

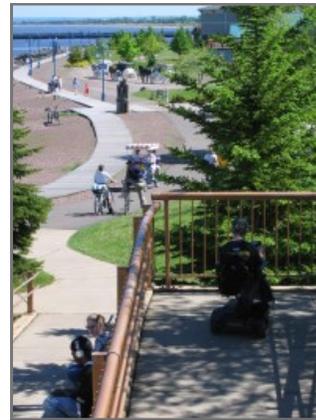
MOVEMENT OF PEOPLE: NON-MOTORIZED

Fundamental to transportation planning is the understanding that every trip, no matter which modes are involved, begins and ends with a non-motorized movement, and, implicitly, walking (or using a wheelchair) is the universal mode of transportation, independent of one's financial means to access other modes of transportation. This perspective is key in planning for any transportation improvements in a way that recognizes and avoids creating barriers to non-motorized movements, and to ultimately promote enhanced connectivity and mobility for all users.

The MIC therefore is committed to improving the non-motorized aspects of the Duluth-Superior transportation system, and will work with area jurisdictions and stakeholders to avoid and reduce barriers and improve the mobility, safety and security for pedestrians, cyclists and users of other non-motorized forms of transportation. Integral to this commitment is the MIC's establishment of a Bike & Pedestrian Advisory Committee ([BPAC](#)). The BPAC committee represents a variety of users; the perspectives of the youth, elderly, disabled populations, as well as those of recreational users are involved to ensure non-motorized issues are being sufficiently addressed in its planning efforts.

Accessibility & Mobility

Non-motorized forms of transportation face a number of accessibility and mobility challenges in the Duluth-Superior metropolitan area; much of the City of Duluth, for instance, sits on a hill, resulting in numerous steep streets. Winter months bring sub-zero temperatures and challenges of snow removal for sidewalks, pathways and bike routes. Yet, despite the challenges, the general population continues to express interest in non-motorized transportation issues. Whether it be the efforts of groups like Healthy Duluth Area Coalition to promote active lifestyle choices in the area, or the recent adoption of an on-street bikeways plan for the City of Duluth, there is an increasing emphasis to address non-motorized transportation issues in Twin Ports communities, and the MIC continues to be an active participant in each initiative in order to further the success of common objectives and make the area's network of sidewalks, trails and bike routes more complete, with more accessible design features and better integrated with other modes of transportation.



View of Duluth Lakewalk

Connections 2040

Increasing integration of transportation assets will lead to improved accessibility and mobility for non-motorized modes. Safety will be improved through increased information and outreach as well as improved elements of street design.

Major Initiative:

Bicycle & Pedestrian Counts

Based on goals of the previous LRTP, the MIC with the help of Mn/DOT and other state local and non-profit partners have begun a bicycle and pedestrian count program for the MIC area. A baseline data-set of bicycle and pedestrian numbers is being developed. Counts began in 2012 and are conducted annually in July and September.

LRTP 2040—complete the baseline data-set and begin identifying trends and tracking performance of provide new and existing bicycle and pedestrian infrastructure.

Local Sidewalk Network

Duluth-Superior is a fairly accessible metropolitan area for users of non-motorized modes. The urbanized areas have extensive sidewalk connections, and the broader metropolitan area is served by more than 49 miles of paved trails, and 64 miles of non-paved trails. There are also a number of walkways and bike/ped connections over I-35 and portions of US Hwy 53 in Duluth; as well as a bike/ped passage on the Bong Bridge (US Hwy 2) crossing the harbor.

Much of the area's non-motorized facilities are concentrated in the denser urban portions of Duluth and Superior, which have better connectivity than other urbanized sections of the MIC area. However, most of the area's recent residential growth has been occurring at or beyond the city limits of Duluth and Superior, and much of this growth is resulting in lower-density, suburban development patterns; with design features oriented more towards automobiles than non-motorized forms of transportation. This trend is indicated by the ratio of sidewalks to road miles for MIC area cities shown in Table 4.8, which are significantly lower in Hermantown and Proctor.

Table 4.8: Ratio of Sidewalks to Road Miles

Community	Sidewalks (miles)	Roads (miles)	Ratio
City of Duluth	757	644	1.18
City of Superior	159	241	0.66
City of Hermantown	63	126	0.50
City of Proctor	11	28	0.39

Sources: MnDOT, WisDOT (2009); MIC (2012)

This trend is supported in part by current policy at the area's various jurisdictions. Urban sections of road maintained by the Hermantown and St. Louis and Douglas Counties are typically constructed with sidewalk on only one side, due to the low population density and high cost of installation and maintenance. Furthermore, the decision and cost to install sidewalk on non-arterial or collector streets is deferred to the residents of the street, who do not have a financial incentive to do so. Although this ensures a non-motorized connection, it occasionally results in alignments that are not ideal relative to adjacent pedestrian generators, and it necessitates more street crossings.

Because of either the speeds and volumes of traffic, street width, absence or ineffective spacing of traffic signals, street crossings themselves can often be an impediment or barrier to non-motorized travel, regardless of the presence of sidewalks or pathways. There are a number of corridors in the MIC area that have been identified as potential barriers to non-motorized movements and are listed on the following page.



Snow-covered sidewalk in Superior

Improving Sidewalks :

- Consider the user's safety, comfort and level of service
- Separate the sidewalk and traffic lane with a boulevard where possible (6-8-feet), particularly along roads with high traffic volumes and speeds.
- Create barriers between the moving automobile traffic and the pedestrians, including street light posts, trees, street furniture, etc.
- Create wide enough sidewalks on busier pedestrian corridors.
- Identify priority sidewalk routes, that will be highly maintained in good condition, quickly cleared of snow and debris, and regularly trimmed of trees and shrubs.
- Avoid, minimize or mitigate sidewalk closures along sidewalk priority routes during construction including clearly identified detours which do not put pedestrians into unsafe situations.

Challenging corridors (listed in the right-hand column) can be treated with various design treatments, signage or signal enhancements, such as those listed at right, and the MIC will continue to study these and other corridors to identify treatments appropriate for the context of the corridor and work with area jurisdictions to identify and fund their implementation.

Low-density, auto-oriented environments also exist at the area's largest concentration of retail centers, which are also located miles away from the area's major concentrations of households. These retail centers likewise represent the highest concentrations of both lower-skilled employment opportunities and discounted food and goods, which are important for low income and elderly members of the community to whom access to automobile travel may not be readily available.

Another challenge to ensuring non-motorized mobility which can render the presence of sidewalk and other non-motorized facilities ineffective, is the absence of ADA compliant design features. This includes both the absence or ineffective spacing of curb cuts to sidewalks, issues related to slope and the absence of ramps to complement the presence of stairs. ADA legislation was passed in the 1990's and since then new and reconstructed sidewalks in the area have been brought into compliance with ADA standards, but a significant portion of the area's sidewalks have yet to be addressed. Another notable ADA issue in Duluth is that much of the downtown Skywalk System is replete with doors that are not equipped with ADA features.

Finally, snow removal represents a significant challenge to maintaining the accessibility of non-motorized facilities in the Duluth-Superior metro. Although local jurisdictions have snow removal ordinances that require residents to shovel the sidewalks abutting their properties within 24 hours of a snow event, they are not strictly enforced.

The MIC recognizes the need for an updated inventory of non-motorized facilities throughout the area that at a minimum provides the following:

- Identifies gaps in the network
- Locates non-ADA compliant facilities
- Identifies potential "barrier" corridors
- Prioritizes non-motorized routes to address ADA and snow removal issues.

Corridors with Potential Barriers to Non-Motorized Crossings and Status for Addressing Issue:

- *6th Ave East (Duluth) - Planning*
- *Central Entrance (Planning) - Planning*
- *Mesaba Ave (Duluth) - Planning*
- *Trinity Road (Duluth) - Planning*
- *East 2nd St (Superior) - Planning*
- *Belknap St (Superior) - Design*
- *Tower Ave (Superior) - Planning*
- *Hammond Ave (Superior) - Planning*
- *US Hwy 23 (Duluth) - Design*
- *Miller Trunk Hwy (Duluth/Hermantown) - Planning*

Treatments for Improving Street Crossings:

- Centerline median pedestrian islands
- Bulb-outs
- Programming/lengthening protected pedestrian phases into signal cycles
- Installing signal countdown timers
- Installing audible signals for the sight-impaired



A non-motorized user traveling Duluth's Lakewalk

Local Bicycle Route Network

The MIC has been doing extensive bikeways planning for the metro area since the early 1990's, which has resulted in a metro-wide network of identified bike routes. Routes on the Minnesota side are signed with bike route signs containing way-finding information, and signs are being planned for the routes on the Wisconsin side. These routes are connected to existing ped-bike crossings over I-35, US Hwy 53 and across the harbor via the Bong Bridge.

While the bikeway network is comprehensive, there remains much room for improvement. The designation of a bike route only signifies that it is the most ideal option for an area, and it can not guarantee that the route is free of issues related to slope, the speed or volume of traffic, etc. In some situations, accessibility and mobility could be improved with special pavement markings, separated bike lanes or protected bike lanes to get riders out from the flow of traffic.

As the community pushes for better bikeways to accommodate all "types" of bicyclists (see Figure 4.26 below), the MIC is actively assisting the region's jurisdictions bikeways planning and will incorporate this work into a full update of the MIC Area Bikeways Plan. The City of Duluth lead an update to their network and has approved a Duluth Bikeways Plan. A similar planning process that was followed with Duluth, will be underway with Hermantown, Proctor, Superior and the surrounding townships.

An accessibility related issue for cyclists is the availability of bike racks in public spaces. Although a number of schools, colleges, and business throughout the metro area provide racks or sponsor racks in a few locations, there's widespread acknowledgement of an insufficient provision of racks throughout the metropolitan area, especially in the area's downtowns and mall areas. The MIC has been involved in recent initiatives to get more bike racks installed in key places throughout metro area and will continue to participate with other jurisdictions and stakeholder groups to identify key locations for additional installations.



Anderson Road Bike Lane, Duluth, Minnesota

Building Better Bikeways - consider the majority of trips taken by the majority of potential bicycle users. Most trips are less than 3 miles in length and 60% of people are average bicyclists, not willing to share a lane with cars.

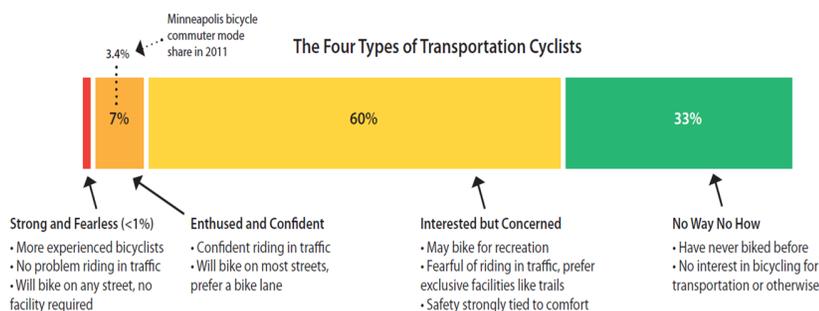


Bike Route and way-finding signs



Parking meter fitted with a bike rack

Figure 4.26



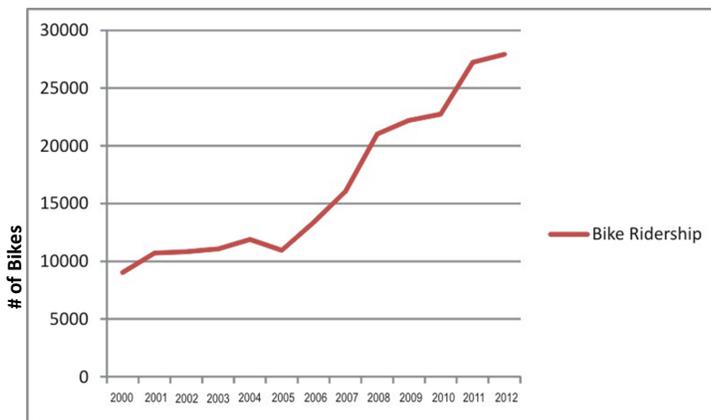
*Geller, Roger. *The Four Types of Transportation Cyclists*. Portland Bureau of Transportation 2007.

Multimodal connectivity

Non-motorized modes are being well served by the Duluth Transit Authority's (DTA) efforts to integrate its transit services with other modes of transportation in the metro area. First and foremost, it gives a lot of consideration to specific pedestrian generators (e.g. schools, retail centers, etc.) and walking distance, and designs its routes and positions its stops accordingly. It strives to optimize the spacing of bus stops and minimize the distances riders have to travel to access a bus. All of its buses have space designated for wheelchair users and are equipped with ramps or "kneelers" to assist individuals with limited mobility.

In addition, the DTA equips all of its regular route buses with bike racks all year round, which has been seeing increased use in recent years (Figure 4.27). Each bus has rack space for two bikes. However, the DTA's policy does not allow for cyclists to bring their bikes on board in the event that rack space is not available for that rider. Finally, the DTA's plans for a new multimodal transit terminal in the downtown area includes space for a bike station in which riders could store bikes. Future ideas include having a full bike station with access to shower facilities and maintenance services adjacent to the new transit center.

Figure 4.27: Number of Bikes Carried by DTA Buses per Year



Source: DTA, 2013.

Interregional connectivity

The Duluth-Superior area has a number of regional and interregional assets for non-motorized modes of transportation. Most noted for their connection to the Lake Superior shoreline are the Lakewalk in Duluth and the Osaugie Trail in Superior. In terms of their length and regional significance are the Willard Munger Trail and the Tri-County Corridor. Natural surface trails include the



Bus-mounted bike rack

Increase Demand to Put Bikes on Buses:

- The number of bicycles that the DTA carried has grown by 150% from under 10,000 bicycles a year to over 25,000 a year. DTA is looking at options to accommodate additional bicycles.
- The topographic nature of Duluth impacts the demand, as bicyclists will ride the down-hill portion of their trip, and put their bike on the bus for the up-hill portion of the trip.

Duluth Traverse, a mountain biking trail across Duluth and the Superior Hiking Trail (a 275 mile footpath from Duluth to the Canadian border).

Communities on the Minnesota side of the MIC area have worked to extend these trails through the metropolitan area and link them to other local routes. At present, the City of Duluth is planning to create the “Cross City” trail connection through West Duluth, which will link the Munger Trail to the Lakewalk, and the cities of Proctor and Hermantown are planning on a major through-way trail with a connection to the Munger Trail to each community’s key destination and activity centers.

Operations & Maintenance

Data regarding the condition of sidewalk, paved trails and other infrastructure for non-motorized users is beginning to be regularly collected. In the past, the MIC has produced both a [Superior Sidewalk Inventory](#) and [Duluth Sidewalk Inventory](#) (updated in 2012), though the Superior information is now 15 years old.

Results of the MIC’s inventories showed that the sidewalk networks in Duluth and Superior were fairly balanced in terms of the number of miles in “Good,” “Fair,” and “Poor” condition, but with a number of missing sidewalk segments, including along major roadway corridors including on the north side of Central Entrance between Pecan Avenue and Arlington Road, London Road between 21st Ave E and 25th Ave East, MN Hwy 23 between I-35 and Gary-New Duluth.

While the Duluth sidewalk data was updated by the MIC in 2012, updating Superior sidewalk inventory (as many sidewalks have been recently replaced in the last 5 years) and collecting sidewalk inventory and condition analysis for the Cities of Hermantown and Proctor and other areas of recent growth in the metro is needed. Such inventories could help to identify any additional gaps or deficiencies as well as to further monitor system conditions, and help area planners coordinate projects.

Beyond the need for more information, however, are challenges related to financing sidewalk and bikeway improvements. Much of this is due to the limited amount of funding available to the area versus the level of its maintenance needs. Other aspects of this challenge are policy based. Many of the jurisdictions require residents of a street to pay for its sidewalks and sidewalk improvements. However, communities have not mandated such improvements.

Another maintenance challenge relating to non-motorized assets in the area is snow removal. Local jurisdictions have adopted ordinances requiring owners to clear the sidewalks in front of their properties within 24 hours of a snow event. Budget limitations make this difficult to enforce, and the result is often a patchwork of

Interregional Trail Connections

Existing:

- **Willard Munger State Trail (MN)**

Hinckley to Duluth - 63 mile paved segment connects at 75th Ave West/Lake Superior Zoo.

Alex Laveau Memorial Trail - 22 mile paved/gravel segment along MN Hwy 23 in Gary/New Duluth through Wrenshall into Carlton.

Matthew Lourey State Trail - 80 mile natural surface trail passes through St. Croix State Park linking the Chengwatanan, St. Croix and Nemadji State Forests.

- **Gitchee Gami State Trail (MN)**

Two Harbors to Grand Marais - 88 mile paved trail (not completed). Duluth to Two Harbors connection is a paved pathway along the North Shore Scenic Drive connecting the Lakewalk at Brighton Beach in Duluth to Two Harbors.

- **Tri-County Corridor (WI)**

Superior to Ashland - 62 mile gravel trail connecting Superior and the Osaugie Trail to Ashland.

clearings and barriers. Anecdotally, this problem is significant throughout the Duluth-Superior urbanized area, but only portions of the system have been studied during short periods of time. A recent study of transportation patterns near the University of Minnesota, Duluth and College of St. Scholastica ([UMD-CSS snow removal assessment](#)) showed prolonged obstruction of certain sidewalks along major pedestrian corridors, which caused all foot traffic to move into the street.

Safety & Security

The MIC’s efforts are guided by [Safety Conscious Planning](#) aimed at ensuring that transportation improvements in the Duluth-Superior area result in making the communities transportation assets safer. This is particularly the case with roadway improvements because between the interaction of motorized and non-motorized movements.

Unlike drivers, who benefit from numerous safety features built into vehicles, even crashes at modest-speeds can be severe for vulnerable users of the roadway including pedestrians and bicyclists (Figure 4.28). That is why, in addition to advocating for safety through aspects of road design, the MIC works with area jurisdictions and stakeholders to advance public awareness and education through outreach efforts such as [Share the Road](#).

Pedestrian & Bicycle Crashes in the MIC area

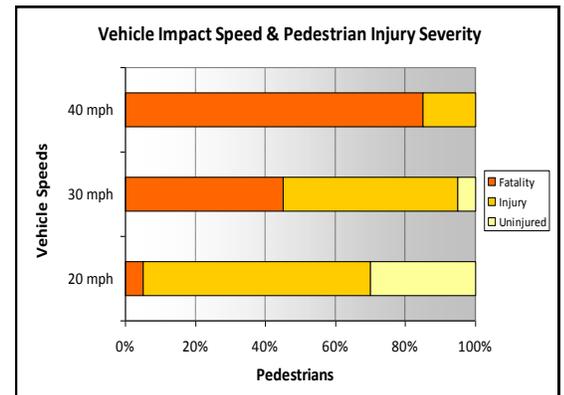
Crash data shows between 30 and 40 pedestrians are struck by vehicles in the Duluth-Superior area annually (Figure 4.29), and there are approximately 20 collisions with cyclists (Figure 4.30). These crashes have happened at various locations throughout the metro area and there are too few to point to any specific street or intersection as being particularly dangerous. Yet, when comparing them on a per capita basis to averages for Minnesota and Wisconsin (Figures 4.31 and 4.32), it’s apparent that there is room for improvement. And that improvement will need to come from a combination of information gathering, education and outreach, policy decisions, and engineering.

The MIC’s objectives regarding non-motorized safety begin with a continuing assessment of available safety-related information for the area. From this information the MIC will work to identify needed improvements and work with jurisdictions and stakeholders to prioritize these needs and decide on the most appropriate methods to use to achieve those improvements.



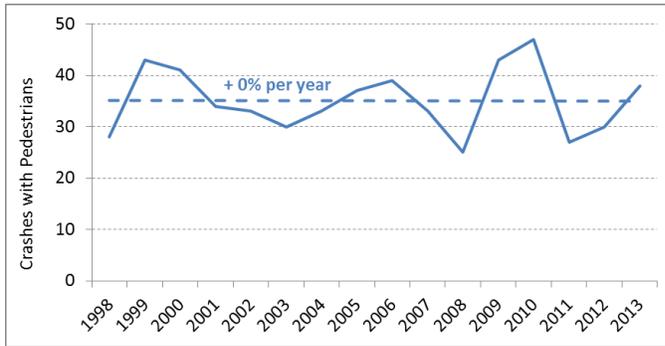
Cyclist signaling at an intersection

Figure 4.28: Relationship between Vehicle Speed and Severity of Pedestrian Injury



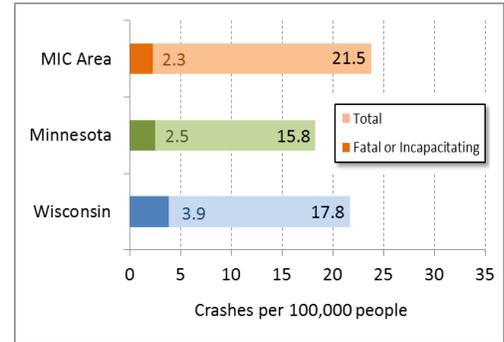
Source: Literature review on Vehicle Travel Speeds and Pedestrian Injuries; U.S. DOT National Highway Traffic Safety Administration, 1999

Figure 4.29 Crashes with pedestrians in the MIC area (1998-2013)



Source: MnDOT Crash Mapping Analysis Tool (CMAT), 2014; Wisconsin MV4000 Crash Database, 2014.

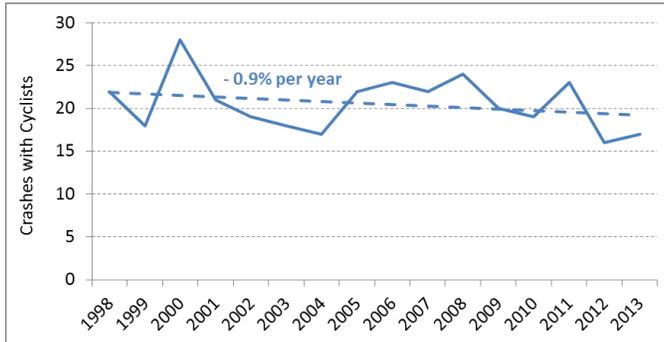
Figure 4.31 Per capita crashes with pedestrians (3-year average 2010-2012)



Sources: MnDOT Crash Mapping Analysis Tool, 2014;

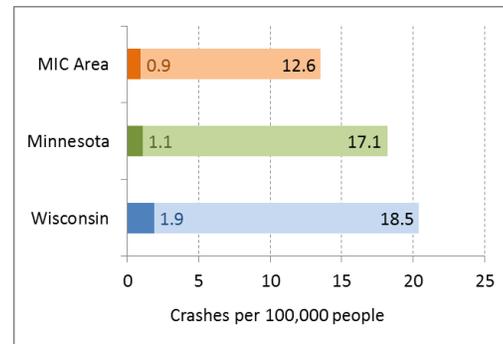
Wisconsin MV4000 Crash Database, 2014

Figure 4.30 Crashes with cyclists in the MIC area (1998-2013)



Source: MnDOT Crash Mapping Analysis Tool (CMAT), 2014; Wisconsin MV4000 Crash Database, 2014.

Figure 4.32 Per capita crashes with cyclists (3-year average 2010-2012)



Sources: MnDOT Crash Mapping Analysis Tool, 2014;

Wisconsin MV4000 Crash Database, 2014

Promoting Safer Design Features

As with issues of accessibility and mobility, the physical nature of streets can lead to situations that are not ideal from a safety standpoint. Wide streets and turning radii, for instance, not only expose crossing pedestrians to vehicles longer, but they tend to make drivers drive faster. Likewise, there are conditions that create riskier situations for cycling, such as requiring both cyclists and automobiles to travel in the same stream of traffic up a steep incline.

Locations of Concern within the MIC Area

The MIC's objectives regarding the safety of non-motorized transportation include continual assessment of safety related data to identify and prioritize needed improvements, and to use this information to assist jurisdictions in implementing projects. Unsafe situations can be addressed in a number of ways. In some



Source: People for Bikes - An example of a two-way protected bikeway allowing for separated bike travel

instances they may require reconstruction, such as placing a raised median in the middle of a street to shorten distances and allow pedestrians refuge mid-crossing, but issues can often be addressed in conjunction with the resurfacing of a road, and often with less expensive treatments, such as repainting crossings with high-visibility paint, or installing high-visibility stantions in the roadway, as the City of Superior has recently done.

In addition to identifying locations of concern for non-motorized users in the metropolitan area, the MIC will promote recommended improvements, and work with area jurisdictions to find ways to appropriately incorporate them into new construction and as improvements to existing facilities.

Security for non-motorized modes

Ensuring the security of non-motorized forms of transportation is often largely a matter of disincentivising criminal behavior by making areas more visible and open for surveillance. In addition to the Police Departments' patrolling of the communities, and efforts such as Duluth's Clean & Safe Team sponsored by Duluth's Greater Downtown Council, ensuring effective lighting along streets and paths can greatly increase the security of environments for non-motorized travel. This tends to be more of an issue with separated pathways in the MIC area, such as Duluth's Lakewalk and Superior's Osaugie Trail, which have several stretches that are not lighted.

Supporting Statewide and Local Safety Initiatives

The MIC will continue to assist jurisdictions and stakeholders in advancing initiatives aimed at making their communities safer for non-motorized users. This includes initiatives such as the Lake Superior Region Safe Communities Coalition; and state and local Complete Streets efforts; Safe Routes To Schools planning; and state Toward Zero Deaths and Share the Road initiatives, which the MIC will continue lending technical and planning support.

Moving Toward 2040

The Duluth-Superior area already has extensive sidewalk and bike route connections, but throughout these networks exist a variety of deficiencies related to the accessibility, safety, and condition of the various infrastructure. Better information is needed to identify and prioritize needed improvements, especially in light of limited funding.

Meanwhile, newer development patterns occurring in areas outside of older urban centers are trending towards designs that threaten to create barriers and mobility burdens for non-motorized users of the

Treatments for Making Street Crossings Safer:

- Programming/lengthening protected pedestrian phases into signal cycles
- Installing signal countdown timers
- high-visibility pedestrian crossing signs, cross-walks and pavement markings
- flashing pedestrian crossing signs, signal count down timers, programming protected pedestrian phases into signal cycles.
- [HAWK](#) signals



Crossing guard near Duluth area school

transportation system. In addition, a concern has arisen regarding recent commercial redevelopment patterns, particularly along major roadways, as they have taken an auto-oriented design, making it more uncomfortable and difficult for pedestrians, bicyclists and transit users to access these developments. Efforts will need to be made to ensure the needs of non-motorized users are receiving sufficient consideration during the review of site designs for new development, while at the same time more effort needs to be made to coordinate planning and better align the activities of the area's various jurisdictions, private developers and other stakeholder groups.

Inefficiencies in local policies and procedures related to the maintenance of non-motorized facilities, such as with snow removal or sidewalk replacement should be addressed in order to assure the continued accessibility and safety of existing facilities.

Non-motorized transportation:

General Recommendations

- Identify gaps, barriers, safety concerns and quality of connections within the transportation system.
- Update existing sidewalk and bike route inventories to account for information related to condition of infrastructure and presence or absence of ADA compliant design features.
- Continue to develop methods and procedures for measuring the level of bicycle and pedestrian usage of facilities.
- Work to ensure stronger consideration of the needs of non-motorized users during local site design review process.
- Identify and consider alternative funding strategies or mechanisms to supplement traditional funding sources.
- Work to integrate facilities in ways that improve and encourage multimodal connections.
- Continue supporting statewide and local initiatives that focus on improving conditions of accessibility, mobility, safety and security for non-motorized users.
- Provide public education and outreach regarding bicycle and pedestrian issues.

Priority Trail Connections:

- **Munger Trail connection ("Cross City Trail") - Duluth**

Paved trail from Lake Superior Zoo (75th Ave W to Bayfront

- **North Shore Scenic Drive Pathway**

Paved trail/pathway along the North Shore Scenic Drive connecting Duluth and Two Harbors

- **Proctor & Hermantown Trails -**

Paved trail system connecting Proctor & Hermantown key points to regional trails and destinations

- **Lowell to Lakewalk Trail - Duluth**

Paved trail from Rice Lake Road (Lowell Elementary School) to Lakewalk

- **Winter Street Trail - Superior**

Paved trail from US Hwy 2/53 to Bong Bridge ped-bikeway

- **Crosstown Trail - Superior**

Paved trail from 30th Ave. to Hwy 105

- **Wisconsin Point Trail - Superior**

Paved trail extension to lighthouse

Improving Connections 2040 - Non-Motorized Transportation

SPECIFIC Issues to Be Addressing:

- Identify the missing connections to the existing trails systems, including the Lakewalk, Munger Trail, and Cross City Trail (i.e. missing curb ramps, pathways to neighborhoods, community facilities, business districts).
- Install bikeway facilities as appropriate to accommodate all levels of bicyclists.
- Explore new technologies for reducing the impact of the vertical challenge in Duluth.
- Develop a plan to complete the missing sidewalk links and reduce the barriers to cross major streets.
- Identify improvements for areas of concern for bicyclists and pedestrians, including at the following major locations:
 - Superior Street at Mesaba Ave
 - Grand Ave at I-35
 - Lake Ave at I-35