



Hennepin County Pedestrian Plan / Appendix

Adopted by the Hennepin County Board of Commissioners, September 24, 2013



INSIDE FRONT COVER

11
Appendix:
Table of Contents



A. Definitions and acronyms.....58

B. Planning and policy context61

C. Planning process and community engagement74

D. Summary of recommendations82

E. Estimated cost info for implementing recommendations.....86

F. Methodology for identifying high priority locations90

G. Priority level of pedestrian facility gaps.....92
(Tables of pedestrian facility gaps will be available at a later date)

H. Signal warrants97

I. Potential funding sources and applications 102

A

Definitions and Acronyms

ACS (American Community Survey): An annual survey conducted by the US Census Bureau. The survey collects a broad range of information from a sample of US residents, including information about travel behavior.

ADA (Americans with Disabilities Act): Act passed in 1990 to prohibit discrimination on the basis of a disability, including in public accommodations such as the transportation system. ADA requires specific standards for sidewalk and curb ramp design.

ALHC (Active Living Hennepin County): A partnership of cities, businesses, and nonprofits working together to advance opportunities for active living through policy change and infrastructure planning.

APS (Accessible Pedestrian System): Pedestrian signals that provide audible information to pedestrians. APS are used to assist visually and hearing impaired pedestrians.

Buffer: The space between the sidewalk or multi-use trail and curb. The buffer may include landscaping or street furniture.

Capital Improvement Program (CIP): Hennepin County's five year plan that identifies large capital projects such as roadway and bridge reconstruction and the maintenance and construction of county owned buildings.

Centerline mile: One linear mile of roadway, regardless of the number of lanes on the roadway.

Collector street: A low to moderate capacity street providing connections between local streets and arterial roads for short trips.

Complete Streets: A network of streets designed to provide safe access for all users. Hennepin County adopted a Complete Streets Policy in 2009. The policy states that the county will enhance safety, mobility, accessibility and convenience for all users, including pedestrians, bicyclists, transit riders, motorists, commercial and emergency vehicles. This policy applies to all corridors under Hennepin County jurisdiction.

Cool County: Hennepin County initiative to reduce greenhouse gas emissions by 80% by 2050. Hennepin County is part of a coalition of counties working towards this goal.

Curb extensions: Curb extensions extend the sidewalk space into the street and provide benefits to pedestrians by shortening the crossing distance and improving visibility for both pedestrians and vehicles. Curb extensions are also commonly referred to as bump outs.



Curb extension, Hopkins, MN

EIS (Environmental Impact Statement): Environmental assessment required by federal law as part of large projects that may impact the quality of the human environment. Transitway projects are required to complete these assessments as part of the planning process.

HAWK (High intensity activated crosswalk beacon): Traffic signal that is dark unless activated by a pedestrian. The signal stops traffic with a red light and has high compliance rates.

HC-TSP (Hennepin County Transportation Systems Plan): The most current HC-TSP was adopted in 2011. The HC-TSP provides guidance for future transportation decisions. It integrates system planning for auto, rail, transit, bicycle, and pedestrian modes.



photo: Mike Cynckel / www.pedbikeimages.org

HAWK Signal in Phoenix, AZ

Health disparities: Health disparities are defined as differences in the rates of disease among different population groups. In Hennepin County, low income populations have higher rates of chronic disease than the county as a whole.

HSPHD (Human Services and Public Health Department): Hennepin County department responsible for implementing programs to encourage walking, such as Safe Routes to School and Step To It.

Federal Highway Administration (FHWA): The division of the US Department of Transportation responsible for highway and roadway transportation. FHWA oversees the use of federal funds on state and local roadways, develops standards and manuals such as the MUTCD, and supports research on topics such as roadway safety.

LPI (Leading Pedestrian Interval): Signal timing that provides the walk signal several seconds before vehicles are given a green signal. Provides pedestrians with an advanced start so they are more visible in the crosswalk.

Metropolitan Council: The Metropolitan Planning Organization for the Minneapolis-St. Paul seven-county metro area. The Metropolitan Council operates Metro Transit and conducts transportation system planning.

Metro Transit: The primary bus and rail transit agency in the Twin Cities region, operated by the Metropolitan Council.

Minor arterial: A high capacity roadway serving major destinations for medium to short trips.

MnDOT (Minnesota Department of Transportation): Statewide multi-modal transportation agency with jurisdiction over state and US highways.

MMUTCD (Minnesota Manual on Uniform Traffic Control Devices): Minnesota state version of the federal Manual on Uniform Traffic Control Devices.

Multi use trail: A paved asphalt or concrete path designed for both pedestrian and bicycle use.

MUTCD (Manual on Uniform Traffic Control Devices): Federal Highway Administration standards for signs, signals, and pavement markings.

NHTS (National Household Travel Survey): A survey conducted by the Federal Highway Administration every 5-8 years to collect information about the travel behavior of a sample of US residents, including information about trip mode, purpose, and length.

Pedestrian: Any person on foot or in a wheelchair.

Pedestrian facilities: A broad term that includes infrastructure designed for pedestrian travel, including sidewalks or multi use trails, and pedestrian bridges or underpasses.

Pedestrian refuge median: Median designed with space for pedestrians to wait if unable to cross the entire roadway at once.

RRFB (Rectangular Rapid Flashing Beacon): Beacon attached to the standard pedestrian crossing sign and activated by pedestrians.

SHAPE (Survey of the Health of All the Population and the Environment): Health and health behavior survey administered by HSPHD every 4 years since 1998.



Pedestrian Refuge Median in Asheville, NC

photo: Lyubov Zuyeva /www.pedhikemages.org

Sidewalk: A paved concrete or asphalt path designed for pedestrian use.

SRTS (Safe Routes to School): A national movement to improve safety of walking and biking to school, improve ped/bike access to schools, and encourage biking and walking to school. SRTS includes state and federal funding programs as well as local programs such as the education and encouragement program administered by Hennepin County.

TBI (Travel Behavior Inventory): The TBI is administered every 10 years by the Metropolitan Council. The TBI collects travel diaries from Twin Cities residents and aggregates information about travel behavior including mode, frequency, length, duration, and purpose of trips.

Walkability: Characteristics of the pedestrian environment that contribute to safe, convenient, pleasant, and accessible conditions for walking.

Walkshed: The walkable area around a particular location, such as a transit stop. The walkshed is typically defined as one-quarter or one-half mile around a transit stop or other location.

Wayfinding: Directional guidance for pedestrians, including signs, maps, and kiosks.

Zebra-style crosswalk: High visibility crosswalk design with wide stripes on the road parallel to the direction of moving traffic. Zebra-style crosswalks are also known as continental-style crosswalks. A zebra-style crosswalk is pictured above in the photo of a pedestrian refuge median.

B Planning and Policy Context

B.1 HENNEPIN COUNTY PLANS AND POLICIES

The Hennepin County Board of Commissioners has adopted several plans and policies that impact the county's transportation system. The following plans and policies establish the purpose for this pedestrian plan and guide its development and implementation.

B.1.1. 2030 HENNEPIN COUNTY TRANSPORTATION SYSTEMS PLAN (HC-TSP)

The 2030 Hennepin County Transportation Systems Plan (HC-TSP) was adopted in 2011. The HC-TSP provides guidance for future transportation decisions. It integrates system planning for auto, rail, transit, bicycle, and pedestrian modes. The HC-TSP is guided by a transportation vision:

To sustain and enhance the economic competitiveness of Hennepin County and the quality of life of its residents by enhancing transportation mobility, improving transportation safety, and increasing transportation choice.

The plan also sets goals for Hennepin County transportation systems:

1. Preserve and modernize the existing transportation system
2. Improve safety for all transportation users
3. Provide mobility and choice to meet the diversity of transportation needs as well as to support health objectives throughout the county
4. Increase spatial efficiency of system
5. Reduce the county's environmental footprint

Pedestrian strategies are included under Goal 3: Provide mobility and choice to meet the diversity of transportation needs as well as to support health objectives throughout the county. Pedestrian strategies include:

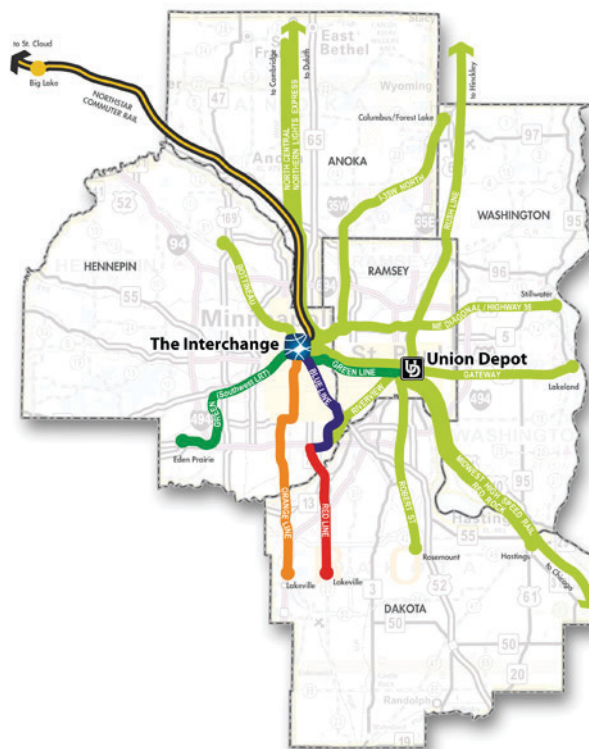
- Develop a pedestrian system plan that integrates city plans and a complete walkway system map.
- Ensure that pedestrian accommodations are integrated into urban roadway reconstruction/rehabilitation projects.
- Ensure that pedestrian connections are integrated into transit stations and bus stops and along key routes that feed transit stations.
- Incorporate the Americans with Disabilities Act (ADA) Transition Plan strategies in roadway reconstruction/rehabilitation projects.
- Develop a comprehensive, county-wide strategy for improving pedestrian access to schools.

This plan follows the HC-TSP strategy to develop a pedestrian system plan and a complete walkway system map. This plan will be incorporated into the HC-TSP in its next update.

B.1.2. TRANSITWAY PLANNING

Hennepin County conducts transitway and corridor planning, engineering, design, environmental assessments, and land purchasing for transit projects in Hennepin County. Planning and environmental assessments are ongoing for several transitway projects, including the Blue Line (Hiawatha), Green Line (Central Corridor), Green Line Extension (Southwest), and Blue Line Extension (Bottineau). The county's Community Works program supports an integrated approach to land use planning, economic development, and transportation improvements in existing and planned transitway corridors.

Hennepin County is a member of the Counties Transit Improvement Board (CTIB). CTIB leads the development of light rail transit (LRT), commuter rail, and bus rapid transit (BRT) in the Twin Cities through investments in transitways. The map below illustrates the existing and planned transitway system envisioned by CTIB. The Metropolitan Council's Regional Transitway Guidelines provide pedestrian-oriented guidelines for the development of transitways in the Twin Cities region. Hennepin County staff consult these guidelines as a resource for transitway development.



B.1.3. COMPLETE STREETS POLICY

Hennepin County adopted a Complete Streets Policy in 2009. The policy states that the county will enhance safety, mobility, accessibility and convenience for all users, including pedestrians, bicyclists, transit riders, motorists, commercial and emergency vehicles. This policy applies to all corridors under Hennepin County jurisdiction.

Hennepin County established the Complete Streets Task Force in 2011 with the purpose of guiding the implementation of the policy. The task force includes elected, appointed, and staff representatives from the county and other government agencies. Representatives from the business community and advocacy organizations are also members of the task force.

B.1.4. COST PARTICIPATION POLICY

Hennepin County's Cost Participation Policy determines funding levels for transportation projects constructed in cooperation with municipalities and other agencies. This policy includes the rate at which Hennepin will contribute to the cost of constructing new sidewalks and multi-use trails.

As of 2012, Hennepin County will participate in up to 25% of the cost of installing new sidewalks. The 2012 Capital Improvement Program (CIP) allocated \$200,000 to the Sidewalk Participation line item to provide funds for the county's participation in the construction of new sidewalks, reconstruction of existing sidewalks, and installation of safety improvements at pedestrian crossings. It is expected that the Sidewalk Participation line item will continue to be funded on an annual basis. The 2013 CIP allocated \$500,000 towards a new Pavement Preservation Plus program. This program provides funding for improvements to the pedestrian environment such as curb extensions, pedestrian refuge medians, signage, and curb ramps.

Hennepin County currently participates in up to 50% of the cost of constructing new multi-use trails. Funding for multi-use trails comes from the CIP line items for Bikeway Participation/Discretionary (the Bicycle Gap program) and Bikeway Development Participation. In 2012, Hennepin County established a competitive solicitation process for the Sidewalk Participation, Bikeway Development, and Bikeway Participation/Discretionary programs.

The Cost Participation Policy also established funding participation rates for improvements to the pedestrian environment. These improvements are typically funded through the Roadway Enhancement Partnership Program, a CIP line item. The county will participate in up to 50% of the cost of pedestrian lighting, transit shelters, benches, and undergrounding utilities. Landscaping and roadway beautification are eligible for county participation at a maximum of 33%.

B.1.5. AMERICANS WITH DISABILITIES ACT (ADA) TRANSITION PLAN AND SELF EVALUATION

Hennepin County's ADA Transition Plan and Self Evaluation is currently being developed. This plan will guide Hennepin County in its work to comply with ADA. The plan will identify barriers in county infrastructure to persons with disabilities and create a plan and schedule to remove barriers to accessibility. The county is dedicated to implementing the ADA Transition Plan and has established a curb ramp replacement program with an annual budget of \$600,000.

B.2 JURISDICTION OVER STREETS IN HENNEPIN COUNTY

B.2.1. HENNEPIN COUNTY

Hennepin County has jurisdiction over 573 centerline miles of roads within the county. The Public Works Department plans, designs, constructs, and maintains roadways under its jurisdiction. County roads exist in nearly every municipality in the county and are typically minor arterials and some collector streets. They tend to serve medium length trips, connect to major activity centers, and span barriers such as freeways or bodies of water. County roads tend to serve more vehicle traffic than local streets.

B.2.2. MUNICIPALITIES

Municipalities have jurisdiction over most collector and all local streets within their boundaries. Hennepin County has jurisdiction over county roads within municipalities and leads the planning, design, construction, and maintenance activities on county roadways. County staff work in concert with municipalities to ensure that changes to county roadways are approved by municipalities.

B.2.3. MINNESOTA DEPARTMENT OF TRANSPORTATION (MnDOT)

The Minnesota Department of Transportation (MnDOT) is a statewide multi-modal transportation agency. MnDOT has jurisdiction over interstate freeways, US trunk highways, and state trunk highways in Hennepin County. MnDOT owns bridges over interstate freeways. As many county roadways cross or pass under freeways, Hennepin County works with MnDOT when either agency proposes changes to these bridges.

B.3. HENNEPIN COUNTY’S CURRENT ROLE IN PEDESTRIAN-RELATED ENGINEERING, EDUCATION, ENCOURAGEMENT, ENFORCEMENT, AND EVALUATION

B.3.1. ENGINEERING

Sidewalks

Sidewalks along county roads are typically reconstructed as part of street reconstruction projects. The county’s Urban Streetscape Guidelines recommend a minimum 5 foot sidewalk width and a 6 foot buffer between the sidewalk and the curb. However, in some instances the sidewalk must be close to the curb because of impacts to retaining walls, wetlands, steep slopes, or other design challenges based on the context of the project area. Stand-alone sidewalk projects along county roads are typically designed and constructed by municipalities.

The county coordinates the review of all development proposals along county roads as part of the plat review process. This process has been used to dedicate space for new or enhanced sidewalks and has resulted in the improvement of sidewalk segments along county roads as part of private development projects.

Pedestrian Crossings

Curb extensions, pedestrian refuge medians, and marked crosswalks can improve pedestrian safety and comfort. Curb extensions assist pedestrians by shortening the crossing distance at intersections. The county recognizes that curb extensions have positive impacts on pedestrian safety and comfort and includes curb extensions as part of roadway reconstruction projects as appropriate and feasible. Curb extensions may not be feasible at a location based on a variety of factors outside of the realm of pedestrian safety, including drainage, transit stops, turning radii necessary for large vehicles, driveways, and other factors based on the context of a corridor.

Pedestrian refuge medians provide pedestrians with a place to wait in an intersection so that they can cross one direction of traffic at a time. The decision to install a pedestrian refuge median is made on a case by case basis. Refuge medians may be installed where there are high traffic and pedestrian volumes. Roadway width and turning movements may limit the application of refuge medians.

The county installs and maintains crosswalks on most Hennepin County roads. Zebra style crosswalks are standard at all pedestrian crossings on county roads outside of the City of Minneapolis. Crosswalks are typically installed at all four legs of an intersection, but may not be installed at all four legs at freeway interchanges or where there are currently no destinations or trip generators on one corner. Crosswalk widths are at least six feet wide and typically match the width of the sidewalk or trail. The City of Minneapolis is responsible for striping crosswalks on county roads within the city limits. Parallel striped crosswalks are typically installed at all four legs of signalized intersections in Minneapolis.

The county installs mid-block crosswalks on a case by case basis. The Federal Highway Administration (FHWA) report, “The Safety of Marked Versus Unmarked Crosswalks at Uncontrolled Intersections Final Report and Recommended Guidelines” is used as a resource. When determining whether a mid-block crosswalk is needed, county staff consider sight distance, context, connections, and whether there is a sidewalk or pedestrian generator.

Crosswalk maintenance is a priority and painted crosswalk striping is typically refreshed on an annual basis. The county has increased the use of durable crosswalk markings, typically in coordination with the pavement preservation program. Durable crosswalk markings can last for up to 10 years. Hennepin County will install durable markings if municipalities are willing to participate in the cost of the materials.

The county established a Pavement Preservation Plus program in 2013. This program will provide for pedestrian crossing improvements such as curb extensions, refuge medians, signage, and curb ramps. Crossing improvements will be installed at several additional locations as part of the county's annual pavement preservation program.

The county has installed several modern roundabouts at intersections along county roads. MnDOT studied pedestrian risk at the roundabout crossings at the intersection of two county roads, Portland Avenue and 66th Street in Richfield. The study found that pedestrian delay is lower at roundabouts versus signalized intersections. However, drivers yielded only about 45% of the time when pedestrians were waiting to cross.¹ National research is ongoing on improving roundabout design for pedestrians. The design of roundabouts on county roads will continue to be informed by emerging research and best practices on roundabout design for pedestrians.

Signals

The county manages the installation, maintenance, and timing of most traffic signals on Hennepin County roads. All Hennepin County signals outside of the City of Minneapolis are actuated by both vehicles and pedestrians. Where there is a marked pedestrian crosswalk, there is a push button to actuate the pedestrian signal.

The City of Minneapolis operates all County signals within the city limits. Some of these signals are actuated while others are pretimed. Some pretimed signals provide pedestrians with a walk signal without a pedestrian push button. Other pretimed signals require pedestrian push buttons where the crossing time needs to be extended for pedestrians.

Countdown timers are the current standard for pedestrian signals. All new signals include countdown timers. Countdown timers are being installed on existing signals as part of a county program to upgrade to energy-efficient LED (light emitting diode) traffic signals. About 30 intersections a year are retrofitted with LED signals and countdown timers.

Accessible Pedestrian Systems (APS) are installed on a case by case basis. APS needs are evaluated as part of all new signal construction. If APS is not warranted at the time a new signal is constructed, the signal is constructed to be ready for future APS installation with minimal cost and labor. The county receives several requests annually for installation of APS. County staff work with the municipality and the requestor to determine whether APS is warranted and select the most useful location for APS installation.

Construction

The county provides temporary pedestrian access routes in construction zones for pedestrian safety and accessibility. County staff and contractors follow the Minnesota Manual on Uniform Traffic Control Devices (MMUTCD) and MnDOT Temporary Pedestrian Access Routes guidelines.

1. John Hourdos, "Investigation of Pedestrian and Bicyclist Risk in Minnesota Roundabout Crossings" September 2012. <http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2186>

Maintenance

Hennepin County is not responsible for the maintenance of sidewalks. Maintenance of sidewalk surfaces is the responsibility of the municipality in which they are located. Snow and ice removal is the responsibility of the adjacent property owner or the municipality, depending on municipal ordinances and maintenance agreements.

Pedestrian-Oriented Review of County Projects

County staff provide project review opportunities for residents, city and agency staff, and the Minneapolis Pedestrian Advisory Committee. Pedestrian-related concerns vary based on the context of each project. This plan does not recommend the creation of a Hennepin County Pedestrian Advisory Committee due to the challenge of convening a group of interested residents across the varied contexts of the county.

B.3.2. ENCOURAGEMENT AND EDUCATION

Hennepin County administers several pedestrian encouragement and education programs. These programs include Health @ Work, Step To It, Safe Routes to School, and Active Living Hennepin County.

Health @ Work

County staff work with small and medium worksites to promote physical activity and healthy eating at work. County staff provide materials for encouragement campaigns and work with worksites to develop and promote walking routes. Staff provide worksites with ideas for how to promote use of the walking route among employees, such as through events, mileage rewards, developing an internal walking group, or adopting a policy to allow walking breaks during work hours.

Step To It

Step To It is a four week campaign to promote walking and other physical activity. Residents track their steps and municipalities compete against each other to reach the highest average and total number of steps per resident. City staff are responsible for promoting the program at the local level. City staff identify a Step To It walking route and are encouraged to identify walking routes that connect to destinations, such as a school, park, or commercial district. The county coordinates the program, provides the web tracking infrastructure, and provides awards to the winning cities.

Safe Routes to School (SRTS)

County staff partner with school districts and municipalities to provide education and encouragement for walking and biking. County staff work with school districts to complete a curriculum assessment of pedestrian and bike safety training, complete a transportation assessment, and develop and implement an action plan to increase walking and biking among students and staff. The county's SRTS program is funded through a grant from the Statewide Health Improvement Program (SHIP).

Active Living Hennepin County (ALHC)

Active Living Hennepin County (ALHC) is a partnership of cities, businesses, and nonprofits working together to advance opportunities for active living through policy change and infrastructure planning. ALHC partners plan and design pedestrian facilities and promote and encourage walking through the work of their respective agencies. ALHC partners collaborated to launch the "Get Out, Get Active" incentive program in 2011. The program encourages Hennepin County residents to explore new opportunities for physical activity, including walking for transportation and recreation.

B.3.3. ENFORCEMENT

Hennepin County does not currently play a role in law enforcement campaigns to improve compliance with pedestrian-related laws, however, Hennepin County Sheriff deputies enforce pedestrian laws.

B.3.4. EVALUATION

Pedestrian metrics are included in the metrics of the several key Hennepin County documents. The HC-TSP includes measures tracking the annual number of pedestrian-vehicle crashes and the percentage of urban county roadways with sidewalks. The Public Works Strategic Plan includes measures tracking sidewalk or trail mileage along county roads and the number of Safe Routes to School infrastructure improvements. The pedestrian metrics in both plans are tracked on an annual basis. Hennepin County is currently considering which metrics to use to track the implementation of the Complete Streets policy. Complete Streets metrics will include pedestrian-related measures.

B.4 EXISTING PEDESTRIAN FACILITIES

There are a total of 508 miles of pedestrian facilities along county roads as of 2012. Pedestrian facilities are defined as both sidewalks and multi-use trails. Concrete and bituminous sidewalks are the most common pedestrian facilities along Hennepin County roads, with a total of 406 miles of sidewalk. Multi-use trails provide 102 miles of pedestrian facilities in the county pedestrian system. These figures represent linear miles of pedestrian facilities. One mile of road with sidewalk on both sides is counted as two miles of pedestrian facilities.

MILEAGE OF PEDESTRIAN FACILITIES ALONG HENNEPIN COUNTY ROADS	
Sidewalk, concrete	338 miles
Sidewalk, bituminous	68 miles
Sidewalk, total mileage	406 miles
Multi-use trail	102 miles
TOTAL PEDESTRIAN FACILITIES	508 MILES

Hennepin County manages 573 centerline miles of county roads. One centerline mile is defined as one linear mile of roadway, regardless of the number of lanes on the roadway. Approximately 226 centerline miles of county roads have pedestrian facilities on both sides of the road. Approximately 89 centerline miles of county roads have pedestrian facilities on one side of the road. There are no pedestrian facilities on approximately 258 centerline miles of county roads.

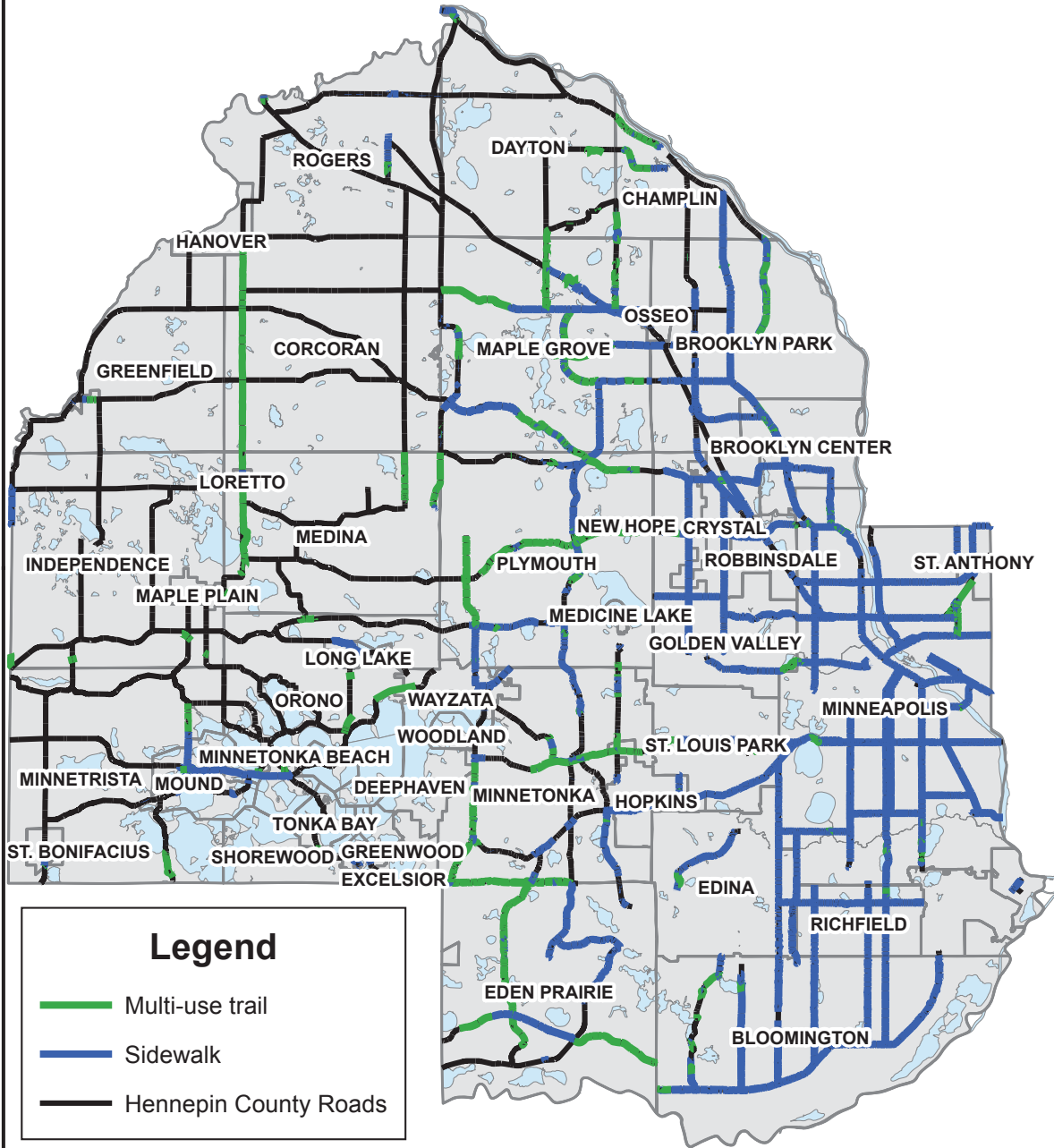
CENTERLINE MILES OF COUNTY ROADS WITH PEDESTRIAN FACILITIES	
Pedestrian facilities on both sides of the road	226 centerline miles
Pedestrian facilities on one side of the road	89 centerline miles
No pedestrian facilities	258 centerline miles
TOTAL CENTERLINE MILES OF COUNTY ROADS	573 CENTERLINE MILES

The maps on following pages show the location of pedestrian facilities along county roads as of 2012. In the eastern half of the county, most county roads have pedestrian facilities on at least one side of the road. In Minneapolis and its inner ring suburbs, most of the pedestrian facilities are sidewalks. Most pedestrian facilities in second ring suburbs are multi-use trails. The western half of the county has fewer pedestrian facilities along county roads. Most of these facilities are multi-use trails.



photo: Luciano Rizzi / www.pedbikeimages.org

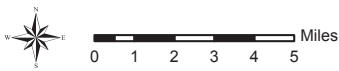
Existing Sidewalk and Trail along Hennepin County Roads



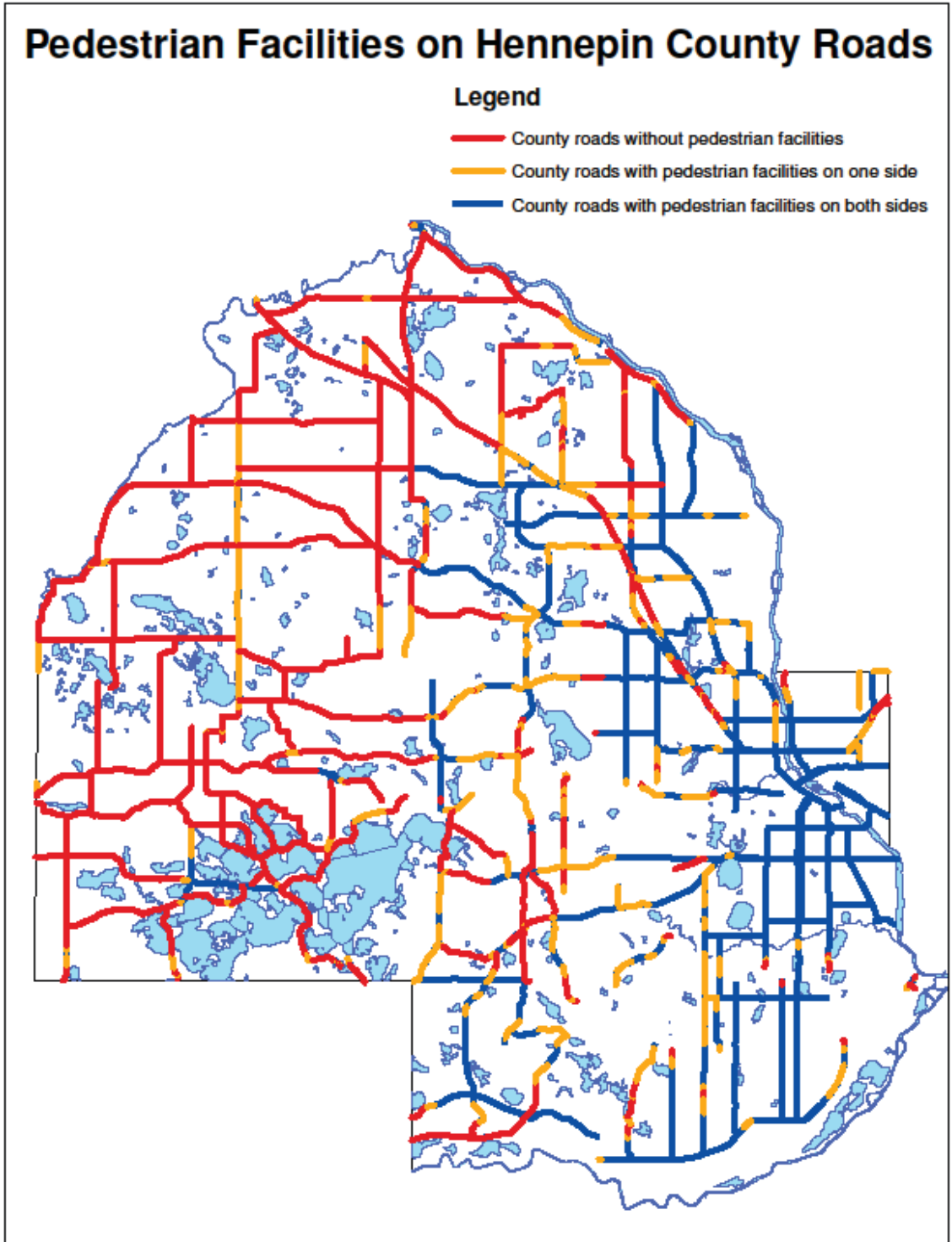
Map Creation Date: 5/13/2013

Data Sources: Hennepin County, Metropolitan Council, MN-DNR, MN-DOT, USDA-FSA, NRCS, USGS

Disclaimer: This map is a compilation of data from various sources and is furnished "AS IS" with no representation or warranty expressed or implied, including fitness for any particular purpose, merchantability, or the accuracy and completeness of the information shown.



Hennepin County
Public Works



B.5 USE OF PEDESTRIAN FACILITIES: TRAVEL BEHAVIOR SURVEYS AND PEDESTRIAN COUNTS

Travel behavior surveys and pedestrian counts illustrate trends in walking for transportation and use of specific pedestrian facilities. The National Household Travel Survey (NHTS) is conducted by the Federal Highway Administration every 5-8 years. The NHTS collects information about trip mode, purpose, length, and other information about the travel behavior of a sample of US residents. The 2009 NHTS showed an increase in the frequency, duration, and distance of walk trips in the US. 63% of US residents took at least one walking trip per week. The share of walking trips as a percentage of all trips increased from 8.6% in 2001 to 10.5% in 2009. According to the NHTS, 73% of walk trips are for utilitarian purposes. The NHTS also demonstrates the strong link between pedestrian trips and transit use. 28% of walk trips were for the purpose of walking to transit. Over 90% of public transit trips are combined with walking on both ends of the trip.²

The Metropolitan Council conducts the Travel Behavior Inventory (TBI) once every 10 years. The TBI is a similar survey to the NHTS but is focused on the Twin Cities Metropolitan Area. The most recent data available is from 2000 and was the first year that information was collected about walk trips. In 2000, walk trips comprised 5.6% of trips in the Twin Cities.³ The average duration of a walk trip was 10 minutes.⁴

The US Census Bureau collects information about the mode of transportation for trips to work. In Hennepin County, the percentage of workers who walk to work has remained flat. The 2000 Census found that 3.1% of county residents walked to work. The same percentage of residents reported walking to work as shown from the 2011 US Census Bureau American Community Survey 3-year estimate. The relevance of this data is limited, as the majority of walking trips are not trips to work. The Metropolitan Council 2000 TBI found that only 12% of walk trips were for the purpose of going to work.

The City of Minneapolis and Transit for Livable Communities (TLC) conduct annual pedestrian counts in September. Both the City and TLC have operated pedestrian and bicycle count programs since 2007. The City incorporates TLC pedestrian counts into its database. Both programs conduct 2-hour counts (from 4-6 pm) and 12-hour counts (from 6 am – 6 pm) at locations throughout the city, including along county roads. The number of pedestrians counted increased by 22% between 2007 and 2012.⁵

City staff use pedestrian count data to project estimated daily pedestrian counts. The following map shows estimated daily pedestrian counts at locations along Hennepin County roads. County roads with the highest estimated daily pedestrian traffic include Washington Avenue, Lake Street, Cedar Avenue, Franklin Avenue, Lyndale Avenue South, East Hennepin Ave, and West Broadway Ave. The following table lists locations along county roads with an estimated daily pedestrian count of 1,000 or greater. The Washington Avenue SE Bridge over the Mississippi River has the highest estimated daily pedestrian count at 19,710. This location is on the campus of the University of Minnesota.

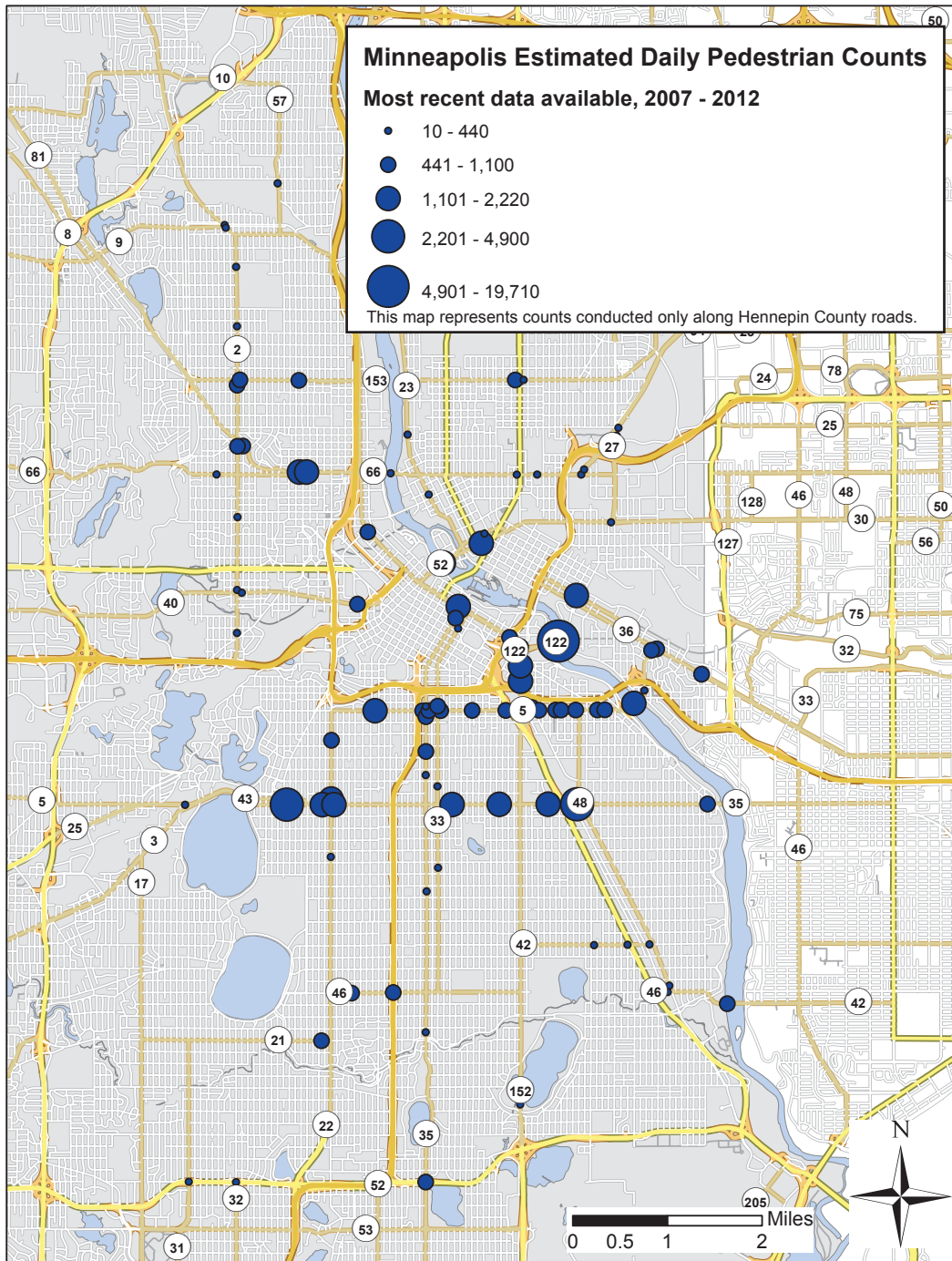
2. Pucher, John and Buehler, Ralph, "Walking and Cycling in the United States, 2001-2009: Evidence from the National Household Travel Surveys," September 2011.

3. Metropolitan Council 2000 Travel Behavior Inventory, Summary of Trip Purpose
http://www.metrocouncil.org/planning/transportation/TBI_2000/TripPurposes_7County.pdf

4. Metropolitan Council 2000 Travel Behavior Inventory, Summary of Travel Time and Trip Length
http://www.metrocouncil.org/planning/transportation/TBI_2000/TravelTimeTripLength_7County.pdf

5. City of Minneapolis, "Minneapolis Bicyclist & Pedestrian Count Report 2012," February 2013.
<http://www.minneapolismn.gov/www/groups/public/@publicworks/documents/images/wcms1p-104971.pdf>

LOCATION	YEAR OF MOST RECENT COUNT	ESTIMATED DAILY PEDESTRIAN COUNT
Washington Ave SE Bridge over Mississippi River	2012	19,710
E Lake St west of Minnehaha Ave S	2010	4,900
W Lake St east of Hennepin Ave S	2011	3,150
Cedar Ave S south of 6th St S	2011	2,200
4th St SE east of 14th Ave SE	2009	2,040
Lyndale Ave S north of W Lake St	2012	1,980
W Broadway Ave west of Emerson Ave N	2007	1,750
Hennepin Ave S Bridge over Mississippi River	2012	1,740
E Lake St east of Chicago Ave S	2008	1,700
W Lake St east of Bryant Ave S	2012	1,680
E Lake St east of Bloomington Ave S	2011	1,580
Cedar Ave S south of Riverside Ave S	2012	1,530
E Hennepin Ave east of University Ave SE	2012	1,400
E Lake St east of 21st Ave S	2009	1,360
W Lake St east of Lyndale Ave S	2012	1,330
W Franklin Ave west of Nicollet Ave S	2012	1,300
E Franklin Ave Bridge over Mississippi River	2012	1,220
Washington Ave S east of 5th Ave S	2008	1,210
W Broadway Ave east of Emerson Ave N	2007	1,170
E Franklin Ave east of Park Ave S	2012	1,100
E Franklin Ave west of Portland Ave S	2008	1,090
E Franklin Ave west of Riverside Ave S	2009	1,070
Lyndale Ave S south of W 24th St	2012	1,000



Planning Process

C.1 PLANNING PROCESS

Work on the Hennepin County Pedestrian Plan began in Spring 2012 with funding support from a Community Transformation Grant (CTG) through the Centers for Disease Control and Prevention. CTG provided support for staff time and contracts for community engagement.

C.1.1. SPRING 2012

Staff reviewed background materials to support the development of the plan, including example pedestrian plans from other agencies. Staff reviewed design guidelines such as the Institute of Transportation Engineers (ITE) Designing Walkable Urban Thoroughfares and the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Planning, Design, and Operation of Pedestrian Facilities. Staff also began collecting information on current county practices related to pedestrian-related policies, planning, and programs. In late spring 2012, Hennepin County contracted with a consultant to develop a community engagement strategy and conduct community engagement for the plan.

C.1.2. SUMMER 2012

Hennepin County convened the first meeting of the Hennepin County Pedestrian Plan Steering Committee. The first steering committee meeting focused on the overall goals of the plan and the community engagement strategy. The steering committee included representatives from the following agencies and organizations:

- Hennepin County Public Works and Human Services and Public Health Department
- City of Minneapolis Department of Public Works and Pedestrian Advisory Committee
- City of Bloomington Public Works Department
- City of Golden Valley Public Works Department
- City of St. Louis Park Public Works Department
- Metropolitan Council
- Metro Transit
- Minnesota Department of Transportation
- Transit for Livable Communities

Staff and community engagement consultants finalized the community engagement strategy in early summer 2012. Community engagement workshops began in July 2012. Community engagement is described in detail in the following section of the plan.

C.1.3. FALL 2012

Community engagement was completed in October 2012. Staff began developing the content of the pedestrian plan informed by the results from community engagement. Draft recommendations and strategies were reviewed internally and refined based on internal feedback. Staff collected data to support the plan, including information on the location of sidewalks, pedestrian-vehicle crashes, and pedestrian counts.

C.1.4. WINTER-SPRING 2013

Staff finalized a draft of the plan and conducted an internal review of the plan. The draft plan was circulated externally and finalized in preparation for approval and adoption by the Hennepin County Board of Commissioners.

C.2 COMMUNITY ENGAGEMENT PROCESS

The goals of the community engagement process included:

- Develop and implement an engaging process to obtain useful guidance to inform the development of the Hennepin County Pedestrian Plan
- Engage a broad spectrum of county residents, including youth, elderly populations, and residents of urban, suburban, and rural communities
- Build awareness about the Hennepin County Pedestrian Plan

To reach these goals, the community engagement strategy included the following tools and approaches:

- Coordination with existing community groups to allow the plan's community engagement workshops to occur within their regularly scheduled meetings;
- Verbal and written translation for specific audiences as needed;
- Explanation of key concepts through visuals, including maps, illustrations, and photos;
- Development of small group workshop activities to gather participant ideas and recommendations;
- Development of surveys to capture information about travel behavior, attitudes and opinions about walking, and demographic characteristics.

Each workshop followed a similar set of activities in order to engage participants. Workshops began with a brief presentation about the plan and walkability concepts, including visuals to illustrate walkable environments. Workshop activities began with a written activity to share ideas for improving walking and share what participants like and do not like about walking in Hennepin County. Participants then worked in small groups to complete a mapping exercise to identify community destinations, locations where they enjoy walking, and locations with perceived challenges for pedestrians. Workshops concluded with a brief survey to gather demographic information about participants and additional information about current attitudes and travel behavior.

Community engagement activities occurred between July and October 2012. A total of 9 workshops gathered input from approximately 150 county residents. Workshop dates, locations, and number of participants are outlined on the following page.

Community engagement activities were also conducted at the Brooklyn Park Farmer's Market on October 10, 2012. Hennepin County hosted a booth at the market with information about the pedestrian plan and a mapping activity. Staff worked with residents to mark community destinations, locations where residents enjoy walking, and locations with perceived challenges for pedestrians.

Date	Location	Community Group	Open to Public?	Number of Participants
7/30/12	Minneapolis	“Dessert with Don” Councilmember Don Samuels Community meeting	Yes	6
8/8/2012	Bloomington	Bloomington Senior Leaders Group	No	10
8/14/2012	Minneapolis	Little Earth Youth Group	No	26
8/15/2012	Crystal	Step to It Group	Yes	12
8/28/2012	Orono	Orono/Navarre Community Initiative	Yes	40
9/4/2012	Dayton	Dayton Parks Commission	No	13
9/11/2012	New Hope	New Hope Citizens Advisory Commission Meeting	Yes	14
9/19/2012	Minneapolis	Latino Economic Development Center	No	4
9/20/2012	Minneapolis	Brian Coyle Community Center	Yes	22



Community engagement at the Brooklyn Center Farmer's Market.

The consultant and staff prepared an online survey to allow county residents to participate in the planning process without attending a workshop. The online survey was open from August through October 2012 and gathered 260 responses. Full text of the survey is included in the community engagement report in the appendix. The survey included:

- Questions about current travel behavior;
- Questions about walking routes and destinations to understand respondent perceptions of locations where they enjoy walking and places with challenges for pedestrians;
- Questions to establish respondent priorities related to improving conditions for pedestrians, including the most important strategies to improve walking conditions and the most important types of places to improve conditions;
- Demographic information.

C.3. KEY FINDINGS FROM COMMUNITY ENGAGEMENT

Several common themes emerged from the workshops and surveys, including:

Walking is an everyday, common activity for many county residents

Most participants walk for transportation or recreation at least twice a week. Transit is an important walking destination.

There are many great places to walk

Participants consider parks, trails, and shopping areas among their favorite places to walk. Natural amenities, scenic views, retail businesses, and the presence of other walkers were some of the characteristics that participants found most valuable about these places.

Some pedestrian facilities are in need of improvement

Lack of sidewalks was mentioned as an important barrier to walking. Participants recommended providing buffers between sidewalks and moving vehicles in order to increase the comfort of walking. Difficulty crossing busy roads was mentioned as a barrier for walking. Participants mentioned that crossings were difficult at unsignalized intersections and at intersections where the walk signal timing is felt to be too short for seniors.

Pedestrian challenges exist on county road corridors

In workshops, participants were asked to map assets for walking and identify the locations of difficult pedestrian conditions. 18% of assets were located within 100 feet of county roadway centerlines. 60% of locations identified as challenging for pedestrians were located in the same close proximity to county roadways. Participants identified particular county corridors and intersections as challenging because of lack of sidewalks, long waits for pedestrians waiting to cross, and difficulty of crossing an intersection within the timing allotted for the walk signal.

Winter maintenance is an important concern

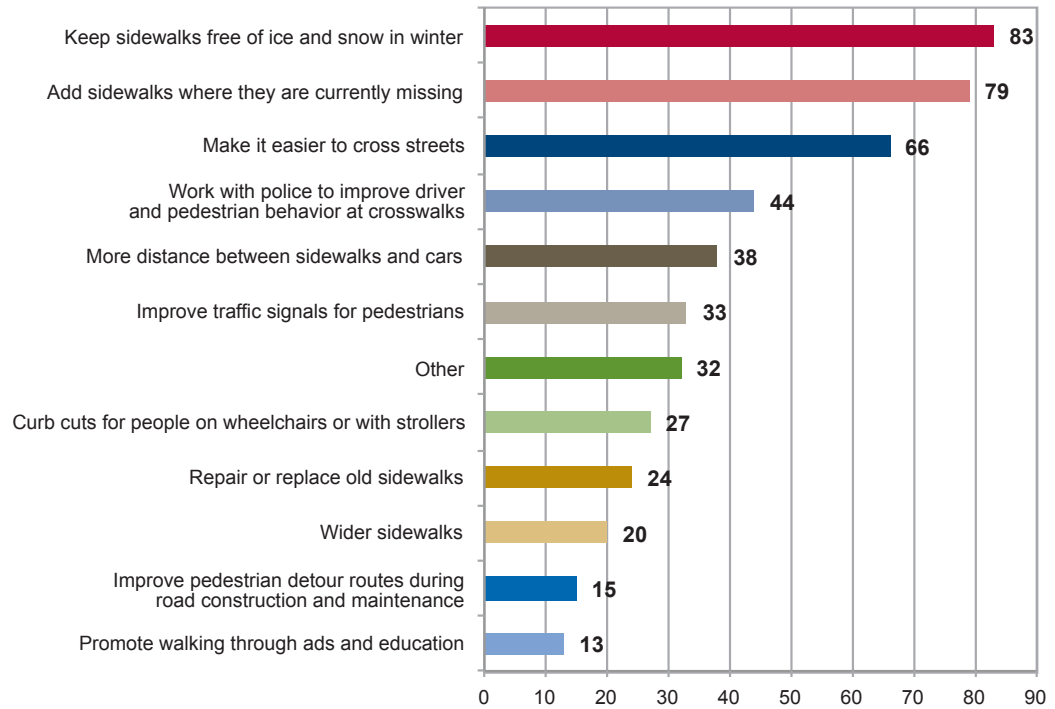
Winter maintenance was mentioned as a deterrent to walking, especially for elderly populations and those with mobility impairments. A majority of participants walk less for transportation or recreation during the wintertime.

Traffic safety and public safety are deterrents to walking

Participants at most workshops mentioned a concern about safety from motor vehicle traffic. Concerns included difficulty crossing streets, proximity to traffic, and lack of adequate pedestrian facilities such as sidewalks or trails. Some participants also noted that concerns about personal safety limited their walking activity, especially at night.

Online survey respondents were asked to help the county prioritize strategies and tools to increase walking among county residents and visitors. Participants were asked to select the three most important strategies from the list below.

Question: Which of the following tools and strategies would be the most helpful for inviting more people to walk? Please select the three most important strategies.



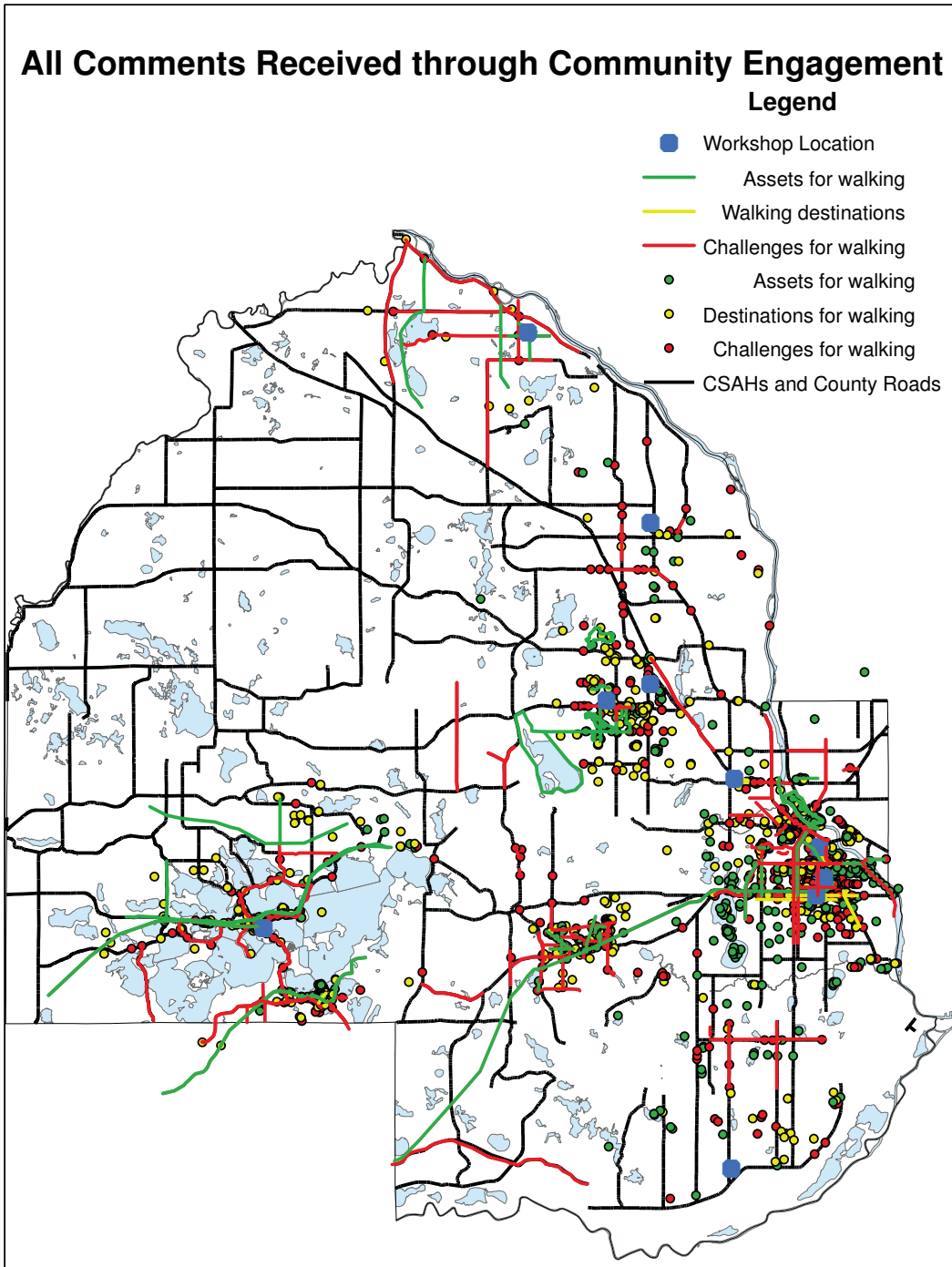
The most common strategy selected by participants was to improve winter maintenance of sidewalks. The second most common strategy is to add sidewalks where there currently are none. Respondents thought that more people would walk if it were easier to cross streets.

Online survey respondents were also asked to identify the most important types of locations to focus our improvements for pedestrians. Neighborhood business areas and transit stops were the most important destinations selected by respondents. Schools, parks, downtowns and main street districts were also selected as important locations for pedestrian improvements.

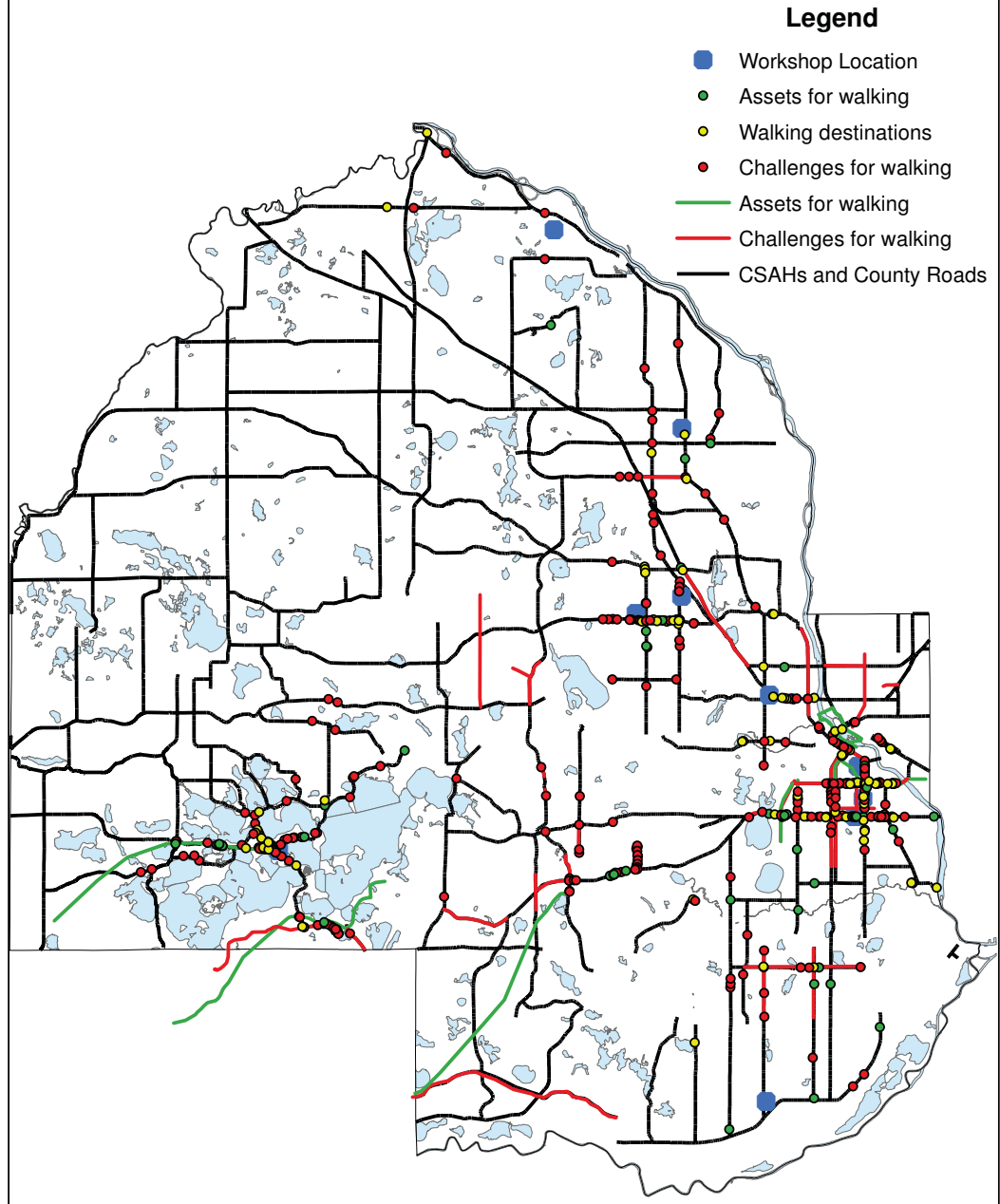
C.4. INFLUENCE OF COMMUNITY ENGAGEMENT ON THIS PLAN

The recommendations of this plan were cross-referenced with the community engagement results in order to ensure that community ideas and suggestions were included in the plan. Responses from the online survey were used to identify priorities for the implementation of this plan.

Workshop participants and online survey respondents identified three types of locations through the planning process: destinations for walking, places where they enjoy walking, and challenging locations for walking. Comments related to specific corridors and intersections have been compiled into a map for reference by county staff. As part of the implementation plan, county staff will evaluate each of these locations and consider improvements to these locations along county roads where feasible and appropriate (see strategy 1.3b).



Comments Received through Community Engagement: Locations along Hennepin County Roads



D Summary of Recommendations

STRATEGIES TO IMPLEMENT

STRATEGY	TIMEFRAME		PRIORITY			RESPONSIBLE DIVISION/STAFF
	Year to begin implementation	Ongoing	Low	Med	High	
1.1. Curb extensions and refuge medians						
1.1A. Install curb extensions and pedestrian refuge medians as part of stand-alone pedestrian safety projects.	2013	x			x	Design, Transportation Planning, Pedestrian and Bicycle Planner
1.2. Signals						
1.2A. Develop guidelines for the installation of Leading Pedestrian Intervals (LPI), Rectangular Rapid Flash Beacons (RRFB), and High-Intensity Activated Crosswalk Beacons (HAWK) across county roads.	2013-2014			x		Traffic, Pedestrian and Bicycle Planner
1.2B. Install leading pedestrian intervals (LPI), Rectangular Rapid Flash Beacons (RRFB), and High-Intensity Activated Crosswalk Beacons (HAWK) where appropriate and feasible.	2013-2014	x		x		Traffic, Pedestrian and Bicycle Planner
1.3. Crashes and community concerns						
1.3A. Formalize an internal procedure for evaluating pedestrian safety needs at specific locations in response to pedestrian-vehicle crashes and community concerns.	2013-2014				x	Transportation Planning, Pedestrian and Bicycle Planner
1.3B. Evaluate and prioritize improvements to crossings identified through crash data and the pedestrian plan community engagement process.	2013	x			x	Transportation Planning, Design, Pedestrian and Bicycle Planner
1.3C. Update the pedestrian strategies in the County Road Safety Plan every 5 years.	2016	x		x		Transportation Planning, Pedestrian and Bicycle Planner
1.4. Sidewalks and trails						
1.4A. Work with cities to encourage applications for CIP Sidewalk Participation funds to construct and improve high priority sidewalks.	2013	x			x	Transportation Planning, Pedestrian and Bicycle Planner
1.4B. Work with cities, school districts, and park districts to encourage the construction of pedestrian facilities along county roads within 1/2 mile of schools, parks, and senior centers.	2013-2014	x			x	Transportation Planning, Public Health Promotion, Pedestrian and Bicycle Planner

STRATEGY	TIMEFRAME		PRIORITY			RESPONSIBLE DIVISION/STAFF
	Year to begin implementation	Ongoing	Low	Med	High	
1.4C. Evaluate the effectiveness of the Hennepin County CIP Sidewalk Participation Program and propose changes as appropriate.	2014			x		Transportation Planning, Administration, Pedestrian and Bicycle Planner
2.1 Pedestrian-related policy and process improvements						
2.1A. Establish an internal procedure for pedestrian-oriented review of County projects such as roadway reconstruction projects, transitway projects, construction of libraries and other county facilities, and others as determined.	2013-2014	x			x	Design, Transportation Planning, Transitway Planning, Development, Pedestrian and Bicycle Planner
2.1B. Create complete streets design guidelines for county roadway reconstruction projects.	2014				x	Design, Transportation Planning, Pedestrian and Bicycle Planner
2.2 Transitways						
2.2A. In station area planning, consider and analyze how the walkshed can be expanded by adding pedestrian facility connections.	2013	x			x	Transitway Planning, Development, Pedestrian and Bicycle Planner
2.2B. Identify and prioritize pedestrian improvements to enhance the pedestrian environment at Transit stops and along common routes to LRT and BRT stations.	2014	x			x	Transitway Planning, Design, Development, Pedestrian and Bicycle Planner
2.2C. Prioritize adding and enhancing pedestrian connections between transit stations, high density housing, and major employers near station areas.	2013-2014	x			x	Transitway Planning, Development, Pedestrian and Bicycle Planner
3.1. Prioritize pedestrian improvements in areas with greatest health needs						
3.1A. Emphasize the implementation of the pedestrian plan strategies in geographic areas with populations experiencing health disparities.	2013	x		x		Pedestrian and Bicycle Planner

STRATEGY	TIMEFRAME		PRIORITY			RESPONSIBLE DIVISION/STAFF
	Year to begin implementation	Ongoing	Low	Med	High	
3.2. Safe Routes to School						
3.2A. Advocate in the Hennepin County legislative platform for statewide policy to mandate pedestrian safety education in school curriculum.	2014			x		Intergovernmental Relations, Public Health Promotion, Pedestrian and Bicycle Planner
3.2B. Develop a comprehensive, county-wide strategy for improving pedestrian safety and access to schools.	2014			x		Transportation Planning, Design, Development, Public Health Promotion, Pedestrian and Bicycle Planner
4.1. Asset Management						
4.1A. Maintain inventory of existing pedestrian facilities and gaps along county roads.	2013	x			x	Transportation Planning
4.1B. In coordination with the ADA Transition Plan, complete a comprehensive assessment of the condition of sidewalks along the county road system and prepare a plan for improving conditions.	2014				x	Transportation Planning
4.1C. Develop and implement a program to conduct annual pedestrian counts.	2013	x		x		Transportation Planning, Traffic, Pedestrian and Bicycle Planner

PRACTICES TO CONTINUE

	PRACTICE	RESPONSIBLE DIVISION
Americans with Disability Act (ADA)	Continue implementation of ADA Transition Plan to upgrade curb ramps as required by law.	Transportation Planning, Design
Curb extensions and refuge medians	Install curb extensions and refuge medians as part of street reconstruction projects, where feasible and conditions allow.	Design
Crosswalk markings	Stripe zebra-style crosswalks.	Traffic
	Work with municipalities to install durable crosswalk markings.	Traffic
Signals	Install countdown timers on all county-owned signals.	Traffic
	Adjust signal timing for a walk speed of no more than 3.5 feet per second.	Traffic
	Ensure that all new county-owned signals are Accessible Pedestrian Signal(APS) ready	Traffic

PRACTICE		RESPONSIBLE DIVISION
Crashes and community concerns	Review pedestrian-vehicle crashes annually to understand crash trends.	Transportation Planning
	Seek opportunities for 4-to-3 lane conversions on county roadways.	Transportation Planning
Sidewalks and trails	Plan and construct multi-use trails along county roads to provide combined pedestrian and bicycle facilities.	Transportation Planning, Design
	Work with cities and property owners to fill sidewalk gaps and/or improve sidewalk conditions in coordination with new development and redevelopment projects.	Transportation Planning, Development
	Work with cities to fill sidewalk gaps in conjunction with county road reconstruction projects and transitway projects.	Transportation Planning, Design, Development, Transitway Planning
Pedestrian-related policy and process improvements	Encourage infrastructure and policies that support the goals of the Hennepin County Pedestrian Plan when interacting with other jurisdictions and agencies.	Transportation Planning, Design
	Support the development, implementation, and coordination of municipal pedestrian plans.	Transportation Planning, Design
	Work with the Minnesota Department of Transportation (MnDOT) to improve pedestrian safety and comfort on at-grade and grade separated (bridge and underpass) county road crossings of MnDOT trunk highways.	Transportation Planning, Design
	Use Roadside Enhancement Partnership Program (REPP) funds for pedestrian level lighting, street furniture, and landscaping to create a more comfortable walking environment.	Design
Prioritize pedestrian improvements in areas with greatest health needs	Include access to healthy destinations in the prioritization criteria for the CIP Sidewalk Participation Program.	Transportation Planning
Safe Routes to School	Hennepin County Safe Routes to School education and encouragement program.	Public Health Promotion
Education and encouragement for walking	Health @ Work worksite and Step To It programs.	Public Health Promotion
	Active Living Hennepin County initiative.	Development, Public Health Promotion

PARTNERSHIPS

Enforcement and education for safety	Partner with MnDOT to promote the MnDOT pedestrian safety campaign. Develop a communications strategy to use MnDOT's pedestrian safety messaging in county communications.
	Support the education of law enforcement officers about the causes of pedestrian-vehicle crashes and effective strategies to enforce crosswalk laws. Provide data so that educational outreach is focused on common types of pedestrian-vehicle crashes and enforcement is focused to locations of severe pedestrian-vehicle crashes.
	Participate in partnerships with County Sheriff's department, other law enforcement and other agencies (MnDOT, MN Department of Public Safety) to conduct pedestrian sting/decoy operations to enforce crosswalk laws.
	Partner with County Sheriff's department, other law enforcement, and municipalities to improve personal safety for pedestrians.
Snow removal	Encourage municipalities to develop goals and procedures for improving snow removal procedures on pedestrian facilities adjacent to county roadways, including intersections, crosswalks, pedestrian curb ramps and at transit stops.
Education and encouragement for walking	Participate in pedestrian wayfinding initiatives.
	Work with cities and the Metropolitan Council to provide pedestrian wayfinding and pedestrian scale lighting on common routes to station areas.

E Estimated Cost Info for Implementing Recommendations

Note: Construction costs in this document may vary based on the context of each project. Right of way/ easement costs, impacts on utilities, drainage, retaining walls, and other location-specific issues may increase the construction cost of pedestrian infrastructure.

Strategy	Anticipated staff responsibilities	Estimated staff hours	Description of costs	Estimated cost	One time, annual, or per-item cost
1.1A. Install curb extensions and pedestrian refuge medians as part of stand-alone pedestrian safety projects.	Surveying, design of pedestrian refuge median, preparation of construction documents	60	Construction of pedestrian refuge median	\$15,000	Cost per item
	Surveying, design of curb extension, preparation of construction documents	60	Construction of curb extension	\$25,000	Cost per item
1.2A. Develop guidelines for the installation of Leading Pedestrian Intervals (LPI), Rectangular Rapid Flash Beacons (RRFB), and High-Intensity Activated Crosswalk Beacons (HAWK) across county roads.	Review of existing research and guidelines, development and review of county guidelines.	40			One time cost
	Installation of LPI without signal coordination	10		\$0	Cost per item
1.2B. Install leading pedestrian intervals (LPI), Rectangular Rapid Flash Beacons (RRFB), and High-Intensity Activated Crosswalk Beacons (HAWK) where appropriate and feasible.	Installation of LPI requiring modeling and signal coordination		Modeling and signal coordination.	\$3,000	Cost per item
	Installation of RRFB	100	Material costs for RRFB	\$15,000	Cost per item
	Installation of HAWK	500	Material costs for HAWK	\$75,000	Cost per item
1.3B. Evaluate and prioritize improvements to crossings identified through crash data and the pedestrian plan community engagement process.	Determine priority criteria and evaluation procedures, screen all identified locations for potential pedestrian improvements. Conduct field review for highest priority locations. Develop implementation plan for highest priority locations. Develop procedure to add locations to inventory for future review.	200		0	One time cost
	Compile crash data on severe pedestrian-vehicle crashes. Scan for new pedestrian-related safety countermeasures. Identify any new locations for the County Road Safety Plan. Develop recommendations for improving pedestrian safety at these locations	80			
1.3C. Update the pedestrian strategies in the County Road Safety Plan every 5 years.					

Strategy	Anticipated staff responsibilities	Estimated staff hours	Description of costs	Estimated cost	One time, annual, or per-item cost
1.4A. Work with cities to encourage applications for CIP Sidewalk Participation funds to construct and improve high priority sidewalks.	Compile list of high priority sidewalk segments. Contact city staff in advance of Sidewalk Participation solicitations to encourage applications for the construction of high priority sidewalk segments.	40	County cost per quarter mile of sidewalk construction (based on county participation rate of 25% and total construction cost of \$100,000 per quarter mile of sidewalk)	\$25,000	Annual
1.4B. Work with cities, school districts, and park districts to encourage the construction of pedestrian facilities along county roads within 1/2 mile of schools, parks and senior centers.	Compile list of county road segments without sidewalk or trail within 1/2 mile of schools, parks and senior centers. Contact city staff, park agencies, and school districts to encourage applications for the construction of sidewalk and trail segments	80	County cost per quarter mile of sidewalk construction (based on county participation rate of 25% and total construction cost of \$100,000 per quarter mile of sidewalk)	\$25,000	Cost per item
1.4C. Evaluate the effectiveness of the Hennepin County CIP Sidewalk Participation Program and propose changes as appropriate.	Review process, funding levels, projects funded, and results. Develop recommendations for any changes to program.	30	County cost per quarter mile of trail construction (based on county participation rate of 50% and total construction cost of \$110,000 per quarter mile of trail)	\$55,000	Cost per item
2.1A. Establish and implement an internal procedure for pedestrian-oriented review of county projects such as roadway reconstruction projects, transitway projects, construction of libraries and other county facilities, and others as determined.	Develop internal review procedure. Implement internal review procedure, including bringing projects to advisory committees, conducting walkability assessments, and pedestrian planning staff review of projects.	500			Annual
2.1B. Create complete streets design guidelines for county roadway reconstruction projects.	Review design manuals, standards, research. Draft guidelines and circulate for review.	400			One time cost
2.2A. In station area planning, consider and analyze how the watershed can be expanded by adding pedestrian facility connections.	Revise scope of work and deliverables for transitway and station area planning documents.	40			One time cost

Strategy	Anticipated staff responsibilities	Estimated staff hours	Description of costs	Estimated cost	One time, annual, or per-item cost
2.2B. Identify and prioritize pedestrian improvements to enhance the pedestrian environment at transit stops and along common routes to LRT and BRT stations.	Identify existing and planned transit stops and stations. Determine priority criteria and evaluation procedures, screen all identified locations for potential pedestrian improvements. Conduct field review for highest priority locations. Develop implementation plan for highest priority locations.	500			One time cost
2.2C. Prioritize adding and enhancing pedestrian connections between transit stations, high density housing, and major employers near station areas.	Identify missing pedestrian connections between transit stations and housing or employers. Work with municipalities, transit agencies, housing developers, and employers to improve pedestrian connections.	80			Annual
3.1A. Emphasize the implementation of the pedestrian plan strategies in geographic areas with populations experiencing health disparities.	Meet with agencies and provide information on considering health in local capital programs.	40			One time cost
3.2A. Advocate in the Hennepin County legislative platform for statewide policy to mandate pedestrian safety education in school curriculum.	Research school pedestrian safety education policies in other states. Develop language for legislative platform. Provide information to commissioners and legislators.	160			One time cost
3.2B. Develop a comprehensive, county-wide strategy for improving pedestrian safety and access to schools.	Identify schools along county roads and schools with walk zones adjacent to county roads. Screen locations for potential pedestrian improvements. Develop priorities and procedures for implementation. Coordinate with school districts and municipalities.	400			One time cost
4.1A. Maintain an inventory of existing pedestrian facilities and gaps along county roads.	Update existing inventory of pedestrian facilities and gaps based on street reconstruction projects, Sidewalk and Bikeway Participation projects, and construction permits.	40			Annual

Strategy	Anticipated staff responsibilities	Estimated staff hours	Description of costs	Estimated cost	One time, annual, or WW/per-item cost
4.1B. In coordination with the ADA Transition Plan, complete a comprehensive assessment of the condition of sidewalks along the county road system and prepare a plan for improving conditions.	Field inventory of all sidewalks along county roads. Develop priorities and procedures for improving conditions in areas that are challenging for pedestrians.	500	Summer intern labor to conduct field inventory	\$90,000	One time cost
	4.1C. Develop and implement a program to conduct annual pedestrian counts.	160			Annual
			Video count equipment: camera, software, and keyboard	\$4,000	One time cost
Total one time costs	Estimated staff hours	2110	Costs	\$94,000	
Total annual costs	Estimated staff hours	780	Costs	\$0	Note: does not include cost per item as these costs will vary by year.

F Methodology For Identifying High Priority Locations

To create a map of high priority locations, a weighting system was created based on the priorities above. Data in GIS (Geographic Information Systems) was analyzed to establish categories and scoring for each priority criteria. The table below lists data sources and scoring rules for each criteria. Data analyzed includes pedestrian counts, transit stops and stations, retail centers, job centers, schools, libraries, parks, grocery stores, farmer’s markets, and demographic characteristics such as population density, and concentrations of low income populations, elderly populations, and children. Health care data was not used because it was ranked as a low priority.

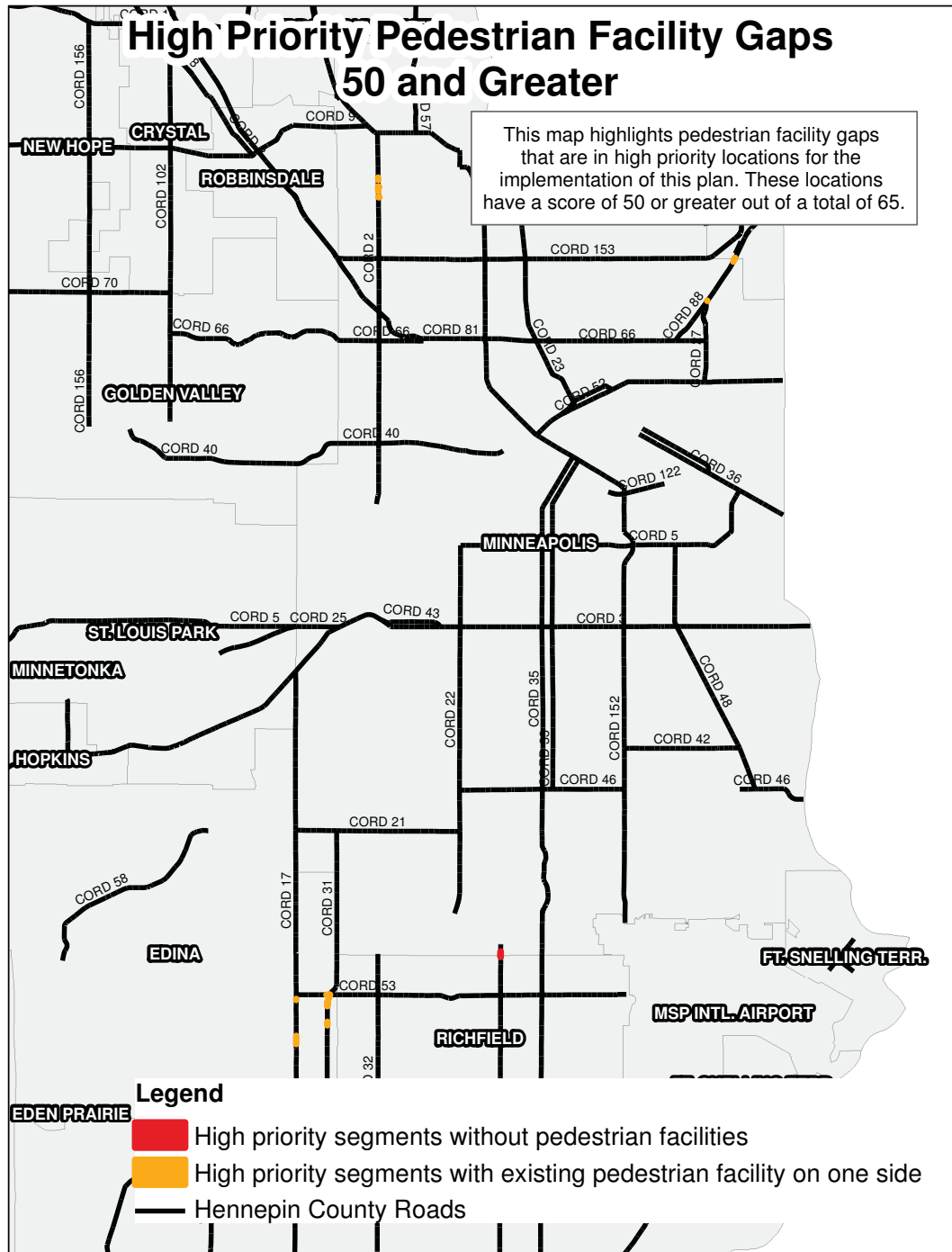
Scores were assigned to this data using GIS. The sum of these scores was used to create a map showing the priority for pedestrian infrastructure implementation, with 1 representing the lowest priority and 65 representing the highest priority.

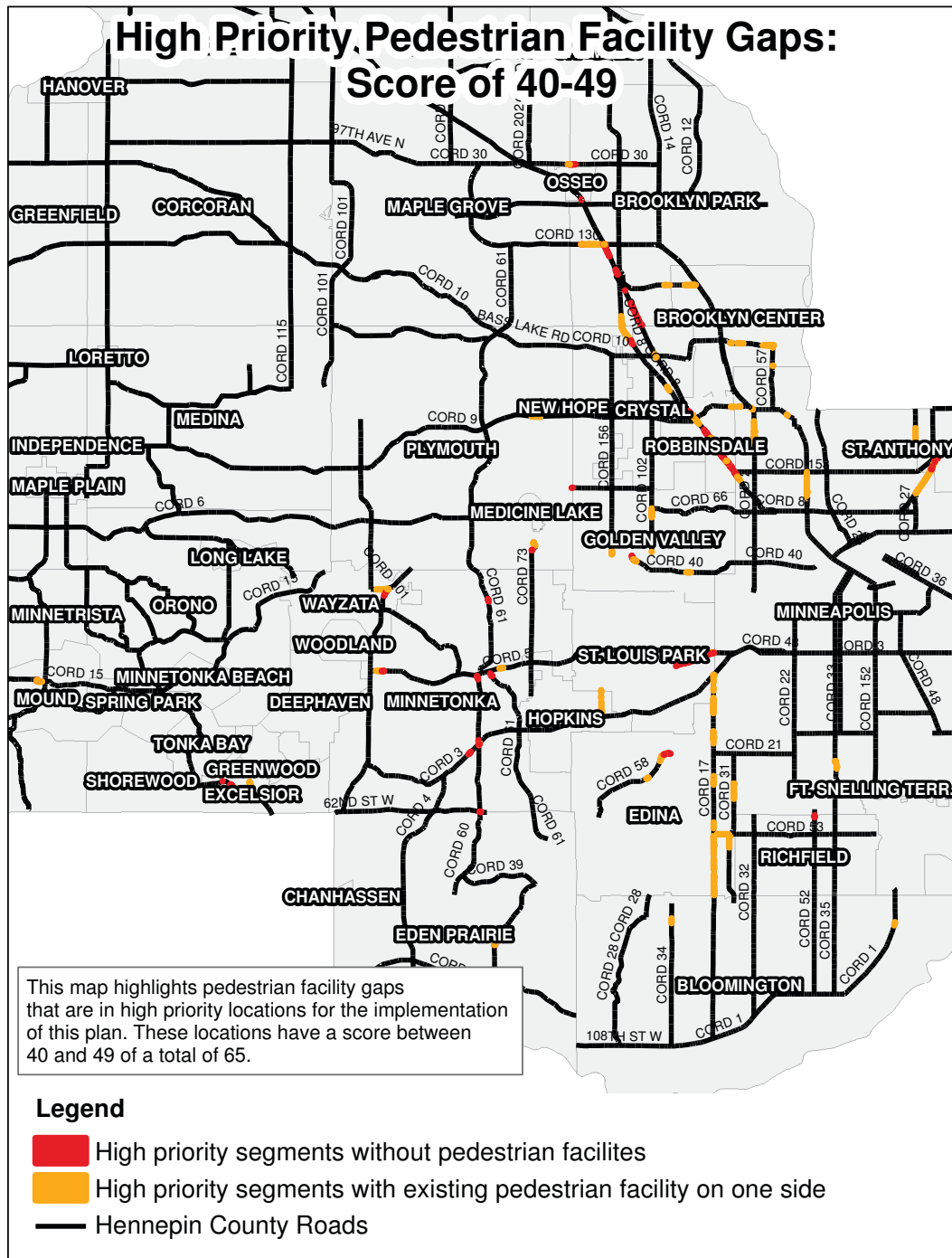
Priority Criteria	Data source	1 pt	2 pts	3 pts	4 pts	5 pts	6 pts
Locations with high pedestrian activity currently	Estimated daily pedestrian counts compiled by the City of Minneapolis Department of Public Works		1/4 mile buffer around locations of pedestrian counts over 2000	1/4 mile buffer around locations of pedestrian counts over 5000 daily			
Transit stops and stations	Transit stops and stations, Metro GIS				Between 1/4-1/2 mile from transit stop or station	Between 1/4-1/8 mile from transit stop or station	Less than 1/8 mile from transit stop or station
High frequency transit	High frequency transit network, Metro GIS				Between 1/4-1/2 mile from transit stop or station	Between 1/4-1/8 mile from transit stop or station	Less than 1/8 mile from transit stop or station
Retail centers	Retail and commercial land use from Metro GIS land use data				Between 1/4-1/2 mile from retail/commercial land use	Between 1/4-1/8 mile from retail/commercial	Less than 1/8 mile from retail/commercial, including retail/commercial land use itself
Job centers	Jobs per square mile based on year 2000 employment data from Metro GIS Transportation Analysis Zones					Between 3000 - 5000 jobs per square mile	Over 5000 jobs per square mile

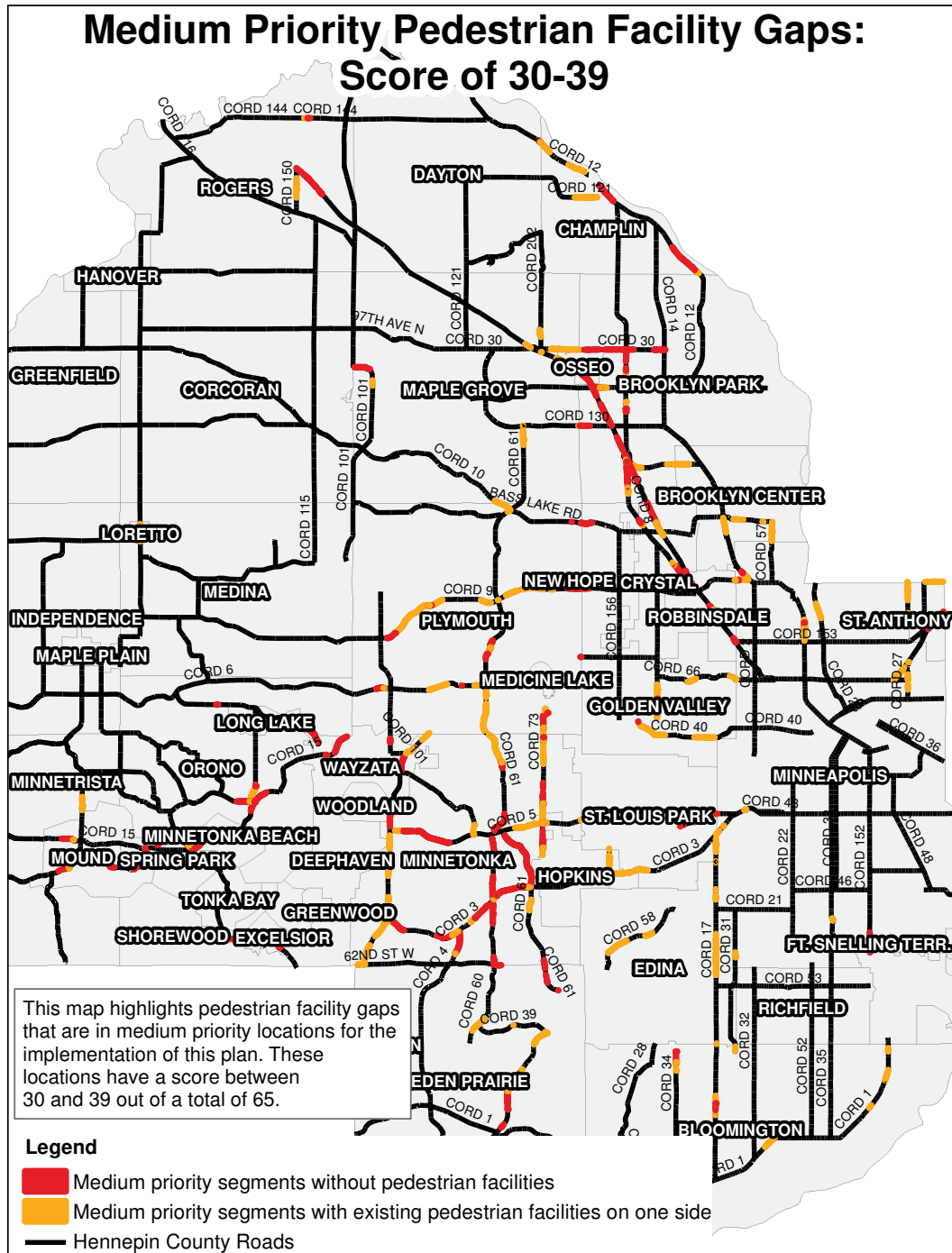
Priority Criteria	Data source	1 pt	2 pts	3 pts	4 pts	5 pts	6 pts
Schools	Hennepin County GIS data on location of public and private schools				1/2 -1 mile around school	1/2-1/4 mile around school	less than 1/4 mile around school
Parks	Hennepin County GIS data on location of parks				1/4-1/2 mile around park	1/8-1/4 mile around park	Less than 1/8 mile around park
Concentrations of children	Percent of population under 18 based on 2010 US Census					Between 20-32% of population is under 18	Over 32% of population is under 18
Population density	Population density based on 2010 US Census					Population density of between 5000-11,000 persons per square mile	Population density greater than 11,000 persons per square mile
Concentrations of low income populations	Households at or below 200% of the Federal Poverty Level based on 2005-2009 American Community Survey data			Census tracts with 50% households at 200% or below FPL			
Concentrations of elderly populations	Percent of population age 65 and older based on 2010 US Census		Between 15-22% of the population is 65 or older	Over 22% of the population is 65 or older			
Libraries	Hennepin County GIS data on location of libraries	1/4-1/2 mile around library	1/8-1/4 mile around library	Less than 1/8 mile around library			
Grocery stores and farmer's markets	Hennepin County GIS data on location of grocery stores and farmers markets	1/4 - 1/2 mile around grocery/ farmer's market	1/8-1/4 mile around grocery/ farmer's market	Less than 1/8 mile around grocery/ farmer's market			

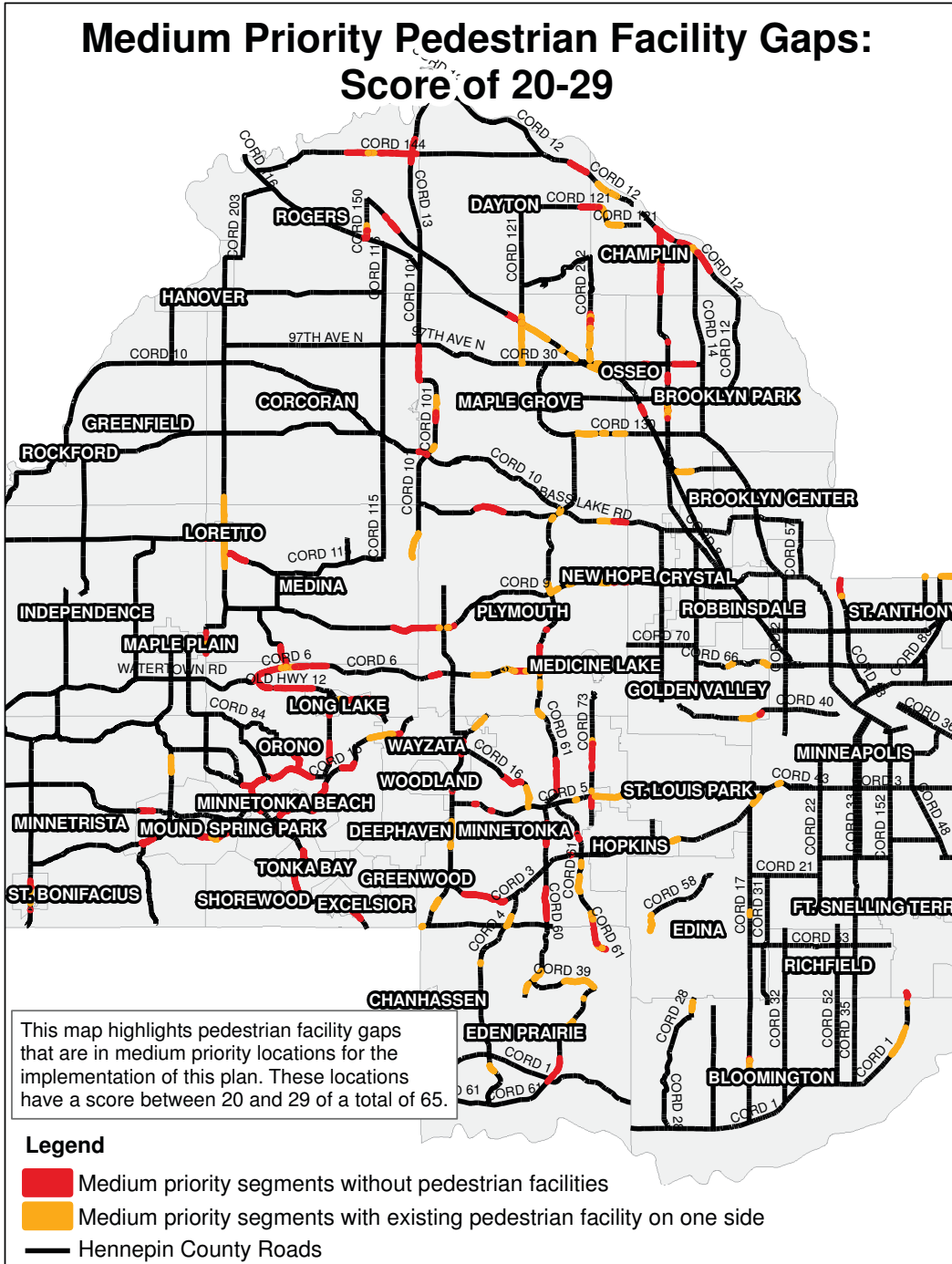
C Priority Level of Pedestrian Facility Gaps

The following maps identify pedestrian facility gaps by locational priority. Gaps with a score of 40-65 are considered high priority pedestrian facility gaps. A score of 20-39 identifies a medium priority pedestrian facility gap. Gaps with scores lower than 20 are considered low priority gaps. As stated above, locational priorities are a guide for the implementation of this plan, but should not be the only consideration in implementing pedestrian facilities.

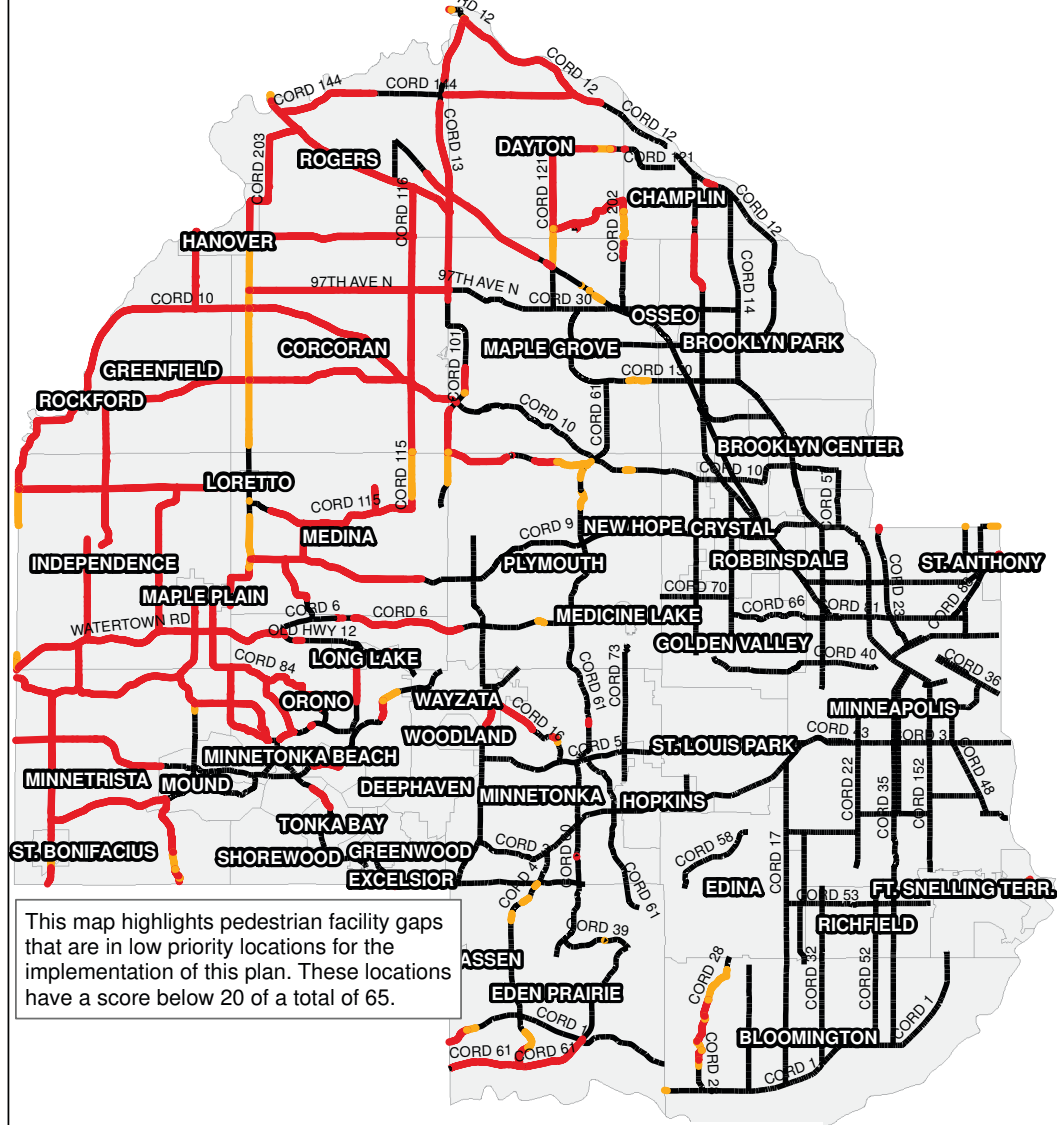








Low Priority Pedestrian Facility Gaps Score below 20



Legend

- High priority segments without pedestrian facilities
- High priority segments with existing pedestrian facilities on one side
- Hennepin County Roads

Signal Warrants

The county will evaluate its signal warrant practices and policies as part of recommendation **2.1B. Create Complete Streets Design Guidelines for County Roadway Projects**. The following information is current guidance for determining whether a traffic signal is warranted due to pedestrian volumes or school crossings. This information appears in the Minnesota Manual on Uniform Traffic Control Devices, Chapter 4C.



photo: Dan Burden / www.pedbikeimages.org

4C.5 Warrant 4, Pedestrian Volume

SUPPORT:

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.

STANDARD:

The need for a traffic control signal at an intersection or mid-block crossing shall be considered if an engineering study finds that one of the following criteria is met:

- A. For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) all fall above the curve in Figure 4C-5; or
- B. For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the curve in Figure 4C-7.

OPTION:

If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 35 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-6 may be used in place of Figure 4C-5 to evaluate Criterion A above and Figure 4C-8 may be used in place of Figure 4C-7 to evaluate Criterion B above.

STANDARD:

The Pedestrian Volume signal warrant shall not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.

If this warrant is met and a traffic control signal is justified by an engineering study, the traffic control signal shall be equipped with pedestrian signal heads complying with the provisions set forth in Chapter 4E.

GUIDANCE:

If this warrant is met and a traffic control signal is justified by an engineering study, then:

- A. If it is installed at an intersection or major driveway location, the traffic control signal should also control the minor-street or driveway traffic, should be traffic-actuated, and should include pedestrian detection.
- B. If it is installed at a non-intersection crossing, the traffic control signal should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs, and should be pedestrian-actuated. If the traffic control signal is installed at a non-intersection crossing, at least one of the signal faces should be over the traveled way for each approach, parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the crosswalk or site accommodations should be made through curb extensions or other techniques to provide adequate sight distance, and the installation should include suitable standard signs and pavement markings.
- C. Furthermore, if it is installed within a series of signals, the traffic control signal should be coordinated.

OPTION:

The criterion for the pedestrian volume crossing the major street may be reduced as much as 50 percent if the 15th-percentile crossing speed of pedestrians is less than 3.5 ft/sec.

A traffic control signal may not be needed at the study location if adjacent coordinated traffic control signals consistently provide gaps of adequate length for pedestrians to cross the street.

4C.6 Warrant 5, School Crossing

SUPPORT:

The School Crossing signal warrant is intended for application where the fact that school children cross the major street is the principal reason to consider installing a traffic control signal. For the purposes of this warrant, the word "schoolchildren" includes elementary through high school students.

STANDARD:

The need for a traffic control signal shall be considered when an engineering study of the frequency and adequacy of gaps in the vehicular traffic stream as related to the number and size of groups of schoolchildren at an established school crossing across the major street shows that the number of adequate gaps in the traffic stream during the period when the schoolchildren are using the crossing is less than the number of minutes in the same period (see Section 7A.3) and there are a minimum of 20 schoolchildren during the highest crossing hour.

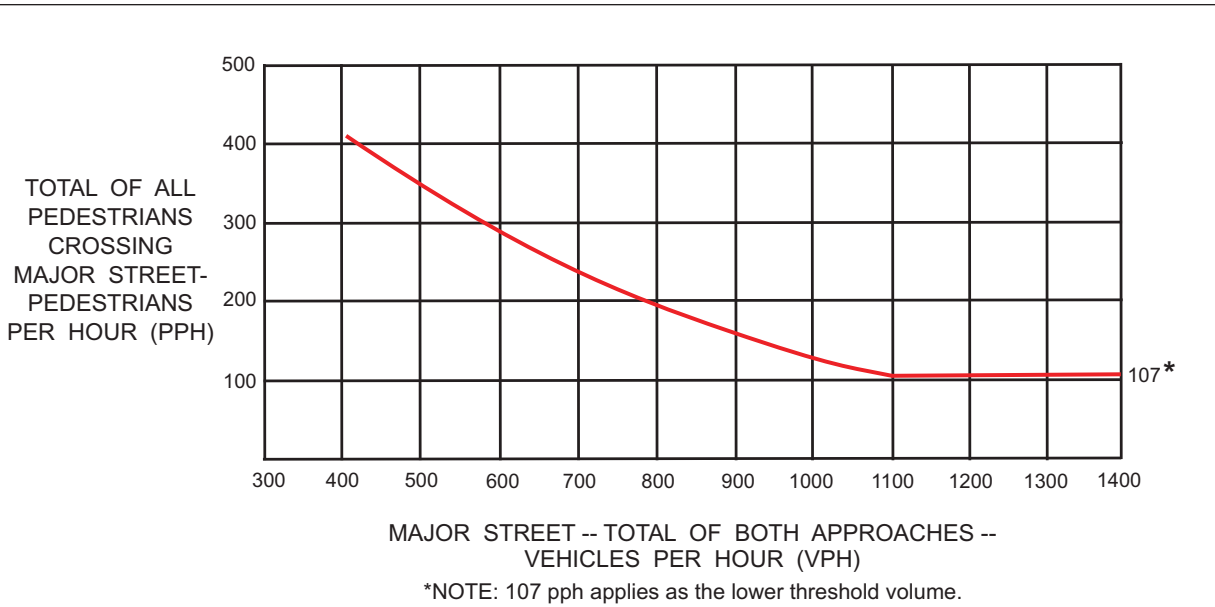


Figure 4C-5. Warrant 4 - Pedestrian Four-Hour Volume

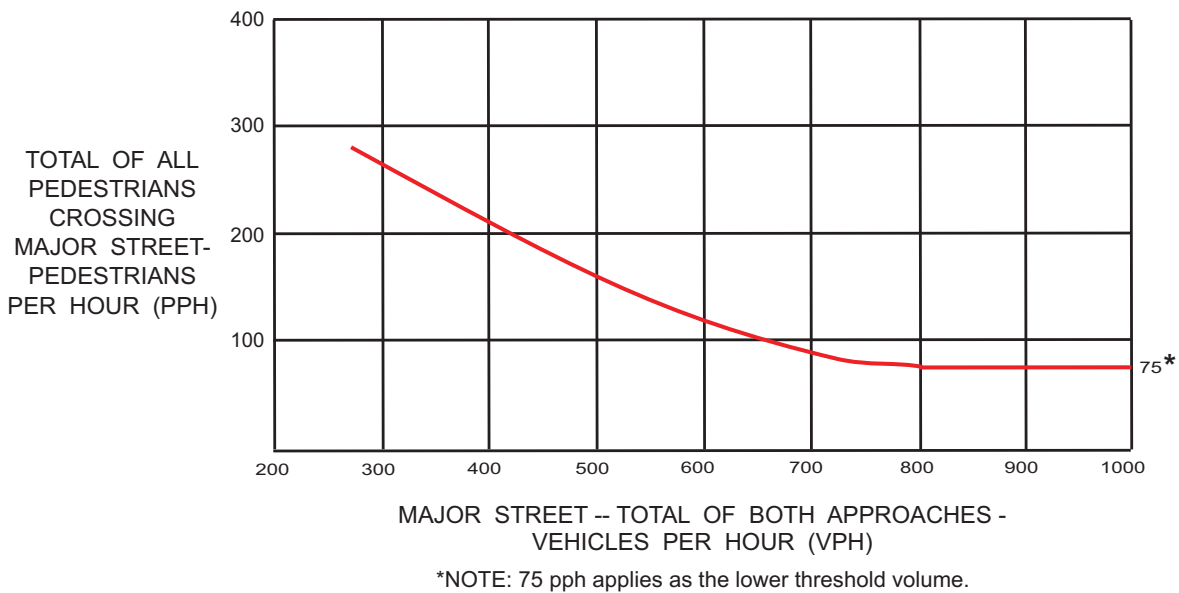


Figure 4C-6. Warrant 4 - Pedestrian Four-Hour Volume (70% Factor)

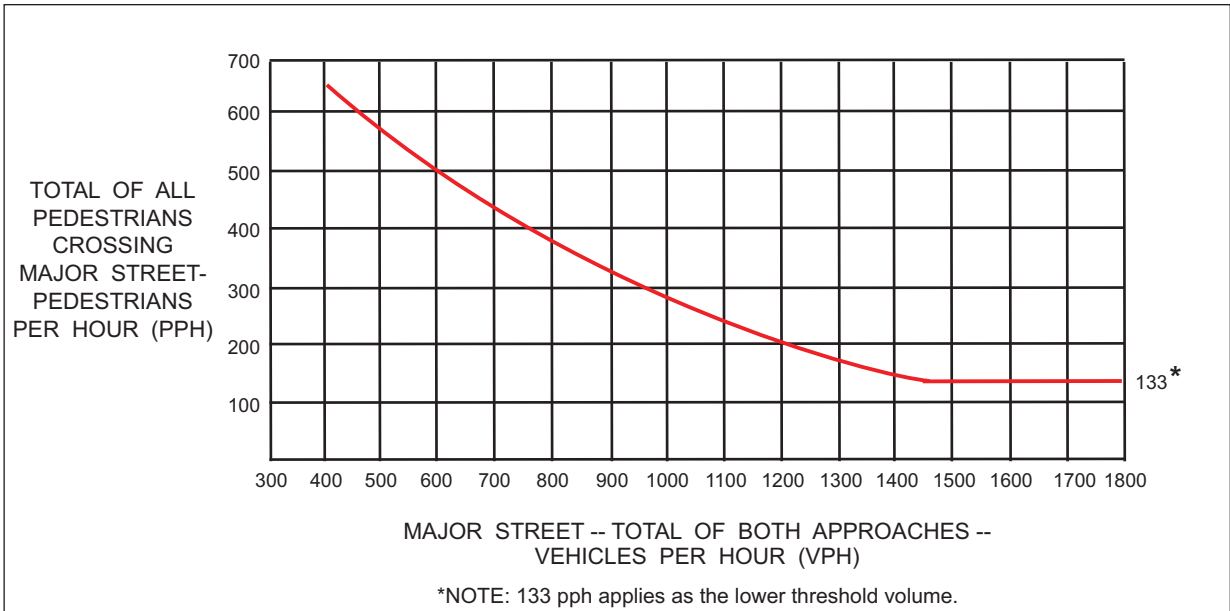


Figure 4C-7. Warrant 4 - Pedestrian Peak Hour

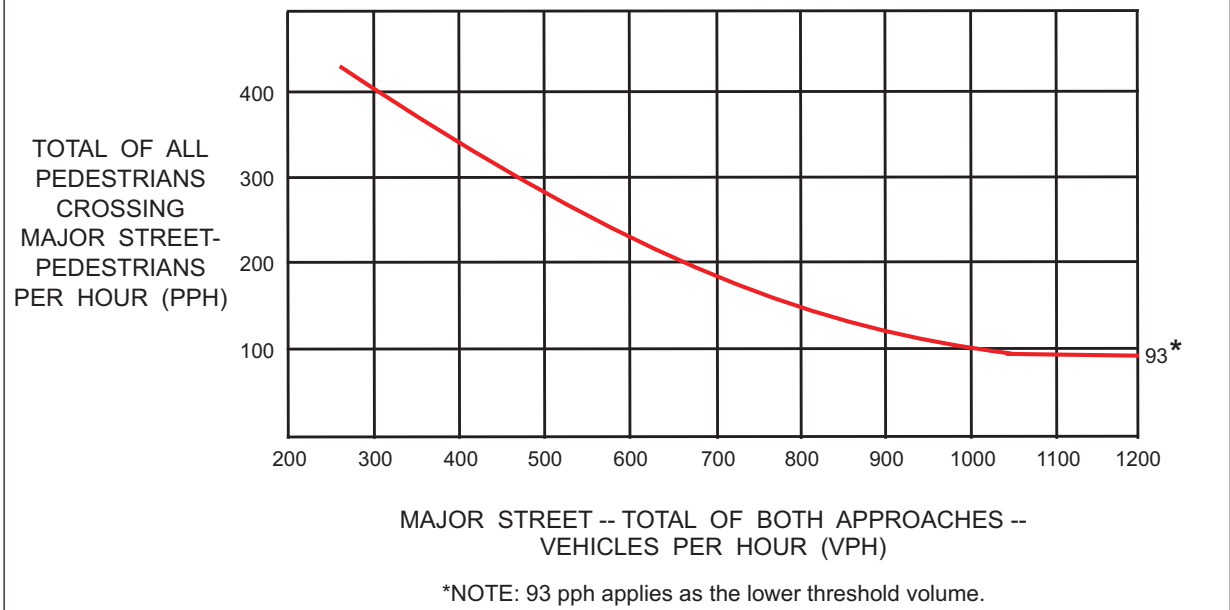


Figure 4C-8. Warrant 4 - Pedestrian Peak Hour (70% Factor)

Before a decision is made to install a traffic control signal, consideration shall be given to the implementation of other remedial measures, such as warning signs and flashers, school speed zones, school crossing guards, or a grade-separated crossing.

The School Crossing signal warrant shall not be applied at locations where the distance to the nearest traffic control signal along the major street is less than 90 m (300 ft), unless the proposed traffic control signal will not restrict the progressive movement of traffic.

GUIDANCE:

If this warrant is met and a traffic control signal is justified by an engineering study, then:

- A. If it is installed at an intersection or major driveway location, the traffic control signal should also control the minor-street or driveway traffic, should be traffic-actuated, and should include pedestrian detection.
- B. If it is installed at a non-intersection crossing, the traffic control signal should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs, and should be pedestrian-actuated. If the traffic control signal is installed at a non-intersection crossing, at least one of the signal faces should be over the traveled way for each approach, parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the crosswalk or site accommodations should be made through curb extensions or other techniques to provide adequate sight distance, and the installation should include suitable standard signs and pavement markings.
- C. Furthermore, if it is installed within a series of signals, the traffic control signal should be coordinated.

4C.7 Warrant 6, Coordinated Signal System

SUPPORT:

Progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles.

STANDARD:

The need for a traffic control signal shall be considered if an engineering study finds that one of the following criteria is met:

- A. On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.

- B. On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.

GUIDANCE:

The Coordinated Signal System signal warrant should not be applied where the resultant spacing of traffic control signals would be less than 1,000 feet.

4C.8 Warrant 7, Crash Experience

SUPPORT:

The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

STANDARD:

The need for a traffic control signal shall be considered if an engineering study finds that all of the following criteria are met:

- A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and
- B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and
- C. For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1 (see Section 4C.2), or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major-street and the higher-volume minor-street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.

OPTION:

If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns.

Potential Funding Sources and Applications

Strategy	Hennepin County			State of Minnesota					Federal					
	Sidewalk Participation Program	Pavement Preservation Plus Program	Roadside Enhancement Partnership Program	Bikeway Development Participation & Bikeway Program Discretionary	Community Works	Minnesota Legacy Grant Program	MN Department of Natural Resources / Local Trail Connections Grants	Statewide Health Improvement Program	Corridor Investment Management Strategy	Transportation Economic Development	Municipal Agreements Program	Transportation Alternatives	Highway Safety Improvement Project	Community Transformation Grant
1.1A. Install curb extensions and pedestrian refuge medians as part of stand-alone pedestrian safety projects.	C	C			C				C	C	C	C	S	S
1.2A. Develop guidelines for the installation of Leading Pedestrian Intervals (LPI), Rectangular Rapid Flash Beacons (RRFB), and High-Intensity Activated Crosswalk Beacons (HAWK) across county roads.							S							S
1.2B. Install leading pedestrian intervals (LPI), Rectangular Rapid Flash Beacons (RRFB), and High-Intensity Activated Crosswalk Beacons (HAWK) where appropriate and feasible.	C				C				C	C	C	C		
1.3A. Formalize an internal procedure for evaluating pedestrian safety needs at specific locations in response to pedestrian-vehicle crashes and community concerns.								S						S
1.3B. Evaluate and prioritize improvements to crossings identified through crash data and the pedestrian plan community engagement process.							S							S
1.3C. Update the pedestrian strategies in the County Road Safety Plan every 5 years.								S						S
1.4A. Work with cities to encourage applications for CIP Sidewalk Participation funds to construct high priority sidewalks.	C			C				S						S
1.4B. Work with cities, school districts, and park districts to encourage the construction of pedestrian facilities along county roads within 1/2 mile of schools, parks, and senior centers.	C			C				S						S
1.4C. Evaluate the effectiveness of the Hennepin County CIP Sidewalk Participation Program and propose changes as appropriate.								S						S

C = construction S = staff time

Strategy	Hennepin County			State of Minnesota					Federal					
	Sidewalk Participation Program	Pavement Preservation Plus Program	Roadside Enhancement Partnership Program	Bikeway Development Participation & Bikeway Program Discretionary	Community Works	Minnesota Legacy Grant Program	MN Department of Natural Resources / Local Trail Connections Grants	Statewide Health Improvement Program	Corridor Investment Management Strategy	Transportation Economic Development	Municipal Agreements Program	Transportation Alternatives	Highway Safety Improvement Project	Community Transformation Grant
2.1A. Establish and implement an internal procedure for pedestrian-oriented review of county projects such as roadway reconstruction projects, transitway projects, construction of libraries and other county facilities, and others as determined.								S						S
2.2A. In station area planning, consider and analyze how the watershed can be expanded by adding pedestrian facility connections.								S						S
2.2B. Identify and prioritize pedestrian improvements to enhance the pedestrian environment at transit stops and along common routes to LRT and BRT stations.								S						S
2.2C. Prioritize adding and enhancing pedestrian connections between transit stations, high density housing, and major employers near station areas.								S						S
3.1A. Emphasize the implementation of the pedestrian plan strategies in geographic areas with populations experiencing health disparities.	C	C	C	C	C	C		S				C	C	S
3.2A. Advocate in the Hennepin County legislative platform for statewide policy to mandate pedestrian safety education in school curriculum.														
3.2B. Develop a comprehensive, county-wide strategy for improving pedestrian safety and access to schools.	C	C		C	C			S				S+C		S
4.1A. Maintain an inventory of existing pedestrian facilities and gaps along county roads.														
4.1B. In coordination with the ADA Transition Plan, complete a comprehensive assessment of the condition of sidewalks along the county road system and prepare a plan for improving conditions.														
4.1C. Develop and implement a program to conduct annual pedestrian counts.								S						S

C = construction S = staff time

