residents, even if they are not currently regular users of the walking and biking network, and
- Identify areas where attention should be focused to maximize connectivity gains and improve overall conditions for walking and biking in the city.

The end products of this chapter are:

- A list of issues, routes, locations and intersections to be addressed, and
- A set of guiding principles to guide recommendations for improvement.

This chapter is the starting point for the recommendations included in this Plan, which begin on Chapter 4 (the next chapter in the Plan).



On the Victory Memorial Parkway Trail.

3.2 - Existing Conditions

3.2.1 - Overview

Robbinsdale is a compact city with a gridded street network and a core downtown commercial area. Many residents identify Robbinsdale as having a “small-town feel.” These characteristics, combined with the existence of parks, schools, transit stops, commercial, and other destinations throughout the city, are significant assets for its walking and biking network.

Robbinsdale has a system of sidewalks that are present across the city. Off-road facilities exist offering connections at parks and under/over U.S. Highway 100, West Broadway Avenue, and Bottineau Boulevard. Paved shoulder facilities able to accommodate bicyclists are present along some city streets.

The city is within close proximity to regional destinations and walking and biking amenities such as the Victory Memorial Parkway and Theodore Wirth Parkway, as well as Downtown Minneapolis.

Several intersections and crossings, particularly at County Road facilities in Robbinsdale, present difficulties for pedestrian and bicyclist movement due to high motor-vehicle speeds and volumes, and wide crossing distances that accommodate multiple motor-vehicle travel lanes. These roadway intersections act as barriers for network connectivity.



At Broadway Avenue in Downtown Robbinsdale.

3.2.2 - Infrastructure

Sidewalks

An extensive network of sidewalks exists throughout Robbinsdale along residential streets and adjacent to commercial areas. City staff reports 70-80% sidewalk coverage on streets in Robbinsdale.

In some locations sidewalks are located on only one side of the street. Some areas of the city, particularly the northwest, northeast, south, and parts of the east side, do not include sidewalks. The absence of sidewalks in these locations was mentioned by engagement participants as a barrier to walking. The City of Robbinsdale is leading an ongoing effort to fill sidewalk gaps within the city when opportunities exist.

Surface Streets

Development in Robbinsdale generally follows a traditional street grid, providing a solid foundation for pedestrian and bicycle connectivity. A grid system allows for route choice so that pedestrians and bicyclists can choose alternate routes on calmer streets that run parallel to high-traffic arterials.

Legally, bicyclists are allowed to ride on all streets except for limited access highways. However a number of factors influence the level of comfort and sense of safety that bicyclists experience while utilizing surface streets, including (primarily) traffic speeds and volumes, and the availability of a designated space for bicyclists separated from automobile traffic.

There are paved shoulders on Lake Drive/North 45th Avenue/County Road 9. Hennepin County is undertaking improvements to this road east of Bottineau Boulevard in Robbinsdale. Approved plans call for the inclusion of on-street bicycle lanes. Final completion of this corridor is scheduled for 2016.

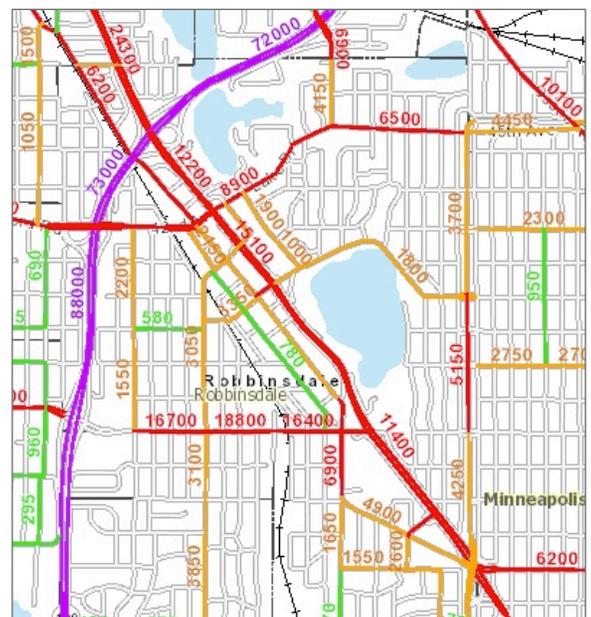
Additionally, 36th Avenue North contains paved shoulders for bicycles. No markings or signage indicating preferential use of the shoulders for bicycles exist, however. This road was recently reduced to a three-lane design.



A sidewalk along Shoreline Drive.



A paved shoulder facility on 36th Avenue North.



Arterial roadways and highways with high traffic volumes are clear barriers to east - west travel in Robbinsdale. Image courtesy MnDOT.

Shared-Use Paths and Trails

Robbinsdale has a network of off-road shared-use paths and trails in various city parks such as Lakeview Terrace Park, Sochacki Park, Lee Park, Kelly Park, Sanborn Park, and Manor Park. There is also a stretch of an off-road shared-use path at Hollingsworth Park on the north end of Crystal Lake. While these facilities provide connections within the larger bicycle transportation network, these trails often serve more recreational purposes.

The shared-use path system also offers important connections over/beneath prominent road barriers in Robbinsdale. This includes a pedestrian and bicycle bridge connecting 39th Avenue North over U.S. Highway 100, and off-road shared-use paths and tunnels connecting Regent Avenue North under West Broadway Avenue, Bottineau Boulevard, and U.S. Highway 100 to Twin Lake Beach Park and areas to the north.

Regional Connections

The Victory Memorial Parkway Trail runs between York Avenue North and Victory Memorial Drive on the eastern edge of Robbinsdale. This paved shared-use and off-road path facility is part of the Grand Rounds National Scenic Byway that is maintained by the Minneapolis Park and Recreation Board, providing connections to the Theodore Wirth Parkway and the Mississippi River.

The Twin Lakes Regional Trail connects to Robbinsdale under U.S. Highway 100 at Twin Lake, offering a paved pedestrian and bicycle connection from Robbinsdale northeast to Brooklyn Center.

The Basset Creek Regional Trail will eventually connect south of Robbinsdale to Theodore Wirth Park. A trail through Sochacki Park in Robbinsdale connects south to Golden Valley Road and the Theodore Wirth Parkway Trail. This trail will eventually connect to the Basset Creek Trail as well.

A segment of the Crystal Lake Regional Trail is scheduled to be completed through Robbinsdale in 2015, generally



An off-road shared-use path at Lakeview Terrace Park.



A pedestrian and bicycle bridge connects 39th Avenue North over U.S. Highway 100.



The Victory Memorial Parkway Trail runs along the eastern edge of Robbinsdale.

running parallel to Bottineau Boulevard. Eventually, the trail will connect from the Grand Rounds Byway northwest to Elm Creek Park Reserve.

Intersections and Trail Crossings

Sidewalks, quiet residential streets, and shared-use off-road paths offer comfortable facilities for walking and biking in Robbinsdale. The weak links in the current network are at trail crossings and intersections. Many of these locations are at crossings of the County Road facilities that run through Robbinsdale, in particular Bottineau Boulevard/County Road 81 and Lake Drive/45th Avenue North/County Road 9. These crossings are wide with numerous travel lanes, and the roads contain vehicles traveling at relatively high traffic speeds and volumes.

High visibility crosswalks are present at many locations, including along the West Broadway Avenue and the Bottineau Boulevard corridors. Recent improvements along Bottineau Boulevard/County Road 81 include user-activated pedestrian countdown timers, pedestrian medians, benches, and beautification elements.

Continuing to focus on making improvements at intersections will help to remove them as barriers to walking and biking, and ultimately result in the most continuous low-stress network for both pedestrians and bicyclists.

End of Trip and Ancillary Facilities

Bicycle parking (of the recommended inverted U-type) exists along West Broadway Avenue in Downtown Robbinsdale. Bicycle parking is also available at North Memorial Medical Center. Bicycle parking is also present at the Robbinsdale Transit Center on Hubbard Avenue. Outside of downtown, there is a need for additional bicycle parking facilities, especially at key commercial and employment destinations along Bottineau Boulevard. Bicycle parking, and pedestrian amenities such as benches and water fountains should be provided at key recreation destinations.



A pedestrian walking across Bottineau Boulevard.

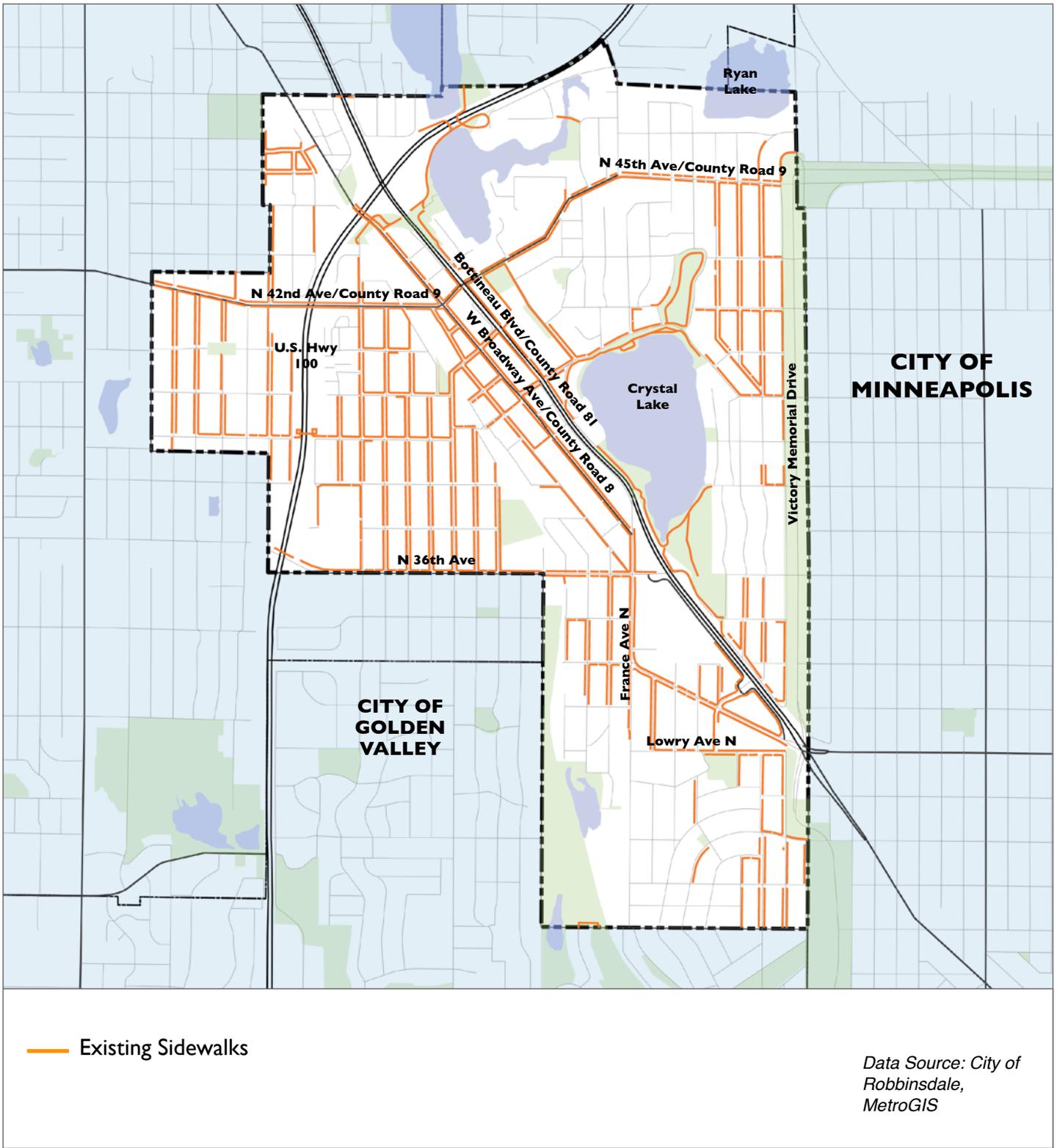


A crossing of Shoreline Drive north of Crystal Lake.

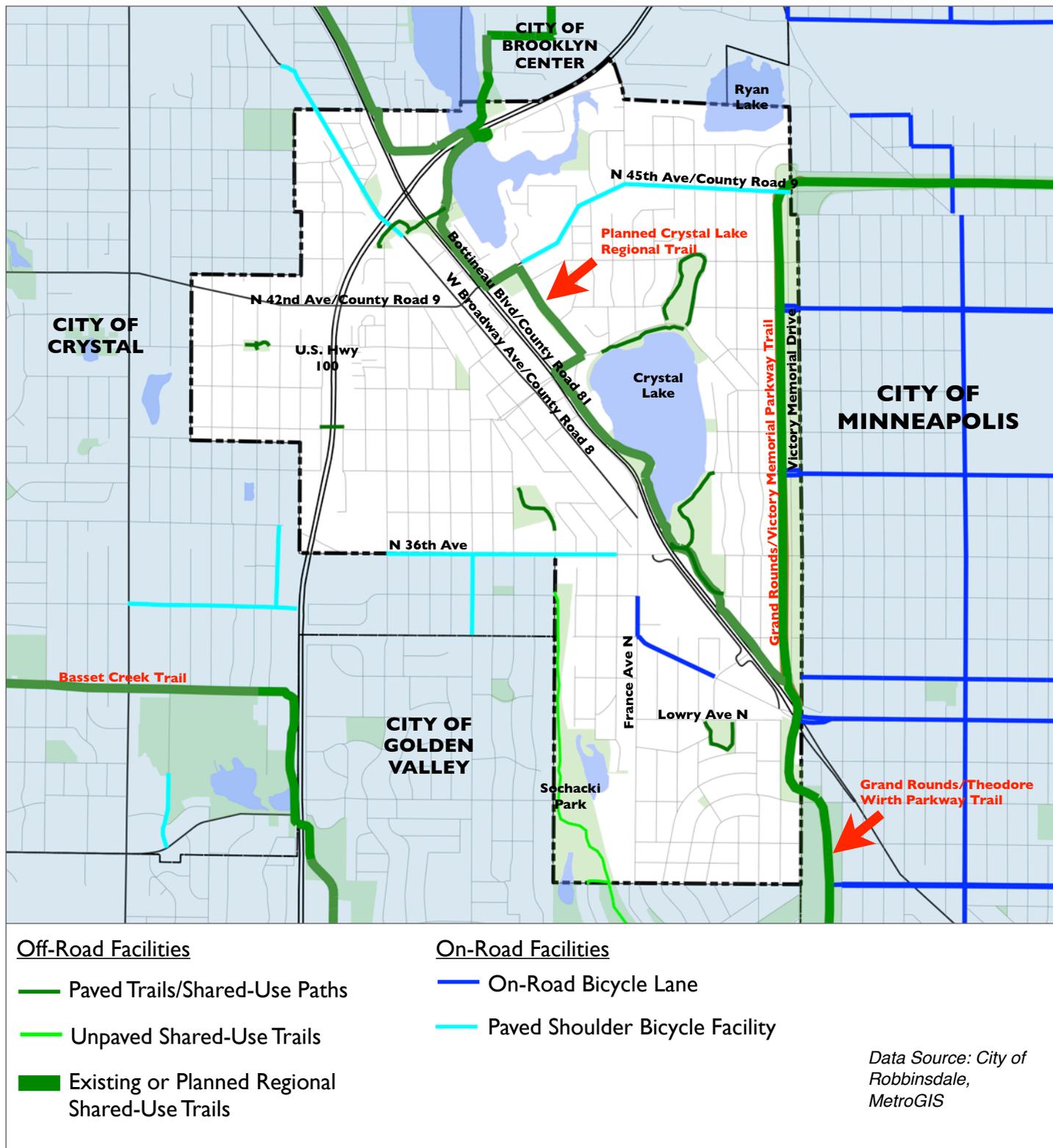


Inverted-U bicycle parking in Downtown Robbinsdale.

3.2.3 - Existing Network of Sidewalks



3.2.4 - Existing Network of On-Street Bike and Off-Road Shared-Use Facilities



3.2.5 - Destinations

Downtown Robbinsdale

Downtown Robbinsdale is a prominent destination for Robbinsdale residents and visitors alike with its unique collection of retail shops, restaurants, and historic elements. Downtown Robbinsdale generally runs along West Broadway Avenue from 42nd Avenue North to 40th Avenue North. Much of the City of Robbinsdale is within comfortable walking and biking distance from the Downtown Robbinsdale commercial core, making it a prominent destination and hub of activity. Downtown has been identified as a key destination in the Bottineau LRT Transitway Station Area Pre-Planning Study, especially since it is the only “Main Street” station on the future line.



Downtown Robbinsdale is the preeminent destination for walking and biking trips in Robbinsdale.

Schools, Parks, and Recreation Areas

Parks and recreation areas exist throughout the city. Large parks such as Lakeview Terrace Park serve city-wide functions, while smaller parks such as Manor Park serve more local neighborhood needs. Several private and public schools also draw students walking and biking throughout Robbinsdale. Schools, parks, and recreation areas, in particular, should be thought of as priority destinations for walking and biking trips among children and less experienced users.



The Robbinsdale Transit Center (site of the future Bottineau LRT Station) is a key destination for pedestrians and bicyclists.

Robbinsdale Transit Center and Future LRT Station

The current Robbinsdale Transit Center on Hubbard Avenue North includes a waiting area for transit users and bicycle parking. The future Bottineau LRT station will draw additional walking and biking trips, and create a significant opportunity to further enhance biking and walking trips to downtown Robbinsdale.

North Memorial Medical Center

North Memorial Medical Center is the primary employer in the City of Robbinsdale, and is located at the intersection of Oakdale Avenue North and Bottineau Boulevard on the city’s south side.

How Will Riders Access the Future LRT Station?

According to the Bottineau Boulevard Transitway Station Area Pre-Planning Study:

“Riders will access the transit station primarily by walking and biking, but bus and even auto may be important modes for these stations.”

3.3 - Network Analysis: Understanding the Existing Walking and Biking Network and How Users Interact With It

Several strategies were employed to understand various components of how the walking and biking network serves the needs of those wishing to walk and bike in Robbinsdale.

These components include:

- Where generators and attractors (i.e. destinations) exist for walking and biking trips (where to focus the most attention for walking and biking improvements); and
- How city staff and the general public perceive and experience the existing walking and biking network (where are the existing assets, destinations, and problem locations needing improvement).

The following methods and strategies were used to develop an understanding of these components:

- Site visits;
- Engagement with city staff;
- Engagement with the public; and
- Pedestrian and bicycle demand modeling.

These methods and the results of them are discussed in more detail below. This comprehensive understanding helps form the basis for recommendations included in Chapter 4.



A shared-use path connection under W Broadway Ave.

3.3.1 - Pedestrian and Bicycle Demand Modeling

Proximity to walking and biking destinations (attractors) was modeled to understand where walking and biking trips are expected to happen and determine where improving conditions for pedestrians and bicyclists may be most beneficial.

Areas with high concentrations of destinations in close proximity to residential concentrations are assumed to have the greatest potential for transportation-oriented (and recreational) walking and bicycling trips. Removing barriers to walking and bicycling in locations that have a high concentration of trip origins and trip destinations will have the greatest potential for increasing the number of people walking and biking, and for benefitting the greatest number of individual trips.

Principal Destinations for Walking

Destinations referenced are the result of guidance from the project team, from engagement with Robbinsdale residents, and from site visits.

Destination zones include the following areas:

- Downtown Robbinsdale core;
- Robbinsdale City Hall;
- Lakeview Terrace Park;
- Robbinsdale Transit Center;
- North Memorial Medical Center; and
- Schools in Robbinsdale.

Quarter-mile boundaries (about a 5 minute walk) were drawn to understand the relative concentration of walking attractors in Robbinsdale.

3.3.2 depicts locations with the highest concentration of key walking destinations - darker areas indicate locations with higher number of destinations within a quarter mile.

Bicycling Supply and Demand Analysis

Supply and demand for bicycling in Robbinsdale was determined. The following outlines the process.

Demand Analysis:

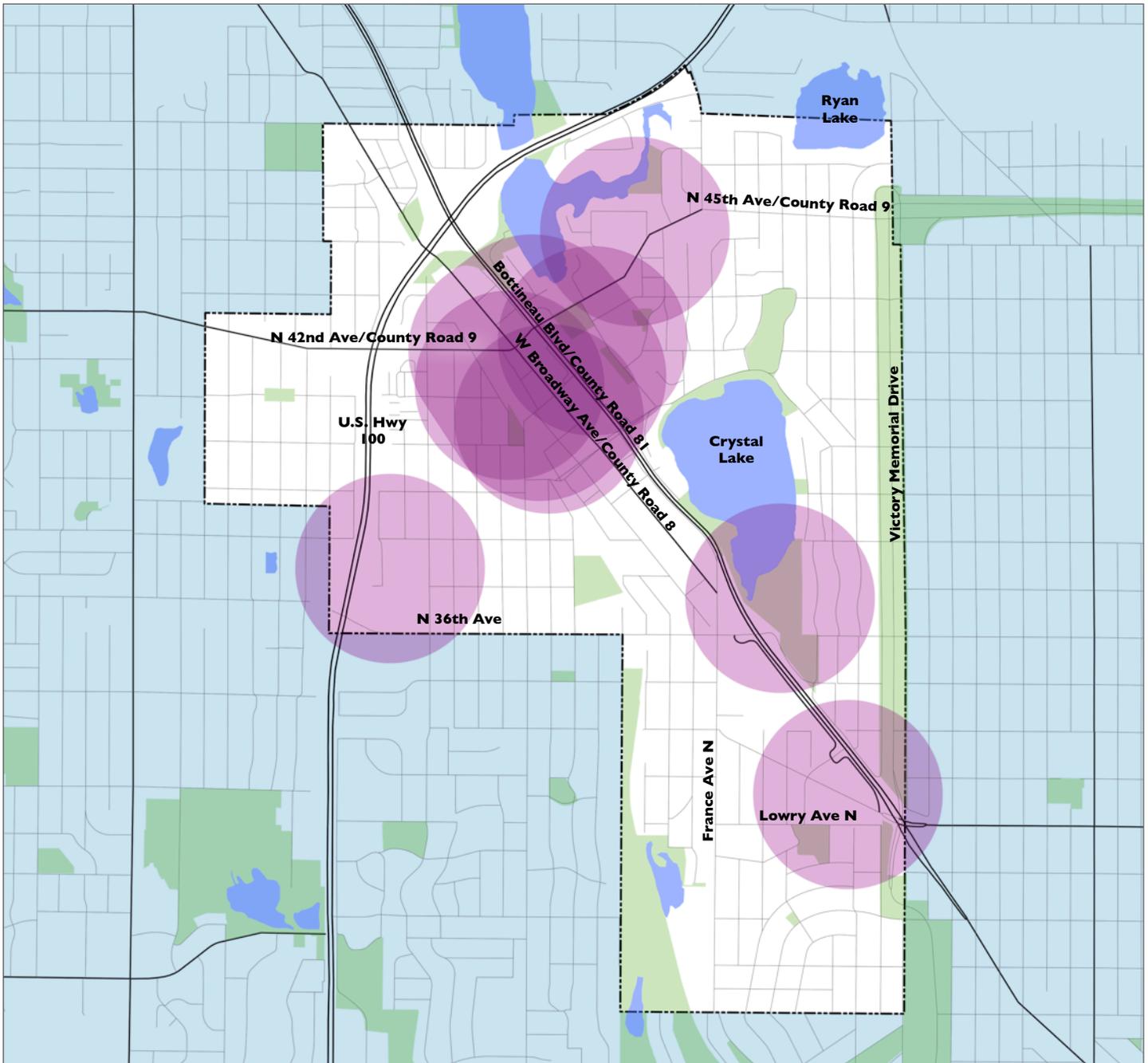
- Data sources: 2010 census block data, or 2008-2012 5 year ACS data when available, is used in conjunction with other local data for the BPSI;
- Live demand is calculated using population density, percent of bicycle or pedestrian commuters, and percent of households without a vehicle;
- Work demand is calculated using job density;
- Play demand is determined using retail, arts, entertainment, and recreation job density, as well as open spaces and schools;
- Transit demand is calculated using the bus stops in Robbinsdale; and
- The composite demand BPSI is a product of combining all demand layers.

Supply (Roadway) Analysis:

- Cycling comfort scores were assigned based on roadway classification, which was derived from standard TIGER Line files; and
- Roads were scored based on roadway and intersection type (e.g., local/local, or primary/local). Roadways were assigned the higher score. For example a local roadway that crosses a primary road would be assigned the intersection score, because that is the least comfortable part of the ride.

3.3.3 depicts the composite supply and demand analysis for biking in Robbinsdale.

3.3.2 - Primary Walking Trip Attraction Areas

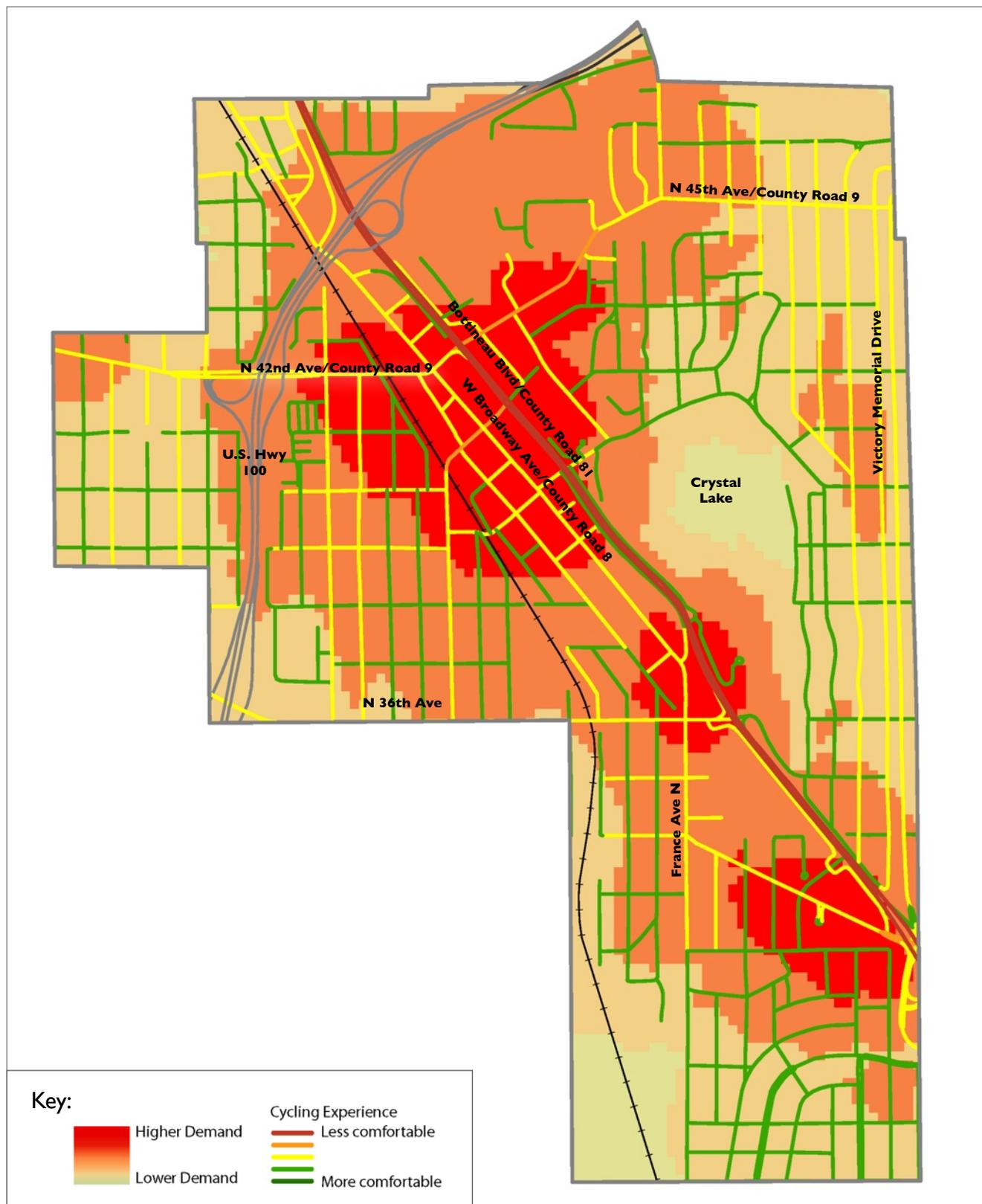


1/4 Mile Buffer Around Key Destinations

Note: 1/4 mile buffers are approximate estimations of a 5 minute walk "as the crow flies." Actual walking times and distances will vary based on routes and facilities.

Data Source: City of Robbinsdale, MetroGIS

3.3.3 - Composite Demand and Bicycling Experience



3.3.4 - Site Visits

Several site visits throughout the investigation and planning process helped inform and confirm understanding of the existing network conditions and identification of locations in need of improvement.

3.3.5 - Engagement with the Public and City Staff

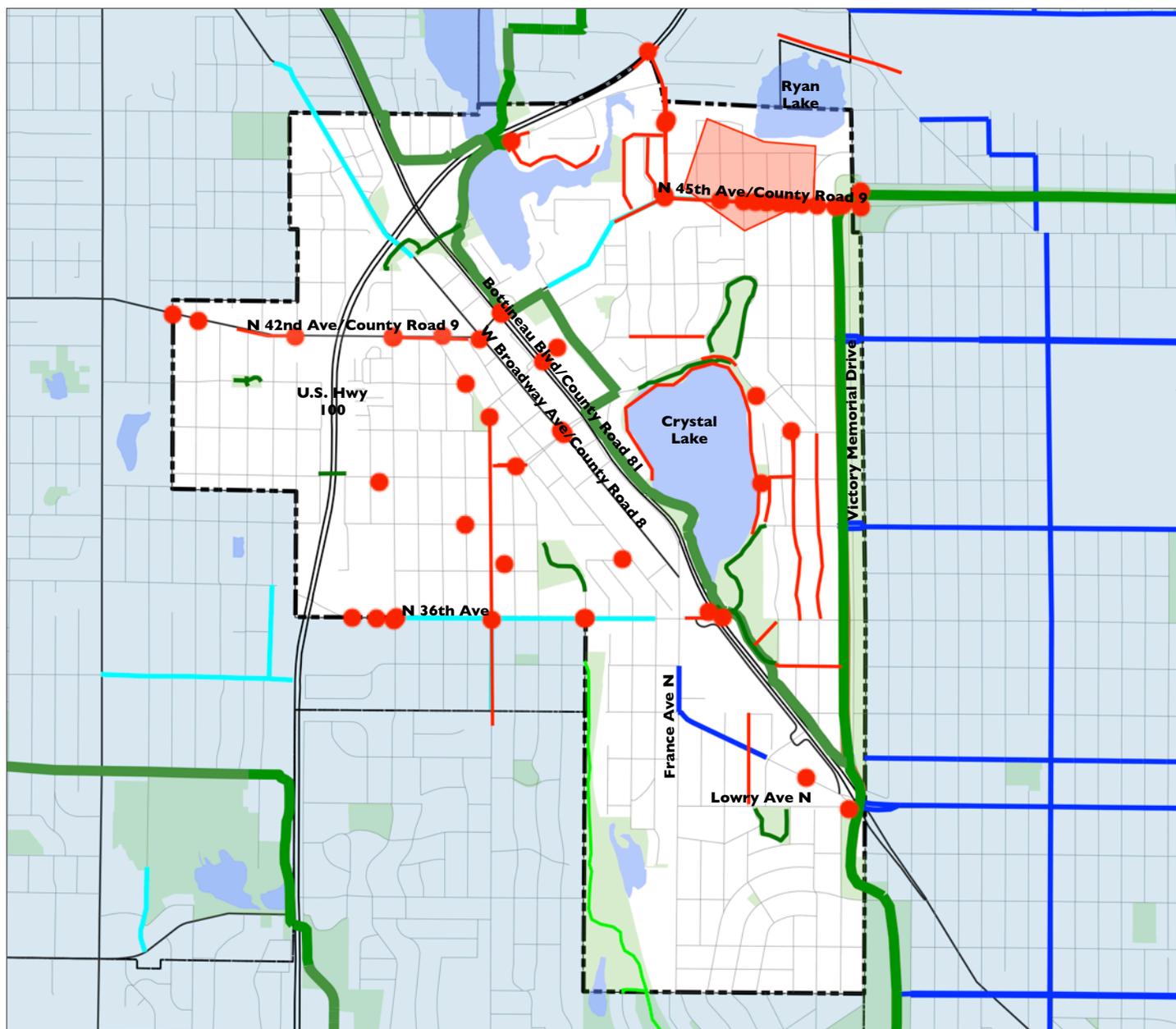
A key component to understanding where improvements are necessary, and a primary foundation for recommendations, were the comments and recommendations received from engagement with Robbinsdale city staff and residents. Comments were received through in-person meetings, and an on-line interactive mapping tool.

Comments received were combined with problem locations identified through other analysis to form a complete list. A documentation of areas needing improvement is included in **3.3.6 - Walking/Biking Problem Locations as Identified by City Staff and the Public** and **3.3.7 - Summary of Identified Problem Locations** on the following pages.



Biking near York Avenue North in Robbinsdale.

3.3.6 - Walking/Biking Problem Locations as Identified by City Staff and the Public



Off-Road Facilities

- Paved Trails/Shared-Use Paths
- Unpaved Shared-Use Trails
- Existing or Planned Regional Shared-Use Trails

On-Road Facilities

- On-Road Bicycle Lane
- Paved Shoulder Bicycle Facility

Identified Issues

- Walking/Biking Problem
- Locations Identified

Data Source: City of Robbinsdale, MetroGIS

3.3.7 - Summary of Identified Problem Locations

Location Identified
36th Avenue N / June Avenue N
36th Avenue N / Bottineau Boulevard (County Road 81)
36th Avenue N / Regent Avenue N
42nd Avenue N (County Road 9) / Regent Avenue N
45th Avenue N (County Road 9) / Victory Memorial Trail
Lowry Avenue N / Victory Memorial Trail
Victory Memorial Trail / Victory Memorial Drive / Oakdale Avenue N
40th Avenue N / Bottineau Boulevard (County Road 81)
42nd Avenue N (County Road 9) / Bottineau Boulevard (County Road 81)
42nd Avenue N (County Road 9) / West Broadway Avenue (County Road 8)
Abbot Avenue N
Crystal Lake Loop Trail
Chowen Avenue N
France Avenue N
Noble Avenue N
35th Avenue N
Halifax Avenue N
46th Avenue N
France Avenue N to shared-use trail connection
Bottineau Boulevard (County Road 81)
County Road 9

Note: Locations needing improvement identified by the consultant team through network analysis and site visits are combined with those identified by city staff and the public in this table. This table is a summary of prominent locations identified and mentioned.

3.4 - Network Vision

Following from the investigation of existing walking and biking conditions and analysis of the existing network, a conceptual connectivity framework and set of guiding principles were developed to provide a foundation for the network recommendations found in Chapter 4.

3.4.1. - Conceptual Connectivity Framework

A map of destinations and needed connections was developed as a first step to develop a walking and biking network for the city. Please note that several connections are already in place, and that specific locations or facilities are not described at this stage - the conceptual network forms a basis for thinking about overall network connectivity and what it should achieve.

3.4.2 - Conceptual Pedestrian and Bicycle Connectivity is the result of this work. Links across the network are provided as follows:

Regional Route Connections

Regional route connections (shown in dark blue) are those that provide connections through Robbinsdale and from the city to destinations in adjacent communities. The Victory Memorial Trail, proposed Crystal Lake Regional Trail, and the Sochacki Park Trail (which feeds into the Theodore Wirth Parkway Trail) serve this function in the city. Providing connections to these trails is critical for those who wish to travel to broader destinations, including commuters.

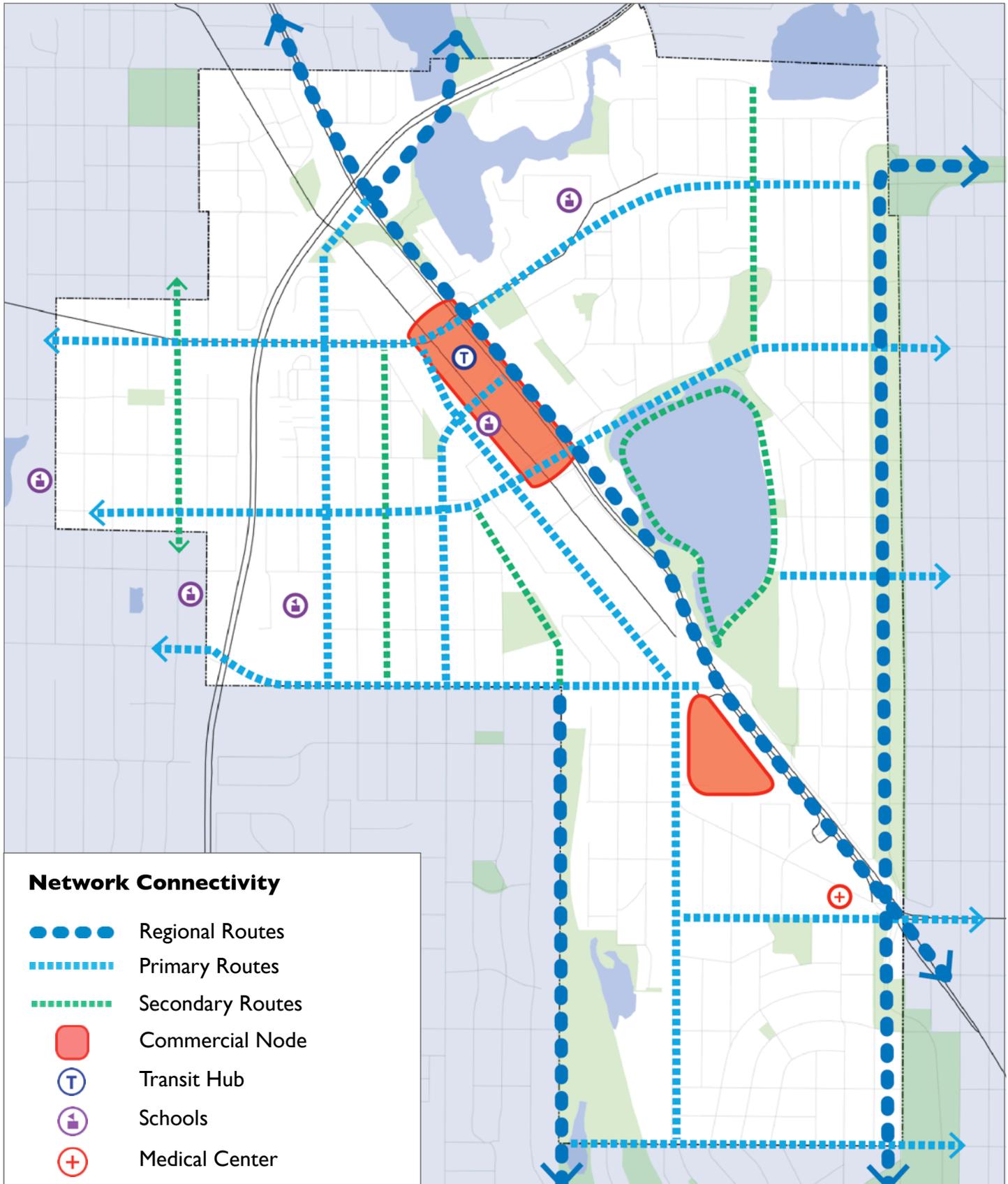
Primary Route Connections

Primary route connections (shown in light blue) are those that provide connections to key city destinations like the employment centers. Primary routes mimic the city's arterial road system.

Secondary Route Connections

Secondary route connections (shown in green) provide connections on a small scale within neighborhoods and from neighborhoods to primary routes.

3.4.2 - Conceptual Pedestrian and Bicycle Connectivity



3.4.3 - Guiding Principles

Several overall principles guide the recommendations for routes and infrastructure treatments presented in this plan. These principles are derived from work with city staff, comments from the public, and analysis of the Robbinsdale walking and biking network.

The guiding principles are:

- 1) Leverage the assets within the existing network to increase connectivity and comfort of Robbinsdale's pedestrian and bicycle network to facilitate non-motorized transportation and encourage active living among residents of all ages and abilities;
- 2) Prioritize the creation of comfortable and convenient routes and connections for youth to access schools, libraries, parks, and community facilities, and for all residents and visitors to access commercial, employment, and transit destinations with special attention to Downtown Robbinsdale and the Robbinsdale Transit Center;
- 3) Provide low-stress walking and biking options for residents to connect through and between neighborhoods, and to parks, trails, and community facilities;
- 4) Provide safe and convenient connections to neighboring communities and destinations outside of Robbinsdale, particularly the City of Minneapolis and regional trails;
- 5) Facilitate recreational walking and biking in and around Robbinsdale to and around recreation and community destinations;
- 6) Recommend practical infrastructure treatments at priority intersections/crossings to increase the comfort and accessibility of the walking and biking network;
- 7) Recommend route connections and practical infrastructure treatments to enhance the connectivity overall route network;
- 8) Recommend additional infrastructure and policy/programming recommendations to further improve conditions and to integrate walking and biking improvements into the overall culture and policy systems of the city.



Recommendations



This section includes recommendations for improving the safety, connectivity, comfort, accessibility, and convenience for pedestrian and bicycle travel in Robbinsdale.

In this section

- 4.1 – Introduction
- 4.2 – A Note About Jurisdictional Control
- 4.3 – Recommended Walking and Biking Route Network
- 4.4 – Specific Recommendations

4.1 - Introduction

This chapter includes recommendations for addressing intersections, and for improving route and network connectivity. Recommendations are based on engagement with city staff and the general public, as well as network analysis, site visits, and best-practices. In-depth description of specific tools and approaches, including tools for selecting treatments and policy, encouragement and promotion initiatives are provided on Chapter 5.



Recommendations presented in this chapter aim to make walking and biking in Robbinsdale more comfortable and accessible for users of all ages and abilities.

Finding recommendations

Throughout this chapter, you will see symbols on the bottom right hand corner of each page. These indicate the primary focus of recommendations on that page.

Page includes recommendations about walking and biking



Page includes recommendations about walking only



Page includes recommendations about biking only



4.2 - A Note About Jurisdictional Control

There are numerous opportunities to improve pedestrian and bicycle routes along or across Hennepin County roads in Robbinsdale.

Several recommended changes may cover facilities that are not entirely (or not at all) within Robbinsdale's control. Hennepin County and neighboring jurisdictions may look to this plan to gain a better understanding of the built-out walking and biking network that the City of Robbinsdale envisions. As streets are modified, it will be beneficial for the city to have a clear plan for the type and function of pedestrian and bicycle improvements it wishes to see on the roads and at the intersections.

Identifying the type and location of desired improvements and articulating them clearly in this plan makes it more likely that other agencies will implement the treatments in their projects.

Strategies for Working with Hennepin County

Recommendations for working with Hennepin County in advocating for pedestrian and bicycling improvements within Robbinsdale include:

- Maintain a close working relationship with Hennepin County's Bicycle and Pedestrian Coordinator, Bicycle and Pedestrian Planner, and Healthy Community Planning staff. Periodically check-in via phone call or email;
- Monitor the progress of implementation of the following county and regional plans:
 - *Hennepin County Pedestrian Plan*;
 - *Hennepin County Bicycle Plan*; and
 - *Metropolitan Council Regional Bicycle System Study*.
- Attend Hennepin County Bicycle Advisory Committee meetings, and work closely with committee members appointed by the District 1 Commissioner, currently Mike Opat;
- Continue engaging with the county in applying for and receiving grant funding for pedestrian and bicycle improvements; and
- During the scoping process for reconstruction, resurfacing, or other improvement of Hennepin County right-of-way in Robbinsdale, ensure appropriate county and city staff are aware of bicycle and pedestrian improvements identified in this policy document.



4.3 - Recommended Walking and Biking Route Network

4.3.1 - Long-Term Network Vision (next page) shows the existing and recommended network of routes for Robbinsdale’s walking and biking system.

This network leverages existing facilities, and includes new routes and links to address system gaps and improve overall network connectivity for pedestrians and bicyclists.

Recommendations show the long-term, developed transportation and recreation non-motorized mobility network for Robbinsdale.

Overall, this Plan strongly supports Robbinsdale’s efforts to continue to expand and improve its network of sidewalks and off-road shared-use paths, and consider on-street bicycle facilities where appropriate. Priority sidewalk improvements are shown on this map. More detail about sidewalk recommendations is included in 4.4.9 and 4.4.10.

Connecting to the City of Minneapolis network and regional shared-use paths in the proximity of Robbinsdale is a strong guiding principle of network recommendations.



In Downtown Robbinsdale.

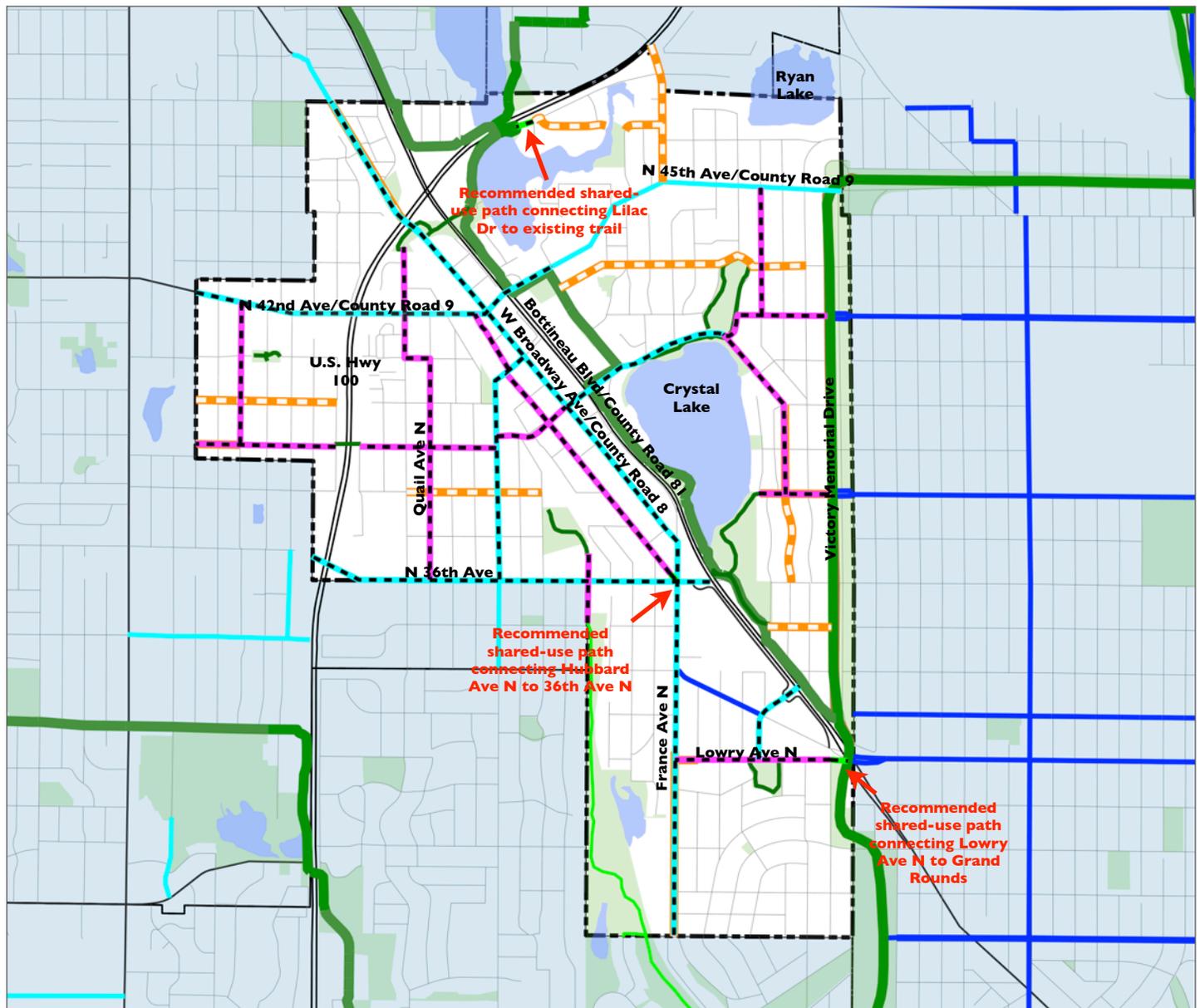
Walking and Biking Network Goals

Recommended route improvements are meant to achieve the following goals:

- Fill gaps in the network;
- Address concerns of those already walking and biking in Robbinsdale;
- Link areas of low travel stress;
- Update existing facilities;
- Build on the existing network;
- Provide key connections; and
- Include routes that connect to regional, city, and local neighborhood destinations.



4.3.1 - Recommended Walking and Biking Network



Recommended Treatments

- Neighborhood Slow Street
- On-Road Bicycle Lane
- Off-Road Shared-Use Path
- Recommended Priority Sidewalk Locations*

Existing Off-Road Facilities

- Paved Trails/Shared-Use Paths
- Unpaved Shared-Use Trails
- Existing (or Planned) Regional Shared-Use Trails

Existing On-Road Facilities

- On-Road Bicycle Lane
- Paved Shoulder Bicycle Facility

Data Source: City of Robbinsdale, MetroGIS

*Detailed information about sidewalk existing conditions and recommendations is available in 3.2.3 and 4.4.9.



4.4 - Specific Recommendations

This section outlines specific route and crossing/ intersection improvements recommended in Robbinsdale.

Recommended intersection/crossing improvements were determined such that they:

- Address comments and suggestions received from city staff and the public about problems, assets, destinations, and routes; and
- Remove barriers to connect low stress areas comfortable for pedestrians and bicyclists of all ages and abilities, particularly in areas where there is strong attraction to key destinations.

Intersections and crossings provided are presented as high priority based on need and reported user experience. At some of these locations, improvements have recently been made or are currently being made.

Recommendations offered for these and other intersections/crossings represent a desired end state of conditions for which to strive. Evolution to this end state may need to happen incrementally and as improvements are possible.

4.4.1 - Intersection and Crossing Improvements

The following intersections were identified as prominent locations in need of improvements to conditions for walking and biking:

- Regent Avenue North and 42nd Avenue North;
- Regent Avenue North and 36th Avenue North;
- June Avenue North and 36th Avenue North;
- 36th Avenue North and Bottineau Boulevard;
- Lowry Avenue North and Bottineau Boulevard;
- 40th Avenue North and Bottineau Boulevard;
- 42nd Avenue North and Bottineau Boulevard;
- 42nd Avenue North and West Broadway Avenue; and
- 45th Avenue North and Victory Memorial Parkway.

4.4.2 - Intersection / Crossing Improvements

(next page) identifies the location of these intersections/crossings,

4.4.3 - Summary of Intersection / Crossing

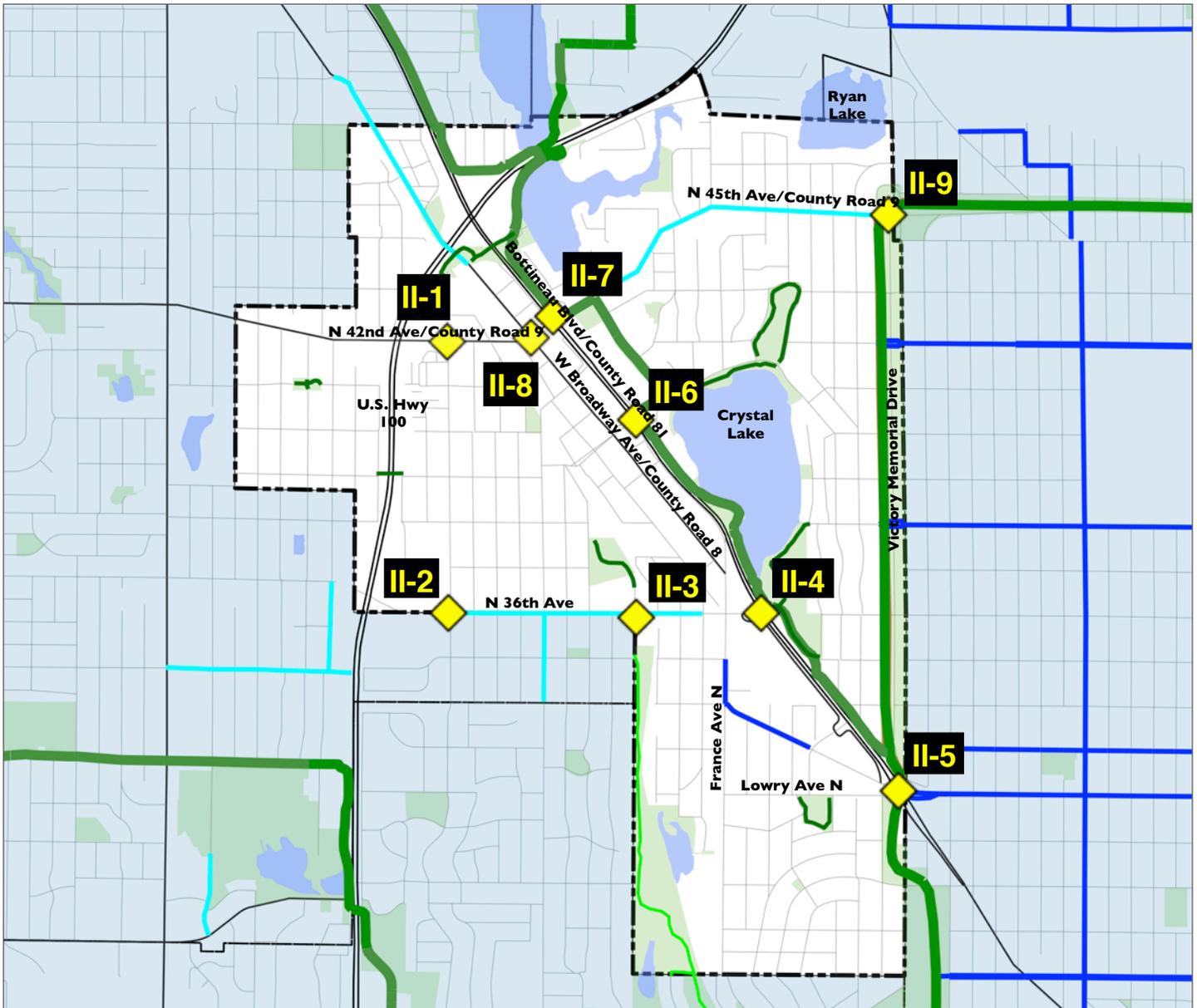
Improvements (following) lists the location of the intersections, as well as proposed treatments/ intersections, and

4.4.4 - Illustrative Intersection and Crossing

Improvements (following) provides renderings depicting application of recommended treatments and alternatives for different Robbinsdale intersections. These illustrative concepts are meant to be used as a general guide for intersections and crossings undergoing improvements across the city.



4.4.2 - Recommended Intersection/Crossing Improvements



Recommended Treatments

-  Intersections/Crossings Recommended for Improvement (II)

Existing Off-Road Facilities

-  Paved Trails/Shared-Use Paths
-  Unpaved Shared-Use Trails
-  Existing (or Planned) Regional Shared-Use Trails

Existing On-Road Facilities

-  On-Road Bicycle Lane
-  Paved Shoulder Bicycle Facility

Data Source: City of Robbinsdale, MetroGIS



4.4.3 - Summary of Recommended Intersection/Crossing Improvements

Map ID	Intersection	Recommended Treatment
II-1	Regent Avenue North and 42nd Avenue North	Implement best practices and recommendations outlined in this document for intersections/crossings: <ul style="list-style-type: none"> • Reduce turning radii; • Install high-visibility crosswalks; • Install refuge islands that extend beyond crosswalks and into the intersection; • Provide countdown timers and allow for enough time for intersection crossings; and • Consider leading intervals for pedestrians and bicyclists.
II-2	Regent Avenue North and 36th Avenue North	
II-3	June Avenue North and 36th Avenue North	
II-4	36th Avenue North and Bottineau Boulevard/County Road 81	
II-5	Victory Memorial Trail / Victory Memorial Drive / Oakdale Avenue N	
II-6	40th Avenue North and Bottineau Boulevard/County Road 81	
II-7	42nd Avenue North and Bottineau Boulevard/County Road 81	
II-8	42nd Avenue North and West Broadway Avenue/County Road 8	
II-9	45th Avenue North/County Road 9 and Victory Memorial Parkway	



4.4.4 - Illustrative Intersection and Crossing Improvements

36th Avenue N and June Avenue N

Description of Problem

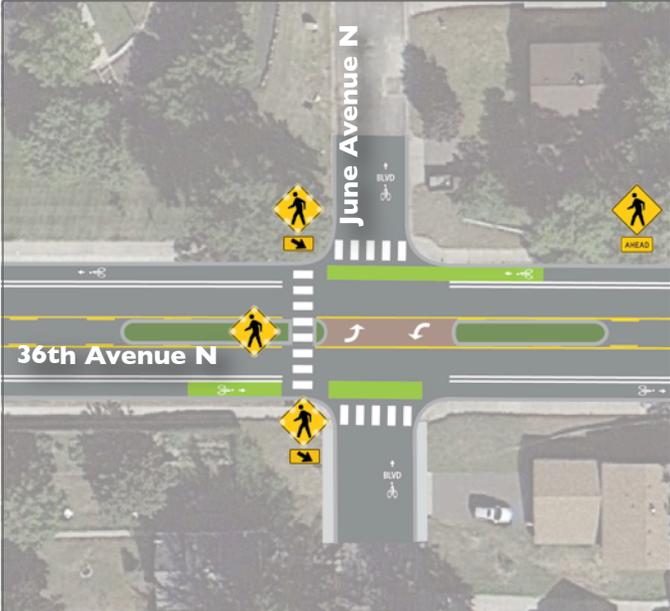
Pedestrians and bicyclists frequently cross the street at 36th Avenue N and June Avenue N between Sochacki Park (south of the intersection) and Lee Park (north of the intersection). A slope to the east of the intersection results in visibility issues between motorists and pedestrians and bicyclists attempting to crossing 36th Avenue N. The crossing is currently not marked.

Description of Recommendations

- Improve pedestrian visibility by adding high visibility painted crosswalks on the north, south, and west side.
- Install advance pedestrian crossing warning signage approaching the crossing, in particular for motorists heading west. Install user-activated flashing pedestrian crossing signs for further visibility.
- Install planted medians to calm traffic and provide a pedestrian crossing refuge on the west side.
- Visually continue median through the intersection while allowing left turns and providing a bicyclist crossing refuge by installing a contrasting pavement left turn refuge.



Existing condition.



Proposed: High visibility crosswalks, traffic calming pedestrian refuge medians, and pedestrian crossing signage improve visibility, safety, and comfort. Note that this concept rendering also assumes modifications to 36th Avenue North proposed in the route recommendations of the next section.



4.4.4 - Illustrative Intersection and Crossing Improvements (continued)

Bottineau Boulevard and 36th Avenue N

Description of Problem

Three Rivers Park District will soon install the Crystal Lake Regional Trail along the east side of Bottineau Boulevard. Currently, crossing distances are wide and complicated due to multiple turn lanes and excess lanes. Pedestrian and bicycle connections between 36th Avenue N and the future Crystal Lake Trail need to be comfortable, safe, and clear.

Description of Recommendations

- Eliminate an east-bound left turn lane on 36th Avenue N;
- Install raised median with a pedestrian refuge on 36th Avenue N, and extend existing medians to provide pedestrian refuges on Bottineau Boulevard;
- Extend 36th Avenue N bicycle lanes to Bottineau Boulevard;
- Adjust right-turn slip lane geometry to calm traffic and improve visibility of pedestrians and bicyclists;
- Install bicycle box for east bound bicyclists and a left turn bicycle box on the southeast porkchop island to connect bicyclists with the future Crystal Lake Regional Trail.



Existing condition.



Proposed: Continue bicycle lanes along 36th Avenue N to Bottineau Boulevard, reduce excess turn lanes, extend medians to provide pedestrian crossing refuges, and modify right-turn slip lane design to improve conditions for pedestrians and bicyclists.



4.4.4 - Illustrative Intersection and Crossing Improvements (continued)

42nd Avenue N and Broadway Avenue W

Description of Problem

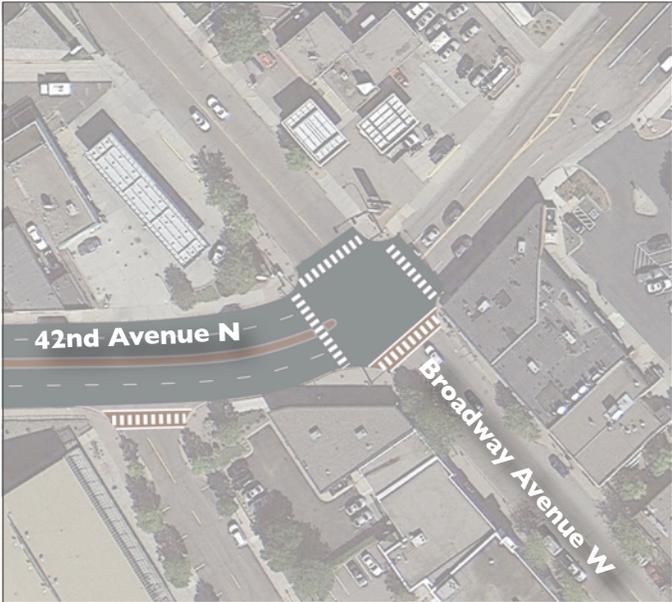
42nd Avenue N is a busy east/west corridor through Robbinsdale between Highway 100, Bottineau Boulevard, and North Minneapolis. The crossing at Broadway Avenue W is important for connecting people to Robbinsdale’s main street. This crossing will become even more important for pedestrians and bicyclists when the Bottineau LRT Station opens one block south.

Description of Recommendations

- Reduce crossing distance by extending existing median to provide a pedestrian crossing refuge;
- Continue County Road 9 road diet west of Bottineau Boulevard to provide a designated left turn lane and bicycle lanes to improve access to the downtown for motorists and bicyclists;
- Install green conflict zone paint where bicycle lanes cross intersections; and
- Install high visibility crosswalk paint at all crossings.



Existing condition.



Proposed - Alternative 1: A limited approach includes a pedestrian refuge median on the southwest crossing and slight reduction in lane widths.



Proposed - Alternative 2: Extend the 45th Avenue N road diet across Bottineau Boulevard to provide a dedicated left turn lane and on-street bicycle lanes.



4.4.4 - Illustrative Intersection and Crossing Improvements (continued)

45th Avenue N and Victory Memorial Drive

Description of Problem

The trail crossing at Victory Memorial Drive and 45th Avenue N is a key crossing for pedestrians and bicyclists traveling along the Grand Rounds. Trail crossings need to be clarified and made more visible to reduce conflicts with motorists. The Victory Memorial Parkway Trail is owned and operated by the Minneapolis Park Board.

Description of Recommendations

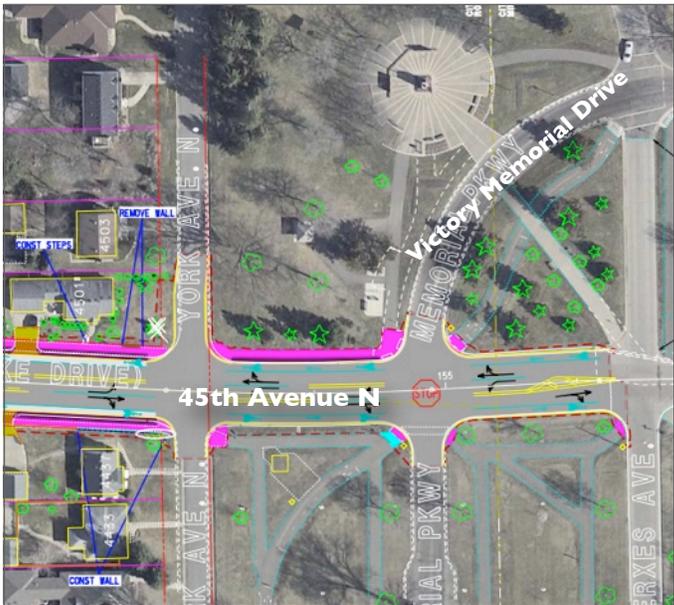
- Install sidewalks where they are missing along 45th Avenue N;
- Designate shoulder bicycle lane facilities along 45th Avenue N;
- Install a raised, contrasting-pavement, plaza-inspired crossing at Victory Memorial Drive and 45th Avenue N. Consider supplementary intersection treatments at York Avenue N and Xerxes Avenue N to further designate the space as a major gateway; and
- Install trail crossing assembly and advance warning trail crossing assembly.



Existing condition.



Proposed: Sidewalk improvements, on-street bicycle facilities, and plaza-inspired intersections improve conditions for pedestrians and bicyclists.



Hennepin County is currently working to make improvements along 45th Avenue N (CR 9) including sidewalks and bicycle lanes. Image courtesy of Hennepin County.



4.4.4 - Illustrative Intersection and Crossing Improvements (continued)

Victory Memorial Parkway Shared-Use Path Crossings

Description of Problem

The Victory Memorial Parkway Trail is owned and operated by the Minneapolis Park Board. Trail crossings of local streets, however, are not well marked. Additionally, right-of-way is not clear without stop or yield signage.

Description of Recommendations

- Install high visibility painted crosswalks where shared-use paths cross streets;
- Install trail crossing assemblies at crossing locations; and
- Install advance yield bars and/or signage to further clarify right-of-way at crossings.



Existing condition.



Proposed: High visibility painted crosswalks and trail crossing assemblies improve visibility of trail users crossing the street.



4.4.5 - Route Improvements

The following corridors/routes were identified as prominent locations in need of improvements to conditions for walking and biking (the routes below mostly address biking - recommended walking routes in the form of sidewalks are addressed in 4.3.1).

Corridors/routes identified for on-street bicycle lanes were:

- 42nd Avenue N/Lake Drive;
- 40th Avenue N --> Shoreline Drive;
- France Avenue N --> W Broadway Avenue (from south to north);
- 36th Avenue N;
- Noble Avenue N --> 41st Avenue N (from south to north); and
- Abbott Avenue N.

Corridors/routes identified for neighborhood slow streets were:

- Quail Avenue N - 41st Avenue N - Regent Avenue N;
- Yates Avenue N;
- 39th Avenue N;
- 39th 1/2 Avenue N - 40th Avenue N;
- June Avenue N (Connecting Lee Park and Sochacki Park);
- Hubbard Avenue N;
- Lowry Avenue N;
- 38th Avenue N;
- Abbott Avenue N - Shoreline Drive;
- Chowen Avenue N - 42nd Avenue N; and
- Beard Avenue N.

Corridors/routes identified for shared-use path connections were:

- Connection from end of Hubbard Avenue N to 36th Avenue N;
- Connection from end of Lowry Avenue N to Victory Memorial Parkway Trail; and

- Connection to trail that runs under U.S. Highway 100 from end of Lilac Drive N in North Robbinsdale.

4.4.6 - Recommended Route/Connectivity Improvements (next page) identifies the location of recommended pedestrian and bicycle route improvements;

4.4.7 - Summary of Recommended Route/Connectivity Improvements (following) lists the location of the recommended biking (or shared-use path) route improvements, as well as proposed treatments/facilities. Recommendations include on-street bicycle lanes, neighborhood slow streets, and shared-use path facilities;

(Note: Determinations of existing pavement widths and recommended on-street treatments are given at a representative location identified along the corridor as an example. Widths and conditions may vary along the corridor and proposed configurations may need to be adjusted),

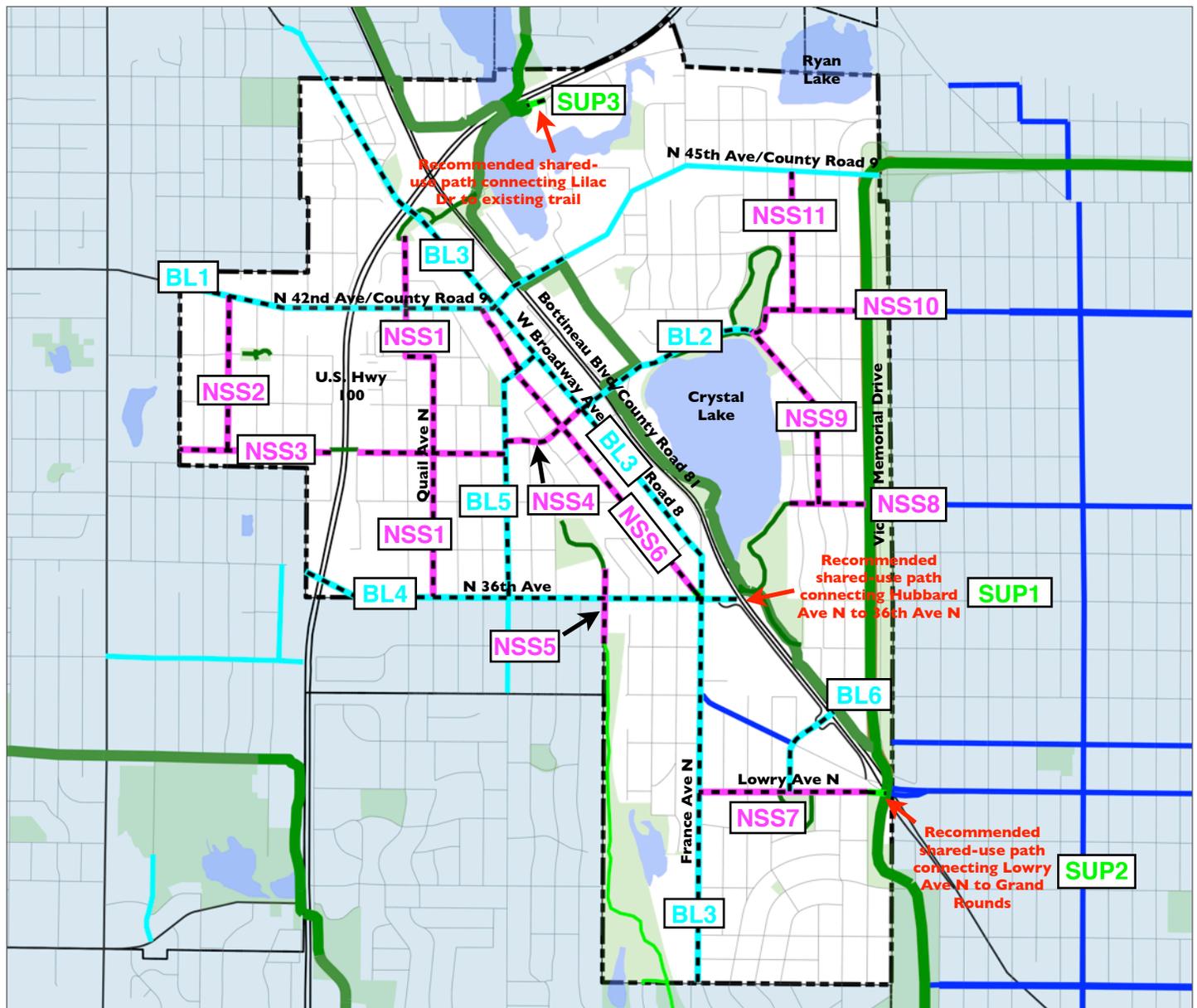
4.4.8 - Illustrative Route/Connectivity Improvements (following) provides renderings depicting application of potential treatment alternatives for several Robbinsdale streets/routes. These illustrative concepts are meant to be used as a general illustrative guide for applying bicycle treatments to routes undergoing improvements across the city;

4.4.9 - Recommended Priority Sidewalk Locations (following) identifies the location of recommended *priority* sidewalk locations; and

4.4.10 - Summary of Recommended Priority Sidewalk Locations (following) lists the location of the priority locations recommended for sidewalk improvements.



4.4.6 - Recommended Route/Connectivity Improvements



Recommended Treatments

- Neighborhood Slow Street (NSS)
- On-Road Bicycle Lane (BL)
- Off-Road Shared-Use Path (SUP)

Existing Off-Road Facilities

- Paved Trails/Shared-Use Paths
- Unpaved Shared-Use Trails
- Existing (or Planned) Regional Shared-Use Trails

Existing On-Road Facilities

- On-Road Bicycle Lane
- Paved Shoulder Bicycle Facility

Data Source: City of Robbinsdale, MetroGIS

Recommendation: Install 5 foot minimum sidewalks where missing. Specific recommended *priority* sidewalk locations are identified in 4.4.9 and 4.4.10.



4.4.7 - Summary of Recommended Route/Connectivity Improvements

Map ID	Route	Recommended On-Road Bicycle Lane Treatment <u>Map IDs refer to labels in Map 4.4.6</u>
BL1	<p>Route starts: 42nd Avenue N at western boundary of Robbinsdale</p> <p>Route covers: 42nd Avenue N / Lake Drive / County Road 9 (from west to east)</p> <p>Route ends: Lake Drive at Josephine Lane</p>	<p>Existing: 50' of pavement with four 12' travel lanes and two 1' gutter pans (measured near Quail Avenue N)</p> <p>Proposed: Install on-street buffered bicycle lanes as follows: BL + B + L + CTL + L + B + BL</p> <ul style="list-style-type: none"> • Bike lanes (BL) = 6' • Buffer (B) = 2' (painted hashmarks) • Through lanes (L) = 11' • Center turn lane (CTL) = 10' <p>Note: 1' foot gutter pans on each side of the street are also included.</p>
BL2	<p>Route starts: 40th Avenue N at W Broadway Ave</p> <p>Route covers: 40th Avenue N → Shoreline Drive (from west to east)</p> <p>Route ends: Shoreline Drive at Chowen Avenue N</p>	<p>Existing: 40' of pavement with two 12' travel lanes, two 7' parking lanes, and two 1' gutter pans (measured east of France Ave N)</p> <p>Proposed: Install on-street bicycle lanes as follows: P + BL + L + L + BL</p> <ul style="list-style-type: none"> • Parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 10' <p>Note: 1' foot gutter pans on each side of the street are also included. Note: Requires removal of on-street parking from one side of the street.</p>
BL3	<p>Route starts: France Avenue N at southern boundary of Robbinsdale</p> <p>Route covers: France Avenue N → W Broadway Ave (south to north)</p> <p>Route ends: W Broadway Avenue and northern boundary of Robbinsdale</p> <p>(May want to consider shared-lane or neighborhood slow street treatments in-lieu of bike lanes on West Broadway Avenue in Downtown Robbinsdale portion of this route)</p>	<p>Existing: 44' of pavement with two 13' travel lanes, two 8' parking lanes, and two 1' gutter pans (measured near 43rd Avenue N – width across corridor varies greatly)</p> <p>Proposed (Includes 1' gutter on each side): Install on-street bicycle lanes as follows: P + BL + L + L + BL</p> <ul style="list-style-type: none"> • Parking lane (P) = 8' • Bike lanes (BL) = 6' • Through lanes (L) = 11' <p>Note: 1' foot gutter pans on each side of the street are also included. Note: Requires removal of on-street parking from one side of the street.</p>



4.4.7 - Summary of Recommended Route/Connectivity Improvements (continued)

Map ID	Route	Recommended On-Road Bicycle Lane Treatment <u>Map IDs refer to labels in Map 4.4.6</u>
BL4	<p>Route starts: 36th Avenue N at western boundary of Robbinsdale</p> <p>Route covers: 36th Avenue N</p> <p>Route ends: 36th Avenue N and Bottineau Blvd</p>	<p>Existing: 46' of pavement with two 5' paved shoulders, two 11' travel lanes, a 12' center turn lane, and two 1' gutter pans (measured near Orchard Avenue N)</p> <p>Short-Term Proposal (Uses 46' pavement): Convert existing 5' shoulders to buffered bicycle lanes, resulting in no change to pavement or lanes.</p> <p>Note: 1' foot gutter pans on each side of the street are also included.</p> <p>Note: 5' bicycle lanes are not ideal on this corridor due to vehicle ADT (volumes) and the need to include the gutter pan in the bike lane.</p> <p>Long-Term Proposal: BL + L + CTL + L + BL</p> <ul style="list-style-type: none"> Bike lanes (BL) = 6' Through lanes (L) = 11' Center turn lane (CTL) = 10' <p>Note: 1' foot gutter pans on each side of the street are also included.</p>
BL5	<p>Route starts: Noble Avenue N at southern boundary of Robbinsdale</p> <p>Route covers: Noble Avenue N → 41st Avenue N (from south to north)</p> <p>Route ends: 41st Avenue N at W Broadway Avenue</p>	<p>Existing: 40' of pavement with two 19' travel/parking lanes on both sides and two 1' gutter pans (measured near 39th Avenue N)</p> <p>Proposed: Install buffered bicycle lanes as follows: P + BL + L + L + BL</p> <ul style="list-style-type: none"> Parking lane (P) = 8' Bike lanes (BL) = 5' Through lanes (L) = 10' <p>Note: 1' foot gutter pans on each side of the street are also included.</p> <p>Note: Requires removal of on-street parking from one side of the street.</p>



4.4.7 - Summary of Recommended Route/Connectivity Improvements (continued)

Map ID	Route	Recommended On-Road Bicycle Lane Treatment <u>Map IDs refer to labels in Map 4.4.6</u>
BL6	Route starts: Bottineau Boulevard Route covers: Abbott Avenue N Route ends: Lowry Avenue N	Existing: 50' of pavement with four 12' travel lanes on both sides and two 1' gutter pans (measured between Oakdale Ave N and Bottineau Blvd) Proposed: Install on-street bicycle lanes as follows: BL + L + CTL + L + BL <ul style="list-style-type: none"> • Bike lanes (BL) = 6' • Center turn lane (CTL) = 12' • Through lanes (L) = 12' Note: 1' foot gutter pans on each side of the street are also included. Note: Requires removal of on-street parking in some sections.



4.4.7 - Summary of Recommended Route/Connectivity Improvements (continued)

Map ID	Route	Recommended Neighborhood Slow Street Treatment <u>Map IDs refer to labels in Map 4.4.6</u>
NSS1	Quail Avenue N – 41st Avenue N – Regent Avenue N	Implement a neighborhood slow street (bicycle boulevard) with best practices and recommendations outlined in this document for neighborhood slow streets/bicycle boulevards: <ul style="list-style-type: none"> • Stop signs at cross streets; • Traffic calming devices such as traffic circles and speed tables; • Wayfinding markers and route signs; and • Road paint elements.
NSS2	Yates Avenue N	
NSS3	39th Avenue N	
NSS4	39th 1/2 Avenue N – 40th Avenue N Note: AADT on this route are greater than the preferred maximum for a neighborhood slow street of 3,000 vehicles per day. Special attention should be made to implementing traffic calming measures along this route.	
NSS5	June Avenue N (Connecting Lee Park and Sochacki Park)	
NSS6	Hubbard Avenue N	
NSS7	Lowry Avenue N	
NSS8	38th Avenue N	
NSS9	Abbott Avenue N – Shoreline Drive	
NSS10	Chowen Avenue N – 42nd Avenue N	
NSS11	Beard Avenue N	



4.4.7 - Summary of Recommended Route/Connectivity Improvements (continued)

Map ID	Route	Recommended Off-Road Shared-Use Path Treatment <u>Map IDs refer to labels in Map 4.4.6</u>
SUP1	Connection from end of Hubbard Avenue N to 36th Avenue N	Install paved 8 foot shared-use path to connect to Hubbard Avenue N to 36th Avenue N
SUP2	Connection from end of Lowry Avenue N to Victory Memorial Parkway Trail	Install paved 8 foot shared-use path to connect to existing Victory Memorial Parkway Shared-Use Path
SUP3	Connection to trail that runs under U.S. Highway 100 from end of Lilac Drive N in North Robbinsdale	Install paved 8 foot shared-use path to connect to existing shared-use path that runs under U.S. Highway 100



4.4.8 - Illustrative Route and Connectivity Improvements

Route: 42nd Avenue N

Existing Conditions

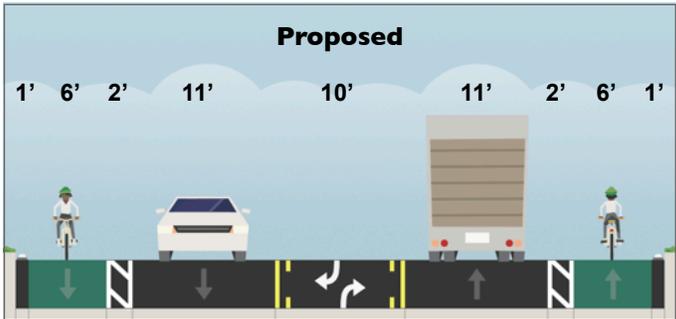
Traffic volume AADT is 12,800 east of Highway 100. Pavement width is 50 feet near Quail Avenue N. Sidewalks are not consistently provided. This road is also known as County Road 9. There is currently a reconstruction project to the east, on Lake Drive / 45th Avenue N. This project will result in a three-lane roadway with bike lanes.

Description of Recommendations

- Continue bicycle facilities installed in the reconstruction project through downtown and to the western boundary of the city;
- Install bike lanes from Josephine Lane to the western boundary. Intersections/crossings such as Highway 100, the railroad tracks, W Broadway Ave, and Bottineau Blvd may require additional design detail;
- Reduce lane widths to include two 11-foot travel lanes and one 10-foot center turn lane;
- Buffer the bike lanes on both sides with a 2-foot painted buffer; and
- Use green paint to improve visibility of bicyclists through conflict zones including at bus stops and approaching/through intersections.



Existing conditions: Four 12' vehicle travel lanes. Image from Google Streetview.



Proposed configuration: Narrow lanes to calm traffic, add a painted buffer, and improve/install sidewalks.



4.4.8 - Illustrative Route and Connectivity Improvements (continued)

Route: 36th Avenue N

Existing Conditions

36th Avenue N recently underwent a road diet that resulted in two through lanes, a center left-turn lane, and two shoulders intended for bicycle travel. Traffic volumes and speeds are low, and the land use is primarily residential. Pavement width is 46 feet near Orchard Avenue N. Sidewalks are present.

Description of Recommendations

Short-Term Proposal (no impacts to pavements or travel lanes):

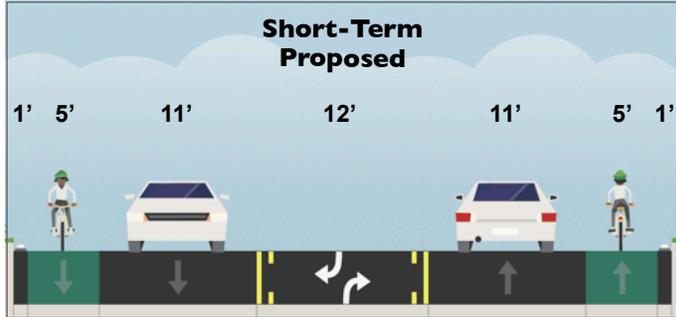
- Add painted bicycle stencil and install bike lane signage to clarify existing shoulders as bicycle lanes;
- Use green paint to improve visibility of bicyclists through conflict zones including at bus stops and approaching/through intersections; and
- Install bike lanes from Regent Avenue N to the western boundary, and from Grimes Avenue N to Bottineau Blvd. Intersections/crossings such as Highway 100, the railroad tracks, W Broadway Ave, and Bottineau Blvd may require additional design detail.

Long-Term Proposal:

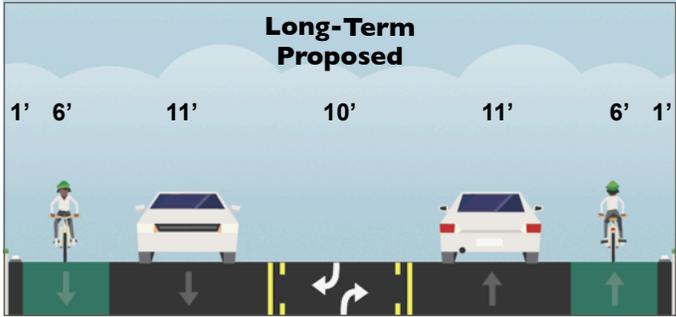
- Reduce lane widths to include two 11-foot travel lanes and one 10-foot center turn lane; and
- Use green paint to improve visibility of bicyclists through conflict zones including at bus stops and approaching/through intersections.



Existing conditions: Two 11' travel lanes and one 12' center turn lane with 5' paved shoulders.



Proposed configuration 1: Turn paved shoulders into bicycle lanes, without any change to the travel lanes.



Proposed configuration 2: Narrower travel lanes calm traffic and create space for a painted buffer for the bike lanes.



4.4.8 - Illustrative Route and Connectivity Improvements (continued)

Route: Noble Avenue N and 41st Avenue N

Existing Conditions

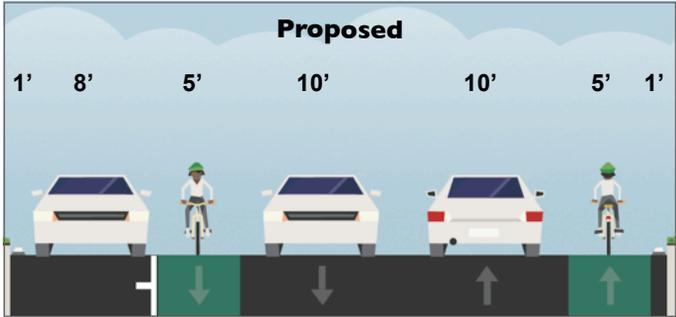
This route provides access from residential areas in the south to Triangle Park and downtown Robbinsdale. South of the railroad tracks it is primarily residential. At West Broadway Avenue this route meets with the proposed bike lane on West Broadway Avenue, providing further access to destinations north and south of downtown. Pavement width is 40 feet near 39th Avenue N. On-street parking is provided in residential areas. Sidewalks are present on both sides.

Description of Recommendations

- Install bike lanes from 36th Avenue N to West Broadway Avenue. Intersections/crossings such as 36th Avenue N, the railroad tracks, and W Broadway Ave, may require additional design detail;
- Remove parking from one side of the street;
- Reduce lane widths to include two 10-foot travel lanes; and
- Use green paint to improve visibility of bicyclists through conflict zones including at bus stops and approaching/through intersections.



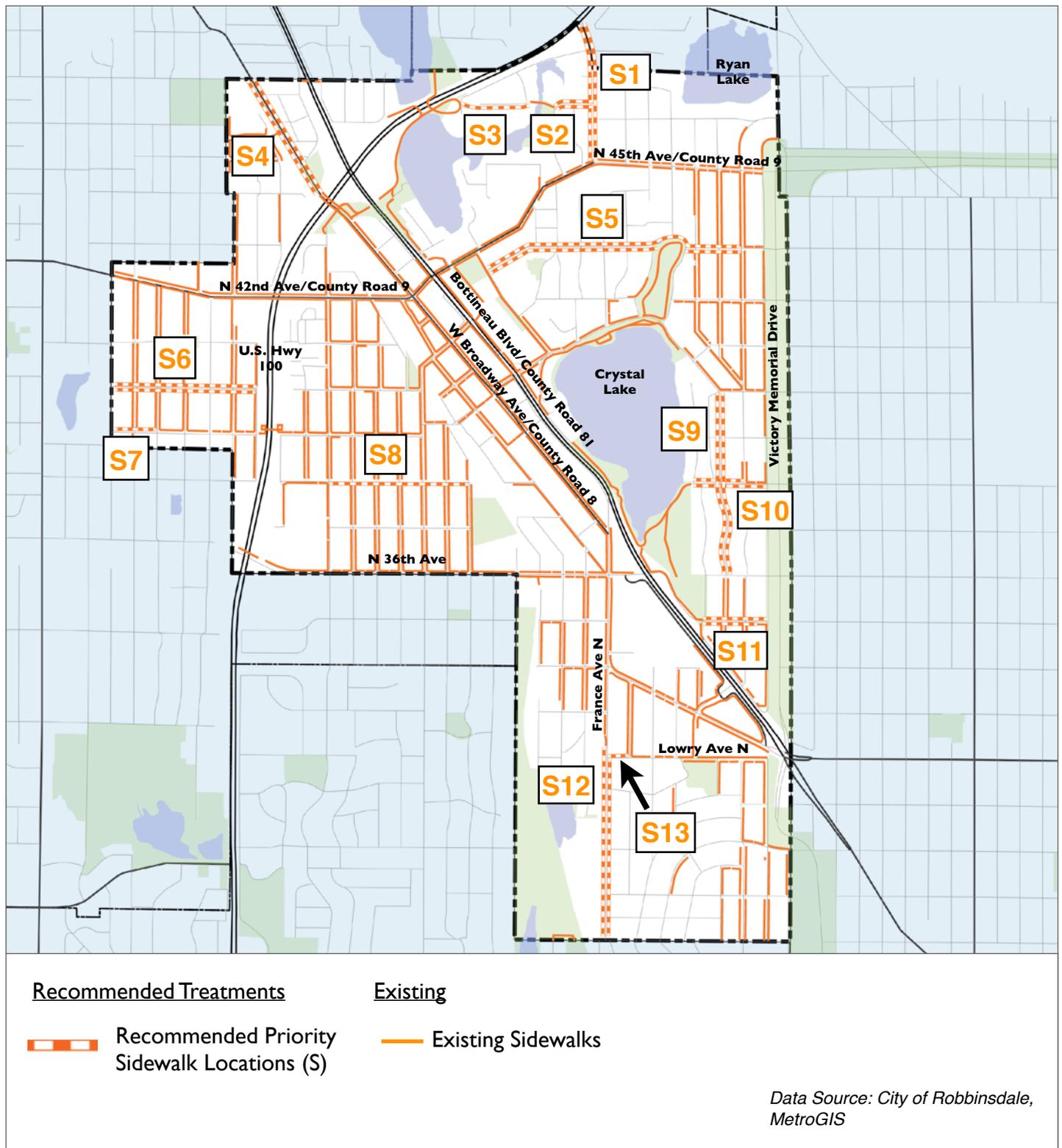
Existing conditions: Two 19' travel lanes/on-street parking lanes. Image from Google Streetview.



Proposed configuration: Narrower travel lanes calm traffic and allow for protected bike lanes.



4.4.9 - Recommended Priority Sidewalk Locations



Recommendation: Install 5 foot minimum sidewalks where missing. The city has a plan for filling sidewalk gaps.



4.4.10 - Summary of Recommended Priority Sidewalk Locations

Map ID	Facility Location	Details & Reasoning <u>Map IDs refer to labels in Map 4.4.9</u>
S1	France Avenue N from 45th Avenue N to the northern boundary of Robbinsdale	5 foot minimum, both sides of street <ul style="list-style-type: none"> Connects Robbinsdale residents to commercial destinations just north of the city boundary and connects multiple bus stops along a transit corridor Identified as a desired improvement by the public during community engagement
S2	46th Avenue N between France Avenue N and Halifax Avenue	5 foot minimum, both sides of street <ul style="list-style-type: none"> Provides pedestrian connection between existing shared-use path and northeast Robbinsdale
S3	46th Avenue N between Indiana Ave and proposed shared-use path connection	5 foot minimum, prioritize south side for short-term needs <ul style="list-style-type: none"> Provides pedestrian connection between existing shared-use path and northeast Robbinsdale (proposed shared-use path connection would fill gap from end of Lilac Drive N and existing shared-use trail under U.S. Highway 100)
S4	West Broadway Avenue from northwest boundary of Robbinsdale to U.S. Highway 100	5 foot minimum, both sides of street <ul style="list-style-type: none"> Primary thoroughfare connecting Crystal and north Robbinsdale to Downtown Robbinsdale and future LRT station – desire lines are visible here
S5	43rd Avenue N between Lake Road and Zenith Avenue N	5 foot minimum, both sides of street <ul style="list-style-type: none"> Pedestrian link to Spanjers Park, City Hall, Sanborn Park, Grand Rounds – “Step to It” route Low stress and direct route to City Hall and Downtown Robbinsdale from Grand Rounds
S6	40th Avenue N between Aldair Avenue N and Unity Avenue N	5 foot minimum, both sides of street <ul style="list-style-type: none"> Provide continuous east-west connection to FAIR School from west Robbinsdale neighborhood
S7	39th Avenue N between Aldair Avenue N and Yates Avenue N	5 foot minimum, prioritize north side for short-term needs <ul style="list-style-type: none"> Extend existing sidewalk connection to reach FAIR School
S8	38th Avenue N between Regent Avenue N and Lee Avenue N	5 foot minimum; prioritize south side for short term needs (to connect to school) <ul style="list-style-type: none"> Provides connections to Robbinsdale Middle School
S9	Abbot Avenue N between 40th Avenue N and 36th Avenue N	5 foot minimum, both sides of street <ul style="list-style-type: none"> Provide continuous north-south pedestrian link in east Robbinsdale ; “Step To It” route Low-stress link – part of proposed Neighborhood Slow Street
S10	38th Avenue N between end at Lakeview Terrace Park and York Avenue N/Victory Memorial Parkway	5 foot minimum, both sides of street <ul style="list-style-type: none"> Provide connection between Lakeview Terrace Park shared-use path and future Crystal Lake Regional Trail and Victory Memorial Parkway Trail
S11	35th Avenue N between Beard Avenue N and York Avenue N/ Victory Memorial Parkway	5 foot minimum, both sides of street <ul style="list-style-type: none"> Provide connection between Lakeview Terrace Park and future Crystal Lake Regional Trail and 35th Avenue pedestrian path at Victory Memorial Parkway Identified as a desired improvement by the public during community engagement



4.4.10 - Summary of Recommended Priority Sidewalk Locations (continued)

Map ID	Facility Location	Details & Reasoning <u>Map IDs refer to labels in Map 4.4.9</u>
S12	France Avenue N between 26th Avenue N and Lowry Avenue N	5 foot minimum, both sides of street <ul style="list-style-type: none"> • Provides direct and continuous connection to south Robbinsdale
S13	Lowry Avenue N between France Avenue N and Ewing Avenue N	5 foot minimum, prioritize north side for short-term needs <ul style="list-style-type: none"> • Completes/connects one-block sidewalk gap between France Avenue N and Victory Memorial Trail • Proximate to Victory Memorial Hospital





Toolbox



This section includes a set of tools - from facilities to encouragement, enforcement and evaluation - for better integrating and leveraging walking and bicycling investments in Robbinsdale.

In this section

- 5.1 – Introduction
- 5.2 – Selecting Treatments
- 5.3 – Facilities
- 5.4 – Tools for Addressing Intersections and Trail Crossings
- 5.5 – Signs, Signals, and Wayfinding
- 5.6 – Transit Integration
- 5.7 – Ancillary, End of Trip, and Rest Facilities
- 5.8 – Operations and Maintenance
- 5.9 – Education, Encouragement, and Promotion
- 5.10 – Policy Recommendations
- 5.11 – Enforcement
- 5.12 – Evaluation
- 5.13 – Potential Funding Sources
- 5.14 – Estimating Implementation Costs

5.1 - Introduction

A variety of tools, treatments and approaches will be needed to address and improve conditions for pedestrians and cyclists in Robbinsdale. This chapter provides a toolbox made up of components, approaches and considerations that can be deployed to address existing needs, leverage current city assets, and achieve the success that is envisioned by city staff, residents and other project partners.

5.1.1 - A Combination of Engineering and Programming Approaches

Communities working to increase walking and biking often dedicate exclusive focus to facility and infrastructure (engineering) approaches.

This Plan's recommendations respond to and recognize the primary importance of the availability of safe, comfortable, convenient and inviting infrastructure as a necessary precondition for inviting greater number of users to walking and biking. However, the Plan also recognizes that a combination of engineering and programming (education, promotion and encouragement, enforcement, and planning and evaluation) approaches are usually necessary. In fact, combining both approaches will result in much greater gains than working on either alone.



Walking and bicycling are accessible to people of all ages, incomes, and physical abilities.



Walking and biking for transportation are easy ways to integrate physical activity into the day.

5.2 - Selecting Treatments

Numerous types of facilities exist for accommodating pedestrian and bicyclist needs. The characteristics of the treatment selected for a specific route or location will determine the safety and perception of safety (comfort) experienced by users of that facility.

This section provides a discussion of user needs as well as tools to guide the selection of specific pedestrian and bicycle facilities in a specific given context.

5.2.1 - Addressing User Needs and Comfort

One of the determinants of whether a system will be successful or not is if it takes into account the needs of its users.

Research and experience from cities that have improved rates of walking and biking show that the way to make these modes a more inviting option for more residents (and thus increase their use for everyday travel) is to develop continuous networks that provide reasonably direct connections to useful destinations and that are made up of routes that do not exceed the level of tolerance for traffic stress of the mainstream adult population.



A bicyclist in Robbinsdale uses a paved shoulder on 36th Avenue North.

5.2.2 - Selecting Treatments to Improve Conditions for Walking

The following detailed guidance is provided to assist in selecting treatments to improve the conditions for pedestrians in Robbinsdale. Specific recommendations that have incorporated this guidance can be found in Chapter 4, Recommendations.



Most transit users are also pedestrians at some point in their trip.



A pedestrian in Robbinsdale walking along 36th Avenue North.

5.2.2.a - Criteria for Crossing Treatments at Uncontrolled Locations

Roadway Configuration	# of lanes crossed to reach a refuge (1)	# of multiple threat lanes per crossing (2)	Roadway ADT and Posted Speed															
			1,500 – 9,000 vpd				9,000 – 12,000 vpd				12,000 – 15,000 vpd				>15,000 vpd			
			≤ 30 mph	35 mph	40 mph	≥ 45 mph	≤ 30 mph	35 mph	40 mph	≥ 45 mph	≤ 30 mph	35 mph	40 mph	≥ 45 mph	≤ 30 mph	35 mph	40 mph	≥ 45 mph
2 Lanes (one way street)	2	1	A	B	C	E	A	B	C	E	B	B	C	E	B	C	C	E
2 Lanes (two way street, no median)	2	0	A	B	C	E	A	B	C	E	B	B	C	E	B	C	C	E
3 Lanes w/ Raised Median	1 or 2	0 or 1	A	B	D	E	A	C	D	E	B	D	D	E	C	D	D	E
3 Lanes w/ Striped Median	3	0 or 1	C	C	D	E	C	C	D	E	C	C	D	E	C	D	D	E
4 Lanes (two way street, no median)	4	2	A	D	D	E	B	D	D	E	B	D	D	E	D	D	D	E
5 Lanes w/ Raised Median	2 or 3	2	A	B	D	E	B	C	D	E	B	C	D	E	C	C	D	E
5 Lanes w/ Striped Median	5	2	D	D	D	E	D	D	D	E	D	D	D	E	D	D	D	E
6 Lanes (two way street with or without median)	3 to 6	4	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F

NOTES:

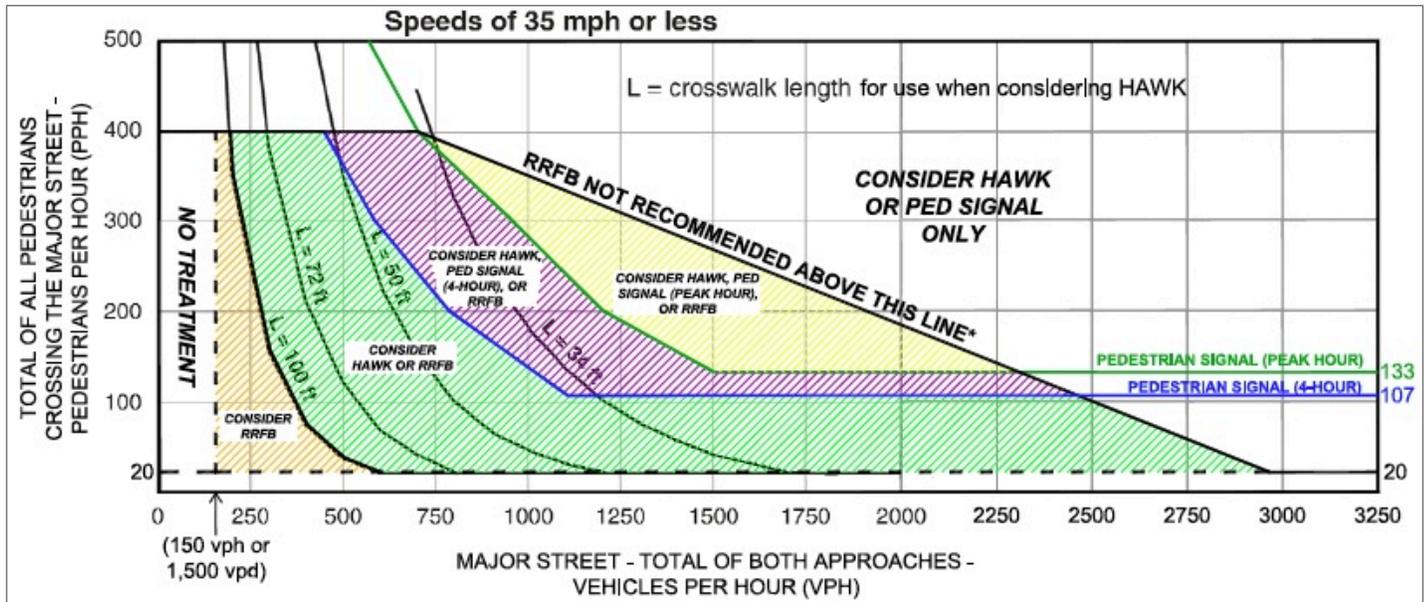
Painted medians shall not be considered a refuge for a crossing pedestrian. Similarly, a 4 foot wide raised median next to a left turn lane can only be considered a refuge for pedestrians if the left turning volume is less than 20 vehicles per hour (meaning that in most cases the left turn lane is not occupied while the pedestrian is crossing).

A multiple threat lane is defined as a through lane where it is possible for a pedestrian to step out from in front of a stopped vehicle in the adjacent travel lane (either through or turn lane).

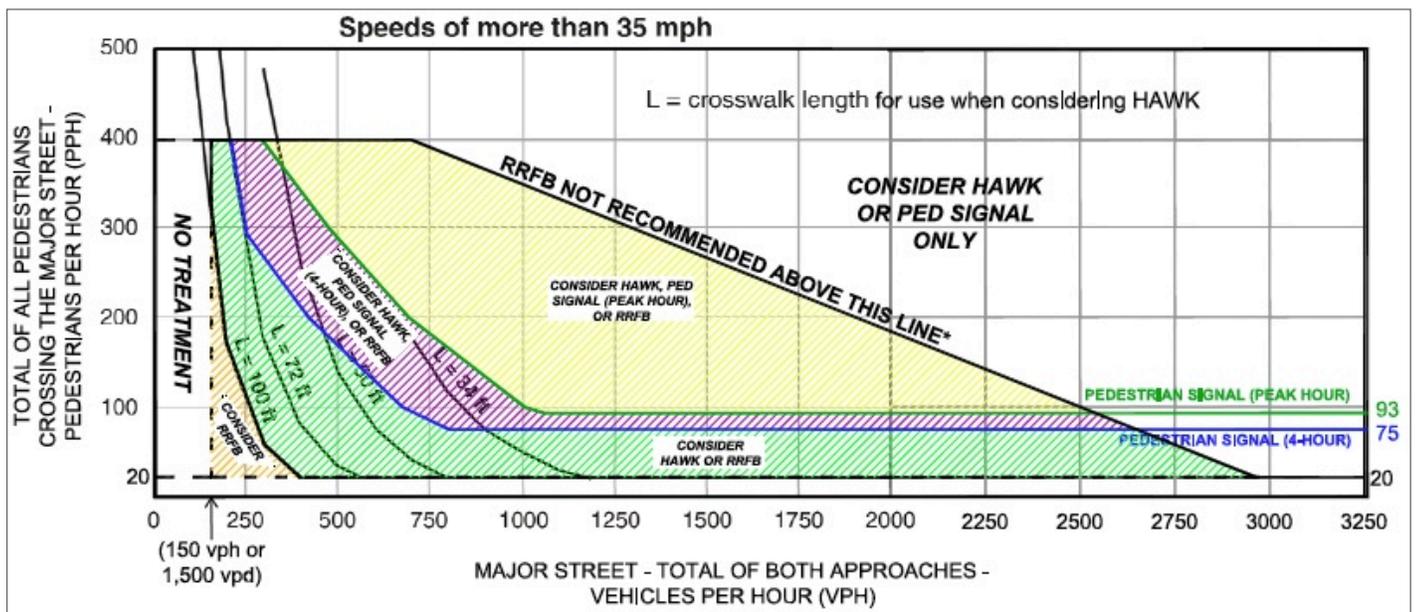
Treatment Descriptions

- A Install marked crosswalk with enhanced road-side signs
Specific Guidance: Install marked crosswalk with “State Law – Yield to Pedestrian” signs mounted on the side of the roadway with standard (W11–2) advance pedestrian warning signs; use S1–1 signs for School Crossing locations.
- B Install marked crosswalk with enhanced road-side and in-roadway (bollard mounted) signs
Specific Guidance: Install marked crosswalk “State Law – Yield to Pedestrian” signs mounted on the side of the roadway and on in-roadway bollards; use standard (W11–2) advance pedestrian warning signs; use S1–1 signs for School Crossing locations.
- C Install marked crosswalk with enhanced signs and geometric improvements to increase pedestrian visibility and reduce exposure
Specific Guidance: For 2 or 3-lane roadways, install marked crosswalk with “State Law – Yield to Pedestrian” signs mounted on the side of the roadway and on in-roadway bollards or median mounted signs; use standard (W11–2) advance pedestrian warning signs; use S1–1 signs for School Crossing locations. Add neckdowns or median refuge islands to shorten the pedestrian crossing distance and increase pedestrian visibility to motorists.
- D Install marked crosswalk with enhanced signs, pedestrian activated RRFBs, and geometric improvements to increase pedestrian visibility and reduce exposure.
Specific Guidance: Install raised median refuge island (unless it is a one-way street or one already exists) to shorten the pedestrian crossing distance and increase pedestrian visibility to motorists. [If a median refuge cannot be constructed on a two-way street, go to Scenario F]. Install marked crosswalk with “State Law – Yield to Pedestrian” signs WITH pedestrian activated RRFBs mounted on the side of the roadway and on median mounted signs; use standard (W11–2) advance pedestrian warning signs; use S1–1 signs for School Crossing locations. Consider adding neckdowns at the crossing if on-street parking exists on the roadway and storm drain considerations will allow. [Note: If pedestrian volume falls above the RRFB limit line in 5.2.2.b and 5.2.2.c, consider HAWK beacon, pedestrian traffic signal, or grade-separated crossing.]
- E Do not install marked crosswalk at uncontrolled crossing. Determine if the speed limit can be effectively reduced to 40 mph AND a raised refuge median can be installed. If so, utilize Scenario D criteria above. If this is not possible, or if pedestrian volume falls above the RRFB limit line on 5.2.2.b and 5.2.2.c, consider HAWK beacon, pedestrian traffic signal, or grade-separated crossing.
Specific Guidance: Consider HAWK beacon, pedestrian traffic signal or grade-separated crossing; application of these treatments will consider corridor signal progression, existing grades, physical constraints, and other engineering factors.
- F Do not install marked crosswalk at uncontrolled crossing with 3 or more THROUGH lanes per direction or where the speed limit is ≥ 45 mph and/or there is not a median refuge on a 5-lane crossing. Consider HAWK beacon, pedestrian traffic signal, or grade-separated crossing.
Specific Guidance: Consider HAWK beacon, pedestrian traffic signal or grade-separated crossing; application of these treatments will consider corridor signal progression, existing grades, physical constraints, and other engineering factors.

5.2.2.b - Guidelines for the Installation of Pedestrian Hybrid (HAWK) Beacons, Pedestrian Signals, or Rectangular Rapid Flash Beacon (RRFB) Signs on Low-Speed Roadways from the City of Boulder Pedestrian Crossing Treatment Installation Guide



5.2.2.c - Guidelines for the Installation of Pedestrian Hybrid (HAWK) Beacons, Pedestrian Signals, or Rectangular Rapid Flash Beacon (RRFB) Signs on High-Speed Roadways from the City of Boulder Pedestrian Crossing Treatment Installation Guide



Note: 5.2.2.a, 5.2.2.b, and 5.2.2.c are from the 2011 City of Boulder, CO *Pedestrian Crossing Treatment Installation Guidelines*

5.2.3 - Selecting Treatments to Improve Conditions for Bicycling

The following detailed guidance is provided to assist in selecting treatments to improve the conditions for bicyclists in Robbinsdale. Specific recommendations that have incorporated this guidance can be found in Chapter 4, Recommendations.



A bicyclist in Robbinsdale rides along Shoreline Drive near Crystal Lake.

5.2.4 - Levels of Separation for Bike Facilities

Off-Street Bike Facilities (Shared-Use Facilities Shared with Pedestrians)



Shared-use side path



Shared-use path/trail

On-Street Bicycle Facilities Not Shared with Motor Vehicles



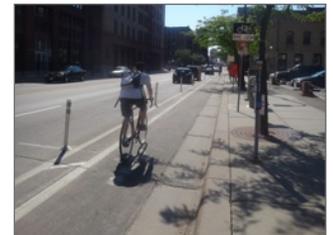
Roadway shoulder



Bike lane



Buffered bike lane



Cycletrack

On-Street Bicycle Facilities Shared with Motor Vehicles



Neighborhood slow street / Bicycle Boulevard



Sharrow (shared-lane arrow)

Increasing Separation from Motor Vehicles

Note on Application of Facilities

In general, bicycle routes where higher motor vehicle traffic speeds and volumes are present should offer greater separation from motor vehicles. This will result in facilities that are more inviting to current and potential bicycle riders and will invite use by people through a greater range of ages and abilities.

5.2.5 - Selecting the Appropriate On-Street Bicycle Facility

Figure 5.2.5.a - Bikeway Design Selection for Rural (Shoulder and Ditch) Cross Section

Motor Vehicle ADT (2 Lane)		<500	500-1,000	1,000-2,000	2,000-5,000	5,000-10,000	>10,000
Motor Vehicle ADT (4 Lane)		N/A	N/A	2,000-4,000	4,000-10,000	10,000-20,000	>20,000
Motor Vehicle Speed	25 mph	PS = 4 ft* or SL	PS = 4 ft* or SL	PS = 4 ft* or WOL	PS = 4 ft*	PS = 4 ft*	N/A
	30 mph	PS = 4 ft* or SL	PS = 4 ft* or WOL	PS = 4 ft*	PS = 4 ft*	PS = 6 ft	PS = 4 ft*
	35-40 mph	PS = 4 ft* or SL	PS = 4 ft* or WOL	PS = 6 ft	PS = 6 ft	PS = 6 ft	PS = 8 ft
	45 mph and greater	PS = 4 ft*	PS = 4 ft*	PS = 6 ft	PS = 8 ft	PS = 8 ft	SUP or PS = 10 ft
<p>*See discussion in Section 4-3.1 of the MnDOT Bikeway Facility Design Manual (below) regarding rumble strips on 4 ft shoulders. PS = Paved Shoulder; SL = Shared Lane; SUP = Shared-Use Path; WOL = Wide Outside Lane</p>							

Figure 5.2.5.b - Bikeway Design Selection for Urban (Curb and Gutter) Cross Section

Motor Vehicle ADT (2 Lane)		<500	500-1,000	1,000-2,000	2,000-5,000	5,000-10,000	>10,000
Motor Vehicle ADT (4 Lane)		N/A	N/A	2,000-4,000	4,000-10,000	10,000-20,000	>20,000
Motor Vehicle Speed	25 mph	Bicycle Boulevard	Bicycle Boulevard	Bicycle Boulevard	Bicycle Boulevard or BL = 5 ft	BL = 5 ft	N/A
	30 mph	Bicycle Boulevard	BL = 5 ft	BL = 5 ft	BL = 5 ft	BL = 6 ft	BL = 6 ft
	35-40 mph	BL = 5 ft	BL = 5 ft	BL = 5 ft	BL = 6 ft	BL = 6 ft	BL = 6 ft or PS = 8 ft
	45 mph and greater	BL = 5 ft	BL = 5 ft	BL = 6 ft	BL = 6 ft	BL = 6 ft or PS = 8 ft	SUP or PS = 10 ft
<p>BL = Bicycle Lane; PS = Paved Shoulder; SUP = Shared-Use Path</p>							

Notes:

- While the minimum widths for bike lanes are presented here, it is recommended that wider bike lanes be considered when the following conditions exist: an on-street facility with greater protection/separation from vehicles (such as buffered bike lanes or cycletracks) is warranted based on local road conditions, destinations, and expected and desired bicycle ridership.
- Preferred ADT for Bicycle Boulevards is 1,500, maximum is 3,000
- Adapted from MnDOT, AASHTO, NACTO guides.

5.3 - Facilities

This section provides an overview and additional locality-specific details for a selection of facilities recommended for application in Robbinsdale.

A “Toolbox of Pedestrian and Bicycle Treatments and Best Practices” report detailing all facilities with potential application in Robbinsdale is included in this Plan’s Appendix.

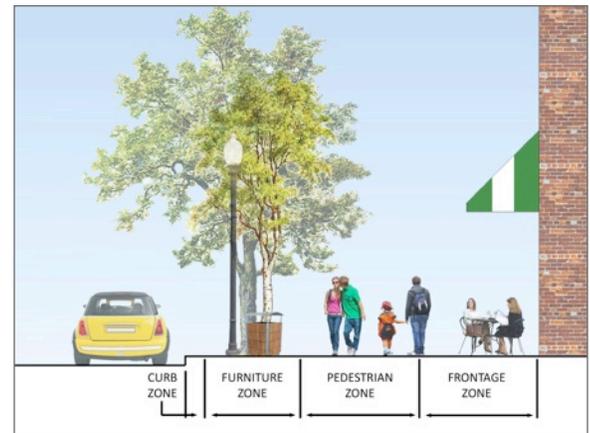
5.3.1 - Sidewalks

Sidewalks designate space for the use of pedestrians, and are a foundational element of pedestrian mobility. They are also a vital component of healthy commercial districts, providing access to businesses, space for street furniture and plantings, and for the casual interactions that support community interpersonal connections.

Sidewalks: Recommendations for Robbinsdale

Important considerations related to sidewalks in Robbinsdale include:

- Sidewalks should be installed on both sides of the roadway on all residential and commercial streets where pedestrian paths do not already exist;
- A minimum width of 5 feet is recommended;
- If a shared-use facility is used instead of a sidewalk, it should be a minimum of 10 feet wide;
- Sidewalk installation should be prioritized along roads that serve transit routes and include transit stops; and
- Sidewalks should be required on all new road construction and all road reconstruction projects.



Example of the four sidewalk “zones” in a commercial area.

Sidewalk zones

Current sidewalk design considers four distinct “zones” that allow them to function in different contexts, with dimensions that respond to the the land uses and locations they serve. The four zones are:

- **The pedestrian zone** is the zone where people walk. Width for Main Street / commercial districts should be between 6 to 8 feet, for residential districts should be at least 5 feet.
- **The frontage zone** is the portion of the sidewalk that provides access to businesses or other uses adjacent to the sidewalk.
- **The furniture zone** is the portion of the sidewalk where trees, newspaper stands, benches, signs and trash receptacles are placed. This zone increases the distance between the pedestrian zone and moving motor-vehicles, increasing the comfort for people on foot.
- **The curb zone** is the outermost edge of the pedestrian realm and provides a defined and safe separation between automobiles and pedestrians.

5.3.2 - Shared-Use Facilities

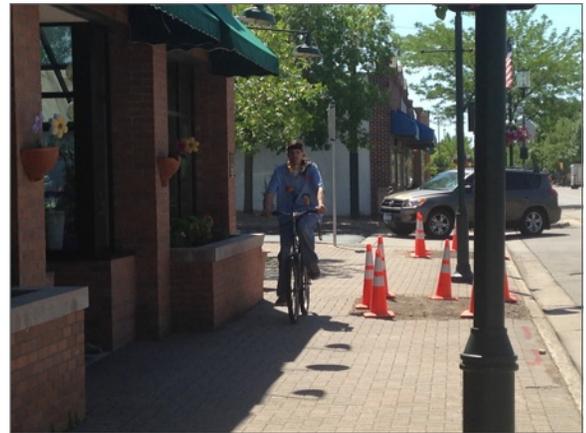
Off-road shared-use paths, often referred to as multi-use trails, offer space separated away from the street for pedestrians, bicyclists, and other users of non-motorized transportation. These paths often link parks and other recreation destinations, and some serve broader regional connection purposes. Shared-use paths can also exist in the form of shared use “sidepaths” that run along roadways and provide a space for pedestrians and bicyclists to access commercial, residential, and retail destinations.

Though users of shared-use paths are separated from automobile traffic, they still encounter potential conflicts with motor vehicles at intersections, and are also subject to conflicts with other users within the facility. For example, a family walking to the park, an inline skater, a child riding a bike, a jogger with a dog, and an experienced fitness cyclist may have to share the same space simultaneously. In order to allow a broad range of users to safely and comfortably share the same space, close attention should be paid to width and application, lane striping, and signage.

Shared-use sidepaths may exist on one side of the street, or both. To avoid potential issues for users crossing busy roadways to access destinations, facilities should be provided on both sides of roadways, particularly along primary travel corridors such as Bottineau Boulevard where travel volumes for pedestrians and bicyclists are expected to be high, or where key trip destinations or generators are located on both sides of the street. Sidepaths should be marked as facilities to be shared by both pedestrians and bicyclists. Signage and striping should be used to indicate whether the path accommodates bicycle travel in one direction, or in both directions.

Width and Application

Recommended width for shared-use paths is dependent on the context, volume, and mix of users. The typical paved width for shared-use paths intended to accommodate two-way bicycle travel and pedestrians ranges from 10 to 15 feet. Wider paths are recommended in areas with higher pedestrian use (at least 30% of all users), or higher user



A bicyclist rides in the pedestrian zone of a downtown Robbinsdale sidewalk. When comfortable bicycle facilities are not provided, many bicycle riders will use sidewalks and other pedestrian spaces for their travel, which decreases safety for all users.



A pedestrian and bicyclist enjoy Victory Memorial Parkway.

volumes in general (300 or more users at peak hour). Wider paths allow for a higher level of service (i.e. optimal conditions and a high quality user experience) when used frequently by pedestrians, bicyclists, and other users. Additionally, wider shared-use paths make maintenance and snow removal easier.

For most cases in Robbinsdale (unless user volumes are very high), segregation of user types is not necessary as the expected volume of users allows for the safe navigation of users around each other.

A minimum sidepath width of 8 feet is recommended when facilities are provided on both sides of a roadway. Where they are provided on only one side of a roadway, a minimum width of ten feet is recommended.

Centerline Striping

Centerline striping within a path provides directional separation and also indicates to users when passing is permissible. Pedestrian and bicycle symbols and arrows on shared-use paths can also be used to indicate a shared facility and clearly mark the direction of travel. Options for centerline striping include:

- A dashed yellow center line should be provided on priority shared-use paths where two-way travel occurs. Bike and pedestrian stencils should be used to indicate that both modes are expected to share the same lane in the same direction.
- For paths with extremely heavy user volumes, it is recommended that users be separated further:
 - One option is to provide three separate lanes within a single path including two one-way lanes for bicycle travel and one bidirectional lane for pedestrian travel. A pathway width of at least 15 feet is recommended for such a configuration to allow 5 feet for each lane; and
 - The second option is to physically separate users by providing a distinct pathway for pedestrians.



Trail signage helps to encourage behaviors like riding slow and keeping right.



Additional signage and pavement markings would make it clear to pedestrians and bicyclists that sidepaths are shared-use facilities.

Signage

Trail speed limit signs should be installed along shared-use paths with high volumes of bicycle users. Typical speed limits for shared-use paths range from 10 to 15 miles per hour. Speed limit considerations may include user visibility, pathway curvature, and user volumes. In areas with high volumes of both pedestrian and bicycle users, additional signage reminding users of passing etiquette (warn when passing slower trail users) and illustrating proper lane use are recommended to reduce conflict.

Off-Road Shared-Use Facilities: Recommendations for Robbinsdale

- Signage and/or pedestrian and bicycle stencils should be installed along shared-use paths and sidepaths indicating their use for pedestrians and bicyclists;
- If there is a shared-use path on only one side of the roadway, it should be signed and striped (with dashed yellow lines) as a two-way facility, and it should be at least 10 feet wide; and
- Major trail crossings should be designed with extra care and according to best practices included in this plan, Three Rivers Park District, and Minneapolis Park and Recreation Board.

Recommended Separation Between Shared-Use Paths and Roadways

Roadway With No Curb

Speed Limit (mph)	Separation (ft)
40 mph or less	20 ft (desired) 10 ft (minimum)
45 mph or greater	24–35 ft
Freeway	50 ft (minimum)

Roadway With Curb

Speed Limit (mph)	Separation (ft)
30 mph or less	5 ft (minimum) 3 ft (minimum, if parking allowed)
35–40 mph	5 ft (minimum)
45 mph or greater	10 ft (desired) 5 ft (minimum)
Freeway	50 ft (minimum)

Source: 2007 MnDOT Bikeway Facility Design Manual

5.3.3 - On-Street Bicycle Facilities

This Plan recommends developing a system of on-street bicycle facilities to complement an expanded shared-use path network within Robbinsdale. On-street bicycle facilities are a relatively low-cost improvement that can increase the number of people biking to destinations across the city.

Although on-street bicycle facilities offer lower levels of separation and user comfort than off-road facilities, they are appropriate on roadways with lower vehicle volumes and travel speeds and are sometimes preferred by commuters and other experienced bicyclists. On-street bicycle facilities allow bicyclists to travel at grade with motor vehicles, making it so that they do not have to “dip down” at intersections and crossings as is required on shared-use sidepaths.

There are a range a different on-street bicycle facilities, from “Neighborhood Slow Streets / Bicycle Boulevards,” that can be implemented on low volume / low speed residential streets, to bike lanes, to buffered bicycle lanes and cycletracks which offer additional distance or barrier separation from motor vehicles.

Selecting the appropriate treatment, and designing the specific treatment along a given route depends on a number of factors, including:

- Speed of the roadway;
- Motor vehicle volume (AADT) of the roadway;
- Land use context/nearby destinations;
- Number of vehicle travel lanes;
- Width of existing pavement and existing right-of-way;
- Current and expected ridership; and
- Presence of on-street parking

Please refer to Chapter 5.2.4 for guidance on selecting bicycle facilities. A overview of use and design considerations for each type of on-street bicycle facility is included below.



A bicyclist travels in an on-street bicycle lane.
Image courtesy of pedbikeimages.org, Jennifer Campos.



On-street parking is limited to two hours on West Broadway Avenue in downtown Robbinsdale.

On-Street Bicycle Lane

Bike lanes designate a portion of the roadway for preferential use by bicyclists. Lanes are defined by striping, pavement markings and signage and should be 5 feet wide at a minimum. Bike lanes create separation between bicyclists and motorists and increase cyclist comfort and visibility.

On some roads, the curb-to-curb width of the road pavement may be a constraint and expanding pavement may not be possible. There are some solutions that can address this issue and allow for on-street bicycle facilities. These include:

- Implementing a “road diet” by converting a four-lane roadway to three-lanes (two-lanes each direction with a center turn lane). An existing example in Robbinsdale is on Lake Drive / County Road 9, east of Bottineau Boulevard;
- Removing on-street parking; or
- Decreasing the width of travel lanes (down to 11 feet or 10 feet) in urban settings.

The Institute of Transportation Engineers (ITE), in *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities*, a report sponsored by the Federal Highway Administration (FHWA), recommends using a roadway’s target (or desired) speed as guidance for the width of travel lanes provided. Consistent with AASHTO guidance and design flexibility, the study finds that 10 foot travel lanes are suitable for local and collector streets with operating speeds to 30 mph, while lane widths from 10 to 11 feet are suitable for use in arterials with operating speeds to 35 mph.

Bicycle Use of Paved Shoulder

Paved shoulders currently exist in Robbinsdale, however they are not designated bicycle facilities, as they lack pavement markings and signage. There are opportunities to reconfigure these shoulders into bicycle lanes (and potentially buffered-bicycle lanes) by restriping travel lanes. Additional bike route signage and designation of shoulder facilities as bicycle lanes would improve the safety and



On-street bicycle lane created using the paved shoulder.



Travel lanes, a center turn lane, and paved shoulders on 36th Avenue N.

comfort of bicyclists who wish to travel on the street network.

When turning paved shoulders into bicycle lanes, curbs used to divert storm water into catch basins should have bicycle-compatible designs. Pavement overlays and storm water catch basins should be designed to avoid leaving an abrupt edge within the riding area. In areas where an edge or significant seam is present, the bicycle lane should measure at least 5 feet, outside of the edge or seam.



Green paint can help direct bicyclists and alert motorists when there is a transition from an on-street to an off-street bicycle facility.

Neighborhood Slow Street / Bicycle Boulevard

A Neighborhood Slow Street Bicycle Boulevard (also sometimes known as a Neighborhood Greenway or Bike Boulevard) is a neighborhood residential street modified to calm automobile traffic and discourage cut-through traffic to make walking and bicycling on those streets more comfortable. Neighborhood Slow Streets are appropriate for most residential streets, and can provide useful parallel route alternatives to important destinations if located within block or two from a major thoroughfare with high traffic volumes.

Target speed for motor-vehicle traffic on a Neighborhood Slow Street should be 20 to 25 mph, with a preferred motor-vehicle volume of 3,000 ADT or less. Bicycle boulevards are an effective way of creating lower stress connections for bicycles in a city’s network and are appropriate for several residential streets in Robbinsdale to connect with other routes.



A neighborhood slow street in Northeast Minneapolis. A traffic circle calms traffic along this route.

On-Street Bike Facilities: Recommendations for Robbinsdale

- Install on-street Bicycle Lanes and Neighborhood Slow Streets as recommended in Chapter 4.

5.3.4 - Protected Bicycle Facilities

Physical separation from motor vehicle traffic increases comfort for a significant population of existing and potential riders in a community (it has been estimated that approximately 60% of a community's residents would be interested in riding a bicycle more often if stresses related to interactions with motor vehicle traffic could be significantly reduced). As a result, more and more communities are implementing separated / protected bicycle facilities to establish on-road routes. These facilities offer a similar experience to bicycling on an off-road shared-use path while on the street itself. They include:

Buffered Bicycle Lanes

Buffered bike lanes provide cyclists with extra space between the bike lane and moving traffic, increasing their comfort. Buffers can provide cyclists with adequate room to pass without having to merge into automobile traffic. Buffered bicycle lanes are appropriate anywhere a traditional bicycle lane is proposed and where the right-of-way is available. Buffered bike lanes may provide a safer and more comfortable designated bicycling space for parents with schoolchildren than conventional bike lanes and should be considered for routes serving school locations.

Cycletracks (Protected Bikeways)

A cycletrack is an exclusive lane for cyclists separated from motor-vehicle traffic by a painted buffer and/or physical barrier (such as a curb, parked cars, or bollards), and separated and distinct from the sidewalk. Different forms of cycletracks include one-way protected cycletracks, raised cycletracks and two-way cycletracks. Cycletracks require more space and infrastructure than conventional bike lanes, and require special design attention at intersections.

Cycletracks have been shown to significantly increase bicycle ridership for people of all ages and experience levels because the significant separation from motorized vehicles greatly increases rider comfort. Cycletracks also increase safety by reducing the likelihood of 'dooring' accidents.



Cycletracks are a type of on-road bicycle facility that offer separation between bicyclists and motor vehicle traffic.



A rendering of protected intersection for bicyclists. Elements such as advance vehicle stop bars, corner refuge islands, setback bike crossings, and bicycle-specific signals are included in this concept. Image courtesy of protectedintersection.com

Protected Intersections

Protected intersections extend cycletracks into an intersection, and provide protected signal phasing for riders crossing at an intersection.

5.4 - Tools for Addressing Intersections and Trail Crossings

Intersections were frequently identified by Robbinsdale residents as barriers to walking and bicycling in the city.

Sidewalks, off-road shared-use paths/trails, and shared-use sidepaths through the city intersect many higher-volume / higher-speed arterial and collector streets. These, in combination with long crossing distances, make crossing on foot or bike difficult or not inviting.

Intersections and crossings identified as highest priority for improvement are identified in Chapter 4 of this plan. This section offers guidance for improvements that can be made at any intersection to make conditions more comfortable for pedestrians and bicyclists. Improving conditions for walking and biking at identified priority intersections and other intersections across the city will significantly improve qualities of comfort and convenience for the overall walking and biking network.

Several factors contribute to the actual and perceived safety of pedestrians and bicyclists at intersections:

- Crossing distance and time;
- Traffic speed;
- Traffic volume; and
- Visibility to motorists/conflict points.

Several infrastructure improvements/approaches can be made to address these factors.

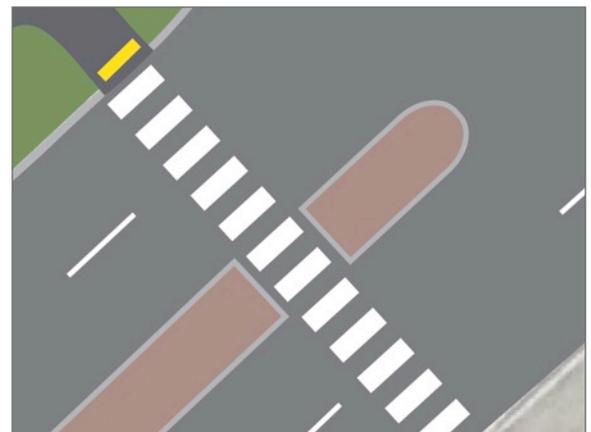
STRATEGY 1: Shorten and Break Up the Crossing Distance

Refuge Islands

Refuge islands help to break up pedestrian crossings across wide streets, allowing pedestrians to focus on crossing one direction of traffic at a time. Refuge islands also provide an additional traffic calming benefit by visually narrowing lanes and reducing turning radius of left-turning vehicles. Traffic calming benefits of medians can be increased with



A pedestrian waits to cross Bottineau Boulevard at 41st Avenue N in Robbinsdale. This intersection has a high-visibility crosswalk, but would benefit from a “bull-nose” extension to protect pedestrians at the median, as illustrated below.



A “bull-nose” refuge island is created by extending the median beyond the crosswalk.

vegetation (as long as it does not block pedestrian visibility) and other design features.

Many major intersections in Robbinsdale already include traffic medians, though few of them currently function as pedestrian refuges. These existing medians should be extended beyond crosswalks to create “bull-nose” refuges providing additional protection to pedestrians and bicyclists crossing the street. In cases where shared-use paths cross intersections, refuge islands should be wide enough to accommodate pedestrians and bicyclists.

Curb Extensions

Curb extensions are the extension of the sidewalk and curb into the travelway at corners. These features (also known as bump-outs) improve pedestrian safety by increasing the visibility of pedestrians to motorists, by slowing down right-turning motorists, and by reducing crossing distance, thus decreasing the time it takes for a pedestrian to travel across an intersection.

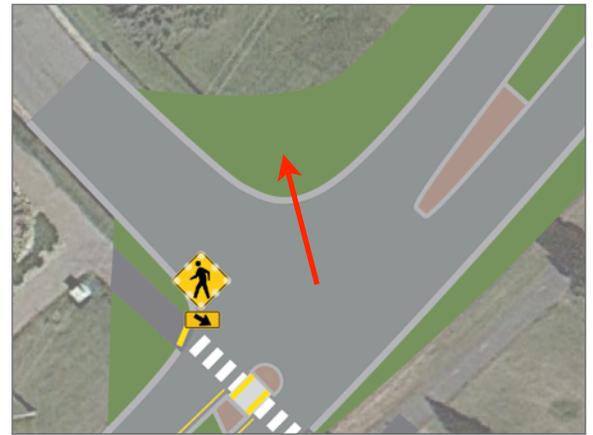
Curb extensions should be considered for streets in Robbinsdale that include on-street parking, and in pedestrian-oriented areas including downtown, and around schools. Curb extensions should not extend into bicycle travel lanes.

STRATEGY 2: Reduce Traffic Speed and Shorten Crossing Distance

Reduce Corner Radii

Minimizing corner radii is an intersection design solution that can benefit pedestrians and bicyclists by reducing traffic speeds and shortening crossing distances.

Smaller corner radii encourage motorists to turn at slower speeds, and also allow for shorter distances for pedestrians to cross. Most local streets in Robbinsdale already have small corner radii. However some corners, where city and county roads intersect, have wider corner radii. These locations should be reevaluated and updated when feasible. New roadway projects should use minimum turning radii recommendations based on best practice guidelines



By reducing the vehicle turning radius, the speed of turning motor-vehicles is reduced and the street becomes more comfortable for pedestrians and bicyclists to cross.

according to AASHTO with careful consideration of the design vehicles selected when developing radius standards.

Modify Road Configurations

Additional modifications to roadways can be made to enhance the comfort of pedestrians and bicyclists traveling along and crossing them, by working to slow motor vehicle traffic. Road modifications may also provide the necessary space for on-street bicycle accommodations without the expansion of road pavement.

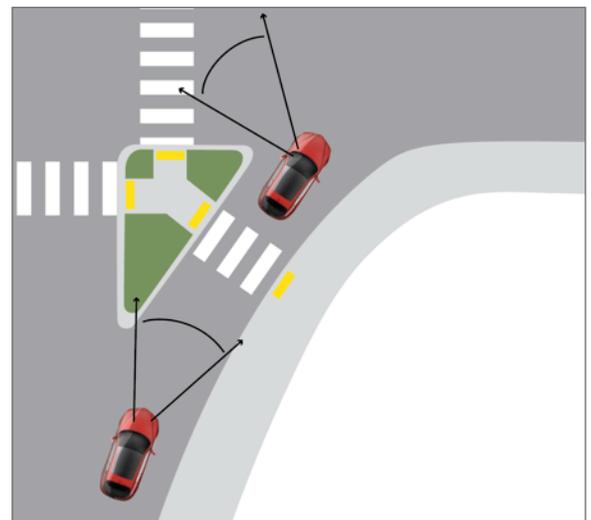
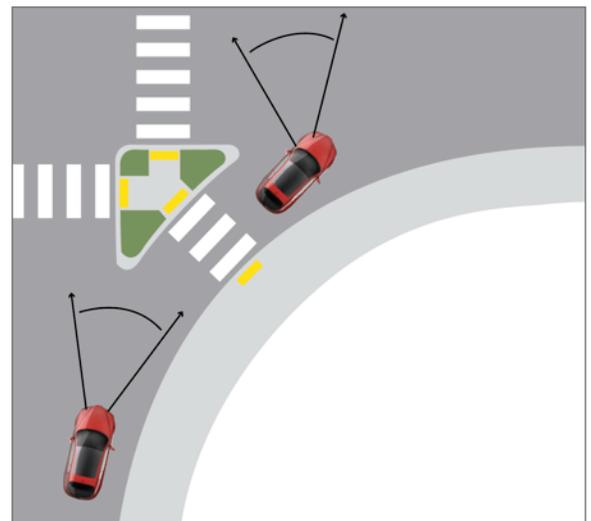
Possible street modifications include:

- Considering a “road diet” by removing motor vehicle travel lanes;
- Removing turn lanes at intersections;
- Removing center through-lanes and adding a center left-turn lane; and
- Reducing the width of motor vehicle travel lanes. 10 or 11 foot travel lanes are adequate for city streets.

Right-Turn Slip-Lane Design

Slight changes in the design of right-turn slip-lanes and pork chop islands can transform them from high-speed turn lanes into traffic-calming pedestrian refuges. Straightening and elongating the entry angle, reducing the width of the turn lane, and reducing the turning radius at the exit help to improve drivers’ visibility of pedestrians and oncoming traffic when merging.

Crossings to pork chop islands in high-priority areas can be additionally enhanced by installing raised crosswalks to elevate and improve visibility of users, and further calm traffic. In central commercial areas, the City of Robbinsdale may wish to consider removing slip-lanes when possible in favor of increasing pedestrian and bicyclist convenience.



Two different slip lane configurations: the first prioritizes vehicle speed, the second improves pedestrian safety while also improving driver sight lines.

STRATEGY 3: Make Pedestrians and Bicyclists More Visible at Intersections and Crossings

High Visibility Crosswalks and Vehicle Stop Bars

High-visibility “continental” or “ladder” crosswalks with vehicle stop bars are recommended for all fully-controlled intersections where sidewalks exist (all-way stop signs or traffic lights). Consideration should be made for upgrading pavement markings at intersections in Robbinsdale, especially those identified as priority intersections, those undergoing reconstruction, and those at other intersections in identified priority areas.

Additionally, green paint can be added to locations where bicycle facilities cross roadways to enhance bicyclist visibility. The city should consider green paint for intersections that include off-road or on-road bicycle facilities, particularly in priority areas or areas with potential turning conflicts.

Signage and Signals

Signage is an important element in comfortable and low-stress crossings, particularly where off-road paths/trails cross streets at mid-block locations. Adding signals and modifying the timing of existing signals can increase comfort for pedestrians and bicyclists at intersections and crossings. A few approaches involving signage and signals relevant to Robbinsdale are discussed below.

Signage should be prominent and visible to oncoming motor vehicle traffic from both directions. Advance warning crossing signage should be provided as well. Flashing beacons in conjunction with signage serve to further enhance the visibility of those crossing the street, as well as motorist compliance.

Countdown Timers

Countdown timers should be provided at all intersections where crossing signals are provided to alert pedestrians and bicyclists of the time they have to cross. Considerations should be made for extending crossing times to better accommodate pedestrians and bicyclists, and potentially



A faded crosswalk in downtown Robbinsdale.



A shared-use path crossing of Shoreline Drive.

adding leading pedestrian intervals to timers to allow for pedestrians and bicyclists to begin crossing the street before motor vehicle are given the green light.

Rectangular Rapid Flashing Beacon (RRFB) and High-Intensity Activated Crosswalk (HAWK) Beacon

RRFBs and HAWKs are signals that can be used at mid-block crossings or at crossings where no signal is present. These signals result in a high level of motor-vehicle yielding to pedestrians crossing the street. Guidance for the installation of HAWKs and RRFBs is provided in Figure 5.2.2.b and 5.2.2.c.



Raised and colored crosswalks slow right-turning vehicles. Courtesy of flickr, Richard Drdul.

Enforcement

Enforcement and ticketing in tandem with intersection improvements may help to improve driver compliance and change attitudes about the way drivers should interact with pedestrians and bicyclists at crossing locations. Signage warning drivers not to block crosswalks may also help to educate drivers and discourage them from blocking the movement of users.

5.5 - Signs, Signals, and Wayfinding

5.5.1 - Wayfinding and Route Signage

The Minnesota MUTCD and NACTO guide both include wayfinding guidance, as does the Minneapolis Street and Sidewalk Design Guidelines. These guidelines may be used as a template to shape pedestrian and bicycle route signage throughout the City of Robbinsdale to improve the overall pedestrian and bicycle transportation network. A hierarchy of signs may include basic directional signage at key intersections, as well as comprehensive network map kiosks at major destinations or rest stops.

Robbinsdale can use signage to direct trail users to its downtown. The current Grand Rounds National Scenic Byway is only 1.5 miles, or a 10 minute bike ride from downtown. It is approximately a 30 minute walk. The future Crystal Lake Regional Trail will bring trail users even closer to downtown.

Three main components are needed for an effective wayfinding system. They can be thought of as the 3 “Ds”:

Distance

- The distance and time component informs pedestrians and bicyclists how long their trips will be, adding a measure of certainty and convenience when planning trips. In addition, many people may be surprised and intrigued by seeing how quickly they can walk or bike to destinations to which they regularly drive. Distance should be communicated in miles, including 0.10 mile increments, as well as in time for both pedestrians and bicyclists.

Direction

- The direction component of an effective wayfinding system guides pedestrians and bicyclists to destinations. Directional signage also helps users avoid obstacles such as freeways, cul-de-sacs, and dead end roads. The



Signage used on the Grand Rounds National Scenic Byway directs users to key destinations and routes. The style and look of the signs provides elements of branding to the network of trails and corridors. Image courtesy of minneapolisparcs.org/grandrounds.



Sign providing destination, time and distance information for bicyclists.

direction is indicated by using an arrow on the sign that directs users to proceed forward or to prepare to turn. Directional signage also gives motorists warning to expect cyclists on the road, and to anticipate cyclists' turning or crossing movements.

Destination

- The destination component of an effective route sign helps users choose the most effective route to desired destinations and helps decrease confusion or wrong turns, especially in areas where the street system does not follow a grid pattern. Rest stop information can also be included on wayfinding information to efficiently route users to restrooms, water fountains, or view points.

5.5.2 - Signals

Bicycle traffic signals can be installed at intersections where there are high volumes of bicyclists, or where there are bicycle-only movements. They increase bicyclist comfort by reducing stress and delays at the intersection, and improve safety by reducing illegal and unsafe crossing maneuvers.

Loop detectors for bicycles detect the presence of bikes on the roadway. These allow a bicyclist to activate a traffic control device without having to press a button. Pavement markings can be used to direct cyclists to the proper spot where the signal device may detect their presence. The markings also alert motorists that bicycles will be present in various locations at signalized intersections.

5.5.3 - Priority Route and Branding Opportunity for Robbinsdale

Directional wayfinding signage provides an excellent opportunity to link a number of important commercial, employment, and recreation destinations in Robbinsdale, and to attract a greater number of visitors and shoppers into its downtown. Wayfinding signage could be branded to prominently include the Robbinsdale bird logo, and different routes could be identified by different colors or other indicators. These routes could then be publicized for



Wayfinding signage to help bicyclists follow an established route.



A traffic signal for bicycles in Minneapolis.

pedestrians and bicyclists to experience, potentially attracting visitors who wish to explore the routes and destinations.

The following routes could be signed and branded:

- A “greenway” or recreation route linking Victory Memorial Parkway, Crystal Lake, Sochaki Park, recreation destinations, and other stops;
- An “employment and shopping” route linking retail destinations and primary employment destinations along Bottineau Boulevard such as North Memorial Medical Center, the Terrace Center, and the area near 41st Avenue North; and
- Downtown Robbinsdale, including the future LRT station, should be used as a central hub for routes. The Bottineau LRT Station Area Pre-Planning Study identified that LRT riders will primarily access the station by walking and biking. On the Bottineau LRT line, Robbinsdale is the only “Main Street” type of station.



Signage used on the Grand Rounds National Scenic Byway directs users to key destinations and routes. The style and look of the signs provides elements of branding to the network of trails and corridors. Image courtesy of trekcity.com.

5.6 - Transit Integration

Integrating pedestrian and bicycle networks into current and future transit networks will increase the usefulness, convenience and use of each system, and will benefit Robbinsdale residents by increasing the range of their walking and biking trips, providing additional options for work and recreation trips, and making it easier to integrate Active Transportation into their daily routines.

5.6.1 - Key Opportunity

The Bottineau LRT / Blue Line Extension presents a key opportunity to dramatically increase the use walking and biking as a daily transportation option for Robbinsdale residents and workers. The future Bottineau LRT Blue Line Extension will provide service from Robbinsdale to Crystal, Brooklyn Park, Golden Valley and Downtown Minneapolis, and interlink with the existing Blue Line providing service to Bloomington, MSP International Airport, and Mall of America. The existing Robbinsdale Transit Center / Hubbard Marketplace will serve as the Robbinsdale stop for the Bottineau LRT.

Developing comfortable and convenient connections between residential and employment areas and the Blue Line station will benefit Robbinsdale residents and workers.

Improving pedestrian and bicycle access to the city's LRT station was an important focus for the work of this plan.

5.6.2 - Improving Pedestrian and Bicyclist Access to Transit

Providing a continuous low-stress network of sidewalks and shared-use paths connecting residential and employment concentrations to transit stations are an effective way of supporting non-motorized access to transit. In addition, pedestrian crossings should be located along the nearest intersection on both sides of transit stops. If transit stops are not located near convenient intersections, mid-block crossings should be investigated for implementation.



The future Robbinsdale LRT station should be comfortable and convenient for pedestrians and bicyclists to allow for multimodal trips. Improved connections between residential and employment areas will benefit Robbinsdale residents and workers. Image courtesy of metrotransit.org.

5.6.3 - Recommendations for Transit Stops

At a minimum, all transit stops should include a paved landing area for riders to wait outside of the pedestrian/ bicycle travel-way, and to improve ease of loading and unloading. Stops serving high numbers of riders should include covered waiting areas. Heated bus shelters should also be considered at locations with high ridership for winter users.

Availability of seating increases comfort for riders while waiting for transit. Seating is strongly recommended at stops serving high numbers of elderly riders, disabled persons, or children. Transit stops near grocery stores and shopping centers should also be prioritized for shelter and seating to accommodate riders returning with goods.

Transit stops and approaching walkways and crossings should be well lit to improve rider comfort and safety, and to improve visibility of riders to transit drivers.

Signage at bus stops should include time tables and route maps so that users can easily plan their transit trip. This is a priority at the future LRT station and at key shopping and employment destinations. The time tables and maps also helps market transit to non-users as it advertises that bus service is available, and may help to encourage people to try transit for a future trip. Robbinsdale can work with Metro Transit to increase the number of bus stops with more information.

5.6.4 - Bike Parking at Transit Stops and Stations

Providing secure long-term bicycle parking at transit stations helps reassure bike commuters that their bikes will still be there when they return from work, and will encourage bike commuting to transit. Short-term bicycle parking (which takes up less space) may also be provided at transit stops serving high numbers of riders. Typically, a mix of short-term and long-term bicycle parking is provided at transit centers.



Hubbard Marketplace, site of the current Robbinsdale Transit Center and the future Bottineau LRT station.

5.6.5 - Bike Stations at Transit Centers

“Bike stations” provide cyclists with robust facilities for storage and maintenance of bicycles, and are generally located near transit hubs or other major destinations. Bicyclists who ride their bikes to transit can leave their bikes to be stored and serviced as needed while they continue their commute via transit. Bike stations often include amenities such as long-term bike parking and shower and locker facilities.

Another option similar to the full-scale “bike station” described above is a “fix-it station.” Fix-it stations are generally installed at transit centers. These stand-alone stations consist of a vending machine of bike parts and a set of bike tools attached to a permanent repair stand.



This fix-it station provides basic bicycle repair tools and parts with a vending machine and permanent repair stand.

5.6.6 - Bike Share

A bike share program such as Nice Ride Minnesota can be a great way to increase the reach and effectiveness of a transit center. By siting rental kiosks at the future Robbinsdale LRT station and at locations within the city, commuters are given the option for hassle-free bike access to the transit system, and to the larger bike share system within the Twin Cities. The City of Robbinsdale is exploring the possibility of partnering with North Memorial Medical Center to bring Nice Ride to Robbinsdale.



Bikeshare can increase the range and convenience of bicycle trips, especially if combined with transit.

5.6.7 - Transit Integration: Recommendations for Robbinsdale

- Work with Metro Transit to provide comfortable connections for pedestrians and bicyclists to the Robbinsdale Transit Center, as well as short and long-term bicycle parking;
- Encourage and support expansion of Nice Ride in the city to supplement transit services;
- Work with Metro Transit to increase the number of bus stops with timetables and maps;
- Future Bottineau LRT station and the future Park and Ride should provide long- and short-term bicycle parking. Consider a bicycle station or fix-it station at the future LRT station; and
- Clear signage should direct pedestrians and bicyclists to the future LRT station.



The Bikestation in Washington, D.C. is a comprehensive bike facility which provides amenities such as bike parking, maintenance, changing facilities, retail services, and bicycle rentals for people who commute into the area without a bicycle. Image courtesy of home.bikestation.com/bikestation-washington-dc

5.7 - Ancillary, End of Trip, and Rest Facilities

Ancillary, End of Trip, and Rest facilities are those provisions made for pedestrians and bicyclists for the beginning, end, and intermediate portions of their trip.

Bicycle parking, for example, is an end of trip facility that makes it more convenient to travel by bicycle to a destination. Provision of adequate end of trip facilities cannot be overlooked: if they are not available (e.g. if no bike parking is available), the user will next time choose a different mode for arriving or may choose another destination altogether, even if the provided routes are perfectly safe and convenient.

Provision of adequate ancillary and rest facilities, which is sometimes viewed as an optional component of a transportation or land use plan, is as important for making non-motorized travel more convenient and inviting as is providing adequate parking for automobiles when designing shopping destinations, transit Park and Ride lots, or new residential or commercial development.

5.7.1 - Pedestrian and Bicyclist Connections to Buildings from Streets

Navigating large parking lots on foot or bike can be uncomfortable. Providing clear access from the street to the building entrance, not just from motor-vehicle parking lots, but also from the routes pedestrians and bicyclists would be using to access a site, can make the destination more inviting. Cities can include requirements for these considerations (including bicycle parking and other ancillary facilities) in building and zoning codes, particularly at key employment and retail destinations, and transit stations. Establishing a Pedestrian/Bicycle Zoning Overlay District (please see Chapter 5.10 Policy Recommendations) could help Robbinsdale guide property developers to provide comfortable access to final destinations



Navigating across parking lots to key destinations can be a challenge for pedestrians and bicyclists.



Benches at the Robbinsdale Transit Center.

5.7.2 - Bicycle Parking

Bicycle parking is a key element in encouraging more people to bike more often. Bicycle parking is commonly grouped into two types:

- **Short-term bicycle parking** accommodates visitors, customers, messengers and others who arrive at a destination and are expected to depart within a couple of hours. A standard “inverted U” rack, appropriate location and placement, and weather protection is recommended. On-street bicycle corrals may be considered in lieu of vehicle parking spaces where bike parking demand is high. Short-term bicycle parking is recommended for Robbinsdale’s employment and shopping districts, for the transit center, and for city parks.
- **Long-term bicycle parking** accommodates employees, students, residents, commuters, multi-modal (bike-to-transit) travelers, and others expected to leave their bikes unattended for more than two hours. This type of parking should be secure, weather-protected and in a visible and convenient location. It may be provided by using standard “inverted U” racks in a visible, sheltered, secured, or supervised location, or by offering a locked room with standard racks and access limited to cyclists only (See Bike Stations in Chapter 5.6). Long-term bicycle parking should be provided at schools, office and employment sites, and transit stations.

Destinations where bicycle parking should be available include:

- Parks, trail heads, recreational destinations;
- Restaurants and commercial centers;
- Transit hubs (Robbinsdale Transit Center and Future LRT Station);
- Schools;
- Employment centers (e.g. North Memorial Medical Center);
- Community centers;
- Health/fitness centers; and
- Shopping destinations (e.g. downtown Robbinsdale).



Inverted-U style bicycle parking should be installed at key destinations close to the primary entrance to the building.

Growing bicycle parking

Bike parking is an inexpensive way to make bicycle travel more convenient, and cost-sharing programs are a great tool to increase the availability of bicycle parking near business and employment destinations.

The City of Minneapolis runs a program that provides a “50/50 cost share at eligible locations” in addition to installation of bike racks free of charge for public facilities such as schools, libraries and parks. Find more information at www.ci.minneapolis.mn.us/bicycles/parking/bicycles_bikeparking-rack.

Hennepin County guidance on bike parking

Hennepin County will soon publish a guide on bicycle parking in conjunction with its Bicycle Plan. The guide will offer recommendations for choosing the correct bicycle rack, placing racks, and other considerations. The guide will be available at <http://www.hennepin.us/residents/transportation/bike-walk>

The style and placement of bicycle parking have important implications for its use and security. Parking racks should be located near building entrances along the natural path of a bicyclist towards their destination, and should be placed in an area where they can be easily seen by others to reduce theft and vandalism. The style of parking rack selected should allow cyclists to securely lock their bike to the rack (including the frame and the tire), and should not require the cyclist to lift the bike to properly position it. The parking rack should support the frame of the bike to keep it from falling if bumped. Examples of preferred styles include Inverted-U and Post & Loop styles. During the community engagement process (including the WikiMap), resident comments indicated need for bicycle parking at public facilities and local shopping destinations.

5.7.3 - Seating and Rest Stop Facilities

Rest stop facilities along popular routes invite a wider range of users (especially families with children and seniors) to travel on foot or bike by breaking up long distances into manageable segments, while also benefitting long-distance commuting cyclists, joggers, and other trail users. Rest stops may include restrooms, seating, waste receptacles, water fountains, wayfinding kiosks, bicycle parking, and other facilities. Facilities like benches and waste receptacles can easily be grouped with wayfinding kiosks at a natural stopping point.

Rest stops placed at locations with scenic sight lines, places that provide respite from traffic, or landings at the tops of hills, and neighborhood parks, allow users to rest, enjoy nature, or stop for a snack.

Facilities should be placed off the trail for users to comfortably relax without impeding other trail users. Transit stops may also be designed to simultaneously provide seating for transit riders, and a rest area for trail users. Robbinsdale, with its many neighborhood parks and scenic features could consider incorporating rest stop features in its off-road trail network.



Information kiosks can provide helpful direction to trail users.
Image: Minnesota River Bluffs Regional Trail.



Benches such as these along Bottineau Boulevard help create a sense of place, make a statement to pedestrians that they are welcome, and offer a valuable place to rest.

5.7.4 - Lighting of Pedestrian and Bicycle Facilities

Standard lighting should be provided on pedestrian and bicycle facilities for ease of use during night hours. This request was shared by many residents during the community engagement process. Concerns for personal safety were a high priority. Additionally, poor lighting can create difficult environments for persons with limited mobility.

5.7.5 - Showers and Changing Facilities

Provision of showers, changing facilities, and lockers at employment centers can encourage more employees to try bicycling to work. Requirements for provision of showers and changing facilities can be included into a city’s regulations to ensure that future office developments include them.

5.7.6 - Ancillary, End of Trip, and Rest Stop Facilities: Recommendations for Robbinsdale

- Investigate the installation of benches along major pedestrian routes, at scenic vistas, adjacent to commercial and employment areas, and at other logical stopping points;
- Consider policies that require the installation of convenient bicycle parking, and clear pedestrian and bicycle walkways to the entrance of final destinations;
- Partner with existing businesses to set up a cost-sharing program that covers 50% of the cost to install short-term bicycle parking at key business and employment destinations;
- Focus bicycle parking efforts at Robbinsdale schools, public facilities, and at commercial and employment destinations in priority areas such as the future LRT station, and North Memorial Medical Center; and
- Increase the amount of bicycle parking in downtown Robbinsdale, in anticipation of increased bicycle traffic.



Recommended Inverted-U style bicycle racks in Downtown Robbinsdale.



On-street bicycle corrals may be used in lieu of vehicle parking spaces where bicycle traffic is high. Corrals can park 10+ bicycles. Installing corrals at corners provides curb extension benefits for pedestrians as well. Image courtesy of J. Maus and bikeportland.org.

More information on bike corrals

The City of Minneapolis has a bike corral program in place. Minneapolis estimates costs for a 10-bike corral to be \$1,800 the first year and \$225 in subsequent years for maintenance.

Frequently asked question information about the Minneapolis program is available here: <http://www.ci.minneapolis.mn.us/www/groups/public/@publicworks/documents/webcontent/wcms1p-128772.pdf>

5.8 - Operations and Maintenance

This chapter provides an overview of maintenance recommendations for sidewalks and bikeways in Robbinsdale. For additional guidance and information please consult Chapter 9 (Maintenance) of the Minnesota Department of Transportation Bikeway Facility Design Manual, which is incorporated into this Plan by reference.

Walking and biking facilities should receive adequate maintenance to protect the investments made by Robbinsdale and its partners, and to ensure that they continue to serve residents and visitors well into the future.

5.8.1 - User Needs

Pedestrians

Pedestrians or wheelchair users depend on having a level, slip-resistant surface for their travel. Walking surfaces that are free from unexpected bumps, holes or cracks, and free from ice or other slippery materials, are paramount for their safety and comfort. Pedestrians also depend on the ability of motorists to anticipate and respond to their presence while crossing streets or when otherwise exposed to motor-vehicle traffic; therefore, signs, signals and markings should be maintained and kept in good working condition.

Bicyclists

A cyclist rides on two very narrow, high-pressure tires. What may be an adequate roadway surface for automobiles (which have suspension and shock-absorbing systems and travel on four wide, low-pressure tires) can be treacherous for cyclists: small rocks can deflect a bicycle wheel; a crack in the pavement or a poorly-placed drainage grate can trap a wheel; wet leaves, ice, and the gravel that gets blown off the travel lane are slippery and can cause a fall.

5.8.2 - General Considerations

Maintenance Budget

Preventive maintenance reduces hazards and future repair costs. Maintenance costs and responsibility for maintenance should be assigned when projects are planned and budgets



Maintenance work on a sidewalk in Downtown Robbinsdale.



Maintenance is a year-round requirement for a comfortable and convenient network of walking and biking facilities. Snow and ice can make travel difficult.

developed; typical annual maintenance costs range from 3 to 5 percent of infrastructure replacement costs - for example, a \$100,000 facility should include a \$5,000 annual maintenance budget. Life-cycle cost analysis is recommended to determine the net value of using longer-lasting, higher-quality materials during construction if they reduce yearly maintenance expenditures.

Management Plans

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

A facility's management plan answers basic operational and staffing questions such as: How frequently are preventive maintenance tasks performed? Who fills potholes? Who removes downed or dangerous trees? Responds to vandalism and trespassing? Removes litter? Replaces stolen or damaged signs? Waters and weeds landscaping? Acts as the main contact? Does the work? Pays the bills?

User-Initiated Maintenance Requests

The users of Robbinsdale's pedestrian and bicycle network will likely be the first parties to notice hazards, maintenance issues, or opportunities to bring improvement to the system. Establishing a formal mechanism for receiving requests for maintenance can help focus and prioritize investments, avert deterioration of the city's infrastructure investments, provide effective management, and reinforce resident-ownership of Robbinsdale's non-motorized network assets.

Maintenance Request Program

One simple, low-cost way of establishing this program would be through the addition of a "Pedestrian / Bicycle Facility Maintenance Request" button on the city's existing website which would take visitors to a web form where they would be prompted to identify the location and nature of the issue they are reporting. Potential issues that might be reported include small-scale, low-cost improvements, such as sweeping, repairing surface problems, trimming vegetation blocking signs or obstructing routes, and replacing unsafe gratings. The online WikiMap previously created for engagement may be an appropriate tool for implementing such a request program in Robbinsdale.

5.8.3 - Routine Maintenance

Snow and Ice Removal

Snow removal is a critical component of pedestrian and bicycle safety. The presence of snow or ice on sidewalks, curb ramps, or bikeways will deter pedestrian and cyclist use of those facilities to a much higher degree than cold temperature alone.

Seniors and other vulnerable adults will avoid walking in locations where ice or snow accumulation creates slippery conditions that may cause a fall. Curb ramps that are blocked by ice or snow effectively sever access to pedestrian facilities for wheelchair users and seniors. If water or ice accumulates at curb ramps, nearby drainage facilities should be reviewed. Additionally, inadequately maintained facilities may force pedestrians and bicyclists onto facilities that may not offer safe or adequate accommodations, or that require them to take a route that is a longer distance.

When the surface of a road is covered by snow, the pavement markings that guide and warn motorists, pedestrians and bicyclists may be difficult to see.

Care should be taken to clear roads so that pavement markings are identifiable. Snow should be cleared from a roadway's entire surface to allow pedestrians or bicyclists to travel as far as possible to the right side of the road or shoulder.

Prioritizing Snow Clearing Operations

A useful approach for maximizing the efficiency of maintenance investments is to identify locations where accumulation of snow or ice would significantly impede pedestrian and bicycling access and safety so that these locations are prioritized for clearing by maintenance immediately after a storm event.

The city should prioritize its snow removal on identified routes. On priority routes that are not maintained by the city, the city should work directly with property owners to encourage and/or enforce snow removal.

A Year-Round Approach

Snow and ice removal must be planned with the expectation that walking and bicycle facilities will continue to be used during winter months. Care should be taken to place snow and ice well out of the portion of sidewalks, bike lanes and shoulders that pedestrians and bicyclists use. Bike trails and paths should also be swept with regularity.

Sidewalks, bikeways, gutters and curb ramps should not be used as snow storage areas for snow removed from streets; city policies should address the clearance of snow from walkways, bikeways and road shoulders as being of equal importance as clearance of snow from the automobile travel lanes in streets.

Sweeping

Loose sand and debris on the surface of bicycle lanes, paved shoulders, and paved sections of shared use paths should be removed at least once a

year, normally in the spring. Sand and debris will tend to accumulate on bicycle lanes because automobile traffic will sweep these materials from the automobile portions of the roadway. This is especially true for bicycle lanes that are located directly adjacent to a curb, where debris collects already.

Surface Repairs

Pedestrians and bicyclists are more sensitive and more vulnerable to problems in the roadway surface than motor vehicles. A smooth surface, free of potholes and other major surface irregularities, should be provided and maintained. Care should be taken to eliminate other physical problems. Requests for surface improvements could be made through the Pedestrian / Bicycle Facility Maintenance Request Program described above.

Resurfacing / Pavement overlays

Street resurfacing projects provide ideal opportunities to greatly improve conditions for pedestrians and cyclists - by narrowing automobile travel lanes, widening shoulders, or adding bicycle lanes, for example. However, if not done correctly (by, for example, leaving a ridge or a joint in a shoulder or bicycle lane), some conditions may worsen.

Items to consider on resurfacing projects that will help improve conditions for pedestrians and cyclists include:

- Gravel driveways and alleys should be paved back 5 to 10 feet from the edge of pavement or right-of-way to prevent gravel from spilling onto the shoulders or bike lanes;
- The loose gravel used during the installation process for chip seals creates hazardous bicycle riding conditions, especially in shoulder areas. Provide warning signs for bicycle riders as well as bicycle route detours during installation; and

- Avoid leaving a ridge in the area where cyclists ride, which occurs where an overlay extends only part-way into a shoulder or bike lane. If possible, the overlay should be extended over the entire surface of the roadway to avoid leaving an abrupt edge.

Signs and Pavement Markings

Signs and pavement markings are important features of walkways, bikeways and roadways, and help ensure continued safe and convenient use of these facilities. It is critical that bikeway signs, striping, and legends be kept in a readable condition.

Some recommendations to address these infrastructure elements include:

- Regular inspection of bikeway signs and legends, including an inventory of signs to account for missing or damaged signs;
- Replacement of defective or obsolete signs as soon as possible;
- Regular inspection of striping, and prompt reapplication as needed;
- Depending on wear, bike lanes may need to be repainted on an annual basis. Bike lane stripes may wear out less often on lower traffic volume streets than on higher volume streets; and
- Durable cold plastic should be used for skip-striping bike lanes across right turn lanes.

Vegetation

Vegetation encroaching into and under a sidewalk, shared-use path, or trail crossing creates a nuisance and a hazard for pedestrians (especially for those with sight or mobility impairments) and for bicycle riders. The management of vegetation is generally considered the responsibility of city maintenance staff. To provide long-term control of vegetation, its management should be considered during design and construction. Vegetation management helps to maintain smooth pavement surface, as well as clear

zones, sight lines, and sight corners to promote pedestrian and cyclist safety.

Vegetation management issues identified by users (e.g. tree roots causing heaving of sidewalk surfaces) may be reported through the Pedestrian / Bicycle Facility Maintenance Request Program described above.

Drainage issues

Drainage facilities may change grades and deteriorate over time. Ensuring that bicycle-safe drainage grates are located at the proper height greatly improves cyclist safety; it may sometimes be necessary to adjust or replace catch basins to ensure continued safe operations and improve drainage. The small asphalt dams that are sometimes constructed on roadway shoulders to divert storm water into catch basins are a hazard to cyclists and their use should be avoided.

Event-related drainage issues (e.g. backed-up grates) and long-term drainage hazards (unsafe grates) can be reported and addressed through the Pedestrian / Bicycle Facility Maintenance Request Program, and should be proactively addressed whenever street improvements are made.

5.8.4 - Other Maintenance Activities

Patching activities

Loose asphalt materials from patching operations often end up on the shoulder, where the larger particles adhere to the existing surfacing, creating a very rough surface for pedestrians and cyclists. Fresh loose materials should be swept off the road before they have a chance to adhere to the pavement.

Utility Cuts

Utility cuts can leave a rough surface for cyclists if not back-filled with care. Cuts should be backfilled and compacted so that the cut will be flush with the existing surface when completed. Extra care should be used when cuts are made parallel to bicycle traffic to avoid a ridge or groove in the bicycle wheel track.

Description of Recommendations

- Investigate creating a Pedestrian / Bicycle Facility Maintenance Request Program, and consider utilizing the online WikiMap and the city's existing website;
- Prioritize maintenance such as snow removal, ice removal, and sweeping along bicycle and pedestrian routes identified in the Ch. 4 recommendations; and
- Coordinate maintenance needs with Hennepin County and the Minneapolis Park and Recreation Board as needed.

5.9 - Education, Encouragement, and Promotion

Developing walking and bicycle infrastructure is only the first part of increasing walking and biking in a community, as even the best-planned walking or bicycle network will fail to live up to its full promise if potential users are unaware of its existence, or if it's difficult to figure out how to get from one destination to another. In addition, walkers, bicyclists and motorists will each do better if they learn how to consistently and courteously share road space with each other and to coexist within Robbinsdale's transportation and recreation infrastructure.

This chapter presents some ideas that may help Robbinsdale invite its residents, businesses and visitors to safely and effectively use the route network that develops from this plan. It is titled "education and encouragement" to acknowledge that both of these activities build on each other, and that learning about safe riding and disseminating information about the city's walking and bikeway networks will lead to more people using them as part of their transportation and recreational activities.

5.9.1 - Inviting Users to the City's Network

Network Maps

People won't use a walking or biking network if they are unaware of its existence, or if they don't know how it may help them reach their routine destinations. Printing and distributing bikeway maps is a high-benefit, low-cost project that can help bicyclists locate bikeways, walkers identify better route choices for their trip, and the city promote its local businesses and festivals.

Map inserts can provide information covering such topics as Rules of the Road, bicycle safety and maintenance, and connecting with mass transit. Another low-cost and potentially helpful tool is the addition of existing web-based trip planner services to the Robbinsdale city website (like Cyclopath or Google Maps) where pedestrians and bicyclists



Open Streets events offer a chance for residents to be active and engaged, and to experience city streets in a new way.



Special events offer a chance to take part in "tactical urbanism" and try out infrastructure treatments before they become permanent. Here, users try out a "pop-up" protected bikeway treatment at an Open Streets event.

type in their destination and receive one (or several) recommended routes.

Promotion of Transit

Educating people about existing transit facilities is one of the best ways to encourage and increase their use. Sharing information on the practical benefits of transit, especially in combination with bicycling, will encourage people to use transit. These practical benefits include: greater radius of reachable distance, convenient connection to destinations, health benefits from physical activity, and potential time and cost savings over driving an automobile.

Incentive programs which offer transit discounts to people who arrive at a destination by bus or bike can help to increase the number of bicycle and transit users. Programs like MetroTransit's "Guaranteed Ride Home" for cyclists who ride their bikes to work three times a week or more can also help reduce reluctance to traveling without an automobile.

Open Streets and Other Special Community Walking and Biking Events

Special events offer an opportunity to bring attention to practical, fun, and healthy aspects of walking and bicycling as tools for getting places and for recreation. Because these events are community-wide and of limited duration, people are more open to participating without feeling like they have to commit to making a long-term change in their travel or recreation habits - they are just skating, walking or biking in their city once, not everyday. But sometimes that's all that is needed to open the door to adopting new travel behaviors over the long term.

Some events and programs that can encourage participation include:

- Monthly group rides with the City Council or the Mayor or other important local personalities can help promote bicycling in Robbinsdale;
- Open Streets events that close a road or two to auto traffic once a month and make it a bike and pedestrian-only event;



Effective Safe Routes to School Programs help to make biking and walking a regular part of students' daily routine.

Did You Know?

- 40% of all trips made in the United States are shorter than 2 miles in length.
- Students living 2 miles or less from school could bike to school in 20 minutes or less.
- According to the CDC, children should receive at least 60 minutes of aerobic physical activity each day.
- According to a 2010 National Household Travel Survey brief, just over 7 minutes were spent walking or biking each day by children age 5-10, and just over 14 minutes by children age 11-15.

- Parks and recreation programs can work with non-profit or bicycling advocacy groups to sponsor bicycling events and activities, especially on trails and regional bicycling routes; and
- Special bicycle commuter events can help raise the profile and potential for bicycle commuting. Bike to Work Week events, which typically include special publicity, route guidance to first-time bicycle commuters, and group breakfasts, offer an opportunity to try bicycling in a safe, relaxed and fun environment. Bike to Work Week events have been held in many Minnesota communities over the last several years.

Visitor Programs

Tourist promotion materials can highlight walking and bicycling as great ways to access and experience Robbinsdale’s parks and charming downtown. Several communities in Minnesota boast of their bicycling orientation as part of their identity and as a draw for potential visitors. Addressing comfort and connectivity of Robbinsdale’s network could help bring additional visitors to the city and customers to commercial destinations along West Broadway Avenue.

Student Programs / Safe Routes to School

Encouraging student walking and bicycling to school helps instill life-long habits of health and activity, and provides proof to students that walking and biking are serious and valid transportation options.

Some strategies and programs that could be implemented in Robbinsdale to encourage student bicycling include:

- Working with local schools to encourage students and staff to walk and bike to school;
- Working to integrate the new Walk! Bike! Fun! curriculum and other walking and bicycling education into physical education classes;
- Formally encouraging school Safe Routes to School programs and planning efforts;
- Offering discounts to area bicycle shops as prizes for outstanding students; and



A bicycle rodeo and safety fair is an effective way to involve local law enforcement in promoting walking and biking among youth populations. Image courtesy of newspapers-online.com/tecumseth.

Rules of the Road

- Rules of the road for pedestrians, bicyclists, and motor vehicles are detailed in the Minnesota State Statutes:
 - Pedestrian: 169.21
 - Bicycle: 169.222
 - Motor Vehicle: 169.18
- The Minnesota Department of Transportation operates a “Share the Road” campaign for pedestrians and bicyclists. More information can be found at <http://www.dot.state.mn.us/sharetheroad>.

Involve the Robbinsdale Police Department

The Robbinsdale Police Department can play a critical role in improving conditions walking and biking in Robbinsdale, and encouraging more people to walk and bike.

Active enforcement, participating in training and outreach activities centered on walking and biking, and even being seen walking and biking in the community all can play a role in improving conditions in the city.

- Establishing awards and incentives programs for completion of bicycle classes, or for walking and biking to school so many times per week, etc.

Rider Incentive and TDM programs

Increased use of walking and biking can help achieve Transportation Demand Management (TDM) objectives for workplaces and communities while improving community health and supporting local economic development. Several types of incentive programs are in use in communities throughout the United States. Among the most popular are:

- Business associations provide discounts to shoppers who arrive by bike; and
- Employers offer parking cash-out benefits, which give commuters who don't drive the cash equivalent of the parking subsidies provided to drivers.

These programs help address issues of lack of parking and increasing congestion that often hinder successful commercial areas. Robbinsdale businesses could offer discounts for customers who arrive by transit, foot or by bike.

5.9.2 - Learning to Ride Safely

Walking and bicycling are health-promoting and safe activities that can become even safer with improved education. Motorists, bicyclists, and pedestrians each have much to contribute to making walking and bicycling (and other modes of travel) safer and more effective: one of the leading causes of crashes is the unexpected behavior of at least one of the parties involved. Cyclist, motorist, and pedestrian safety programs can help reduce the risk of crashes and injuries while giving new bicyclists the confidence needed to ride more regularly. In fact, safety training has been shown to be an effective and cost-efficient way of reducing collisions and encouraging bicycling.

Three main components of safety training are addressed under this section. They center on:

- Developing safe bicycling skills in children;
- Teaching adult bicyclists their rights and responsibilities; and
- Increasing motorists' awareness of bicyclists' rights on the road, and teaching them how to safely share the road with bicycles.

For Children and Young People

It is important to share information on safe walking and bicycling with young people from early on. This will help them be safe and will also reinforce the message that walking and bicycling are useful and mainstream means of transport. While it is not uncommon for schools in the US to provide automobile driver education for children 16 or older, it is rare to find similar provision of bicycling education, even though most children seven and older are able to ride a bicycle and (because of generally poor provision of separated trails) routinely ride in streets that are also used by automobiles.

In European countries where bicycling serves a much larger portion of all trips it is a given that schools provide formal training in safe bicycling for children starting in elementary school. In the Netherlands, for example, children undergo a three week training on bicycling rules and maneuvers each year. It is easy to imagine that Robbinsdale students could receive similar training, perhaps as a component within physical education classes (and one which could help promote a lifetime of safe and enjoyable physical activity). It is also a given that schools, parks and other places where young people congregate need to provide a physical infrastructure that supports children's bicycling by making sure that adequate bike parking, and well-marked trails or lanes, are available (covered elsewhere in this Plan).

Some Approaches

School children are most effectively reached when an action-oriented teaching approach and a repetitive practice process are coupled with awards and incentives. Awards and incentives can consist of certificates of completion or bicycle/pedestrian licenses, free or reduced-cost bicycle helmets and other accessories, or discount coupons for area bicycle shops.

Messages

The following messages should be consistently taught:

- Wear a helmet. In the event of a bicycle crash, wearing a helmet can reduce the risk of serious head injury by up to 85%.
- Obey all traffic laws. Bicyclists have the same rights, and consequently the same responsibilities, as motorists.
- Look both ways before crossing streets.
- Always ride with the flow of traffic.
- Be predictable and always signal your intentions.
- Be visible; wear light-colored clothing and bright or reflective clothing and always use a front light and rear reflectors at night.
- In addition, very young children (seven or less) should ride with supervision.

For Adults

Adult bicyclists range in skills and confidence. Some adults are comfortable riding on busy streets and mixing with traffic while others prefer quieter streets or off-street paths. There are adults who ride a bicycle only a few times a year and those who ride often but primarily for recreation. Each type of cyclist has his or her own concerns and philosophy about how bicycles fit into the transportation system - education efforts must recognize this and tailor messages to each group.

Messages

The following messages should be consistently taught:

- Be alert. Watch for other users and sudden behavior changes. Pay careful attention to potential road hazards, such as potholes and gravel. Adjust speed to maintain control of the bicycle.
- Obey all traffic laws; bicyclists have the same rights, and consequently the same responsibilities, as motorists. Disobeying traffic laws makes it more difficult for motorists to know what to expect from bicyclists and is potentially dangerous.
- Always ride with the flow of traffic. Ride where motorists and others expect bicyclists, and never against traffic.
- Avoid riding on sidewalks. It is illegal in commercial districts in Minnesota, and puts pedestrians at risk. It also makes it more difficult for motorists to see bicyclists - research demonstrates that sidewalk riding is much more dangerous than riding on the street, even in places where no bicycle facilities are provided.
- Be predictable. Signal your turns and do not weave in and out of traffic.
- Be visible. Wear light-colored, bright or reflective clothing and use front lights and rear reflectors or lights at night.
- Wear a helmet.

For Motorists

The goal in educating motorists is to foster a broad and general public awareness and respect for bicycling. Many motorists are already occasional or regular bicyclists, and may begin riding more often if they see and feel the emphasis on providing safe conditions for all road users. Bicycle route signs and markings are also helpful for motorists because they remind them of the presence of bicyclists and of the need to share space with other users of the road. Information on the rights of bicyclists

should be included as part of training for all automobile drivers.

Messages

- Share the road. Bicyclists have the right to travel on all roads and streets except limited access freeways.
- Give room. Follow and pass at a safe distance. Never get closer than three feet to a cyclist under any circumstance. It is dangerous, and is illegal under Minnesota law.
- Be alert. Watch for bicyclists and other users and for sudden behavior changes. Pay attention especially at intersections.
- Obey all traffic laws. What would amount to a minor fender bender between two motor vehicles could be a serious injury for a cyclist in a bicycle-motor vehicle crash. Driving the speed limit and coming to a full stop at red lights creates a safer environment for all.
- Be predictable. Signal turns well before an intersection.
- Bicyclists have the right to take full possession of a travel lane in several situations, including when avoiding fixed or moving objects on the road (like vehicles, pedestrians or road surface hazards) and when the provided road space is too narrow to allow a motor vehicle to safely pass with three feet of clearance of the cyclist.
- Be patient and courteous with bicyclists and other users. Passing bicyclists just before a stop light or sign creates an atmosphere of unnecessary hostility.
- Do not honk unless absolutely necessary. Bicyclists can hear and see motor vehicles; honking simply jars their nerves.



Providing education to potential bike commuters is an important component of becoming a Bicycle Friendly Community. Photo courtesy of Bike Commute Tips.

5.9.3 - Becoming a Bicycle Friendly Community

The Bicycle Friendly Community (BFC) Program is a national program to which communities can apply based on their commitment to the five Es of bike planning:

- Education
- Encouragement
- Engineering
- Enforcement
- Evaluation & Planning

Becoming a BFC has important benefits for a community like Robbinsdale, including recognition, promotion of community amenities, technical assistance, benchmarking, and inspiration for further improvements for cycling. Robbinsdale can also partner with local businesses as a part of the Bicycle Friendly Business program.

Currently, Minnesota is ranked as the #2 Bike Friendly State in the US, and #1 in the Midwest Region with 5 Bicycle Friendly Communities, 35 Bicycle Friendly Businesses, and 1 Bicycle Friendly University.

The next review cycle deadline is in February 2015. There are two application deadlines per year, one in February and one in August. More information is available at:

<http://bikeleague.org/content/communities>



Photo courtesy of The League of American Bicyclists.

5.10 - Policy Recommendations

Several policy changes can help create a framework for facilitating walking and biking improvements, and increasing the number of people who travel on foot and by bike across the system in Robbinsdale.

5.10.1 - Establish a Pedestrian/Bicycle Zoning Overlay District

The city may wish designate certain areas of the city under a Pedestrian and Bicycle Overlay District to establish a policy framework for facilitating walking and biking trips. An overlay district is a specific area that is designated to have a zoning classification that is more (or less) restrictive than the underlying primary zoning district. The intent of overlay districts is to protect or encourage specific types of development form and function in a particular area of interest.

Areas in and around the future LRT station, downtown Robbinsdale, the North Memorial Medical Center, the Terrace Center, and other shopping areas may be likely candidates for the establishment of a pedestrian-oriented or bicycle-oriented overlay district. These areas have a concentration of retail, employment, transit, and other destinations, and are areas of potential redevelopment in Robbinsdale. They are and will continue to be primary destinations for useful daily trips in Robbinsdale.

An overlay district for pedestrians and/or for bicyclists in these areas could help guide development occurring in the area to better accommodate pedestrians and bicyclists. The districts could work to regulate building orientation and design, the provision of walking facilities and bicycle parking facilities on building sites, and establishing certain measures that mitigate effects that motor vehicles and parking lots may have on the rates of walking and biking. This includes traffic calming measures, provision of separated walking and biking facilities, landscaping, and other strategies on properties to facilitate walking and biking enjoyment, comfort, access, and circulation.



The City of Minneapolis has Pedestrian Oriented Overlay Zones in areas around LRT stations.

Complete Streets in Robbinsdale

In July 2013, the City of Robbinsdale formally adopted a Complete Streets Policy and proclaimed its support for designing, constructing, and operating the city's transportation system to enable safe access for users of all modes of transportation, and of all ages and abilities. The City outlined specific principles including connecting system gaps and installing pedestrian and bike-specific infrastructure elements.

5.10.2 - Form a City Pedestrian and Bicycle Advisory Committee

This plan recommends the creation of a Pedestrian and Bicycle Advisory Committee within the City of Robbinsdale to promote walking and bicycling for transportation and recreation, to advocate for infrastructure improvements, to disseminate information about safe travel behavior for users of all modes, and to involve interested residents in pedestrian and bicycle planning issues. The committee would consist of interested residents and city staff working on related issues. The committee would serve as an advisory committee to the Mayor and City Council, and in Community Development, Parks and Recreation, and Public Works planning decisions.

It is recommended that one or more members of the Pedestrian and Bicycle Advisory Committee work closely with and also serve on, the Planning Commission, and the Parks, Recreation, and Forestry Commission. These members should have an active role in the development, updating, and implementation of area plans, plans for the Bottineau LRT station, the comprehensive plan, and other planning efforts that affect transportation, parks, and the built environment in Robbinsdale.

Committee members should also work closely with members of the Hennepin County Bicycle Advisory Committee and Hennepin County staff.

The Pedestrian and Bicycle Advisory Committee may elect to have a number of subcommittees. Examples include:

- Pedestrian Subcommittee;
- Bicycle Subcommittee;
- Education, Encouragement, and Enforcement Subcommittee; and
- Engineering, Equity, and Evaluation Subcommittee.

Continuing Resident Engagement

Resident engagement is a critical component for implementation of the recommendations in this plan, and for communicating, operating, and maintaining a walking and biking network that is comfortable and convenient for Robbinsdale residents.

Robbinsdale can engage residents in the following ways:

- Create a Pedestrian and Bicycle Advisory Committee comprised of residents and city staff; and
- Continue to provide information about walking and biking to Robbinsdale residents and engage them with online tools such as the WikiMap. Residents should be informed about decisions affecting walking and biking in the city, and invited to offer their comments in-person and through online means.

5.10.3 - Continue to Partner with Hennepin County

As right-of-way is modified, it is beneficial for the city to offer clear guidance for the type of pedestrian and bicycle improvements it wishes to see along roadways, at intersections, and at regional trails and transit corridors. Even though many Robbinsdale roads are under county jurisdiction, identifying the type and location of desired improvements and articulating them clearly in this plan makes it more likely that the county will implement the treatments in its projects. Hennepin County values local Pedestrian and Bicycle Plans and looks to them for guidance when implementing improvements within a municipality. Other jurisdictions may also reference this plan as they plan future facilities.

Recommendations for working with Hennepin County for implementing pedestrian and bicycling improvements within Robbinsdale include:

- Maintain a close working relationship with Hennepin County Bicycle and Pedestrian Staff;
- Monitor the progress of implementation of the following county and regional plans:
 - *Hennepin County Pedestrian Plan*;
 - *Hennepin County Bicycle Plan*; and
 - *Metropolitan Council Regional Bicycle System Study*.
- Attend Hennepin County Bicycle Advisory Committee meetings, and work closely with committee members appointed by the District 1 Commissioner, currently Mike Opat;
- Continuing to engage with the county, as Robbinsdale has already done, in applying for and receiving grant funding for pedestrian and bicycle improvements.

Hennepin County Bicycle Advisory Committee

This committee meets on a monthly basis at locations across the county. Appointed members serve a three-year term. More information about the committee can be found at <http://www.hennepin.us/residents/transportation/bike-walk>.

Did you know?

Hennepin County dedicates funds every year as part of its capital budget to support the development of Complete Streets along its road network and bicycle system:

- **For sidewalks:** \$200,000 annual budget, providing up to 25% of the cost of a sidewalk along a county road;
- **For bikeways:** \$300,000 annual budget, providing up to 50% of the cost of trail or on-street bikeway identified on the Hennepin County bicycle system plan or gap map; and
- **For bikeway gaps:** \$300,000 annual budget, providing up to 50% of the cost of trail or on-street bikeway identified on the Hennepin County bicycle system gap map.

Several important streets in Robbinsdale are part of the Hennepin County road network, including Broadway Avenue W (CR 8), Lake Drive / 42nd Avenue N / 45th Avenue N (CR 9), and Bottineau Boulevard (CR 81).

5.10.4 - Hire a City Pedestrian and Bicycle Coordinator

The City of Robbinsdale should consider creating and funding a new “Pedestrian and Bicycle Coordinator” position to coordinate implementation, attend to and coordinate response to pedestrian and bicycle network maintenance and operations issues, and to advocate for needs of pedestrians and bicyclists as other transportation and land use projects are designed and implemented.

This position may be part-time, but it should be permanently funded, and allow a new or existing staff person to dedicate a minimum of 10 hours per week to pedestrian and bicycle-related issues within and around the geographic area of Robbinsdale. Tasks and responsibilities would at a minimum include:

Planning

- Coordinate and integrate pedestrian and bicycle planning and network implementation with other city, county, regional parks district and state programs, agencies, and bodies;
- Review all roadway and land use plans for impacts on pedestrian and bicycle travel and conditions; make and pursue recommendations for improvement as needed before projects are constructed;
- Review traffic-calming and other roadway measures for impacts on conditions for pedestrians and bicyclists;
- Coordinate implementation of route recommendations as part of other projects (for example recommending that bicycle-friendly curb-and-gutter is specified in street reconstruction projects);
- Represent the interests of Robbinsdale’s pedestrians and bicyclists by serving as liaison

with adjoining jurisdictions and regional entities during design and implementation of their respective local and regional bicycle and general transportation infrastructure;

- Provide advice to policymakers, including members of the Robbinsdale City Council and Robbinsdale Planning Commission, on transportation and land use issues with the aim of improving conditions for pedestrians and bicyclists in Robbinsdale; and
- Coordinate pedestrian and bicycle-related transit infrastructure improvements.

Maintenance and Operations

- Create and manage a spot improvement / Pedestrian and Bicycle Facility Maintenance Request program to reduce roadway hazards and to quickly respond to pedestrians and bicyclists’ requests for maintenance or repair of pedestrian and bicycle infrastructure.

Public Engagement

- Serve as the City of Robbinsdale liaison to residents’ groups working on improving conditions for walking and bicycling in Robbinsdale, and in the future act as a liaison to the Bicycle Advisory Committee, when established.

Education and Encouragement

- Provide information and conduct workshops to improve bicycling safety, including coordinating with Robbinsdale schools to include bicycle education as part of physical education programs, and coordinating community requests for training for adults; and
- Coordinate preparation and publication of Robbinsdale bicycle network maps.

Measurement

- Collect and maintain bicycle use data, including regularly monitored bicycle counts, studies of origins and destinations, crash information and infraction data; and
- Develop yearly reports detailing use of the pedestrian and bicycle facility network, identifying focus areas for improvement and tracking user counts.

Fundraising

- Pursue local, state, federal, and private funds for improving pedestrian and bicycle infrastructure, for encouraging greater use of Robbinsdale pedestrian and bicycle network assets, and for conducting education and encouragement campaigns.

5.11 - Enforcement

Enforcement is an important strategy in making Robbinsdale safer and more comfortable for pedestrians and bicyclists. Working with Robbinsdale law enforcement will be a key step in creating a more welcoming environment for non-motorized travelers.

5.11.1 - Enforcing Speed Limits

High-speed motor vehicle traffic is a primary barrier to walking and biking in Robbinsdale, and in many other cities. Residents routinely mention their desire for separation from motor vehicles on routes and at crossings, and often cite conflicts with vehicles as the primary real and perceived safety concern to walking and biking.

Improved walking and biking infrastructure can help to increase the comfort and visibility of non-motorized users, but enforcement is a vital component of improving the overall culture and environment in which pedestrians and bicyclists operate.

Police department focus on speed enforcement on certain road segments is recommended. These road segments include those that are known to have speeding vehicles within one mile of schools and other important destinations.

Adjusting Speed Limits

According to current Minnesota State Statutes, Minnesota cities must, in general, defer to the Minnesota Department of Transportation when setting or adjusting speed limits, even on their own road facilities.

Minnesota State Statutes, however, also reserve the right for cities to set their own speed limits on their road facilities under the following circumstances, according to Minnesota State Statutes § 169.14 and § 160.263

- A city may, without any additional engineering or traffic investigation, reduce the speed limit to not less than 25 mph on roads that have a designated bicycle lane;



Residential streets may be good candidates for reduction to 25 mph with the addition of an on-street bike lane.

Lowering speed limits in Minnesota cities

Minnesota statutes currently allow cities and other jurisdictions to **lower speed limits to 25 miles per hour without need of any additional engineering or traffic study if a bicycle lane is provided.**

According to Minnesota Statute 160.263, Bicycle lanes and ways, Subdivision 4, Speed on street with bicycle lane:

“Notwithstanding section 169.14, subdivision 5, the governing body of any political subdivision, by resolution or ordinance and without an engineering or traffic investigation, may designate a safe speed for any street or highway under its authority upon which it has established a bicycle lane; provided that such safe speed shall not be lower than 25 miles per hour. The ordinance or resolution designating a safe speed is effective when appropriate signs designating the speed are erected along the street or highway, as provided by the governing body.”

- A city, without any additional engineering or traffic investigation, reduce the speed limit to 25 mph on a “residential roadway.” (A city street or town road whose total length is up to a half-mile);
- A city may, without any additional engineering or traffic investigation, reduce speed limits to 30 mph for a city street in an “urban district” (Any segment of a city street or town road that is built up with structures spaced less than 100 feet apart for a minimum distance of a quarter-mile); and,
- A city may, with support from an engineering or traffic study, reduce the speed limit to not less than 15 mph, or more than 30 mph below the surrounding speed limit in school zones (A segment of street or highway that abuts school grounds where children have access to the roadway or where a school crossing is in place).



Bicycle police can help to enforce walking and bicycling laws.

5.11.2 - Enforcement: Recommendations for Robbinsdale

- Reexamine speed limits on its streets, particularly on those adjacent to critical destinations, relative to the above provisions;
- Consider lowering the speed limit to 25 mph along routes recommended for on-street bike lanes in this plan, to better accommodate bicyclists. This would make the environment more conducive for pedestrians as well; and
- Implement targeted speed enforcement near schools and other important destinations such as Downtown Robbinsdale.

5.12 - Evaluation and Performance Measures

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

The performance measures recommended for the Robbinsdale Pedestrian and Bicycle System address four broad categories:

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

Proposed performance measures include:

5.12.1 - Safety and user comfort

Pedestrian and bicycle crashes should be tracked. Fewer crashes per year would indicate an improved environment, especially if more people are walking and biking for their daily trips. Data can be obtained from the Minnesota Department of Public Safety.

Recommended measures

- Number of pedestrian crashes
- Number of bicyclist crashes

Optional measures

- Pedestrian sense of safety (intercept or general community survey)

- Bicyclist sense of safety (intercept or general community survey)
- Automobile compliance and awareness in areas with high rates of pedestrian and bicycle use (observation)

5.12.2 - Use of facilities

Volunteer counts are conducted in many communities in the Twin Cities to measure how many people are walking or riding bicycles across a given corridor, or at a given intersection. Robbinsdale can work with the County to establish a bicycle and pedestrian counting program. Using volunteers this program could be implemented with a minimum of staff time. More observed bicyclists and pedestrians would indicate an improved environment, especially if there are fewer pedestrian and bicyclist crashes.

Recommended measures

- Number of pedestrians observed at specific locations
- Number of bicyclist observed at specific shared-use paths, bicycle lanes or other facilities

5.12.3 - Facilities and network

A system's physical facilities and network provide the foundation for increasing travel by foot or bike. Measuring progress in the implementation and development of facilities will help measure success in plan implementation, and provide additional context for understanding potential gains in user safety and facility use that may occur as new facilities are added.

Recommended measures

- Miles of sidewalks
- Miles of shared-use paths
- Miles of on-street bicycle facilities
- Number of new pedestrian benches
- Number of new bicycle parking spaces
- Number of gaps in pedestrian network

- Number of gaps in bicycle network
- Percent of planned facilities installed

5.12.4 - Community and municipal awareness and support

Effective implementation of the Plan and the realization of its goals require the participation of government and community partners, and the interest and engagement of the broader community. The performance measures included in this category describe the level to which walking and bicycle interests, attitudes, and practice have permeated Robbinsdale's culture. Performance measures that help evaluate awareness and support include:

Recommended measures

- Adoption of a Pedestrian and Bicycle Plan
- A pedestrian and bicycle counts program is set up and maintained
- A "Pedestrian / Bicycle Coordinator" position is included in a city / MPO structure
- Pedestrian and bicycle maps and information are available to the public
- Open Streets events are held regularly
- Police regularly enforce laws that protect pedestrians and bicyclists (crosswalk enforcement, 3 ft passing law)
- Total number of staff hours spent on pedestrian and bicycling planning and engineering among city staff
- Number of public interest or advocacy clubs or organizations
- Safe Routes To School (SRTS) programs are deployed throughout Robbinsdale schools
- Presence of programs in schools or the community focusing on increasing the number, awareness, and safety of bicyclists and pedestrians.

Measuring Neighborhood and Business Satisfaction

Before an improvement project is installed, a questionnaire should be given to nearby neighborhood residents and/or business owners. After the project is completed, the same questionnaire can be given to measure satisfaction with the results.

In addition, a second post-project questionnaire should be given at a much later date, to track long-term satisfaction. For example, residents may initially be unsure about the introduction of traffic-calming measures in their neighborhood, but may eventually be very happy with the result!

5.13 - Potential Funding Sources

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

Grant or Program name	Organization	Walk? / Bike? / Both?	Program description	Additional information	Potential project
Livable Communities Development Account	Metropolitan Council	Both	Intended to link housing, jobs, and other amenities through comprehensive, well-designed networks. Projects can occur on both local and regional scales.	http://www.metrocouncil.org/services/livcomm/LCAresources.htm	Bike lanes and bicycle boulevards downtown and linking to downtown locations.
Hennepin County Complete Streets Cost Participation Policy	Hennepin County	Both	Cost participation policy to support the development of Complete Streets along Hennepin County's road network: For sidewalks: \$200,000, up to 25% of the cost of a sidewalk along a county road. For bikeways: \$300,000, up to 50% of the cost of trail or on-street bikeway.	http://www.hennepin.us/~media/hennepinus/residents/transportation/documents/cost-part-policy-feb-2012-final.pdf	Hennepin County roadways, including Broadway Avenue W (CR 8), Lake Drive / 42nd Avenue N / 45th Avenue N (CR 9), and Bottineau Boulevard (CR 81).
Hennepin County Transit Oriented Development Grant	Hennepin County	Both	To be used with multi-jurisdictional projects in order to connect people with transit. This includes the provision of pedestrian and bicycle facilities.	http://hennepin.us/portal/site/HennepinUS/menuitem.b1ab75471750e40fa01dfb47ccf06498/?vgnnextoid=665fb42321ff5210VgnVCM20000048114689RCRD	Cycletracks or bike lanes linking the future Bottineau LRT station to other portions of the city.
Hazard Elimination and Railway-Highway Crossing Programs	Federal Highway Administration (FHWA)	Both	Uses funds from Highway Safety Improvement Program (HSIP) to eliminate hazards at railroad crossings and to provide safe crossing facilities.	http://safety.fhwa.dot.gov/safeteau/fact_sheets/ftsht1401d.cfm	Various railroad crossings near the location of the future Bottineau LRT station, such as CR 9 / 42nd Ave N and Noble Ave / 41st Ave N.
National Highway System (NHS)	Federal Highway Administration (FHWA)	Both	The NHS provides a number of different grants, including some that pertain to pedestrian and bicycle safety and facilities.	http://www.fhwa.dot.gov/planning/national_highway_system/	

Grant or Program name	Organization	Walk? / Bike? / Both?	Program description	Additional information	Potential project
Surface Transportation Program (STP)	Federal Highway Administration (FHWA)	Both	Can be used for pedestrian or bicycle facilities, or the creation of non-construction projects such as maps or education.	www.fs.fed.us/eng/pubs/pdf/07771814.pdf	
Congestion Mitigation and Air Quality Act (CMAQ)	Federal Highway Administration (FHWA)	Both	Intended to reduce air pollution and congestion by encouraging cycling and walking through provision of facilities or other resources such as maps and education.	http://www.fhwa.dot.gov/environment/air_quality/cmaq/	
National Scenic Byways Program (NSBP)	Federal Highway Administration (FHWA)	Walk	This grant is used for construction of pedestrian walkways along scenic byways. It requires 20% local contribution.	http://www.bywaysonline.org/grants/	
Recreational Trails Program	Federal Highway Administration (FHWA)	Both	Can be used for construction and/or maintenance of recreational trails for motorized or non-motorized transport. At least a 5% local contribution is required.	http://www.fhwa.dot.gov/environment/recreational_trails/	Improvements / maintenance related to the Grand Rounds Regional LRT Trail, and the planned Crystal Lake Trail.
Highway Safety Improvement Program (HSIP)	Federal Highway Administration (FHWA)	Both	Intended to increase safety and reduce fatalities on the National Highway System. This includes pedestrian and bicycle facilities. A 10% local contribution is required.	http://safety.fhwa.dot.gov/hsip/	
Transportation Enhancements (TE)	Federal Highway Administration (FHWA)	Both	Intended to provide transportation enhancements including rail-to-trail programs, 'main street' projects, and streetscape improvements among others.	http://www.fhwa.dot.gov/environment/transportation_enhancements/	Sidewalk gaps throughout the city; bike lane projects.
Safe Routes To School (SRTS)	National Center for Safe Routes to School	Both	This grant provides funding for pedestrian and bicycle facilities along school routes.	http://www.saferoutesinfo.org/	Improvements (such as on 36th Ave N) near Robbinsdale Middle School.
Safe Routes To School (SRTS)	Minnesota Department of Transportation (MnDOT)	Both	This grant provides funding for pedestrian and bicycle facilities along school routes.	http://dot.state.mn.us/saferoutes/grants.html	Improvements (such as on 36th Ave N) near Robbinsdale Middle School.
Safe Kids Walk This Way	Safe Kids USA	Walk	Intended to create a safer pedestrian environment by educating motorists and children. This goal is achieved through community engagement practices.	http://www.safekids.org/in-your-area/coalitions/minnesota-state.html	

Grant or Program name	Organization	Walk? / Bike? / Both?	Program description	Additional information	Potential project
Job Access and Reverse Commute Grants	Federal Transit Administration (FTA)	Both	This program aims to connect low-income residents and welfare recipients to work places via transit access and pedestrians and bicycle facilities.	http://fta.dot.gov/grants/13093_3550.html	
Land and Water Conservation Fund (LWCF)	Minnesota Department of Natural Resources (DNR)	Both	Intended to protect local land and water resources in a number of ways including trails which promote the enjoyment and protection of resources via non-motorized transportation.	http://www.dnr.state.mn.us/grants/recreation/parkroads.html	
Rivers, Trails, and Conservation Assistance Program	National Park Service (NPS)	Both	Provides guidance to communities for the preservation of land and water as well as the development of recreational trails and greenways.	http://www.nps.gov/ncrc/programs/rtca/contactus/cu_apply.html	
Active Living Research	Active Living Research	Both	Supports studies which promote active living through policy, particularly in relation to childhood obesity.	http://www.activelivingresearch.org/grantsearch/grantopportunities	

5.14 - Estimating Implementation Costs

The following tables are provided as a first step toward estimating probable costs for implementation projects. Contingency, engineering/design, construction and administration costs are not included. See additional information at www.bicyclinginfo.org/bikecost/ and at http://katana.hsrc.unc.edu/cms/downloads/Countermeasure%20Costs_Report_Nov2013.pdf

General costs per type of facility

Facility	Unit Cost
Sidewalks (one side of the street)	\$209,100 per mile
On-street bicycle lanes on both sides of the street with on-street parking on both sides of the street	\$45,200 per mile
On-street bicycle lanes on both sides of the street with on-street parking on one side of the street	\$37,300 per mile
On-street bicycle lanes on both sides of the street with no on-street parking	\$29,400 per mile
Neighborhood Slow Street	\$108,200 per mile
Typical Intersection Improvements	\$135,700 per intersection

Striping

Treatment description	Unit	Unit cost
Bike lane symbol (paint)	EA	\$75.00
Bike lane symbol (thermoplastic)	EA	\$200.00
Shared lane marking (thermoplastic)	EA	\$275.00
Green bike lane (paint)	LF	\$19.00
Colored pavement (thermoplastic)	SF	\$10.00

Intersection treatments / traffic calming

Treatment description	Unit	Unit cost
Median extension for pedestrian refuge (6 ft x 8 ft)	EA	\$5,000
Curb extension / Bump-out (6ft x 20ft)	EA	\$12,500
Pedestrian refuge island, small (1100 sf)	EA	\$12,000
Pedestrian refuge island, large (2300 sf)	EA	\$25,000
Speed hump (raised crossing)	EA	\$2,500

Pavement Markings

Treatment description	Unit	Unit cost
4" Dashed	LF	\$0.75
6" Dashed	LF	\$1.00
8" Dashed	LF	\$1.25
4" Solid	LF	\$1.00
6" Solid	LF	\$1.50
8" Solid	LF	\$2.00
"Zebra" striped crosswalk (thermoplastic)	LF	\$120.00

Signs, Signals and Wayfinding

Treatment description	Unit	Estimated Unit Cost
Wayfinding sign (including post and base)	EA	\$400
Regulatory/warning sign (including post and base)	EA	\$300
Rectangular Rapid Flashing Beacon (RRFB)	EA	\$15,000
Pedestrian hybrid beacon (PHB / HAWK)	EA	\$100,000
Bicycle signal	EA	\$10,000
Loop detector	EA	\$1,500

Other

Treatment description	Unit	Estimated Unit Cost
Bicycle parking (inverted U)	EA	\$190
On-street bicycle corral (for 10 bikes)	EA	\$1,800
Street lights	EA	\$3,700
Bollard	EA	\$150
ADA Curb ramp	EA	\$1,500
Concrete Sidewalk	SF	\$8



Appendix



This section includes additional materials that support the work of this plan.

In this section

- A.1 – Toolbox of Pedestrian and Bicycle Treatments and Best Practices
- A.2 – Community Engagement Full Report