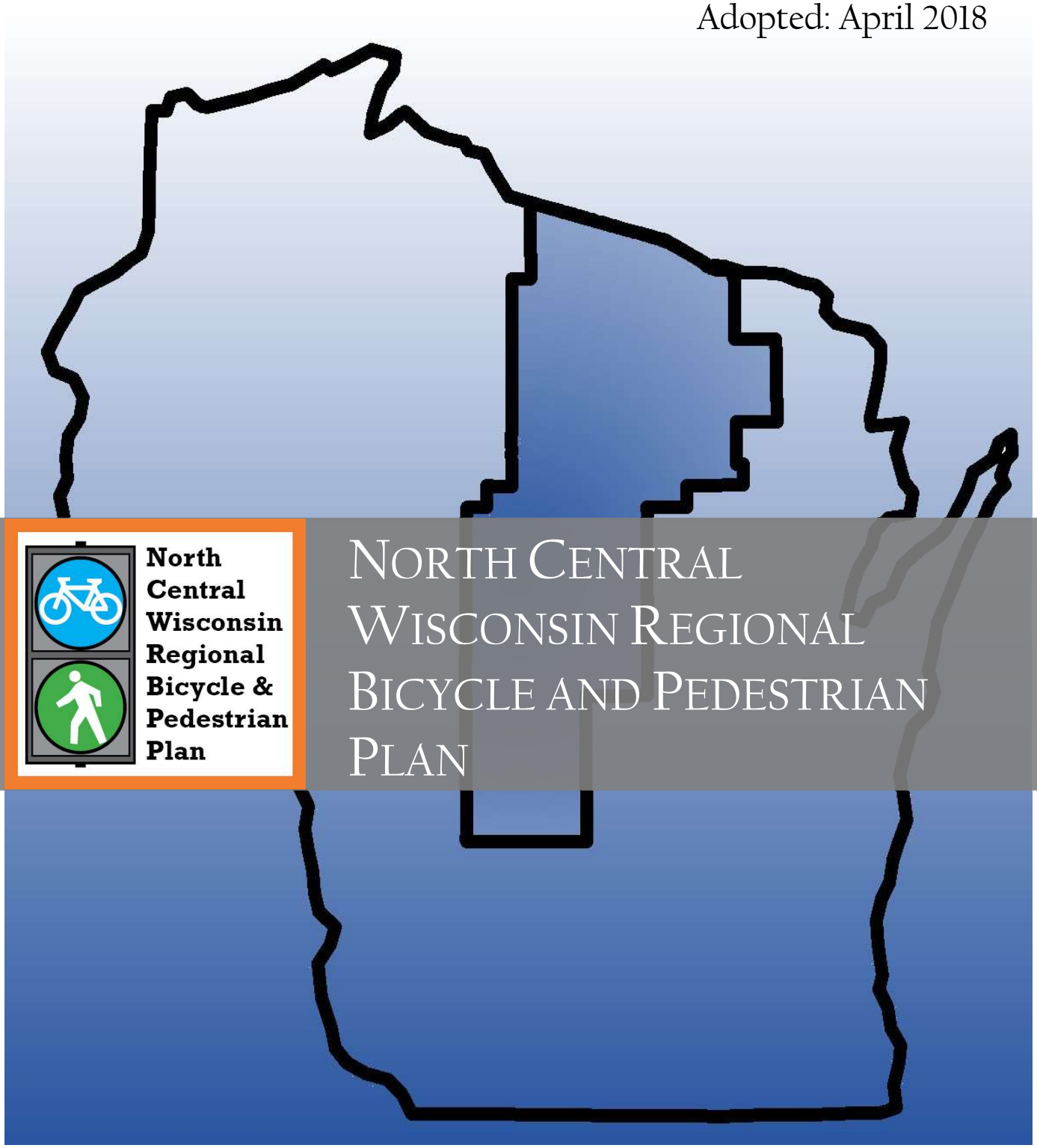
Adopted: April 2018



North Central Wisconsin Regional Bicycle & Pedestrian Plan

North Central Wisconsin Regional Bicycle and Pedestrian Plan

North Central Wisconsin Regional Planning Commission

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Marathon – Oneida – Portage – Vilas – Wood

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Chapter One: Introduction

Summary of Project Purpose, Planning Processes, Public Engagement Efforts & Results, and Plan, Vision & Goals for the North Central Wisconsin Regional Bicycle & Pedestrian Plan

Biking and walking are both important modes of transportation, whether used separately or in concert with other modes of transportation. In many small towns and rural communities, active transportation is even more common than it is in urban areas.[1]

The focus of this plan is primarily to enhance the viability of bicycling and walking as a form of transportation, and less as a form of recreation. This plan focuses on guidelines for planning bicycle facilities, with some general design information included. This plan also analyzes existing bicycling conditions and suggests routes or corridors on which to prioritize bicycling and walking improvements. Finally, the document concludes with guidance on how to use this plan.

Since 1991, the federal government has recognized the role of walking and biking and their importance as part of a balanced transportation system, specifically as mentioned in the Intermodal Surface Transportation Efficiency Act (ISTEA). The United States Department of Transportation (US DOT) and the U.S. National Safety Council also aim to end traffic fatalities within 30 years, and the Wisconsin Department of Transportation (WisDOT) has launched the Zero in Wisconsin campaign to prevent traffic deaths.

Project Purpose

The North Central Wisconsin Regional Bicycle and Pedestrian Plan is one of the first steps to implementing the Regional Livability Plan. This plan will analyze bicycle and pedestrian transportation throughout the Region, and recommend policies, programs, and facilities to improve the safety, viability, convenience, and attractiveness of bicycling and walking for transportation.

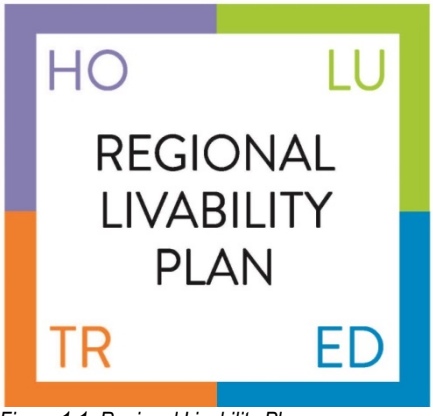


Figure 1-1: Regional Livability Plan
Source: NCWRPC, 2017

This Regional Plan is intended to bridge the gap between the largely policy-based State plans and local community planning for bicycle and pedestrian networks. Many communities and counties within our Region have invested in bicycling and walking improvements, but these improvements often end at the boundary of the jurisdictions that planned them. This Regional Plan serves as a guide to help these communities and counties connect across their boundaries to form a complete Regional network of safe walking and bicycling. According to the Federal Highway Administration:

[1] Federal Highway Administration. 2016 *Small Town and Rural Multimodal Networks.*

Many communities have invested in good places to walk or ride a bicycle. However, few smaller communities have a complete network that supports people comfortably walking and bicycling throughout the community.

A complete network creates safe, comfortable, and accessible multimodal routes for people walking and bicycling. The network may be comprised of varying facilities that appeal to a range of ages and abilities, such as shared use paths, sidewalks, and bike lanes. These facilities also provide equitable transportation for people of all income levels.

A safe and direct network provides convenient access to key destinations, while minimizing exposure to motor vehicle traffic. In addition to physical safety, user comfort is an important aspect of a multimodal network. Typically, additional separation between motor vehicles and those walking or bicycling, or slowing motor vehicles to walking and bicycling compatible speeds is desired to create a more comfortable network.

Small and rural towns have great potential for creating viable networks that serve residents and visitors. Common attributes of a small town network include connections between communities that are located along highways and access to retail businesses and schools in a relatively small area within the community core. Communities with strong ties to public lands may also prioritize connections to natural areas, and tribal communities may desire access to ceremonial sites outside of the core.[2]

Planning Process

Public Participation

Survey

A public survey was included in tandem with a Wikimapping exercise to gauge attitudes and experiences toward biking and walking amongst people in the North Central Wisconsin Region. 358 people throughout the ten-county Region responded to the survey, either alone, at workshops, or after finishing the Wikimapping exercise (detailed in the following section).

The first set of questions gauged respondents' relationships with bicycling. Some of the topline results from the survey are displayed in **Figure 1-2**.

[2] Federal Highway Administration. 2016 *Small Town and Rural Multimodal Networks.* p1-7

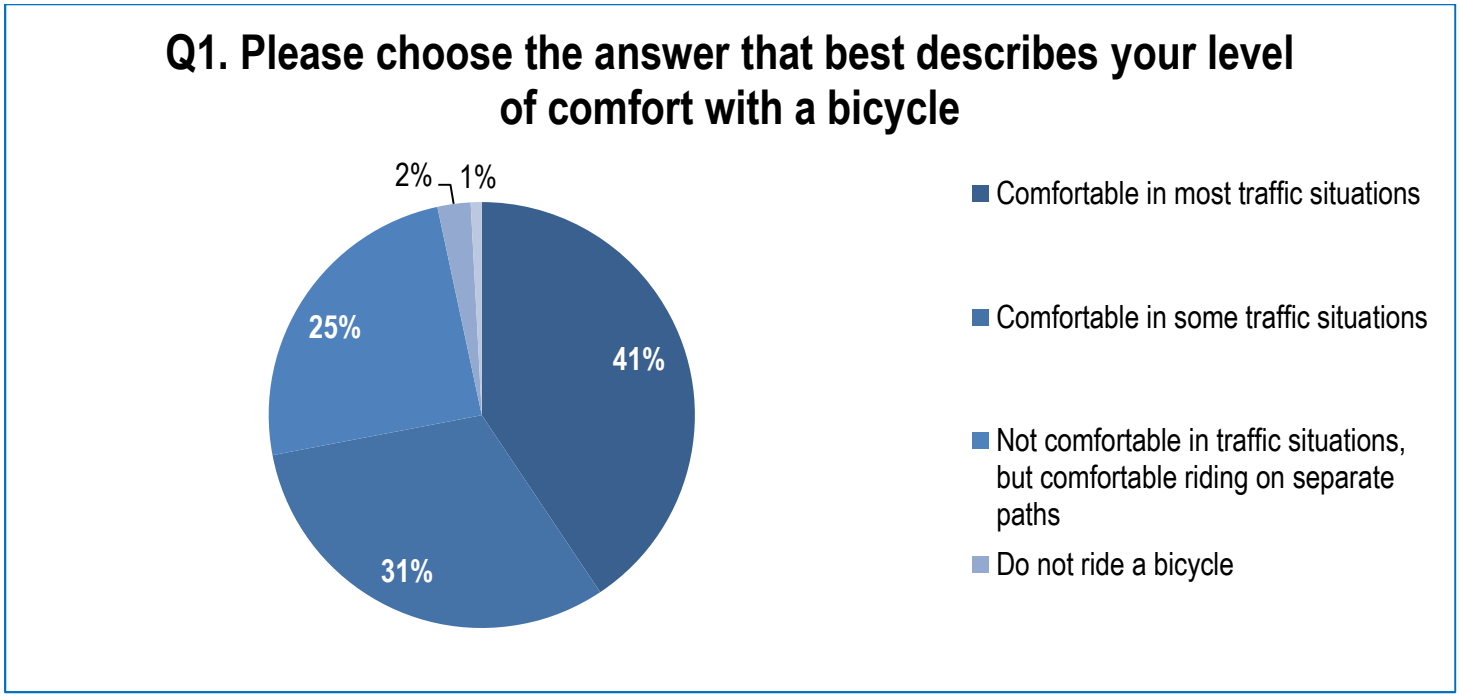


Figure 1-2: Result from Survey Question 1
Source: NCWRPC, surveymonkey.com

98 percent of respondents indicated that they own a bicycle. Of these people, over 80 percent of respondents indicated that health and fun were reasons why they rode a bicycle. Roughly one-third of respondents cited convenience and environmental impact as motivators for riding a bicycle.

Three out of five bicyclists indicated that motorist behavior was a factor discouraging them from bicycling, while half of the respondents indicated that weather conditions were a factor. 40 percent of respondents indicated poor road conditions as a primary discouraging factor, while roughly one-third indicated other discouraging factors such as destinations being too far away, safe routes being too long or indirect, and being unaware of bicycling laws. 94 percent percent of respondents indicated that they knew laws pertaining to bicycle operations either very well, or somewhat well.

Under two-thirds of respondents said that they always wore a helmet while bicycling. These questions were also gauged as applied to respondents' children, the details of which may be located in Appendix Two of this plan.

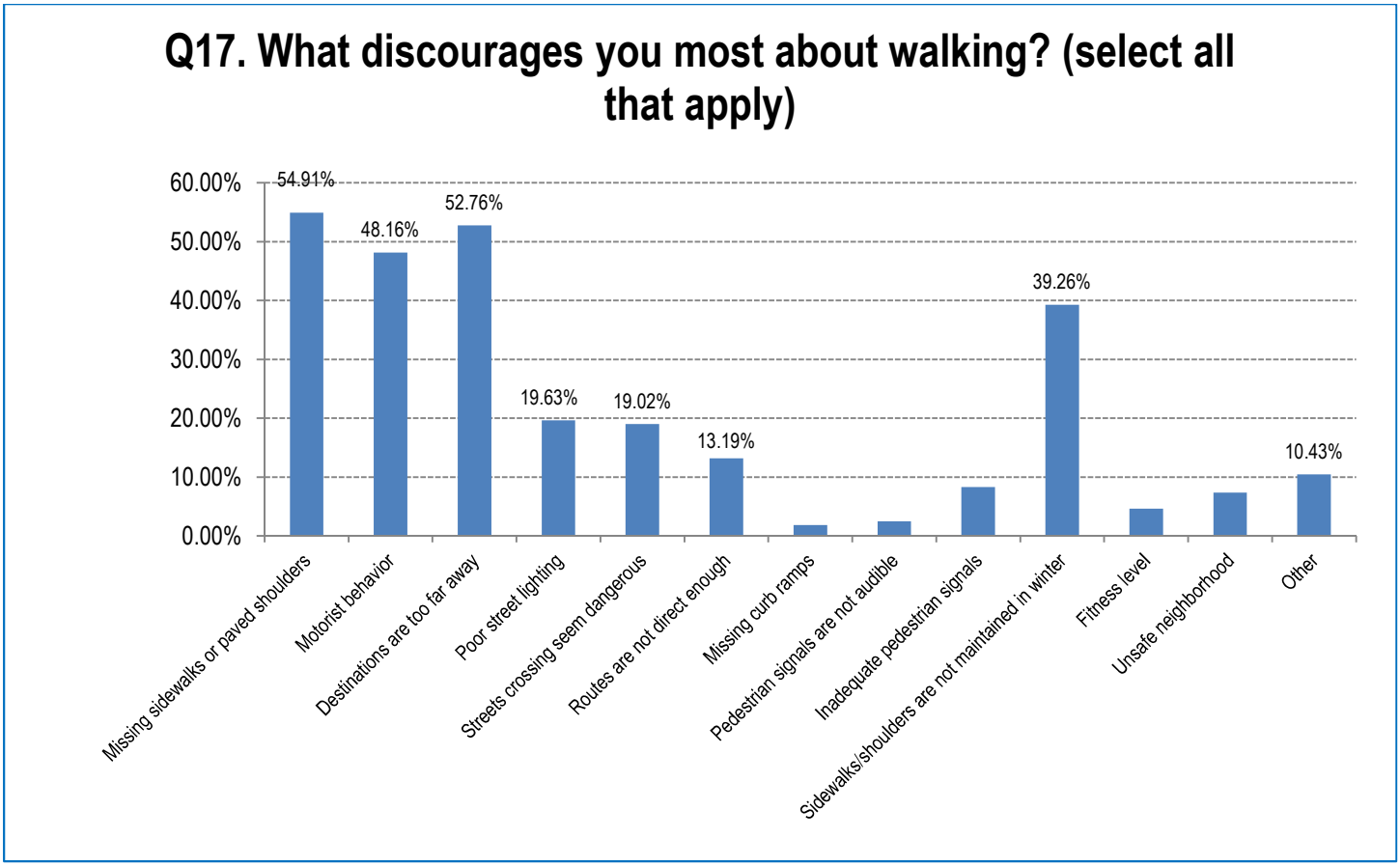


Figure 1-3: Results from Survey Question 17
Source: NCWRPC, surveymonkey.com

Respondents also answered a series of similar questions on pedestrian mobility. When gauged as to how often they walk for various purposes, about 70 percent of respondents said that they walk at least twice a week for recreation, health, or exercise. Only 12 percent said that they walk at least twice a week for commuting purposes, while 18 percent said that they walk at least twice a week for shopping and errands. Over 90 percent of respondents said that health encourages them to walk, whilst about 60 percent said that fun was a reason – 44 percent relayed that sightseeing encouraged them to walk, whilst 43 percent said that convenience encouraged them to walk. Chief discouraging factors are covered in **Figure 1-3**.

However, three out of every four respondents stated that they would walk more if safe walking routes were provided. 85 percent of the respondents gave further specificity in saying they would be willing to walk for 30 minutes on a safe route, with a significant number of those respondents indicating they would be willing to walk for even longer. Since 2012, over half of the respondents reflected that bicycling and walking in their neighborhoods had improved, while only six percent felt that conditions had gotten worse.

Wikimapping

Members of the public throughout the ten-county Region were invited to contribute and plot bicycle and pedestrian routes as well as potential issues onto an open source Wikimap, a tool for planners to easily gauge public opinion on an online, mapping format. Wikimapping helped inform this plan as to where and what type of improvements ought to be made regarding bicycle and pedestrian infrastructure.

After selecting a county or address associated with their contributions, participants had two possible ways to contribute to the Wikimap:

1. **Add a Route:** Participants had the option to draw five different kinds of routes relating to routes users enjoy, routes users think need improvement, or routes users want to see developed in the future. These routes are illustrated in **Figure 1-4**.
2. **Add a Point:** Participants were encouraged to plot points on the Wikimap indicating conflict areas, places where bicycle parking is needed, and destinations to which users can walk or take their bicycles.

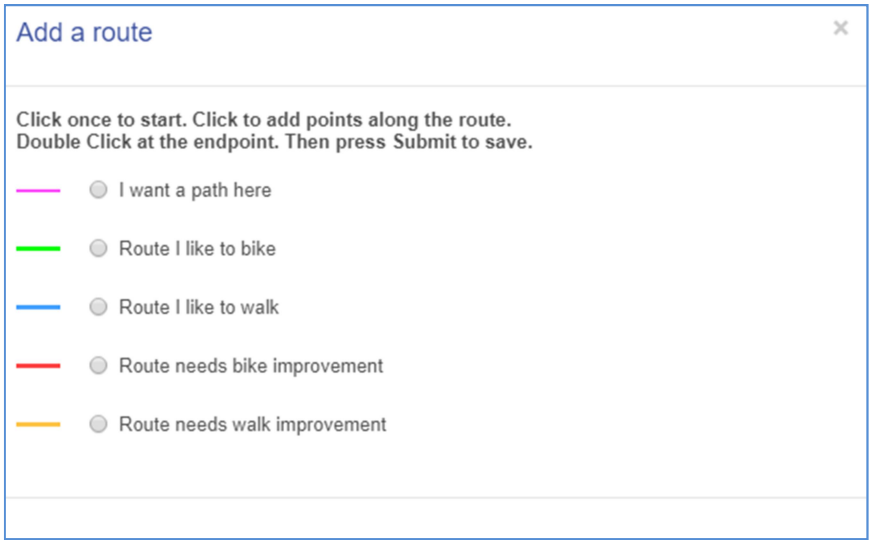


Figure 1-4: Wikimapping Options
Source: NCWRPC, 2017

Participants were also asked to complete the aforementioned 10-minute, text-based bicycling and walking survey at the end of the mapping exercise. The survey asked 26 questions about cycling and pedestrian preferences, as previously illustrated. Details from the Wikimapping exercise may be found in **Chapter Three** under discussion of connections within communities.

Regional Public Input Workshops

Three public input workshops were held across the Region to engage with North Central Wisconsin residents and discuss issues and opportunities for bicycling and walking. Workshops were held in the Town of Rome, and the Cities of Wausau and Rhinelander throughout the spring of 2017. These workshops were attended both by local residents and some participants that travelled a significant distance to participate. Participants included citizen advocates, county planning staff, trail building and advocacy organizations, bicycle industry representatives, county health departments, and many others.

These workshops included a tabletop mapping component, where participants gathered around a poster sized map of the area to discuss and mark specific opportunities or issues. These markups were then added to the Wikimapping tool to consolidate the mapping input onto one map.

A summary of the input at each workshop is provided below:

Rome Workshop

Participants were mostly from the northern Adams County/southern Wood County area, including the Towns of Rome, Saratoga, and Jackson. Participants at this workshop cited specific problem roads, such as State Highway 13, County Highways D and Z, and Apache Street. A lack of safe areas for family riding was identified, despite the many great destinations in the area. There was interest in connecting Adams County to the extensive trail system in neighboring Juneau County.

Participants from the Town of Saratoga noted that there are general plans in place, but how to implement the desired improvements is a greater challenge. There was a desire expressed for the North Central Wisconsin Regional Bicycle and Pedestrian Plan to include case studies.

Issues

- *Unsafe roads for family riding in Rome area*
- *How to get more community buy in?*
- *CTH D and Z, STH 13, and Apache Street are unsafe in the Rome area*

Opportunities

- *Great rural roads in Adams County area*
- *Possible connections to Elroy-Sparta Trail/other State trails*
- *Include case studies in Regional Bicycle and Pedestrian Plan*
- *Many great destinations in Rome*
- *Town of Saratoga has plans, but needs guidance to start implementing them*

Figure 1-5: Workshop Participants in the Town of Rome
Source: NCWRPC, 2017

Wausau Workshop

Participants in this workshop were primarily from the central Marathon County area, including the City of Wausau and the Town of Rib Mountain. Representatives from the Central Wisconsin Offroad Cycling Coalition, a mountain biking club, also attended, as well as participants from Vilas and Wood Counties.

Participants from the Wausau area generally thought that a lack of connectivity of bicycle infrastructure is the largest barrier to biking in the area. There has been some bicycle infrastructure developed recently, but much of it lacks overall connectivity. The Green Circle Trail in Stevens Point was brought up as an example of a well-connected trail system. It was noted that connectivity between communities was an issue, and in some areas in the central portion of the Region there are great municipal trail and route systems, but they end at community borders, and do not connect with each other. More connections between State and local bike routes/trails may be beneficial.

It was noted there are many overbuilt roads in the Wausau area, which both presents a barrier to biking and an opportunity to better accommodate bicycles through road diets. Participants noted local governments are hesitant to reduce road sizes, and engineers are hesitant to propose innovative solutions to improve biking and walking conditions out of fear they will be voted down. There can be resistance to new ideas or change that inhibits the improvement of bicycling and walking.

Figure 1-6: Participants listen to NCWRPC presentation at Wausau Workshop
Source: NCWRPC, 2017

It was also noted that the transportation culture in the area does not recognize biking as a legitimate form of transportation, so many motorists are not looking for bicycles and pedestrians by default. It was noted that some hold prejudices against

bicyclists, and there is a notion that bicyclists only drink water, eat granola, and visit businesses to use the bathroom. Distracted driving was a concern.

A promotion of bicycling through mediums such as billboards and television (e.g. Discover Wisconsin) was seen as helpful. More education is needed for motorists and bicyclists. For bicyclists, education may be needed to demonstrate that bike lanes and buffered bike lanes are a safe alternative to multi-use paths when off-street infrastructure is infeasible. Some mentioned that being bike friendly is essential to retaining young people in the area.

Infrastructure was seen as lacking. Participants desired more paved shoulders on rural roads and County highways. Some creativity and innovative solutions were desired, such as painted (green) bike lanes, green left turn boxes, bicycle friendly traffic lights, signals and signage, temporary speed bumps, and protected bike lanes. More safe paths are needed throughout Wausau to get across town and across the Wisconsin River. There is also a desire for connecting trails between the mountain bike parks in the Wausau area.

It was also noted that there is a lack of clarity of the role of various government and nonprofit organizations in developing bicycle infrastructure, particularly regarding what the North Central Wisconsin Regional Planning Commission can do. There was a desire for the plan to not only detail what other local governments can do to improve bicycling and walking, but also what citizens and other organizations can do.

Some participants expressed a need for help with routing and wayfinding both within and between communities.

Data was desired by organizations to demonstrate the economic impact bicycling has on a community and gain support from local governments. Funding was identified as an issue inhibiting the development of bike lanes.

Some more specific route related issues and opportunities identified include:

- *Safe bike routes to and from the Necedah National Wildlife Refuge.*
- *Routes between downtown Mosinee through old highway 51 to Knowlton.*
- *A connection from the east side of Wausau to Antigo.*
- *Connecting the Mountain Bay State Trail to the Wausau Metro area.*
- *Connections to Portage County.*
- *Connections to the Merrill area.*
- *Safe routes parallel to State Highway 29 in western Marathon County.*
- *A bypass route for Highway KK between Rib Mountain and Mosinee.*
- *Improvements to Rib Mountain Drive.*
- *Connecting Weston and Wausau.*
- *Connecting Wausau to Nine Mile County Forest.*
- *Connect Wausau to Edgar and Marshfield on old railroad grade.*

Figure 1-7: ATVs in Washburn County
Source: Washburn County Tourism Association, 2017

Issues

- *Funding/economy*
- *Community connectivity*
- *Safety of on-street bicycle routes*

- *Distracted drivers*
- *Busy roads*
- *Safe routes between Wausau and Weston*
- *Need education for motorists and cyclists on rules of the road and safety*
- *Crossings with sidewalks on one side of street forces people to cross multiple times*
- *Wausau bike system is not visitor or new resident friendly, it takes a while to learn which routes are best*
- *Law enforcement needed for speeding and right of way issues*
- *Rothschild river trail maintenance, debris*
- *Route information is inadequate throughout the whole region*
- *Need safe routes to parallel STH 29 in Western Marathon County*
- *Need safe routes to and from the Necedah National Wildlife Refuge*
- *Overbuilt roads*
- *No safe routes to get through/across the City of Wausau*
- *Lack of on/off street protected bike routes throughout Wausau metro area*
- *Avoiding bike routes on roads that don't have enough width (e.g. East Bridge Street)*
- *Existing routes not well connected*
- *Some County and local government entities not supportive*
- *Lack of data to support investments in bike infrastructure*
- *Cooperative planning with motorized uses (e.g. ATVs and off-road motorcycles)*
- *Geography limits and complicates trail development (wetlands, rivers, lakes)*
- *Resistance to change/new ideas*
- *Territoriality*

Opportunities

- *Connecting existing trails and routes together (e.g. connect the Mountain Bay Trail to downtown Wausau and the rest of the Wausau metro area)*
- *Connecting Wausau to Portage County and Merrill*
- *Multiple potential corridors for new trails*
- *Wisconsin River*
- *Connecting safe routes to and between mountain bike trails/parks*
- *Pedestrian/bicycle bridges across the (Wisconsin) river to connect Wausau's east riverfront trail with the west side river trail*
- *Easy to follow signage*
- *Connecting trails in the Wausau area*
- *Bike lanes on Thomas Street*
- *Drivers education training requirements/opportunities*
- *Law enforcement*
- *Connect Wausau to Nine Mile County Forest*
- *Using old railroad grade to connect Wausau to other communities (e.g. Edgar and Marshfield)*
- *Road diets on overbuilt roads*
- *Education for cyclists on safety and how to use existing bicycle infrastructure (buffered bike lanes and bike lanes)*
- *More creative solutions, such as green paint in the intersections and on bike lanes, green left turn lanes, and unique road designs*

Figure 1-8: Birch Street Bike/Ped Bridge in Weston
Source: Becker Communications, bicyclewausau.org

- *Connect downtown Mosinee to Knowlton*
- *Promotion of bicycling in the area in general through billboards, television (e.g. Discover Wisconsin)*
- *Connect Wausau to Antigo*
- *Open Streets events*
- *Bike specific traffic lights, signage, and lane markings*
- *Connecting local routes to State routes*
- *Speed bumps to discourage drivers on routes*
- *Bike friendly communities better retain young people*
- *Cooperative planning with motorized uses (e.g. ATVs and off-road motorcycles)*
- *Diversity of expertise*
- *Seasonal residents*
- *Cooperation with WISDOT and WDNR to fulfill mutual goals*
- *Using NCWRPC for planning assistance*
- *Trillium Trail to connect Rib Mountain to Mosinee*
- *Including case studies/examples in the Regional Bike and Ped Plan*
- *Regional tours such as GRABAAWR*

Rhinelander Workshop

Many participants were from the Rhinelander area, with some traveling from Vilas County. There was general agreement that there are some very nice roads for riding around the Rhinelander area, but they are broken up and disconnected by high volume/high speed roads that have no alternative routes. There are many destinations in the area and people would like to travel between communities for shopping or recreation, but often the only connecting link is not bicycle or pedestrian friendly. There are also people that are unable to walk or bicycle from their house because the roads feel unsafe. There are many non-profit groups in the Oneida and Vilas County areas, but there is not always support from local or County governments.

Bicycle and pedestrian facilities were seen as economic, health, and safety drivers, as well as environmentally friendly. They were also seen as essential to the quality of life in a community.

Issues

- *No connectivity across Highway 8 or among town roads in the Town of Armstrong Creek in Forest County.*
- *Towns need assistance getting bike/pedestrian trails planned, approved and funded.*
- *Towns need assistance working with other governmental units (State/County) to improve roads and pave shoulders when road work happens.*
- *The cost of bridge construction is a factor in off-road trails.*
- *Perception that ATV benefits outweigh bikes.*
- *People must bike in the travel lane on USH 8 between Woodboro and Rhinelander.*
- *Highway K has so much bicycle and pedestrian traffic that it needs to have a large shoulder.*

Figure 1-9: ATV Operators on State Trails
Source: Wisconsin DNR, 2017

- *Improvements are needed all along 47 from Rhinelander to Lake Tomahawk and Minocqua, all along 17N at least to Sugar Camp, and along Highway A from Sugar Camp to Three Lakes.*
- *No connector to technical college in Rhinelander.*
- *Rhinelander is isolated from surrounding areas.*
- *Attempts improve trail connectivity have failed due to lack of County support, despite local support.*
- *Public funding increasingly difficult to get.*

Opportunities

- *Including the plans for the Ice Age Trail in the Regional Bicycle and Pedestrian Plan.*
- *Include bicycle and pedestrian signage on town roads similar to routes in Armstrong Creek.*
- *Trails through national forests: Forest County is over 50 percent federal forest land.*
- *Expanding family-friendly, off-road paths within existing right of ways should be a statewide priority. This helps bikers, walkers, parents with kids in strollers, mobility assistive devices. The justifications are safety, environmental, economic, and health.*
- *Connecting the Newbold Trail to Lake Tomahawk and to Clear Lake Trails and campgrounds.*
- *Adding shoulder width on short parts of some County highways (e.g. CTH C, K and G) in the Rhinelander area could greatly improve the connectivity among the town roads.*
- *Template with specific information for a County or possibility of connecting adjacent counties.*
- *There needs to be a marketing and distribution plan along with the Regional Bike and Pedestrian plan to distribute the findings and plan to county extension offices, libraries, bike groups, and news outlets. The plan should be presented at town boards, county boards, regional meetings, and larger associations (e.g. Realtors Associations due to increased property values that come with bike trails).*
- *The Regional Bike and Pedestrian Plan will be very valuable to groups and individuals trying to develop biking infrastructure.*
- *Include established definitions of terminology to clarify the language of bike routes, trails, lanes, etc.*
- *Bearskin Trail.*
- *Include template presentation with plan for local organizations to use.*
- *Private funding is increasingly important.*
- *Connect Rhinelander to Crandon using existing rail corridor.*

Other Comments

Other comments submitted indicated a desire for a road or path between Evergreen Road and Brokaw along the Wisconsin River.

Draft Plan Review

The draft plan was sent to a number of key individuals around the Region for review and comment. Among the reviewers were county highway commissioners, planners, health departments, parks & recreation directors, and others. Several letters were received highlighting their issues with the plan, see **Appendix Six**. Note that subsequent revisions to the document have affected page numbers. The NCWRPC defers to local officials and plans when it comes to determining ultimate placement of bicycle and pedestrian routes, and necessary facility improvements. The NCWRPC plan only makes advisory suggestions for building out the bicycle and pedestrian network.

Benefits of Walking & Bicycling

The potential benefits of biking are significant and help to justify the expenditure required to develop a comprehensive, safe, and attractive bicycle network throughout the Region. The public recognizes the benefits of biking beyond its recreational values on a national, State, regional, and local level. Broadly categorized, these benefits include the following factors.

- ***Transportation:*** *General transportation benefits of bicycling include a wider range of transportation choices, reduced congestion, decreased need for parking, and the implementation of safety improvements that benefit all roadway users. Biking is among the most efficient modes of transportation in regards to operation, development of facilities, and maintenance.*
- ***Health and Fitness:*** *Bicycling is among the best forms of exercise and can therefore effectively enhance the health of individuals and the communities.*
- ***Recreation:*** *Paths developed for bicycling provide recreation opportunities.*
- ***Economic:*** *Bicycling translates into tourism. WisDOT has targeted bike touring and trail riding as high potential tourism activities since the 1980s, and has recently added mountain biking to that list. The State annually distributes over 50,000 Wisconsin bike maps. Several studies of State trail-related expenditures have been conducted showing expenditures ranging from $33 to $49 per person per day.*
- ***Social:*** *Bicycing stimulates the social interaction of families and community. Trails can help provide a sense of place and a source of community pride.*
- ***Quality of Life:*** *The extent of bicycing in a community has been described as a gauge of how well it is advancing its citizens' quality of life. Streets that are busy with bicyclists are considered environments that work at a more human scale and foster a heightened sense of place. These benefits are difficult to quantify, but when asked to identify sites that they are most proud of, residents often name spots where bicycling is common, such as a popular bikeway or riverfront project.*
- ***Environmental:*** *Biking consumes no fossil fuels and does not contribute to noise or air pollution. Further, careful development of off-road facilities can protect and enhance natural resources.*

Significant overlap exists between these benefits. One benefit can often build upon another. For example, quality of life is an increasingly important factor in attracting and retaining businesses in a community, and trails are important contributors to quality of life. Recreational amenities are top items sought by corporations bringing jobs to communities and supporting other businesses. By enhancing the Region's quality of life through the development of trail corridors, economic benefits may also be achieved. Another example of potential economic gain for a community would result from the health and fitness benefits of trails. The health improvement due to increased outdoor exercise can help control medical costs over the long term.

Implementing this plan can bolster all of these benefits across North Central Wisconsin, and increase the number of miles of trail throughout the Region.

Plan Vision & Goals

The objective of this plan was to document the activities and facilities needed to establish a bicycle route system for the North Central Region of Wisconsin. To guide this process and other public and private activities that might influence the public's use and enjoyment of the trails, a number of goals were identified that should be considered as the public and private sectors carry on activities that might affect the trails. It is hoped that these goals will be reviewed and consulted when issues that affect the trail system arise; and attempt to resolve these matters in a way that the public's use of the system is enhanced.

The following goals regarding the Regional trail system are an essential part of this plan and should be considered by local, County, State, and Federal agencies when undertaking activities related to the trail system:

- ***Mobility:*** *The Trail System should enhance bicyclists' ability to get around the Region by including access to key destinations such as schools, parks, retail areas, and other public facilities.*

- ***Functionality:*** *New off-road routes, improved existing street routes, signage and marking, and route promotion should be combined to function as a system that is easy and desirable to use.*

- ***Safety:*** *Every bicyclist and pedestrian in the North Central Region deserves a system that is safe for travel. Improving bicyclist and pedestrian safety was a top priority of the 2004 North Central Wisconsin Regional Bicycle Facilities Network Plan.*

- ***Connectivity:*** *The Trail System should provide a seamless transportation system on multiple levels including: internally to all areas of a community; externally to outlying neighbors around the Region; and becoming part of the bigger picture of a statewide trails network.*

Chapter Two: Background & Inventory

Inventory of existing bicycle and pedestrian plans throughout the ten-county Region, crash and safety analyses, factors affecting bicycle and pedestrian mobility & demographic and travel information pertaining to North Central Wisconsin

Existing Plans

Bicycle & Pedestrian Plans

North Central Wisconsin Regional Bicycle Facilities Network Plan, 2004

The North Central Wisconsin Regional Planning Commission (NCWRPC) created this plan in 2004 to guide the development of bicycle facilities in North Central Wisconsin. The vision of this plan was to increase the mobility of people within the Region by making the bicycle a more viable and attractive transportation choice. The plan's purpose was to strengthen the rural character of the Region by connecting natural and cultural resource destinations and by connecting communities, which also would have positive economic development effects from tourism.

Wisconsin DNR Trail Network Plan, 2003

The Wisconsin Department of Natural Resources (WNDR) created this plan in 2003 to identify the current network of trails throughout the State, and provide strategies for using limited financial resources to acquire properties to foster and expand the trail network. The focus of the plan is a broad, regional view of recreational trails while acknowledging other statewide plans from WisDOT, and local trail plans from counties and municipalities. An update to the trails network plan is underway as of 2018.

Figure 2-1: Wisconsin Trails Network Plan, 2003
Source: WDNR, 2003

Wisconsin Bicycle Transportation Plan 2020

WisDOT and the State Bicycle Plan Advisory Committee completed the Wisconsin Bicycle Transportation Plan 2020 in 1998 to affirm the State's role in providing an efficient bicycling system and to provide assistance in anticipated growth in biking across the State of Wisconsin. The plan conducted an inventory of then-current bicycling conditions and highlighted potential benefits and impacts of biking. The plan then explored in detail bicycle safety education and enforcement, and then broke guidelines and recommended objectives and policies into two elements – Intercity (rural), and urban/suburban.

Wisconsin Pedestrian Policy Plan 2020

Four years after the adoption of the statewide bicycle plan, WisDOT adopted the Wisconsin Pedestrian Policy Plan 2020 in 2002 to foster pedestrian safety and comfort levels throughout the State. The plan provides a blueprint for cost-effective and achievable facility and policy recommendations through an inventory of then-current conditions and trends in pedestrian mobility throughout Wisconsin, and a comprehensive summary of pedestrian concerns and levels of programs, plans, and laws throughout the State pertaining to pedestrian mobility.

Adams County Pedestrian Policy Plan, 2013

This plan was developed by the NCWRPC with guidance from an advisory group of citizens and oversight provided by the Adams County Highway Committee. Adams County and community leaders alike recognized that bicycle and pedestrian travel are viable forms of transportation in the county. In addition, they understood that there are other important benefits to be had when bicyclists and pedestrians can travel safely and conveniently within and between communities in Adams County.

Figure 2-2: Adams County Bicycle & Pedestrian Plan, 2013
Source: NCWRPC, 2013

The existing conditions report found that town roads were often the most suitable for bicycle routes, as they had low traffic volumes and paved surfaces. Off-road bicycle and pedestrian facilities were uncommon in the rural areas of Adams County. The only extensive sidewalk network was in the City of Adams. There are several recreational trails open to the public in some of the State natural and wildlife areas. A proposed bicycle facilities map shows where walking and bicycling facility improvements are needed. A number of facility improvement proposals are included, including an off-street path on STH 13 on a southern segment in the County.

Langlade County Citizen Bike Route Initiative Plan, 1999

The Bike Route Initiative originated as a part of a movement to "Build a Healthier Langlade County." In April of 1998, a community-wide meeting was called to inquire about this project with over 30 Langlade County residents attending. The group determined that it was in their best interests to identify a bike route system for the enjoyment of recreation. The NCWRPC assisted with this planning effort.

The bike route plan identified scenic bike routes in the County. The routes were analyzed using appropriate methodology and local knowledge of road conditions, and included both street and mountain bike routes. On-street bicycle routes were identified throughout the County while mountain bike routes are contained in the Jack Lake/Memorial Park area in the north central part of the County.

Six route systems were determined by the committee and received extensive public input. Five were on-street routes. Route systems were identified by themes, such as a river route or a route in Antigo. For each route, trailhead, route lengths, conditions, skill level, and natural resource characteristics were cataloged.

For the sustainability of the bike route system several recommendations were developed, including community bicycle education, signage for route and safety information, improved route road shoulders, and funding.

Oneida County Countywide Biking & Walking Routes & Trails Plan, 2010

This plan was prepared for the Oneida County Biking and Walking Trails Council (OCBWTC) to update past planning efforts and to establish new future priorities for trails and routes that connect people to destinations such as employment centers, schools, residential districts, recreation areas, and commercial retail areas.

With the assistance of the NCWRPC, the OCBWTC worked to compile a number of previous plans and maps of potential routes and trails in Oneida County, including the Oneida County Trails Map that incorporated known bicycle routes with the existing county trails map. The plan also collected and consolidated proposed trails from the Oneida County Outdoor Recreation Plan, the Oneida County Pedestrian and Bicycle Corridors Plan, the Rhinelander Area Pathways Project, and the Rhinelander Riverfront Redevelopment Plan. Over 22 proposed trails and routes were cataloged from this update and each trail/route was ranked for development priority based on safety, support, gap closure, connection, timing, feasibility, and visibility.

Portage County Countywide Bicycle & Pedestrian Plan, 2014

In the late 1990s, the Village of Plover and the City of Stevens Point adopted the Metropolitan Area Bicycle/Pedestrian Plan to enhance conditions for walking and bicycling in the urbanized part of Portage County. While the plan was not fully implemented, in 2010, County officials recognized the need to create a Countywide Bicycle & Pedestrian Plan to better connect the urban areas to the surrounding towns, villages, and various parks. In addition to strengthening urban and rural bicycle and pedestrian connections, goals of the plan included:

1. Increasing the bicycle and walking commute mode share across the County.

2. Enhancing intergovernmental cooperation and coordination of transportation facilities.

3. Creating and providing opportunities for evaluation and assessment of the plan and to monitor the implementation of the plan.

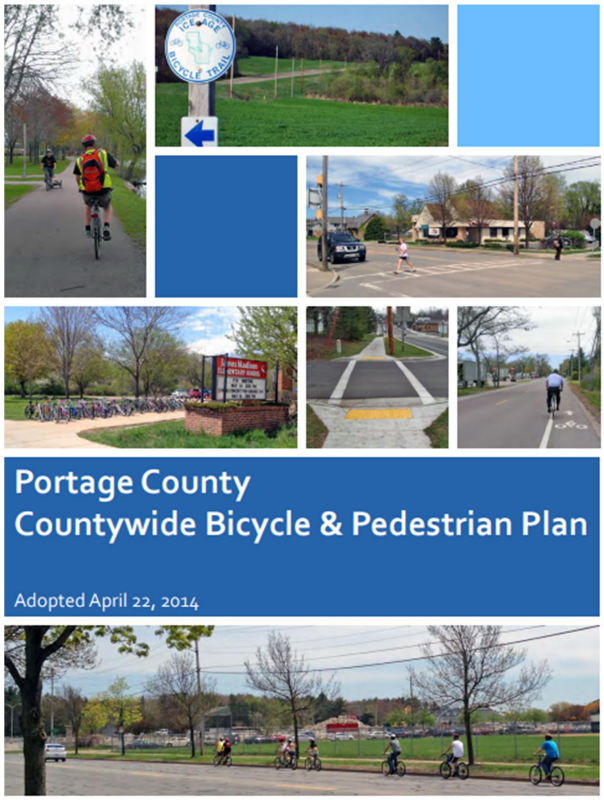


Figure2-3: Portage County Countywide Bicycle & Pedestrian Plan, 2014
Source: Portage County, 2014

Vilas County Countywide Bike/Ped Route & Trail Plan, 2011

The Vilas Area Silent Sports Association (VASSA), in conjunction with the local area trail groups around Vilas County, prepared this plan to establish a fresh blueprint for its efforts and the efforts of other agencies and organizations with intersecting trails and routes within the County. The trails and routes recommended within the plan would connect people to destinations such as employment centers, schools, residential districts, recreation areas, and commercial retail areas.

With the assistance of the NCWRPC, VASSA worked to find ways to interconnect a number of existing trails in Vilas County. These include the Boulder Junction Area Trail System, the Manitowish Waters Area Alterative Transportation System, the Wilderness Lakes Trail System, the Great Wisconsin Headwaters Trail System, and other routes being planned throughout the County. Proposed routes were reviewed by various stakeholders. New and developing projects were also incorporated and potential solutions for gaps in the proposed network were identified and mapped where possible.

Twelve possible routes and trails were determined, and a number of improvements were proposed such as shared roadways, improved shoulders or bike lanes, and off-road bike paths or trails. These were ranked in priority based on safety, support, gap closure, connection, timing, feasibility, and visibility.

Wood County Bicycle & Pedestrian Plan, 1995

The Wood County Transportation and Economic Development Committee sponsored the update of the 1980 Bicycle Facilities Plan for Wood County in 1993. The goal of the plan was to develop a safe, convenient, and cost-effective bicycle and pedestrian system that increased transportation choices and recreational opportunities, while capitalizing on the natural and cultural resources in the County.

The existing conditions report found that on the countywide level, bicycle accommodations for routes had been made as many of the newly constructed County highways near urban areas had five foot wide paved shoulders. However, in the urbanized areas, such as Wisconsin Rapids and Marshfield, facilities were relatively sparse for bicyclists. Pedestrian infrastructure, including sidewalks and crosswalks, had been developed in most of the urbanized areas, with the exception of new subdivisions. Throughout this process, a number of on-road routes were proposed and a number of possible pedestrian/bicycle routes were identified connecting smaller rural communities.

City of Merrill Bicycle & Pedestrian Plan, 2015

This citywide plan was developed by the Merrill Bike & Pedestrian Advisory Group with the assistance of the NCWRPC. The city had a number of advantages in creating a walkable and bicycle friendly community, including a scenic downtown, historical residential neighborhoods, short distances to destinations, and a flat topography. However, pedestrian and bicycle infrastructure improvements were needed.

The vision of the advisory group was for children and adults to safely bicycle and walk throughout Merrill for daily trips and recreational purposes. To achieve this, the plan recommended a number of policies and actions. These included creating a sidewalk, community education, enforcement of current traffic laws, infrastructure improvements such as bicycle parking, route wayfinding signs, ADA compliance, and road dieting.

Schofield Bicycle & Pedestrian Plan, 2016

The Schofield Bicycle and Pedestrian Plan was prepared to guide the designation of streets as bike routes and recommended corridors where off-street non-motorized multi-use trails could be developed. The Wausau Metropolitan Planning Organization (MPO) Bicycle and Pedestrian Plan recognized Schofield as an important place to link bicycle routes as there are few alternatives in the urbanized area. In addition to on-street routes designated by the MPO, the city envisioned the development of an off-street trail connecting to Weston in the east and to Rothschild and the Wisconsin River Bike Ped Bridge in River Street Park going south and west.

Figure 2-4: City of Schofield Bicycle & Pedestrian Plan, 2016
Source: City of Schofield, 2016

Village of Rothschild Trails Plan, 2004

The Rothschild Trails Plan was inspired by the Wisconsin River pedestrian/bicycle bridge construction in 2005 between the Town of Rib Mountain and the Village of Rothschild's River Street Park in the larger Wausau metropolitan area. The bridge would provide the only non-roadway crossing of the river in the region. This would give the village a unique opportunity to accommodate bicyclists, pedestrians, and other non-motorized travelers. However, these modes of transportation had not been historically prioritized in the village.

The goal of this document was to create a trail plan that focused primarily on off-road facilities to increase safety, usage, and enjoyment of active modes of transportation. As the pedestrian/bicycle bridge over the Wisconsin River was the catalyst for the plan, many of the six proposed trail segments originate from the bridge's location and link to important community attractions and residential areas. These include a proposed 1.2 mile route to the Rothschild/Schofield Aquatic Center, a 2.0 mile southern trail to the Cedar Creek Mall area, and a linkage to the Mountain Bay Trail.

Wisconsin Rapids Ahdawagam Trails

The City of Wisconsin Rapids Trail Plan consists of a map detailing five on-street routes. The recreational system, called the Ahdawagam Trails, is a combination of dedicated, paved, off-street trails and city streets where paint markings designate restricted bike lanes. This trail system encompasses approximately 21 total miles of trails.

Special Area Plans

Bicycle & Pedestrian Plan for the Non-Urbanized Area of Marathon County, Wisconsin, 1996

Prepared for the Marathon County Planning Department and the WisDOT District Four Office, the Bicycle and Pedestrian Plan for the Non-Urbanized Area of Marathon County focused on increasing the number of trips by foot or bicycle and improving the safety for these modes of transportation in the rural areas of Marathon County. This guide included descriptions of a number of pedestrian and bicycle infrastructure facilities and community education improvements. In addition, the plan mapped out several possible bicycle on-street routes throughout the County.

Ice Age National Scenic Trail: Corridor Plan & Environmental Assessment for Marathon County, Wisconsin, 2013

Prepared by the National Park Service, the WDNR, the Ice Age Trail Alliance and NCWRPC, this plan and assessment analyzed alternatives for locating and developing the Ice Age National Scenic Trail throughout Marathon County and proposed the implementation of a preferred alternative. Depending on the route, the Marathon County portion of the completed Ice Age National Scenic Trail would be 40-45 miles. Approximately 16.5 miles of trail exist in the County between the Village of Hatley and the Plover River State Fishery Area today.

Figure 2-5: Ice Age Trail Alliance Logo
Source: Ice Age Trail Alliance, 2017

The "preferred" alternative had the potential to link three STate fishery areas, a State natural area, two County parks, several Town parks, and the Mountain Bay State Trail. It also passed through or near the communities of Hatley, Pike Lake, Galloway, and Ringle. Collectively, these areas would provide support facilities such as trailheads, parking, water, lodging, and phones. Among the resource features found within the corridor would be extensive upland and lowland forest communities, wetlands, ground flora characteristics of both northern and southern Wisconsin, and unique riparian communities associated with the Little Wolf, Plover, and Eau Claire Rivers. Well-placed overlooks could potentially provide the public with scenic views of the glacial landscape.

Ice Age National Scenic Trail: Corridor Plan & Environmental Assessment for Southern Langlade County, Wisconsin

Similar to the corridor plan for Marathon County, this plan for the Ice Age National Scenic Trail also proposed a preferred alternative. This alternative provided the potential to link a number of public properties including four State fishery areas, the Steffen Memorial Forest, the County Gun and Bow Range, Mueller Lake Park, and several other local parks. It contained the communities of Polar and Elmhurst, with the City of Antigo located immediately north of the proposed corridor. Collectively, these areas may provide support facilities such as trailheads, parking, food, water, lodging, and phones. The corridor encompassed an intricate patchwork of native woodlands, pine plantations, cropland, open grasslands, and wetland areas. Among the natural resources found within the corridor were a white cedar-dominated seepage swamp, spring ponds, outstanding trout streams, springs, and deep kettle lakes. Similar to the corresponding Marathon County plan, well-placed scenic overlooks could provide dramatic views of the expansive Antigo Flats and the Parrish and Summit Moraines beyond.

Rhinelander Area Pathways Project, 2003

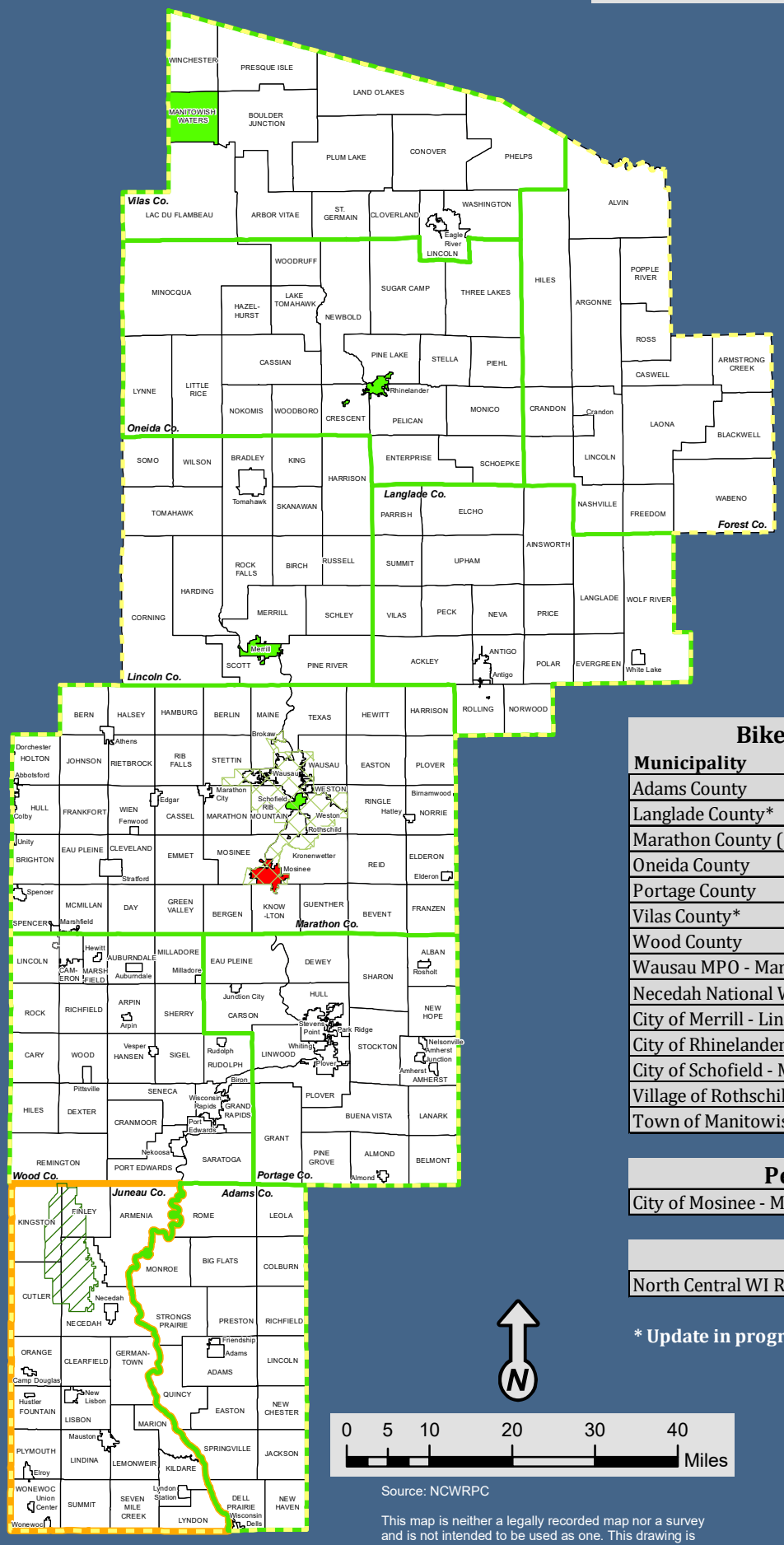
The NCWRPC created this non-motorized transportation plan for the greater Rhinelander area. The plan details pathways throughout the urban area for all forms of non-motorized transportation, from traditional methods like walking and biking, to less conventional transportation modes such as roller blades and wheel chairs. The illustrated corridors in this plan connect these forms of transportation to the Oneida County Trail System, and to key employment, recreational, commercial, and residential destinations.

Wausau MPO Bicycle & Pedestrian Plan, 2015

The Wausau Metropolitan Planning Organization Bicycle and Pedestrian Committee created the Wausau MPO Bicycle and Pedestrian Plan in 2009 (it was later updated in 2015). The updated plan identified the current conditions in the area and then identified and recommended solutions to the issues regarding bicycle and pedestrian accommodations in the metro area through the use of a traffic safety analysis, traffic street analysis, and demand analysis.

Since the adoption of the first plan, a number of on-street bicycle routes have been established in the MPO region. However, both minor and major infrastructure improvements are needed to increase the comfort of riders. Additionally, a number of priority improvement areas for pedestrians were identified, including downtown Wausau, Bopf and West Thomas Streets, the Steward Avenue corridor, the Schofield Avenue Corridor, and the Business 51 (Grand Avenue) Corridor.

Bike and Pedestrian Plan Status 1



Legend

- Minor Civil Divisions
- Counties with NO Plans
- Regional Bike and Pedestrian Plan
- County Bike and Pedestrian Plan
- County Plan Under Development
- Necedah National Wildlife Refuge
- Wausau MPO
- Bike and Pedestrian Plan
- Pedestrian Plan Only

Bike and Pedestrian Plans

Municipality	Year of the Plan
Adams County	2013
Langlade County*	1999
Marathon County (Non-Urbanized Area)	1996
Oneida County	2002 & 2010
Portage County	2014
Vilas County*	2011
Wood County	1995
Wausau MPO - Marathon County	2015
Necedah National Wildlife Refuge	2004
City of Merrill - Lincoln County	2015
City of Rhinelander - Oneida County*	2003
City of Schofield - Marathon County	2016
Village of Rothschild - Marathon County	2004
Town of Manitowish Waters - Vilas County	2009

Pedestrian Plan Only

City of Mosinee - Marathon County	2002

Bike Plan Only

North Central WI Region	2004

*** Update in progress**

Source: NCWRPC

Prepared By:
North Central Wisconsin Regional Planning Commission
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Outdoor Recreation Plans

The NCWRPC prepared the following plans for five-year time horizons within the past decade to assess and inventory the existing outdoor recreation system throughout communities in the Region. The plans feature detailed recommendations to address future needs of the outdoor recreation system.

Having active outdoor recreation plans establishes eligibility for counties and their municipalities for aid programs from the State and Federal governments to add facilities and purchase land for outdoor recreation and planning, and to qualify for conservation and stewardship grants including the Federal Land and Water Conservation Fund (LWCF), and the Wisconsin Stewardship Grant. The NCWRPC completed outdoor recreation plans with the following communities:

- *Adams County*
- *Forest County*
- *Juneau County*
- *Langlade County*
- *Lincoln County*
- *Oneida County*
- *Vilas County*
- *City of Mauston*
- *City of Merrill*
- *City of Schofield*
- *City of Wisconsin Rapids*
- *Village of Kronenwetter*
- *Village of Rothschild*
- *Town of Rib Mountain*

Safe Routes to Schools Plans

Safe Routes to School (SRTS) programs are an opportunity to make walking and bicycling to school safer for children in grades K-8, and to increase the number of children who choose to walk and bike. On a broader level, SRTS programs can enhance children's health and well-being, ease traffic congestion near schools, and improve community members' overall quality of life. As of the spring of 2017, ten school districts in the Region have completed Safe Routes to School Plans. SRTS plans for the D.C. Everest Junior High School and Rib Mountain Elementary were created internally, and were not available for review.

Figure 2-6: Wisconsin SRTS
Source: WisDOT, 2017

Wisconsin's SRTS Program is administered by WisDOT. The program provides assistance to local communities to create and administer SRTS Programs and fund SRTS projects. Infrastructure-related projects must be within 2-miles of an elementary or middle-school; eligible projects include such items as sidewalk improvements, crosswalks, and signage. Funds are also available for non-infrastructure projects such as SRTS Plans, education materials, encouragement programs, and public awareness campaigns. Grants are awarded through a statewide competitive application process.

City of Marshfield Safe Routes to School Plan, 2008

The Safe Routes to School Plan for the City of Marshfield was fully funded by WisDOT. The Marshfield Task Force was comprised of representatives from the schools, school district, and city, as well as parents, interested citizens, and others. This committee met at key benchmarks during the process to oversee preparation of the plan and provide direction for policy development. To supplement attitudinal data, a walking and biking audit was conducted for areas within a ½ mile radius of each participating school in November 2007. The audit was performed by a number of volunteers and was facilitated by Wisconsin Walks, Inc. Primary issues identified included the lack of sidewalks in many locations, lack of traffic controls, and difficult pedestrian crossings. The city applied for and was ultimately awarded SRTS funds for infrastructure projects based on the plan's recommendations.

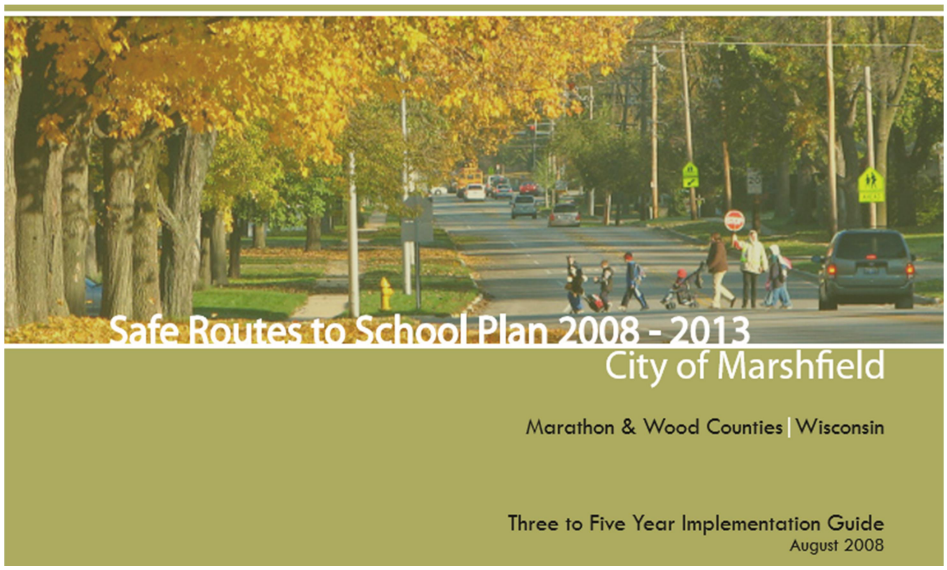

Figure 2-7: Marshfield SRTS, 2008-2013
Source: City of Marshfield, 2008

Antigo Safe Routes to School Plan, 2010

In the spring of 2008, the Antigo SRTS Task Force pursued a WISDOT SRTS planning grant. By winning the grant, they were able to begin SRTS planning with the assistance of NCWRPC, and NCWRPC guided the Antigo SRTS Task Force through the planning process. The Unified School District of Antigo participated in the SRTS planning process, including Antigo Middle School, North Elementary School, East Elementary School, and West Elementary School. Recommendations from the study included motorist education, encouragement of walking and biking, enforcement of vehicular laws, and bicyclist education. The plan was adopted in June 2010.

Wisconsin Rapids Safe Routes to School Plan, 2010

The City of Wisconsin Rapids and the Wisconsin Rapids Schools created a SRTS Task Force a year before applying for a planning grant. Five Wisconsin Rapids schools participated in the SRTS Task Force in 2008. These schools included Grove Elementary, Howe Elementary, Pitsch, Mead Elementary, and Washington Elementary School. The plan was adopted in June of 2010 and the task force aimed to have ten percent of students walking or bicycling to school by the fall 2008 as several outreach efforts had already occurred. The city applied for and was ultimately awarded SRTS funds for infrastructure projects based on the plan's recommendations.

Almond-Bancroft Safe Routes to School Plan, 2012

In the spring of 2010, the Almond-Bancroft SRTS Task Force applied for a WisDOT SRTS planning grant. This process produced a plan that would enable the district to apply for State SRTS implementation money. The elementary and middle schools were a part of the SRTS planning efforts, including both Bancroft Elementary and Almond Elementary. The walk audit around the schools found that the top three reasons parents did not allow walking to biking to school were distance, traffic speeds, and weather. Heavy traffic was the fourth most common reason. The plan was adopted in April of 2012.

Rhinelander Safe Routes to School Plan, 2010

The Rhinelander SRTS study started after the City and the School District joined together to see where pedestrian issues existed throughout the city. The parochial schools also participated in the task force. In the fall of 2010, student tallies and a parental survey were conducted to determine how students were getting to school and what issues were holding back parents from allowing their children from walking or biking to school. Future progress will be compared with both sets of data. After the study was completed the plan was adopted in 2012.

Three Lakes Safe Routes to School Plan, 2010

In 2010 the Town of Three Lakes and the Three Lakes School District collaborated on a planning grant application for a SRTS project in Three Lakes. The team was successful in their bid for a planning grant. For the entirety of 2011 the SRTS Steering Committee worked with a consultant on a formal plan that is required for the application for an infrastructure plan. The Steering Committee identified the most likely routes to school where new sidewalks would be constructed as well as a shared use path behind the school. In 2012, the town received a $229,172 grant from WisDOT for implementation.

Northland Pines School District Safe Routes to School Plan, 2010

The Northland Pines School District and the Eagle River community worked on ideas for students to be able to bike and walk to school for two years starting in September of 2008. Numerous barriers were discussed and strategies were developed for overcoming them. Primarily this included U.S. Hwy 45 that runs north and south bordering the Northland Pines School District building (4K-12th grade) and the Eagle River that the majority of students within the two-mile radius of school must cross to allow a safe route to school. Numerous community and paid consultants engaged in the discussion and, together, developed strategies for a comprehensive SRTS program.

North Central Region Safe Routes to School Programming

The NCWRPC has actively aided communities and school district throughout the North Central Wisconsin Region in creating SRTS programs and guidelines since 2010, including plans for the Cities of Antigo, Wisconsin Rapids, Rhinelander, the Villages of Almond, and Bancroft, as noted above. Currently, the NCWRPC is providing assistance to the Stettin SRTS Task Force.

Additionally, the NCWRPC is preparing to launch a regional Safe Routes to School program for the North Central Wisconsin Region in 2018. This will allow eleven school districts (with a total of 25 school sites) and the communities that they serve to produce SRTS plans; many of which would not be likely to occur without the regional program. The regional SRTS Program will provide resources and ongoing support for public and private schools, as well as communities within a nine-county area. This regional effort will effectively leverage local funds with STate funds to greatly increase safe routes programming in the State of Wisconsin. Phase I will include the following school districts: Adams-Friendship Area, Elcho, Lakeland, Mauston, Merrill Area, Minocqua-Hazelhurst-Lake Tomahawk J1, Mosinee, Nekoosa, Stratford, Wabeno Area, and White Lake. Phase II will seek to expand the program to additional school districts around the Region.

Demographic & Travel Information

Demographics

According to the Wisconsin Department of Administration (WDOA), the North Central Wisconsin Region's population was 444,941 in 2015. This was an increase of 0.7 percent from 2010 while the State grew 1.2 percent. Three of ten counties in the Region lost population: Adams, Forest, and Langlade Counties. Portage County was the fastest growing County in the Region, with a 1.3 percent increase. Portage was followed closely by Juneau County, which grew by 1.2 percent. Marathon County had the largest net increase, adding 1,278 people.

Table 2-1: Population Change, 2010 to 2015				
County	***2010 Pop.***	***2015 Pop.***	***Net Change***	***% Change***
Adams	20,875	20,857	-18	-0.1%
Forest	9,304	9,287	-17	-0.2%
Juneau	26,664	26,987	323	1.2%
Langlade	19,977	19,907	-70	-0.4%
Lincoln	28,743	28,835	92	0.3%
Marathon	134,063	135,341	1,278	1.0%
Oneida	35,998	36,232	234	0.7%
Portage	70,019	70,940	921	1.3%
Vilas	21,430	21,590	160	0.7%
Wood	74,749	74,965	216	0.3%
Region	**441,822**	**444,941**	**3,119**	**0.7%**

Source: U.S. Census 2010, and Wisconsin DOA

While the Region's population is expected to continue growing throughout the next quarter century, growth rates are expected to be much slower than those experienced during the 20th century. This will have great implications for the labor force, consumer demand, and the economy, as well as community tax revenues and infrastructure. The north central Wisconsin Region is growing older, both as a function of the aging of the Baby Boomer generation and retirees looking to relocate to take advantage of the region's scenery and amenities. By 2040, WDOA projects that there will be 52,000 more adults aged 65 and over in the Region than there were in 2015. To sustain communities throughout the Region, planners and community leaders will need to seek ways to attract young adults, whose share of the population is expected to drop 6.1 percentage points, for a net decrease of nearly 3,000. Figure 2-8 illustrate the drastic population changes that are expected in the twenty-five years between 2015 and 2040.

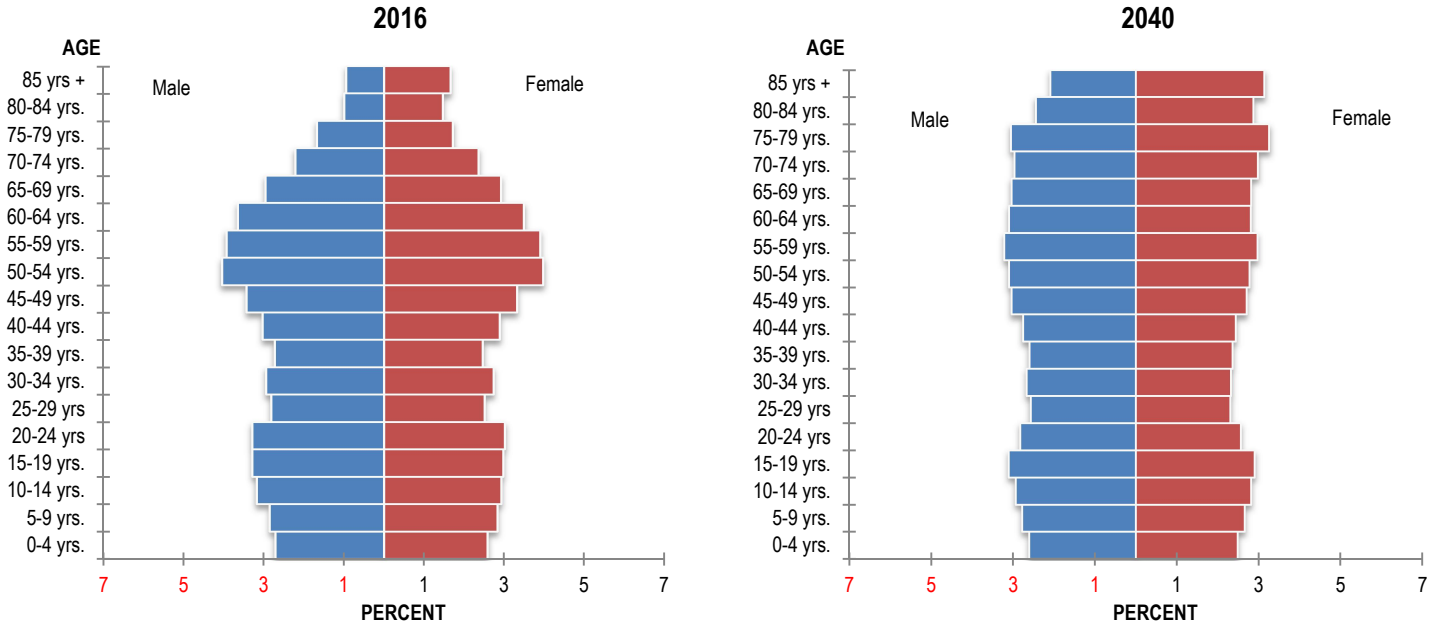

Figure 2-8: North Central Wisconsin Regional Population, 2016 & 2040
Source: 2012-2016 ACS 5-year estimates & WDOA 2013

Urban & Rural Populations

In recent years, urbanized areas have attracted a growing proportion of young adults and families. In the United States, 81 percent of the population lived in an urbanized area or cluster.

In the North Central Wisconsin Region, only 46 percent of the population lived in an urbanized area, such as Wausau, or inside an urban cluster, such as Antigo, which is defined as a census block or tract with less than 50,000 people but at least 2,500 people. The differences between the rural and urbanized areas vary greatly by county in the Region. One-hundred percent of the populations of Adams, Forest, and Vilas Counties are defined as rural, while only 36 percent of Portage County and 37 percent of Wood County are considered rural.

Table 2-2: Urban and Rural Populations, 2010

County		*Urban*	*Rural*
Adams	Number	0	20,875
	Percentage	**0.0%**	**100.0%**
Forest	Number	0	9,304
	Percentage	0.0%	100.0%
Juneau	Number	4,401	22,263
	Percentage	16.5%	83.5%
Langlade	Number	8,158	11,819
	Percentage	40.8%	59.2%
Lincoln	Number	13,208	15,535
	Percentage	46.0%	54.0%
Marathon	Number	76,429	57,634
	Percentage	57.0%	43.0%
Oneida	Number	9,010	26,988
	Percentage	25.0%	75.0%
Portage	Number	44,790	25,229
	Percentage	64.0%	36.0%
Vilas	Number	0	21,430
	Percentage	0.0%	100.0%
Wood	Number	47,329	27,420
	Percentage	63.3%	36.7%
Region	**Number**	**203,325**	**238,497**
	Percentage	**46.0%**	**54.0%**

Source: U.S. Census 2010

Subpopulation, Children Ages 5-17

According to the American Community Survey in 2016 school aged children, ages five through 17, comprised 15.5 percent of the Region's population, while they made up 16.8 percent of Wisconsin's population and 17.0 percent of the nation's population. Adams, Oneida, and Vilas Counties had the lowest percentages of children in this age group. Marathon County was the only county in the Region to have a higher proportion of population between the ages five to 17 than the State and the Nation.

As most of this subset of the population cannot drive, children greatly benefit from pedestrian and bicycle infrastructure, such as shared use paths, sidewalks, and safety improvements around school areas as well as community parks and other youth centers. Not only does it improve activity levels of children, but these facilities attract young families looking for these amenities to the Region.

In 1969, almost half of all American elementary and middle school students walked or bicycled to school. Today, only 13 percent walk or bike to school. In rural areas the rate of walking or bicycling to school is much lower as the distance to school and the lack of facilities is a major barrier. The lack of physical activity contributes to higher rates of unhealthy weight for American children nationwide, but the rates of children who are overweight or obese are higher in rural areas. Rural children are 25 percent more likely to be overweight than urban children.

The consequences of being overweight during childhood are potentially negative psychological outcomes and health consequences such as eating disorders, behavior and learning problems, Type Two Diabetes, asthma, and sleep apnea. Furthermore, overweight children are more likely to be overweight/obese adults and therefore will have a number of increased risk factors for diseases, including strokes, cardiovascular disease, hypertension, diabetes, and some cancers.

Table 2-3: Population Ages 5-17, 2016

County	*Number*	*Percentage*
Marathon	23,554	17.4%
Wood	11,959	16.2%
Juneau	4,013	15.2%
Lincoln	4,226	15.0%
Langlade	2,893	14.9%
Portage	10,371	14.7%
Forest	1,329	14.6%
Vilas	2,800	13.1%
Oneida	4,557	12.8%
Adams	2,354	11.6%
Region	**68,056**	**15.5%**
Wisconsin	**961,051**	**16.7%**
United States	**53,517,771**	**16.8%**

Source: 2012-2016 ACS 5-year estimates

Subpopulation, Seniors Ages 65 and Older

According to the ACS, in 2016, 18.8 percent of the population was 65 years or older in the Region, compared to 15.2 percent of the State population. The population 65 and older increased 2.4 percentage points over 2010.

These numbers define Wisconsin, as well as the Region, as an "aged society", or a society in which 14 to 21 percent of the population are 65 years or older. Japan became the world's first "hyper-aged" society around 2007, when more than 21 percent of its population had reached the age of 65 or older. Five out of the ten counties in the Region have already reached this milestone. By 2040, this subpopulation is expected to comprise 28.6 percent of the Region's population. There will be 52,000 more people in this subgroup by 2040 in the Region, according to WDOA.

As the demography of the Region changes, leaders across the Region are considering the factors that allow older adults to live actively and continue to have social engagement. The inability to drive in a landscape designed for cars can be confining. The neglect of walkable infrastructure such as hazard-free sidewalks can be isolating, while attention to shade trees, benches, and other streetscape features can help seniors to enjoy their time out of doors.

Table 2-4: Population Ages 65 and Over, 2016		
County	***Number***	***Percentage***
Adams	5,479	27.0%
Forest	2,004	22.0%
Juneau	5,016	19.0%
Langlade	4,310	22.2%
Lincoln	5,578	19.8%
Marathon	21,523	15.9%
Oneida	8,581	24.1%
Portage	10,300	13.3%
Vilas	6,155	28.8%
Wood	13,694	18.6%
Region	**82,640**	**18.8%**
Wisconsin	**874,729**	**15.2%**
United States	**46,190,933**	**14.5%**

Source: 2012-2016 ACS 5-year estimates

Subpopulation, Young Adults, Ages 20 to 39

According to the American Community Survey in 2016, young adults ages 20 to 39 comprised 22.4 percent of the population. This was a slight decrease from the 2010 U.S. Census of 0.1 percent. This age group made up a much smaller proportion of the population compared to the State (25.6 percent) and the Nation (27.0 percent). Adams (18.5 percent), Langlade (19.3 percent), Oneida (18.5 percent), and Vilas (15.4 percent) Counties all had young adult populations that made up less than 20 percent of their populations. By 2040, WDOA projects that this age group will be 20.2 percent of the Region's population, a net decrease of approximately 3,000 people.

Throughout the Region and the Country, communities engage in conversations on a daily basis to retain and attract this age group for its importance in sustaining the labor force and creating young families. According to a 2015 survey by the National Association of Realtors and Portland State University, those aged 18 through 34 preferred walking as a mode of transportation by 12 percentage points over driving. They also showed a preference for living within walking distance of shops and restaurants, having a short commute, and are the most likely age group to make use of public transportation.[1]

[1] National Association of Realtors and Portland State University. 2015 *Community & Transportation Preferences Survey.*

Table 2-5: Population Ages 20-39, 2016		
County	***Number***	***Percentage***
Adams	3,754	18.5%
Forest	1,822	20.0%
Juneau	5,755	21.8%
Langlade	3,747	19.3%
Lincoln	5,691	20.2%
Marathon	31,811	23.5%
Oneida	6,587	18.5%
Portage	20,248	28.7%
Vilas	3,291	15.4%
Wood	15,976	21.7%
Region	**98,682**	**22.4%**
Wisconsin	**1,473,228**	**25.6%**
United States	**86,010,704**	**27.0%**

Source: 2012-2016 ACS 5-year estimates

Gender Breakdown

In 2015, females made up 49.6 percent of the population. While there is nothing unusual about this indicator, it is included in the demographics section to start conversations about how to accommodate and encourage this half of the population when designing pedestrian and bicycle infrastructure. Female riders are less likely to use unprotected bicycle lanes alongside traffic. In the Region, only 0.5 percent of female workers biked to work, while one percent of male workers biked to work. Furthermore, women are more likely to be concerned with personal safety on when walking or biking on paths, so proper lighting and emergency call stations should be installed to increase safety and comfort levels on paths, especially in areas where cell phone reception is poor.

Educational Attainment

Educational attainment has continued to increase in the Region. In 2000, 83.5 percent of residents in the Region had a high school diploma or higher. By 2016, this figure increased 7.6 percentage points. The Region has also increased the number of residents who have earned a Bachelor's degree or higher, but at a slower rate. In 2000, 17.2 percent of the population had a Bachelor's degree or higher. By 2016, this had increased five percentage points.

One issue that communities across the Region and the State are faced with is brain drain. A Milwaukee Journal Sentinel article in 2014 reported current Wisconsin transportation policies are starkly in contrast with young adults. Over the past ten years, Wisconsinites have been driving less and seeking other transportation options, while State legislators have cut funding for transit and other non-driving modes while State spending on highway expansion projects has increased. [2]

[2] Speight, Bruce. 2014. "Wisconsin's Brian Drain and Transportation Priorities." http://archive.jsonline.com/news/opinion/wisconsins-brain-drain-and-transportation-priorities-b99284510z1-261904161.html/

Table 2-6: Educational Attainment, High School Diploma or Higher			
County	***2000***	***2010***	***2016***
Adams	76.7%	84.0%	87.3%
Forest	78.5%	85.6%	86.5%
Juneau	78.5%	84.7%	86.1%
Langlade	80.9%	87.3%	89.8%
Lincoln	81.6%	87.3%	90.2%
Marathon	83.8%	88.4%	91.0%
Oneida	85.1%	91.9%	92.0%
Portage	86.5%	90.4%	93.2%
Vilas	85.4%	91.7%	92.5%
Wood	84.8%	89.2%	92.4%
Region	**83.5%**	**88.7%**	**91.1%**
Wisconsin	**85.1%**	**89.4%**	**91.3%**
United States	**80.4%**	**85.0%**	**87.0%**

Source: 2000 & 2010 U.S. Census, and 2012-2016 ACS 5-year estimates

Table 2-7: Educational Attainment, Bachelor's Degree or Higher			
County	***2000***	***2010***	***2016***
Adams	10.0%	10.8%	12.7%
Forest	10.0%	12.0%	14.1%
Juneau	10.0%	12.1%	12.9%
Langlade	11.7%	12.9%	16.0%
Lincoln	13.6%	14.7%	15.9%
Marathon	18.3%	20.8%	23.9%
Oneida	20.0%	22.4%	26.2%
Portage	23.4%	27.1%	30.3%
Vilas	17.6%	25.0%	26.8%
Wood	16.9%	19.2%	20.4%
Region	**17.2%**	**19.7%**	**22.2%**
Wisconsin	**22.4%**	**25.8%**	**28.3%**
United States	**24.4%**	**27.9%**	**30.3%**

Source: 2000 & 2010 U.S. Census, and 2012-2016 ACS 5-year estimates

Household Income

Over the past fifteen years, median household incomes have nominally increased across the Nation and Region. Juneau County saw the fastest increase in household income, growing 33.7 percent, while Wood County experienced one of the slowest growths. All incomes are below the State and national median household incomes per the 2016 ACS.

However, when adjusted for inflation, most of the counties' median household incomes and per capita incomes have decreased from 2000 to 2016. This is also true for the State and the Nation. For example, when adjusted for inflation in 2016 dollars, the State median household income was $61,720. This was over seven thousand dollars less than the household income in 2016 and a 12 percent decrease. The counties experienced median household income decreases ranging between 5.1 percent in Adams County and 14.8 percent in Marathon and Wood Counties.

Table 2-8: Median Household Income

County	*2000*	*2010*	*2016*	*2000-2016 Net Change**	*2000-2016 % Change**
Adams	$33,408	$39,885	$43,554	-$3,531	-7.5%
Forest	$32,023	$37,627	$41,378	-$3,755	-8.3%
Juneau	$35,335	$45,664	$47,243	-$2,558	-5.1%
Langlade	$33,168	$41,034	$43,501	-$3,246	-6.9%
Lincoln	$39,120	$46,625	$52,221	-$2,914	-5.3%
Marathon	$45,165	$53,471	$54,227	-$9,428	-14.8%
Oneida	$37,619	$45,857	$49,715	-$3,305	-6.2%
Portage	$43,487	$51,456	$52,411	-$8,879	-14.5%
Vilas	$33,759	$41,631	$41,632	-$5,948	-12.5%
Wood	$41,595	$47,204	$49,926	-$8,697	-14.8%
Wisconsin	**$43,791**	**$51,598**	**$54,610**	**-$7,108**	**-11.5**
United States	**$41,994**	**$51,914**	**$55,322**	**-$3,864**	**-6.5%**

Source: 2000 & 2010 U.S. Census, and 2012-2016 ACS 5-year estimates
**Adjusted for Inflation in 2016 Dollars*

Table 2-9: Per Capita Income

County	*2000*	*2010*	*2016*	*2000-2016 Net Change**	*2000-2016 % Change**
Adams	$17,777	$21,917	$23,668	-$1,387	-5.5%
Forest	$16,451	$20,578	$22,559	-$627	-2.7%
Juneau	$17,892	$23,026	$23,519	-$1,698	-6.7%
Langlade	$16,960	$22,025	$24,772	+$869	+3.6%
Lincoln	$17,940	$23,793	$27,322	+$2,038	+8.1%
Marathon	$20,703	$25,893	$28,773	-$406	-2.0%
Oneida	$19,746	$28,085	$28,084	+$254	+0.9%
Portage	$19,854	$24,873	$26,832	-$1,150	-4.1%
Vilas	$18,361	$27,128	$27,537	+1,659	+6.4%
Wood	$20,203	$24,893	$27,687	-$787	-2.8%
Wisconsin	**$21,271**	**$26,624**	**$29,253**	**-$726**	**-2.4%**
United States	**$21,587**	**$27,334**	**$29,829**	**-$595**	**-2.0%**

Source: 2000 & 2010 U.S. Census, and 2012-2016 ACS 5-year estimates
**Adjusted for Inflation in 2016 Dollars*

Employment

According to the Wisconsin Department of Workforce Development (DWD), employment has tended to increase while unemployment has usually decreased since 2010 during the height of the economic recession. There were about 215,000 people employed in the REgion in 2015, which was 2,500 more than 2010 or a 1.2 percent increase. At the same time, Wisconsin grew 4.9 percent.

Unemployment decreased in all ten counties over 2010. However, with the exception of Marathon and Portage counties, unemployment remains higher than the State unemployment rate. Unemployment rates fell as the counties added more jobs, but also as the labor force participation rate fell across the Region.

Table 2-10: Unemployment Rates			
County	***2000***	***2010***	***2015***
Adams	4.6%	12.4%	7.3%
Forest	5.9%	11.7%	7.5%
Juneau	5.1%	10.0%	5.2%
Langlade	4.8%	11.0%	6.1%
Lincoln	4.3%	11.3%	5.0%
Marathon	3.4%	9.3%	4.0%
Oneida	5.1%	10.2%	5.8%
Portage	3.6%	8.0%	4.6%
Vilas	5.1%	11.3%	7.0%
Wood	4.0%	9.3%	5.5%
Wisconsin	**3.5%**	**8.7%**	**4.6%**

Source: Wisconsin DWD, 2017

The labor force participation rate is the number of people employed or actively searching for employment as a percentage of the population aged 16 and older. Generally a higher labor force participation rate is a signal of regional prosperity and productivity. Since the beginning of the new millennium, participation rates and the labor force have been falling in Wisconsin. As a larger proportion of the population enters retirement, pursues higher educational opportunities, or suffers from the tolls of long-term unemployment, a smaller percentage of the population is working in Wisconsin.

As the population grows slowly, the total labor force in Wisconsin has continued to also grow, despite lower participation rates. However, within the North Central Wisconsin Region, the total labor force has actually decreased by about 9,000 people. A majority of the losses were in Wood County. However, the labor force participation rates of all counties decreased between 2010 and 2016.

Table 2-11: Labor Force Participation Rates			
County	***2000***	***2010***	***2016***
Adams	56.0%	50.9%	46.4%
Forest	56.1%	54.7%	53.4%
Juneau	64.2%	65.1%	58.1%
Langlade	62.8%	63.5%	59.7%
Lincoln	66.1%	66.0%	63.9%
Marathon	71.7%	72.2%	68.6%
Oneida	61.9%	61.9%	57.4%
Portage	71.4%	68.7%	67.5%
Vilas	57.3%	58.1%	53.4%
Wood	67.1%	66.5%	65.6%
Region	**66.9%**	**66.4%**	**62.6%**
Wisconsin	**69.1%**	**69.0%**	**66.9%**
United States	**63.9%**	**65.0%**	**63.5%**

Source: 2012-2016 ACS 5-year estimates

Travel & Commuting

Analyzing worker commutes in the Region shows that the laborshed is wide, and spreads across the State of Wisconsin and into the neighboring states of Illinois, Minnesota, and Michigan. Table 2-12 shows where workers who live in the

Region commute to work. Places of work are noticeably more centralized in urban areas than places of residence, which are spread all over the Region. About 153,000 people both live and work in the Region, while about 45,000 commute into the Region for work, and about 59,000 commute out of the Region for work. A majority of workers commute less than 24 miles, but between one fifth and one quarter commute more than 50 miles.

Table 2-12: Where Residents in the Region Commute to Work

Place	*Number of Commuters*
Wausau	26,882
Stevens Point	17,090
Marshfield	13,102
Wisconsin Rapids	9,850
Rhinelander	6,783
Weston	6,557
Merrill	5,235
Plover	4,440
Antigo	4,381
Schofield	3,704
Madison	3,487
Rothschild	3,300
Mauston	2,491
Rib Mountain	2,454
Mosinee	2,339
Eau Claire	2,297

Source: U.S. Census Longitudinal Employer Household Dynamics, 2015

There are two data sets that can provide information about the mode share for trips. The American Community Survey (ACS) is available at all levels of government, but only reports on the primary mode of travel to work. This is limiting, in that work trips only represent a minority of all bicycling and walking trips.[3] The National Household Travel Survey data includes a breakdown of trips, whether for work or other trips, and includes all trips, not only the primary mode used by an individual. However, the NHTS sample sizes does not allow it to be used any lower than the national or state level, so this data only provides a benchmark of larger geographical areas.

Commuting

According to the 2016 ACS, four out of five resident workers in the Region drive alone as their primary mode of transportation to work. This means some of these people may use another mode of transportation occasionally. Only one in ten carpooled to work as the primary mode of transportation. Only 1.8 percent of households with a worker 16 years and older does not own a vehicle. 44.2 percent of workers live in a household where two vehicles are available, while 37.8 percent live in a household with three or more vehicles available. About five percent of the Region's workers who commute use an alternative form of transportation to commute to work. Less than one percent of workers use public transportation while one percent uses a taxicab, motorcycle, or other means. Over three percent of workers walk to work, while under one percent bike to work.

[3] Milne, Andrea. 2014. *Who Bikes and Walks in the United States (and Why)?* Alliance for Biking & Walking. <http://www.bikewalkalliance.org/blog/401-who-bikes-and-walks-in-the-united-states-and-why->. Accessed June 2017.

Table 2-13: Primary Mode of Transportation

County	*Drove alone*	*Carpooled*	*Public Transportation*	*Walked*	*Bicycle*	*Taxicab, motorcycle, other*
Adams County	80.5%	10.9%	0.2%	1.6%	0.0%	1.5%
Forest County	77.2%	12.1%	0.1%	3.7%	0.2%	0.9%
Juneau County	78.6%	11.1%	0.8%	3.3%	0.2%	1.1%
Langlade County	81.2%	8.2%	0.3%	4.5%	0.4%	1.3%
Lincoln County	83.6%	10.1%	0.4%	2.3%	0.0%	0.6%
Marathon County	81.9%	8.7%	0.5%	2.3%	0.7%	1.0%
Oneida County	83.0%	8.5%	0.4%	2.0%	0.3%	0.8%
Portage County	80.0%	7.9%	0.3%	6.0%	1.6%	0.7%
Vilas County	81.0%	7.4%	0.1%	4.4%	0.3%	0.6%
Wood County	82.3%	8.3%	0.2%	3.8%	0.9%	1.2%
Region	**81.5%**	**8.8%**	**0.4%**	**3.4%**	**0.7%**	**1.0%**

Source: 2012-2016 ACS 5-year estimates

Trips

In the United States and Wisconsin, approximately 76.4 and 80.5 percent of residents drive alone to work. Approximately 0.8 percent of residents bicycle to work, higher than the national proportion of 0.6, and 3.5 percent of residents walk to work, higher than the national proportion of 2.8 percent.[4] However, only 17.4 percent of trips are to/from work. The largest proportion of trips taken are for family/personal business, and the second highest proportion are for social/recreational purposes. Surveys have found people are more likely to bicycle or walk for social, recreational or personal errand trips than they are for commuting to work.

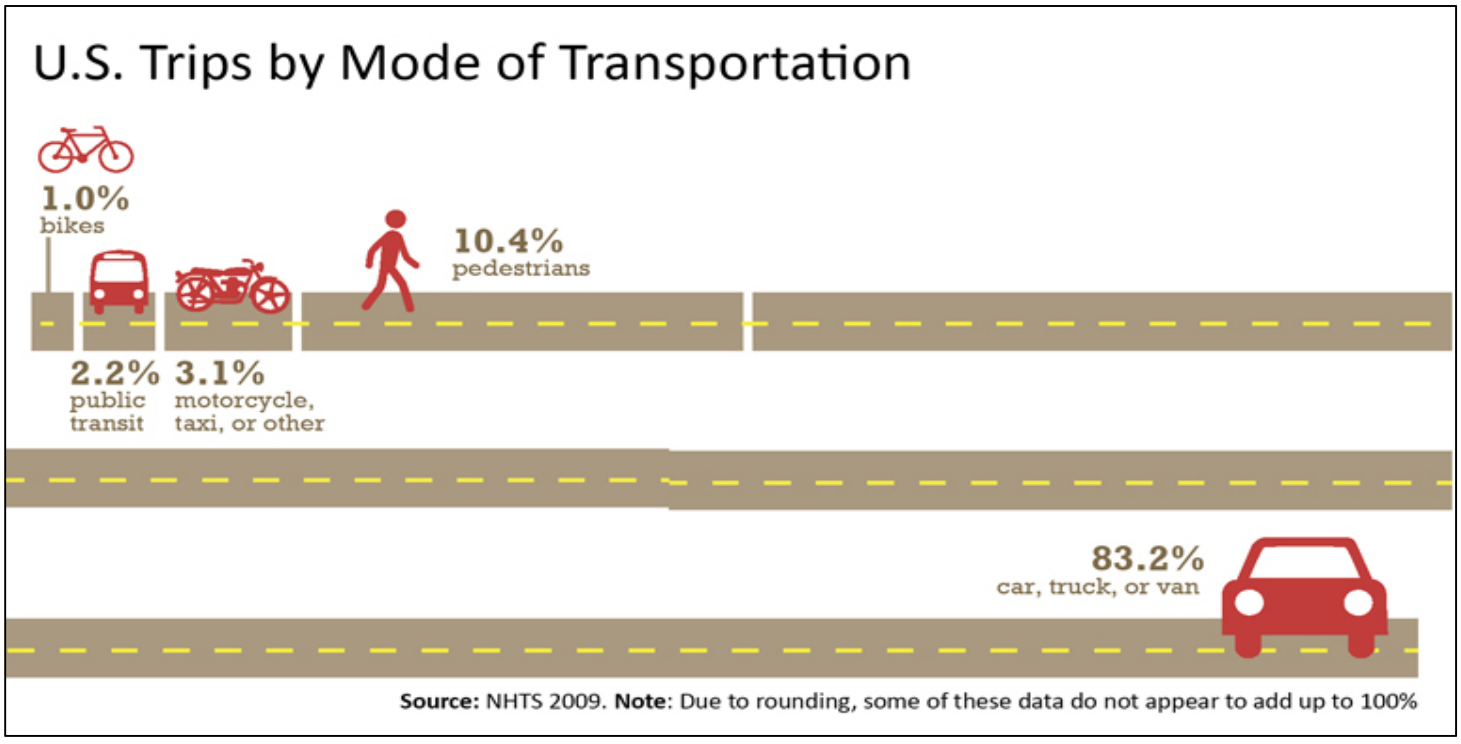

Figure 2-9: U.S. Trips by Mode of Transportation
Source: alliance for Biking & Walking, 2014

[4] "Wisconsin Transportation by the Numbers." 2016. U.S. Department of Transportation, Bureau of Transportation Statistics.

When travel data is broken out by total trips, the national proportion of trips taken by bicycle and walking are higher than the proportion of people that commute by bike or walking. Additionally, NHTS data shows that about 40 percent of trips nationally are shorter than two miles, about a 30 minute walk or a ten minute bike ride.[5]

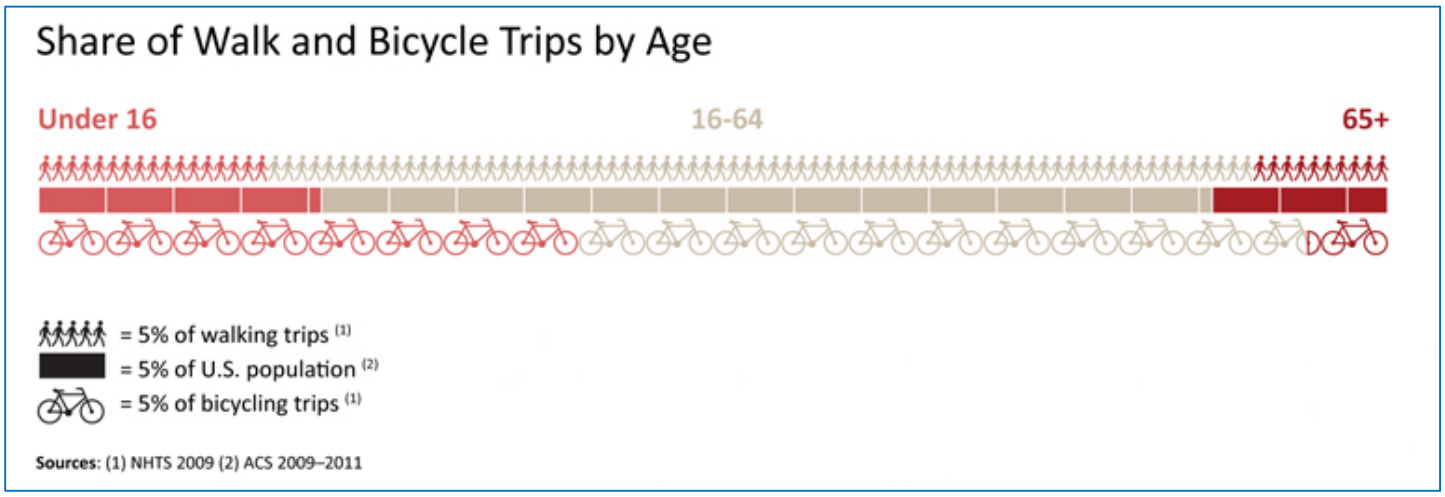

Figure 2-10: Share of Walking and Bicycle Trips by Age
Source: Alliance for Biking & Walking, 2014

Mode of travel	Less than $20,000	$20,000 to $39,999	$40,000 to $74,999	$75,000 to $99,999	$100,000 and over	All incomes (1)
Walk	16.3%	10.3%	8.9%	8.9%	10.2%	10.4%
Bicycle	1.0%	1.2%	1.0%	0.9%	1.1%	1.0%
All other modes	82.7%	88.5%	90.1%	90.2%	88.7%	88.5%

Figure 2-11: Bicyclist and Pedestrian Mode Share by Household Income
Source: Alliance for Biking & Walking, 2014

Range of Users & Abilities

The people that bicycle for transportation are diverse and have a wide range of abilities and comfort levels. Based on research in Portland, OR, adults can generally be divided into four cyclist typologies based on their comfort level on different types of bicycle facilities:[6]

[5] "Who's Walking and Bicycling." <www.pedbikeinfo.org/data/factsheet_general.cfm> Accessed July 2017.

[6] Geller, Roger. "Four Types of Cyclists." Portland Office of Transportation.

- ***No Way No How*** – *These are the people that have no interest in riding a bicycle. They may have a physical disability that prevents them from doing so, are uninterested due to weather or topography, or they just have a complete lack of interest in bicycling. Although the proportions will vary across different communities, this is estimated to be approximately one-third of the population in many communities.*
- ***Interested but Concerned*** – *The majority of people fall into the interested but concerned category. These people like riding a bicycle, but they are afraid to ride amongst motor vehicle traffic. These people may ride around their neighborhoods, but will not venture onto arterials to visit employment and commercial destinations. Many of these people would ride more if they felt safer. This may be up to two-thirds of the population based on some surveys.*
- ***Enthused and Confident*** – *These people are comfortable sharing the road with automotive traffic, but prefer to do so within their own facilities, such as bike lanes and bicycle boulevards. This group is much larger than the strong and fearless group, but still represents a minority of bicyclists.*
- ***Strong and Fearless*** – *A small minority of cyclists, these people generally ride regardless of roadway conditions and will often ride through inclement weather. They often prefer more direct routes and mix with motor vehicles comfortably in many situations.*

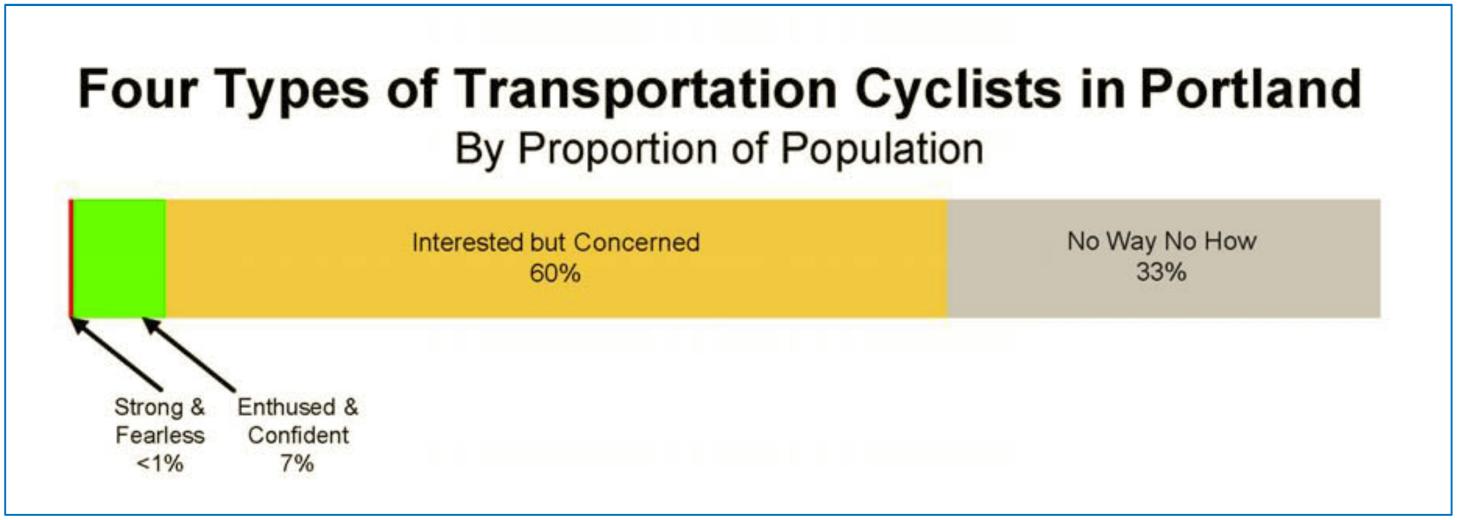

Figure 2-12: Four Types of Cyclists
Source: Geller, Four Types of Cyclists

Each typology includes a diverse demography of people. Many communities have found that the most growth in bicycling has not been expert bicyclists, but those that can be categorized as "interested but concerned." Even among the enthused and confident and the strong and fearless, there is a significant share of those that do not bicycle for transportation.[7] Planning and building infrastructure for this "middle" group is most likely to have the largest effect and promote the greatest comfort for bicyclists. This requires creating infrastructure that is comfortable for the widest range of users and abilities, from children to seniors, and from expert bicyclists to new riders.

A complete bicycle and pedestrian network includes people with a range of abilities, including:[8]

- *Children or adults with special education needs*
- *Children or adults with a range of disabilities*
- *Families of mixed abilities*
- *People with weight management or health goals*

[7] Dill, Jennifer and Nathan McNeil. 2012. "Four Types of Cyclists? Testing a Typology to Better Understand Bicycling Behavior and Potential." P. 17. Portland State University, Working Paper. <http://web.pdx.edu/~jdill/Types_of_Cyclists_PSUWorkingPaper.pdf> Accessed June 2017.

[8] Cyclinguk.org. "What is Inclusive Cycling?" <http://www.cyclinguk.org/article/cycling-guide/inclusive-cycling> Accessed June 2017.

- *The elderly*
- *Reduced/little mobility (including wheelchair users, amputees, and those with coordination problems)*
- *Visual impairments*
- *Mental health issues*
- *Recuperation after ill health or after an operation*
- *Dementia and dementia-related diseases (such as Alzheimer's)*
- *Stroke recovery*
- *Inexperienced cyclists*

According to the WisDOT *Rural Bicycle Planning Guide*:

> *More experienced bicyclists are generally well-served by design standards that include paved shoulders on major town roads and higher-volume rural roadways. This practice will benefit motor vehicle and bicycle users, allowing adequate space for sharing with minimum need for changing lanes or lane position. These bicyclists will also benefit from basic improvements to village and city streets (e.g. replacing unsafe drainage grates and patching pot holes). In addition, they may find long rural paths like the Elroy-Sparta enjoyable.*
>
> *Less experience bicyclists will benefit from these improvements, too, especially on lower volume roads. But they will also be well-served by the selective development creation of bicycle lanes, routes, and paths where needs are greatest (e.g., connecting community schools and parks with homes or bridging over a busy road) or where special opportunities arise (e.g., paths along abandoned railroad lines or waterways). These bicyclists will use rural paths, particularly if there are frequent stopping places, occasional services, and adequate links to the road network.*

The NHTS has shown that bicycling is growing the fastest among the 60-79 age cohorts. Between 1995 and 2009, the rise in biking among people ages 60-79 accounted for 37 percent of all increases in trips by bicycle.[9]

Meanwhile, child biking has been falling since the 1960s, largely due to perceptions of safety and increasing suburbanization. Numerous studies have shown that children that bicycle or walk to school perform better. In order to combat the decline in biking and walking to school, bicycling infrastructure needs to be designed so parents feel safe allowing their children to bicycle or walk to school. The 2009 NHTS reported about 25 percent of children took no walks or bike rides outside in the week prior to the survey. For children that live less than two miles from their schools, half of parents thought the amount or speed of traffic was a serious issue in letting their kids walk to school, while less than 25 percent thought crime or weather was a serious issue.[10]

Figure 2-13: Seniors Crossing
Source: Dan Burden, pedbikeimages.org

[9] Andersen, Michael. 2014. "Bike Use is rising among the Young, but it is Skyrocketing among the Old." People for Bikes. <http://www.peopleforbikes.org/blog/entry/bike-use-is-rising-among-the-young-but-it-is-skyrocketing-among-the-old> Accessed June 2017.

It has been found that in the United States, women are far less likely to bicycle for transportation than men, although this gap has been narrowing slowly as bicycle commuting has increased.[11] [12] [13] The most commonly cited reason for this is fear over distracted driving. Other barriers to cycling cited by women include incidents of street harassment, fear of sexual harassment and assault, inability to carry children and/or other passengers, and concerns about grooming.[14] This condition is not universal, as European countries such as Denmark, Germany and the Netherlands, have approximately equal participation by men and women.[15] It has also been observed in U.S. cities that have robust networks of both on-street and off-street networks, that over half of those riding on the off-street networks are women, while upwards of 80 percent on the on-street network are men.[16] Additionally, the NHTS found 51 percent of walking trips were taken by women, comparable to the 51 percent of the population constituted by women. While both men and women are more likely to prefer separated, off-road bicycling infrastructure, men are more likely to bicycle on-road in the absence of these facilities.[17] [18]

In some cases, programming can assist in making biking and walking more friendly for all users and abilities. Examples include bike or walk to school days, cycling without age programs, bike rodeos, and safe bicycling classes, both for adults and children, and women's groups rides, such as those held in the Wausau and Antigo areas.

Disabled Population

Alternative transportation options are essential for disabled and mobility challenged residents to navigate the Region, run errands, and find stable employment. Networks for walking and biking also often accommodate wheelchairs and other mobility assistance devices. When transit services are unavailable or do not connect completely to the destinations, disabled residents must navigate the remainder of the trip as pedestrians. **Figure 2-14** shows the proportion of disabled population by zip code in the North Central Wisconsin Region. Many of the highest concentrations of disabled residents are in Vilas, Forest, Langlade, Adams and Juneau Counties.

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[10] FHWA. 2010. NHTS Brief: Active Travel.

[11] Chalabi, Mona. 2014. "Why Women Don't Cycle." *FiveThirtyEight.* <https://fivethirtyeight.com/datalab/why-women-dont-cycle/>. Accessed June 2017.

[12] Jaffe, Eric. 2013. "An Explanation for the Gender Gap in Biking." *City Lab*. <*https://www.citylab.com/transportation/2013/02/women-will-ride-bikes-when-its-safer-them-do-so/4730*> Accessed June 2017.

[13] Dill, "Four Types of Cyclists"

[14] Chalabi, "Why Women Don't Cycle."

[15] Jaffe, "An Explanation for the Gender Gap"

[16] Slavin, Terry. 2015. "If there aren't as many women cycling as men…you need better infrastructure." *The Guardian*. <https://www.theguardian.com/cities/2015/jul/09/women-cycling-infrastructure-cyclists-killed-female#img-2>

[17] Heesch, Kristiann C., Shannon Sahlqvist, and Jan Garrard. 2012. "Gender Differences in Recreational and Transport Cycling: A Cross-Sectional Mixed-Methods Comparison of Cycling Patterns, Motivators, And Constraints." *International Journal of Behavioral Nutrition and Physical Activity*. 2012; 9: 106.

[18] Jaffe, "An Explanation for the Gender Gap"

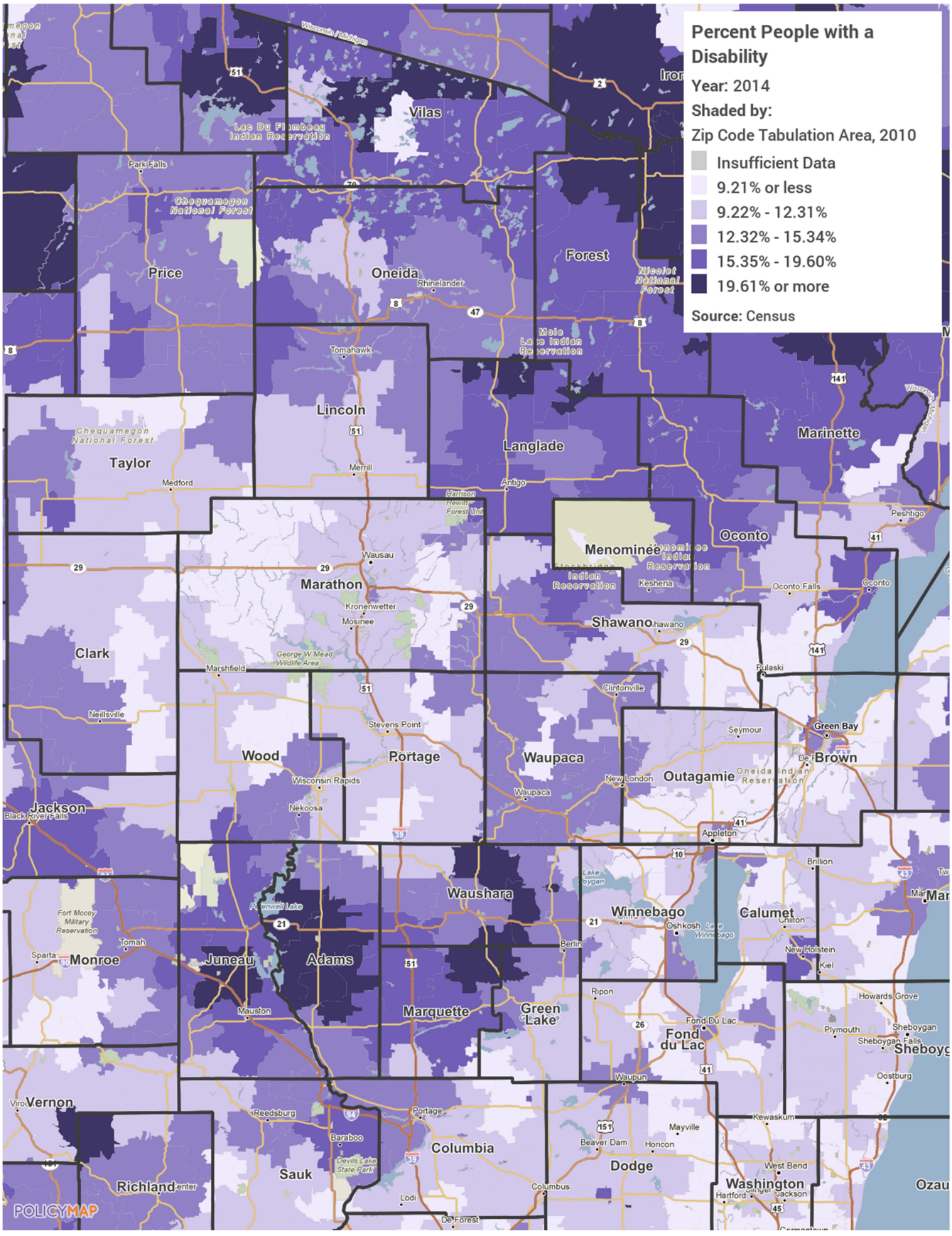

Figure 2-14: Percentage of People with a Disability
Source: Policy Map, 2017

Existing Bicycle & Pedestrian Infrastructure

Many small and rural communities are located on State and county roadways that were built to design standards that favor high-speed motorized traffic, resulting in a system that makes walking and bicycling less safe and uncomfortable. In some cases there are low traffic and lower speed alternatives to these roads, but in many cases these roadways are the only way in or out of the community, effectively requiring residents and visitors to use a motor vehicle for transportation. These roadways can be retrofitted and redesigned over time (as funds become available) to provide a transportation network that better serves the safety, health, and economic interests of the community.[19] See **Appendix One** for the existing bicycle and pedestrian network by county. The existing route mapping was taken from other existing bicycle and pedestrian plans, county GIS databases, local input, and other sources of reference.

Factors that Influence Travel Behavior

Both walking and bicycling can be influenced by a variety of factors including geography, weather, land use patterns, and infrastructure.

Land Use

Walking and bicycling are both heavily influenced by land use patterns. Due to the extra time it takes to bike or walk for transportation compared to motorized modes, destinations must be close, and often clustered. Walking is much more heavily influenced by travel distances. Most people will walk longer distances for recreational purposes (e.g. travelling to a park) than commuting. Pedestrians will typically walk ¼ to ½ miles to a transit stop (the equivalent to a five to ten minute walk), although this distance may be less for someone with mobility challenges. However, many pedestrians are willing to travel longer distances if the trip is entirely as a pedestrian, with nearly 20 percent of pedestrian trips being longer than one mile.[20]

Some Important Needs of Pedestrians

- *Safe streets and walking areas*
- *Convenience*
- *Nearby places to walk*
- *Visibility*
- *Comfort and shelter*
- *Attractive and clean environment*
- *Access to transit*
- *Interesting things to look at while walking*
- *Social interaction*

Figure 2-15: Needs of Pedestrians
Source: Washington DOT Pedestrian Facilities Guidebook, NCWRPC 2017

Land use and transportation are heavily influenced by each other. The types, intensities, form, and densities of land use influence the mode of transportation that is most comfortable and convenient, while the transportation network and design of the road influences the type and form of land use. Rates of bicycling and walking trips are higher in more compact, mixed use settings. The post-World War II development pattern makes bicycling and walking more and more difficult as land uses (destinations) have spread out and made the travel distances much longer.

When a community, local government such as a school district, or business is making location decisions, using active transportation accessibility as a locational decision can begin to reverse the effects of 60+ years of automobile-oriented development patterns.

[19] Federal Highway Administration. 2016 *Small Town and Rural Multimodal Networks*.pp1-4.

[20] Yang, Yong and Ana V. Diex Roux. 2012. "Walking Distance by Trip Purpose and Population Subgroups." *American Journal of Preventative Medicine.* ‹https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3377942/› Accessed July 2017.

A community that follows a more traditional development pattern is also a more resilient and adaptable community. The active transportation oriented development (TOD) pattern has been successful in cities and villages for millennia, while the automobile oriented development pattern is a new phenomenon, and one that has not yet withstood the test of time.

Infrastructure Design

Transportation infrastructure design has traditionally prioritized high speeds for motorized traffic over safety for all road users and convenience for non-motorized traffic. Over time the proportion of people walking and biking for transportation has declined. Surveys have illustrated that for most people, the perception that safety has declined is the primary reason for this change.

Figure 2-16: Diagonal Parking in Tallahassee, FL
Source: Project for Public Spaces

There exists a wide variety of methods of designing street infrastructure to calm traffic, and make streets more amenable to bicycle and pedestrian usage. The most obvious infrastructure improvement may be to widen sidewalks and narrow street lanes. While engineering standards usually call for twelve- to thirteen-foot traffic lanes, evidence shows that nine-foot traffic lanes can still allow for safe driving. Narrower lanes can allow for more room for bicyclists, for expansion of the sidewalk, and for other installations such as street trees which are shown to calm traffic. Other infrastructure modifications that could improve pedestrian safety include reducing the corner radii of streets to force vehicles to turn slowly and give pedestrians better sightlines of traffic, and installing diagonal (rather than parallel) parking spaces to force slower traffic.[21]

Natural & Built Environment

The environment heavily influences travel decisions. When choosing a bicycle route, topography can heavily influence route choice, and some research has shown that utility cyclists will extend their trip by 27 percent to avoid a one percent increase in average slope.[22] Climate and weather influence travel decisions, although research has suggested that acute weather events such as a snowstorm have a bigger impact on bicycling than long term climactic variations. Many other countries around the world that have similarly cold winters to North Central Wisconsin have much higher rates of bicycling and walking for transportation, including places such as Sweden, Finland, and Denmark.

Street Connectivity

A well-connected network provides more direct routes. This creates opportunities for pedestrians and bicyclists to reach destinations within comfortable walking (1/4 mile) or bicycling (two miles) distances, making for a more pedestrian and bicycle friendly environment. Studies have shown that pedestrian volumes are significantly higher in areas with more street/ sidewalk connections and smaller block sizes. In a comparison of two similar areas in Seattle, WA, with similar

[21] Project for Public Spaces. January 1, 2009. "Traffic Calming 101." https://www.pps.org/reference/livememtraffic/ Accessed October 2017

[22] Kuzmyak, J. Richard and Jennifer Dill. 2012, "Walking and Bicycling in the United States: The Who, What, Where, and Why" *TR News*. 280. p. 12. ‹http://onlinepubs.trb.org/onlinepubs/trnews/trnews280www.pdf› Accessed June 2017.

population sizes, population densities, and mixed-use neighborhoods, pedestrian volumes were found to be four times higher in the area with smaller block size and greater number of street and sidewalk connections.[23]

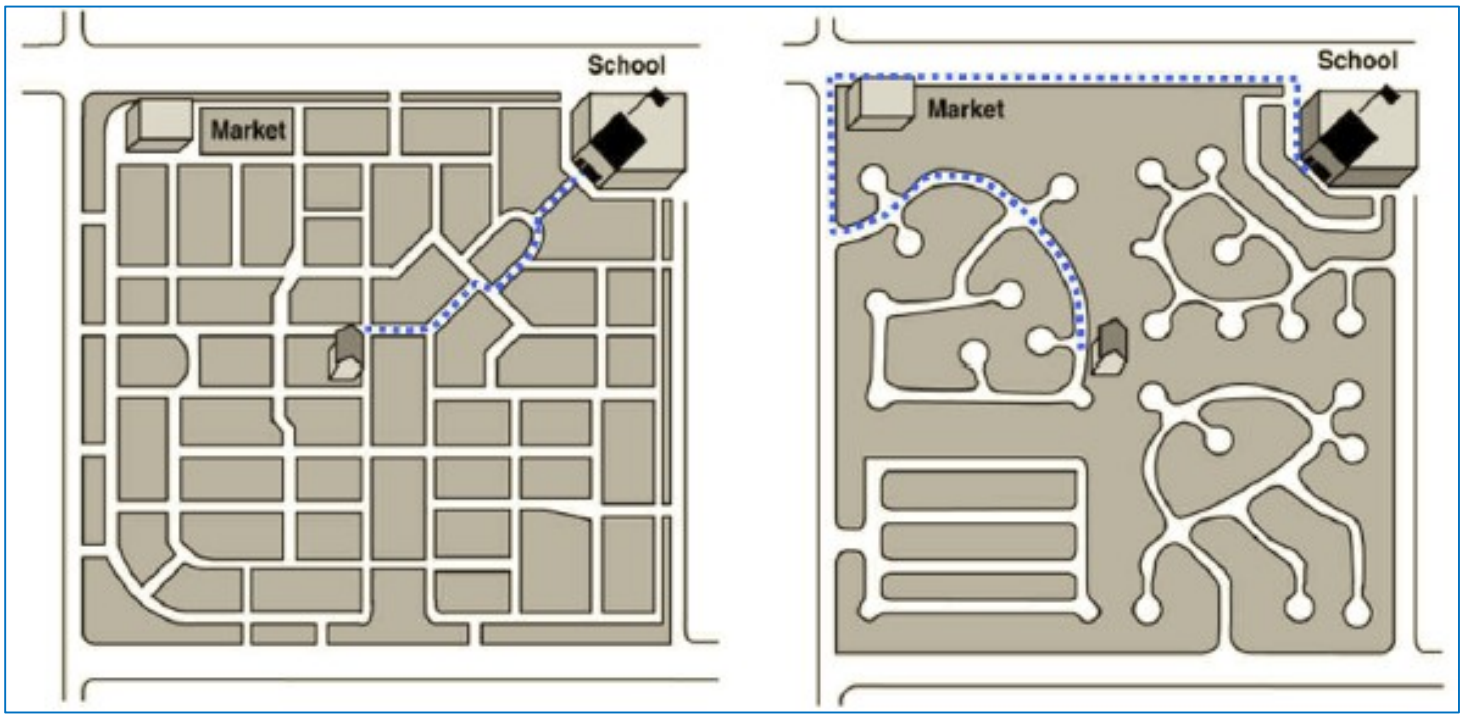

Figure 2-17: Street Connectivity & Subdivision Model Ordinance
Source: Kentucky Transportation Cabinet

Pedestrian connectivity varies in urban, suburban, and rural areas. Different facilities are appropriate in different areas. In urban areas, a continuous sidewalk network is needed along all roadways to provide safe access between destinations. These sidewalks should be wide (10-20 feet) to permit outdoor dining and street furniture such as benches. In suburban areas, the primary importance of the network is for safe pedestrian routes from residential neighborhoods to the schools that serve them. In rural areas continuous sidewalk networks are not practical to serve the wide-spread population. In these areas a network of hiking and multi-use trails through natural areas would benefit rural residents, as well as the urban/suburban recreationalist.[24]

National experience suggests a number of municipalities around the country have been adopting connectivity standards and ordinances to improve connectivity in their communities. From the multitude of national experiences the following commonalties stand out:

- *Fire Departments are strongly in favor of connectivity.*
- *The typical impetuses for ordinances have been to improve subdivision design, emergency response time, alleviate traffic on arterials, and encourage walkability and alternative modes of transportation.*

[23] Atlanta Regional Commission. *ARC Strategic Regional Thoroughfare Plan*. Connectivity Toolkit. ‹http://documents.atlantaregional.com/transportation/tp_SRTP_Toolkit_Connectivity.pdf› Accessed 2017.

[24] *Ibid*

- *A wide variety of regulated items and maximum limits have been used to enforce connectivity (maximum block length, maximum block area, maximum distance between street connections, maximum cul-de-sac length, prohibiting cul-de-sacs, prohibiting gated and private streets, requiring stub streets, requiring minimum connectivity index).*
- *Regulations have been successful in previously undeveloped areas, as well as in infill sites.* [25]

Some municipalities have concerns over maintenance costs of well-connected street networks because there are more streets to maintain. However, research as shown that a well-connected street network consisting of smaller roads has the same lane miles, but more traffic capacity than a less connected hierarchical network, as illustrated in the image in **Figure 2-18**.

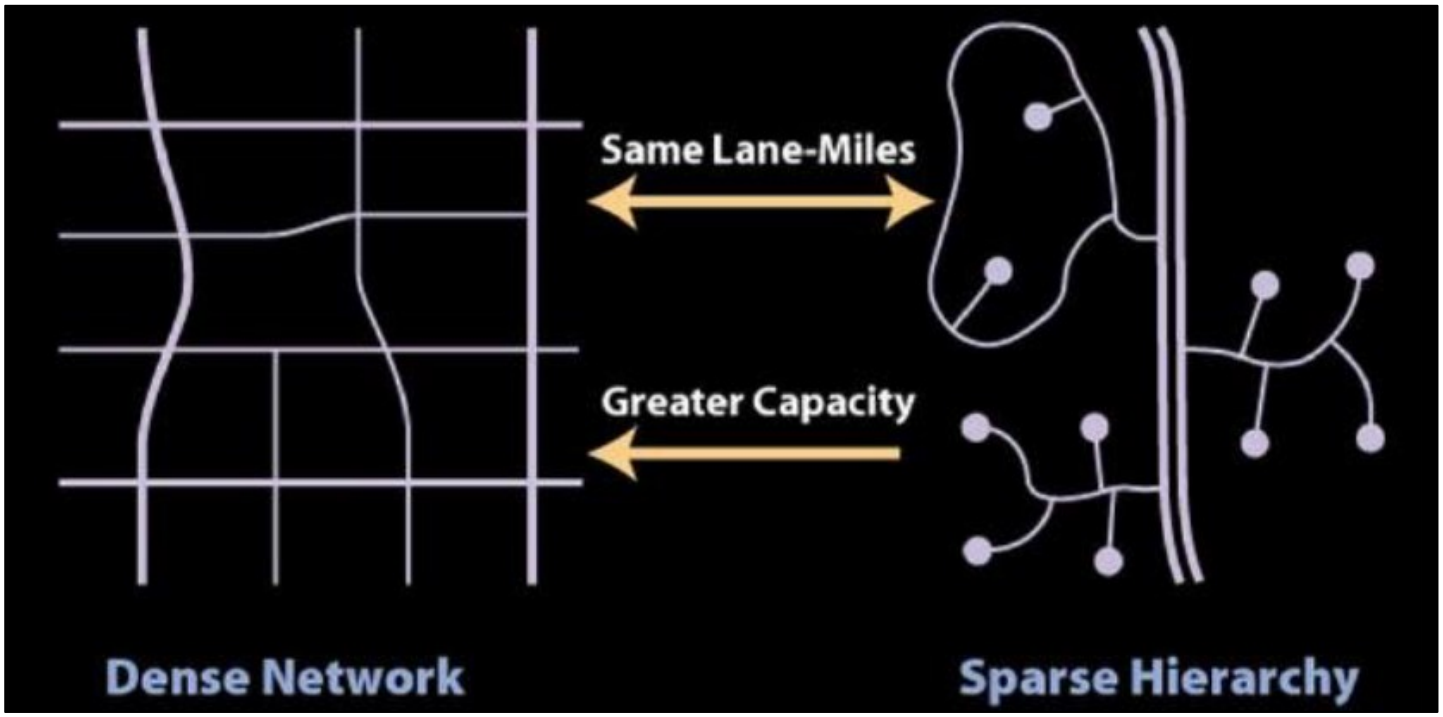

Figure 2-18: Street Networks
Source: Atlanta Regional Council Strategic Regional Thoroughfare Plan

Connecting Bicycle & Pedestrian Networks

Developing interconnected networks of bicycling and walking facilities in rural and small town settings can be challenging due to a lack of alternate through roadways and the concentration of motor vehicle traffic on major roads. Planners and engineers must think creatively to establish connected facilities within communities, and consider how all roadway types and independent connections can be used to create access to key locations. A connected network is not developed by a single trail, sidewalk, or bike lane but is comprised of many facilities that support walking and bicycling throughout the community.[26] In areas where road connectivity is low, using pathways to connect between dead ends and cul-de-sacs can greatly enhance the walkability and bikeability of an area without restructuring the road network.

[25] *Ibid*

[26] Federal Highway Administration. 2016 *Small Town and Rural Multimodal Networks* .p 1-11.

Road Suitability

WisDOT has developed a road evaluation method based on the needs of rural bicyclists as part of their Rural Bicycle Planning Guide in 2006. The method is quantifiable and cyclists, stakeholders, and other agencies can practice the method which contains the following steps:

1. *Identifying Annual Daily Traffic, or ADT (the method suggests multiplying ADT by 1.224 in Adams, Oneida and Vilas Counties to account for added traffic volume from tourism).*
2. *Determining how much of a road segment has a solid yellow line – roads with more solid yellow lines are less suitable for cycling because of limited sightlines. The more curves or hills along a stretch of roadway, the more solid yellow lines that stretch of roadway will have.*
3. *Identifying percentage of ADT that is truck traffic (if unknown, the guide suggests assuming ten percent of ADT).*
4. *Determine pavement width.*

The guide then provides intuitive reference tables to determine bicycling conditions for rural roads. The tables are separated based on common road widths. A summary table of varying rural bicycling conditions is included in **Figure 2-19**.

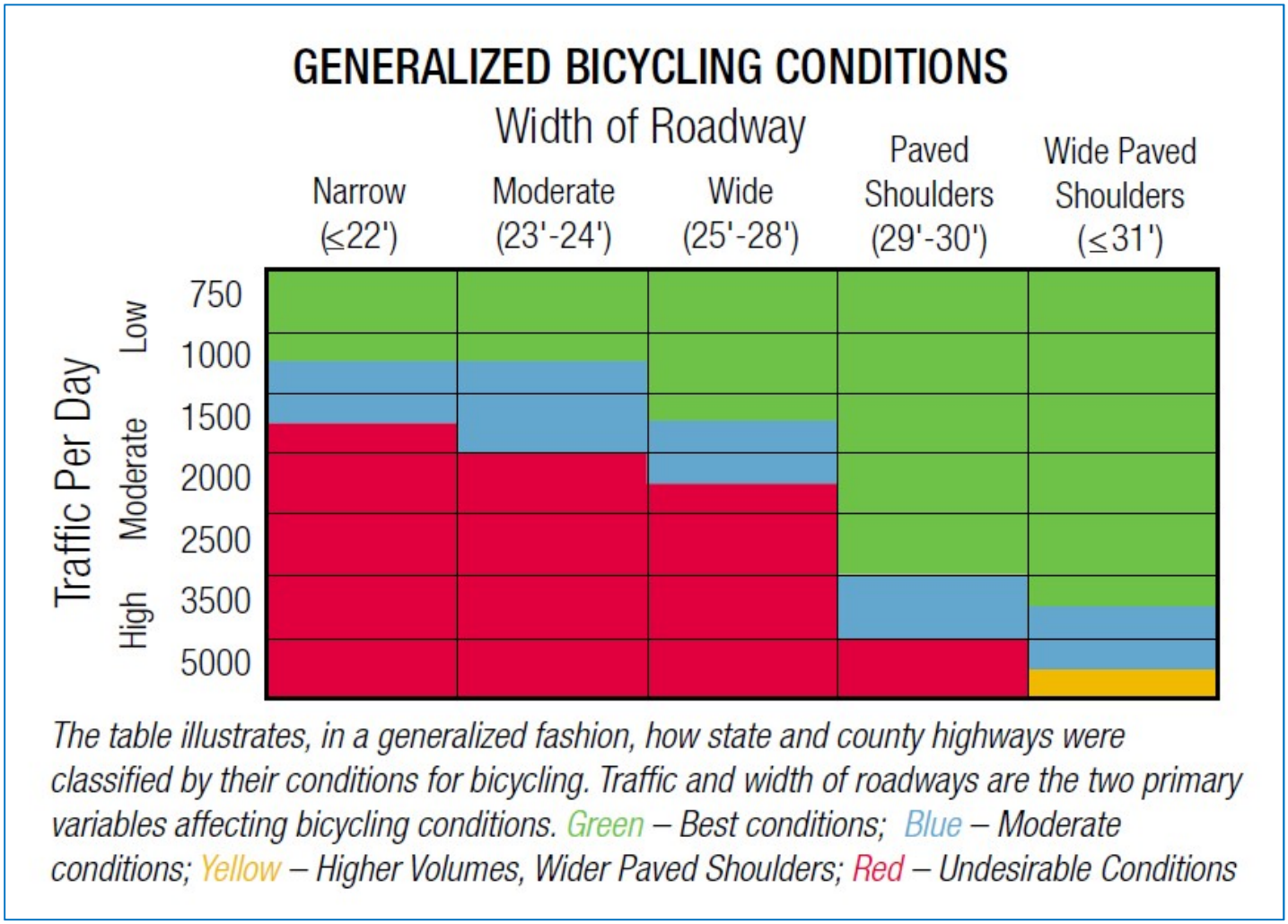

Figure 2-19: Bicycling Classifications
Source: Wisconsin Rural Bicycle Planning Guide

The WisDOT Bicycle Suitability Map provides a visual catalog of roads (mostly State and county highways) for counties in the Region and State by their suitability for bicycling based on the current condition and space available along the roads. WisDOT and the Wisconsin Bicycle Federation (Bike Fed) reevaluated the State's roadways in 2015, as shown in **Map Two**. Bicycle suitability for roads is categorized in the following ways:

1. *Best Condition*
2. *Biking Prohibited*
3. *High Volume, Undesirable*
4. *Higher Volume, Wider Paved Shoulders*
5. *Moderate Condition*
6. *Town Roads Unpaved*

While these categorizations do not constitute a plan or strategy, they do provide a detailed and relatively user-friendly inventory of current bicycling conditions throughout the ten-county Region while taking into account road types, conditions, and general desirability. This map is used to evaluate bicycle corridors throughout the Region in detail in **Chapter Three**. It is strongly suggested for communities when considering improvements to a roadway, that the bicycle suitability rating be reassessed with the roadway's latest traffic and truck count data and pavement geometrics.

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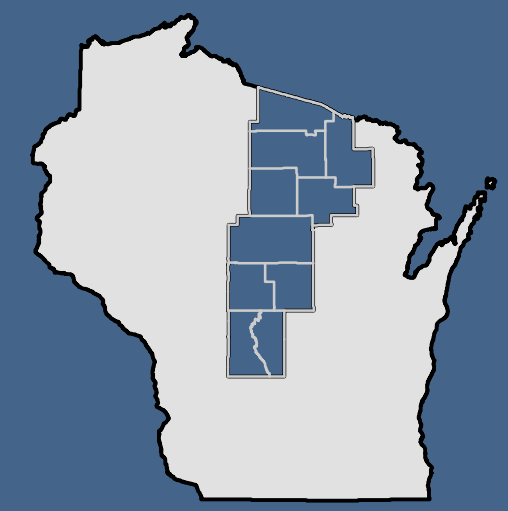
North Central Wisconsin Regional Bicycle & Pedestrian Plan

Adams, Forest, Juneau, Langlade, Lincoln, Marathon, Oneida, Portage, Vilas, & Wood Counties

Bike Suitability



North Central Wisconsin Regional Bicycle & Pedestrian Plan

Forest Co.
Langlade Co.
Oneida Co.
Vilas Co.
Lincoln Co.
Marathon Co.
Portage Co.
Adams Co.
Juneau Co.
Wood Co.

Legend

- County Boundaries
- **Bike Suitability of Roads**
- Best Condition
- Biking Prohibited
- High Volume, Undesirable
- Higher Volume, Wider Paved Shoulders
- Higher Volume, Wider Paved Shoulders 4 Lane
- Moderate Condition
- Town Roads Unpaved
- Roads

N

0 2.5 5 10 15 20 25 Miles

North Central Wisconsin Regional Planning Commission

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Crash Analysis

Pedestrians and bicyclists involved in crashes with motor vehicles are more likely to be seriously injured or killed than drivers. Nationwide, about two pedestrians died in vehicle crashes per 100,000 population and a pedestrian crash death occurred every 70 million miles walked, according to the US DOT. According to WisDOT, in 2015, there were 1,289 crashes involving pedestrians and 54 people were killed in the State of Wisconsin. Improvements in pedestrian safety, including engineering, education, enforcement, and emergency response have resulted in a steady decrease in the number of pedestrians injured and killed. However, 2015 saw a significant jump in fatalities since 2014.

One bicyclist was injured or killed every 9.7 hours in Wisconsin in 2015. In these crashes, 15 bicyclists were killed and 907 were injured. Since 1990 to 2015, the number of injuries has decreased by 47 percent between 1990 and 2015 as improvements in pedestrian safety have been made in areas such as engineering, education, enforcement, and emergency response. However, while the number of bicyclist fatalities decreased consistently between 2010 and 2014, bicycle crashes were also up in 2015. The majority of bicycle crashes happened in urbanized areas. Children, teenagers, and young adults together comprised a majority of injuries. The lack of road skills and excessive vehicular speeds in neighborhoods and school zones were a factor in many of these crashes. However middle aged adults were most likely to suffer a fatality.

There are several factors that may explain the increase in bicyclist and pedestrian injuries after 2015 in Wisconsin. One likely cause is that there are more bicyclists. Bicycle commuting has risen 62 percent in the last decade in the State. After years of decline, the annual vehicle miles traveled is up after a few years of relatively low gas prices. The combination results in a greater chance of interaction between motorized and non-motorized modes of transportation and the likelihood of crashes. [27]

As communities across the country launch Vision Zero campaigns to end traffic deaths, studying the location, characteristics, and contributing factors of crashes creates a better understanding of how crashes occur and strategies to prevent them. In Wisconsin pedestrian crashes are most likely to happen in a roadway or at a crosswalk. Any street crossing could potentially put a pedestrian in the path of an inattentive or speeding motorist. Of the 52 crashes in which a pedestrian was struck and killed, 59 percent involved an impaired pedestrian or driver. Bicycle crashes involved motorists failing to yield the right of way to a straight-through bicyclist when making a left turn; motorists failing to yield at a controlled intersection; bicyclists failing to yield at a controlled intersection and motorists turning right on a red light.

Understanding pedestrian/bicycle crash data helps to identify methods for preventing future crashes. The data used in this analysis was obtained from the UW-Madison Traffic Operations and Safety Laboratory (TOPS Lab) for 2000 through 2015. Note that highway and bicycle safety specialists now use the term "crash" instead of "accident" to emphasize that most automobile and bicycle interactions that most automobile and pedestrian/bicycle interactions are predictable and preventable occurrences. Additionally, some studies indicate that as few as ten percent of bicycle crashes are reported, and fewer than 50 percent of crashes that result in an emergency room visit appear in police reports.[28]

Figure 2-20: UW-Madison Traffic Operations & Safety Laboratory
Source: UW-Madison, 2017

[27] (Schlabowske July)

It is important to note that crash data, while useful for analysis, does not include the potentially many "near misses" which contribute to the perception of safety and comfort. A study on near misses in the UK found that near misses may be predictive of behavior or infrastructure that commonly leads to injury, and they may negatively affect cycling experience and uptake, as well as walking. [29] In other words, many crashes simply are not occurring because pedestrians and bicyclists will not venture out in current conditions.

In the Region, from 2000 to 2015, there were 1.9 pedestrian crashes per 1,000 people. This adds to 852 total crashes, 46 of which resulted in deaths. Forest County had the lowest crash rate, at 0.9 crashes per 1,000 people. Langlade County had the highest crash rate. However in total, there were only 48 crashes during the sixteen year period. Overall, Marathon County had the highest number, with 255 crashes. Given that crashes are more likely in urbanized area, this is not surprising.

In terms of pedestrian fatalities, Vilas County had the highest rate of pedestrian deaths per 1,000 people which was six total deaths over the past 16 years. While there were only 28 crashes in Vilas County, over one in five ended in a fatality. On the other hand, Oneida and Portage had the lowest rate of fatal pedestrian crashes, both at 0.03 fatalities per 1,000. Remarkably, in both counties, only 1.4 percent of pedestrian crashes ended in fatalities, which again are the lowest figures in the Region. The next lowest percentage of crashes resulting in fatalities was in Marathon County, at 0.09 percent, which is the most urbanized County in the Region. Across the Region, 46 pedestrians died in crashes, or 0.1 crashes per 1,000 people. About 5.4 percent of all pedestrian crashes in the Region resulted in deaths.

Table 2-13: 2001-2016 Year Pedestrian Crash Data per 1,000 People

	Injuries per 1,000 persons	***Fatalities per 1,000 persons***	***Crashes per 1,000 persons***
Adams	1.5	0.2	1.7
Forest	0.8	0.1	0.9
Juneau	1.9	0.2	2.1
Langlade	2.1	0.2	2.3
Lincoln	1.5	0.2	1.7
Marathon	1.8	0.1	1.9
Oneida	1.9	0.0	1.9
Portage	2.0	0.0	2.0
Vilas	1.0	0.3	1.3
Wood	2.0	0.1	2.1
Region	**1.8**	**0.1**	**1.9**

Source: UW-Madison TOPS Lab

[28] Schneider, Robert et al. "Wisconsin Pedestrian and Bicycle Crash Analysis: 2011-2013." University of Wisconsin Madison Tops Lab. October 2015.

[29] Aldred, Rachel. "Cycling near misses: Their frequency, impact, and prevention." *Transportation Research Part A: Policy and Practice.* Vol. 90. August 2016. Pages 69-83.

Table 2-14: 2001-2016 Year Bicycle Crash Data per 1,000 People			
	Injuries per 1,000 persons	*Fatalities per 1,000 persons*	*Crashes per 1,000 persons*
Adams	1.0	0.0	1.0
Forest	0.8	0.1	0.8
Juneau	1.3	0.1	1.3
Langlade	1.6	0.0	1.6
Lincoln	2.5	0.0	2.5
Marathon	2.9	0.0	2.9
Oneida	2.3	0.1	2.3
Portage	4.8	0.0	4.8
Vilas	1.7	0.1	1.7
Wood	3.2	0.0	3.2
Region	**2.8**	**0.0**	**2.8**

Source: UW-Madison TOPS Lab

In the Region, there were 1,258 crashes involving bicycles, which were 406 more crashes than those involving pedestrians. This equaled 2.8 bicycle crashes per 1,000 people. With 4.8 crashes per 1,000 people, Portage County had the highest rate of bicycle crashes per 1,000 people. This is probably due to the high number of students who bike on the campus of the University of Wisconsin – Stevens Point. However, there is not a clear pattern of why some counties have higher crash rates than others. The second highest crash rate is not Marathon County as one might expect with its urbanized areas, University of Wisconsin-Marathon County, or the North Central Technical School. The second highest number of crashes is Wood County at 3.2 crashes per 1,000 people. At 0.8 bicycle crashes per 1,000 people, Forest County had the lowest number of crashes.

While there were 46 pedestrian fatalities over the 16 year period, there were only 19 bicycle crash fatalities in the Region. This was 0.04 deaths per 1,000 people. At 0.1 deaths per 1,000 people, Forest County had the highest rate of fatalities, and 13 percent of crashes resulted in fatalities. With zero bicycle fatalities over the past sixteen years, Lincoln County had the lowest rate of fatal bicycle crashes.

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Chapter Three: Regional Bicycle & Pedestrian Network

Inventory of Bicycle Corridors throughout the North Central Region between Communities and Counties & Current Conditions of Bicycle Corridors throughout the ten-county Region and General Facility Recommendations

Process for Planning Bicycle Facilities

The *Wisconsin Rural Bicycle Planning Guide* recommends six steps for a complete bicycle planning process.[1] This plan has followed these steps at a Regional level, but it is likely that further refinement will be needed at the local level to properly implement that Regional plan and to best serve both local and Regional bicyclists and pedestrians. Following these steps can provide local governments with a consistent process for planning bicycle and pedestrian improvements.

1. *Develop a Vision, Goals, and Objectives*
2. *Establish/Refine Bicycle Planning Criteria*
3. *Inventory Crashes, Bicycle Use, and Bicycling Conditions*
4. *Identify Bicycle Travel Corridors*
5. *Evaluate and Select Specific Routes and Facility Types*
6. *Safety Programming*

Improving Undesirable Routes

Routes that were designated as poor or moderately conditioned for bicycling can be made more desirable for cycling through various facility improvements. Stakeholders, officials, and invested residents should use **Chapter Three** of the Regional Bicycle and Pedestrian Plan to identify undesirable routes in their communities and view **Chapter Four** as a set of possible recommendations that can be applied to improving these corridors as is appropriate. No improvements are necessarily needed where suitability is noted as "good condition."

Audits

Walking/Bicycling audits are a useful evaluation tool to examine the quality of a transportation corridor with a comprehensive lens. An audit will look at any number of variables that affect a transportation corridor, including corridor traffic conditions, pavement quality, immediate surroundings, raw foot traffic, etc. In any future evaluation or planning projects involving the identified corridors in the North Central Wisconsin Region, an audit could be a vital tool to further any of these future efforts.

[1] Williams, John, Tom Huber and Dan Thyes. 2006. *Wisconsin Rural Bicycle Planning Guide*. Pg. 6.

Connections within Communities

Bicycle and pedestrian connectivity within communities was reviewed through public input into the wikimapping exercise. Participants in the exercise took part in identifying conflict areas, areas of bicycling interest, current corridors, and current corridors in need of improvements. "Connections within communities" summarizes the conflict areas identified in the wikimapping exercise.

Table 3-1: Conflict Areas in Rhinelander

Conflict Area	***Public Input***
County Highway G/Lake Julia Road	
W Kemp Street Bike/Pedestrian Trail at the Wisconsin River	*Kemp St Bridge Bike/pedestrian trail has a gap here. No safe crossing road. Bridge narrow traffic exceeds speed limit. Limit should go to 25 farther West than currently.*
Along USH 8	*Proposed bike path to the Chamber bike path to connect to the City.*

Source: NCWRPC Wikimapping exercise, 2017

Table 3-2: Conflict Areas in the Stevens Point Area

Conflict Area	***Public Input***
Main Street at Highway 51	*I've witnessed families try to bike this section on way to PCYS… I feared for their lives!*
Clark Street/Business 51	
Main Street/Business 51	
Division Street/Franklin Street	*Needs an actual traffic light for peds here*
Division Street/4th Avenue	
Center Point Drive/Church Street	*No sidewalk on W side of street along Shopko*
Center Point Drive/Union Street	*No curb on south side of Center Point, no access to parking lot either*
Water Street/Main Street	*A bike lane should run through the center median of Water Street here. It would be an extension of Main Street that connects to the path near Chase Bank. A sidewalk currently does the same, but it is accurately made to align with the sidewalk on Main. There should be a similar bike lane that aligns with the street surface on Main and runs through the median on Water.*
Highway 66/Brilowski Road N	

Source: NCWRPC Wikimapping exercise, 2017

Table 3-3: Conflict Areas in the Wausau Area	
Conflict Area	***Public Input***
Highway XX/Terrebonne Drive	
Yawkey Avenue/1st Street	*I wish the 1st Street stop signs were converted to yield signs, so that bicyclists could come to a legal rolling stop and continue on.*
W Thomas Street/E Thomas Street	
River Street/Emter Street	
E Sherman Street at Riverside Park	
Wausau Holiday Station Stores	*No place to walk out of the road. Holiday build a retaining wall up to the curb line.*
S 17th Ave at Motel 6	
Riverside Plaza Shopping Center at the Wisconsin River	
Library Plaza Crossing at Slough Bridge	*Motorists rarely yield to pedestrians here and they seem to often go well over the speed limit*
Scott Street/1st Street	
Forest Street/N 6th Street	*This intersection is a nightmare for bicyclists and pedestrians. Too many lane changes needed and incoming traffic is coming fast and bad sight around the corner*
N 5th Street/McIndoe Street	*Drivers coming west on McIndoe roll through the stop sign frequently and aren't looking for bikes in the bike lane coming south on 5th. I've almost been hit more than 5 times here because of people not stopping at the stop sign.*
N 6th Street/Fulton Street	*These railroad tracks are awful! Extremely jarring on a bike and difficult to cross.*
Source: NCWRPC Wikimapping exercise, 2017	

Table 3-4: Conflict Areas in Wisconsin Rapids	
Conflict Area	**Public Input**
32nd Street S/Highway W	*Difficult to Cross Expressway due to traffic moving at 45-50 mph with no stop*
16th Street S/Highway W	*Bike path ends at W and 16th Street with no bike path turning onto 16th Street and no sidewalk in front of the high school*
Lincoln Street/Highway 13	
1st Street S/Highway 13	*A bike lane is needed under the expressway to avoid this intersection*[2]
14th Avenue S/Highway 73	*Only lighted cross sections are up closer to quality foods. Should have lighted crossing for residents and also increase ability to walk to school!*
17th Avenue S/Highway 73	*Only lighted cross sections are up closer to quality foods. Should have lighted crossing for residents and also increase ability to walk to school!*
Source: NCWRPC Wikimapping exercise, 2017	

[2] The City of Wisconsin Rapids plans to build a path underneath this expressway during the summer of 2018.

Regional Connections

Map Three, Conceptual Corridors, identifies possible regional connections to link communities and counties throughout the North Central Region as well as to connect the Region to the surrounding counties and a greater statewide network. The following tables **(3-5 to 3-29)** describe the shortest or most direct routes available to make these connections including municipal, county, State or Federal roads and existing off-road trails. For each link, the overall conditions for bicycling and walking are identified from the Bicycle Suitability Map. Most of these connections were identified through the plan survey, Wikimapping exercise, public workshops, or plan review comments. A few were added by Staff to fill-in key links to main population centers both within and adjacent to the Region. Overall, these corridors form a conceptual network representing where people want to go on an inter-community or regional basis.

Implementing such connections is not always accomplished in the most direct ways, however. Traffic volumes and other safety factors, physical barriers, and the location of previously existing facilities all play a role in the ultimate determination of routes. **Appendix One** illustrates a recommended network of routes which might be utilized to achieve the proposed regional connections. This recommended network was identified from existing local plans, local input, suitability mapping, and incorporates inventoried existing facilities. Some routing was added by staff to fill-in gaps in the network. Local communities should consider these proposed regional connections when planning and developing their own bicycle/pedestrian routes or networks.

Independent local and county plans build on and refine the Regional Bicycle and Pedestrian Plan and take precedence in the case of conflict. It is understood that not all recommended or suggested routes will be implemented as shown. Local conditions, funding availability and general preferences will heavily influence route designations and improvements.

Connections between Communities

The 2015 Wisconsin Bicycle Map created through a partnership between the Wisconsin Bicycle Federation (Bike Fed) and WisDOT provides a comprehensive view of conditions along possible bicycle corridors across all of Wisconsin's 72 counties. The legend provides classifications for the following types of roadways as pertains to bicyclists:

- ***Town Roads***: *These roads are not formally evaluated, but are classified as paved or unpaved, and comprise many bicycle corridors throughout the North Central Wisconsin Region.*
- ***Best Conditions for Bicycling***: *These are generally county and State highways with some combination of light traffic volume, paved shoulders, good sightlines, and a lack of truck traffic.*
- ***Moderate Conditions for Bicycling***: *These are generally county and State highways with slightly fewer bicycle accommodations than those roads listed as best condition.*
- ***Higher Volume, Wider Paved Shoulders***: *These are highway segments with fairly high traffic and truck volumes, but also with wider paved shoulders (about 4-5 feet).*
- ***High Volume, Undesirable Conditions***: *These are highway segments with higher traffic volume and no paved shoulders, or very high traffic volume with paved shoulders. Bicyclists should avoid these routes, or exercise extreme caution when utilizing these routes.*

These highway segment classifications will be referenced throughout the rest of the chapter when evaluating existing bicycle corridors between communities. The full legend can be referenced in **Appendix Three** of this Plan. The bicycle map was prepared for cyclists 16 years old and over with training and are capable of biking longer distances between communities.

Tables 3-5 – 3-14 will evaluate the overall conditions of bicycle corridors between communities within counties throughout the North Central Wisconsin Region, all based on the bicycle suitability map. Please note that lengths of travel are estimated and provided for illustrative purposes only and are not intended to serve as units of analysis.[3]

Table 3-5: Bike Corridor in Adams County

Node 1	*Node 2*	*Length of Travel*	*Description of Route(s)*	*Overall Corridor Condition*
Adams/Friend-ship	Rome	19 Miles	The quickest route between Adams/Friendship and Rome lies on town roads – alternatively bicyclists can ride on STH 13, mostly defined as moderately conditioned for bicycling.	Moderate Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-6: Bike Corridors in Forest County

Node 1	*Node 2*	*Length of Travel*	*Description of Route(s)*	*Overall Corridor Condition*
Crandon	Laona	12 Miles	The main bicycle corridor between Crandon & Laona follows USH 8, a high-volume, undesirable bicycling road with paved shoulders.	Poor Condition
Crandon	Nelma	34 Miles	Cyclists can conveniently follow STH 55 through the Chequamegon-Nicolet National Forest, a route marked as in best condition for bicycling in its entirety	Good Condition
Laona	Wabeno	10-13 Miles	Bicyclists have the choice of two direct routes between Laona and Wabeno: The Nicolet State Trail, or CTH H, a road designated as best conditioned for bicycling.*	Good Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017
**=denotes a route marked as a desired future route by participants in the NCWRPC Wikimapping Exercise*

[3] Throughout the Region, some State and local trails may be closed during the winter months and alternative routing may be required for winter travel.

Table 3-7: Bike Corridors in Juneau County

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Camp Douglas	Hustler	Three Miles	Bicyclists can easily travel between the two communities via the dedicated Omaha Bike Trail.	Good Condition
Camp Douglas	Necedah	17-18 Miles	Cyclists can travel entirely on roads designated as in best condition for bicycling between Necedah and Camp Douglas by travelling along CTH H and STH 21.	Good Condition
Camp Douglas	New Lisbon	6-8 Miles	Bicyclists can easily travel between New Lisbon and Camp Douglas along USH 12, designated as best condition for bicycling.	Good Condition
Elroy	Hustler	Ten Miles	Bicyclists can easily travel between Elroy and Hustler via the dedicated Omaha Bike Trail	Good Condition
Elroy	Mauston	13 Miles	Bicyclists can travel between Elroy and Mauston along STH 82, which is designated as best condition for bicycling.*	Good Condition
Elroy	Union Center	Four Miles	Bicyclists can easily travel between the two communities via the dedicated "400" State Trail.	Good Condition
Lyndon Station	Wonewoc	23-27 Miles	Bicyclists can access Wonewoc from Lyndon Station by biking on stretches of USH 12 and STH 58 designated as best condition for bicycling, and finish the commute along the "400" State Trail.	Good Condition
Lyndon Station	Mauston	12 Miles	Bicyclists can commute between the two communities along CTH N, along a stretch that is almost entirely designated as "best condition" for bicycling.	Good Condition
Mauston	Necedah	17-21 Miles	The most direct route between Mauston and Necedah lies along STHs 58 and 80, which are alternatively listed as moderate and undesirable conditions for bicycling.	Poor Condition
Mauston	New Lisbon	8-10 Miles	Bicyclists can commute between Mauston and New Lisbon along USH 12 along a stretch of which nearly 100 percent is classified as "best condition" for bicycling.	Good Condition
Necedah	Necedah Wildlife Refuge	N/A	Bicyclists can reach the Wildlife Refuge from Necedah either by STH 80 or STH 21, both of which are "best condition" bicycling routes.	Good Condition
Necedah	New Lisbon	12 Miles	The most direct route between Necedah and New Lisbon follows STH 80, which is rated as mostly "best condition," but also poor and moderate condition at certain points along this corridor.	Moderate Condition
Union Center	Wonewoc	Three Miles	Bicyclists can easily commute between Union Center and Wonewoc via the "100" State Trail.	Good Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017
**=denotes a route marked as a desired future route by participants in the NCWRPC Wikimapping Exercise*

Table 3-8: Bike Corridors in Langlade County

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Antigo	Elcho	22-28 Miles	The bicycle routes from Antigo to Elcho involve significant travel along USH 45, a high volume, undesirable route for bicycling.	Poor Condition
Antigo	White Lake	22-26 Miles	The main corridor from White Lake to Antigo follows STH 64, a road marked as best condition for bicycling.	Good Condition
Elcho	White Lake	39-40 Miles	The corridors between White Lake and Elcho follow mostly town roads and involve some travel along bicycle-friendly STH 64, but also high-volume USH 45.	Moderate Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-9: Bike Corridors in Lincoln County

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Merrill	Tomahawk	25-32 Miles	Multiple bicycle corridors between Merrill and Tomahawk exist, the most direct being STH 107, which is rated best condition for bicycling.	Good Condition
Merrill	Underdown Recreation Area	14-18 Miles	The corridor between Merrill and the Underdown Recreation Area in Gleason involves travel on CTH K and either CTHs R or H, all of which are rated as best condition for bicycling, as well as local roads.	Good Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-10: Bike Corridors in Marathon County

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Athens	Edgar	13 Miles	Most of the corridor between Athens and Edgar involves travel along STH 97, and CTHs M and U, which are rated as best condition for bicycling. However, all routes between the two communities involve at least minimal travel on unpaved town roads and crossing four-lane, high volume traffic at STH 29.	Moderate Condition
Athens	Unity	25 Miles	Similar to the corridor between Athens and Edgar, most travel follows "best condition" rated routes on CTHs A, E and N, but also involves crossing high-volume STH 97 and travelling alongside another high-volume, four-lane highway, STH 13.	Moderate Condition
Brokaw	Dells of the Eau Claire	20-23 Miles	The corridor between Dells of the Eau Claire County Park and Brokaw involves travel on STH 52, and CTHs Y and WW (and local roads). Most of the travel is on best condition segments, but some segments of CTH WW are listed as poor or moderate condition.	Moderate Condition
Brokaw	Marathon City	16-17 Miles	The quickest routes from Brokaw to Marathon mostly involve travel on local roads, and travels along STH 107 that are rated as "best condition."	Good Condition
Brokaw	Wausau Area	7-8 Miles	It is difficult for a bicycle to travel from Brokaw to Wausau without travelling on CTH K, much of which is rated as high volume undesirable outside of the City of Wausau.	Poor Condition
Dells of the Eau Claire	Hatley	Ten Miles	The corridor between Hatley and the County Park involves travel along CTH Y – rated as best condition for bicycling – and local roads.	Good Condition
Dells of the Eau Claire	Wausau Area	18-21 Miles	The corridor between Wausau and the Dells of the Eau Claire Park involves travel along STH 52 and local roads. The route can be completed entirely on segments of the county highway rated as "best condition."	Good Condition
Edgar	Marathon City	7-8 Miles	The corridor between Marathon City and Edgar avoids all highways and travels entirely along town roads, many of which are unpaved.*	Moderate Condition
Edgar	Stratford	14 Miles	While significant portions of CTHs H, M and P, and STH 153 are designated as "best condition" for bicycling, all routes between the communities involve some travel on "moderate condition" roads and "high volume, undesirable" segments.*	Moderate Condition
Elderon	Hatley	Six Miles	The most direct corridors from Hatley to Elderon involve combinations of County and State highways marked "best condition" for bicycling, paved town roads and the Mountain-Bay State Trail.	Good Condition
Elderon	Mosinee	24 Miles	The Corridor from Mosinee to Elderon involves travel on STH 153, with some travel on CTHs J and Y, and II. While the corridor involves paved city/town roads and highways marked "best condition" for cycling, there is a brief but very undesirable four-lane highway stretch immediately east of Mosinee.	Moderate Condition
Hatley	Wausau Area	N/A	The corridor from Hatley to the Wausau Area directly follows the Mountain-Bay State Trail.	Good Condition

Marathon City	Mosinee	13-15 Miles	The corridor between Mosinee and Marathon can be completed along CTH B, which is rated almost entirely as “moderate condition” along this segment.	Moderate Condition
Marathon City	Wausau	13-16 Miles	The most direct corridor from Marathon City to the Wausau Area lies along CTH NN, designated as “best condition” for bicycling before it transitions into local roads.*	Good Condition
Mosinee	Wausau Area	18 Miles	Mosinee and Wausau are generally connected between a series of local, low volume roads and designated bike routes throughout the urban area. West of the Wisconsin River, CTH K has moderate traffic and no paved shoulders. Meanwhile east of the Wisconsin River, Old Highway 51 has paved shoulders, yet heavy traffic.	Moderate Condition
Mosinee	Stratford	19-21 Miles	The corridor between Mosinee and Stratford follows STH 153, most of which is rated as “best condition” for cycling along this route.	Good Condition
Spencer	Unity	Seven Miles	This corridor follows STH 13, a direct route but runs along a two-lane highway segment with wide paved shoulders.	Moderate Condition
Stratford	Unity	15 Miles	Routes from Stratford to Unity start on a stretch of STH 153 designated as moderate condition, and then branch off on CTHs E or F, eventually merging to CTH P, that leads into Unity. Except for the stretch of STH 153, the rest of the highways are designated as “best condition” for bicycling.	Moderate Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017
**=denotes a route marked as a desired future route by participants in the NCWRPC Wikimapping Exercise*

Table 3-11: Bike Corridors in Oneida County

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Hazelhurst	Minocqua	Five Miles	The prime corridor between Minocqua and Hazelhurst follows the Hiawatha Trail and Bearskin State Park Trail.	Good Condition
Hazelhurst	Rhinelander	24-25 Miles	The corridor between Hazelhurst and Rhinelander follows the Hiawatha Trail and Breaskin State Park Trail before either following a series of local roads or portions of CTH K that are rated moderate and poor condition for bicycling.	Moderate Condition
Hazelhurst	Three Lakes	39-43 Miles	Although much of the corridors between Hazelhurst and Three Lakes involve bike trails and local roads, it is difficult for a cyclist to avoid portions of USH 51 or STH 70, much of which is rated as high volume and poor condition for cycling.	Poor Condition
Minocqua	Rhinelander	24-29 Miles	The main corridor from Rhinelander to Minocqua follows STH 47, which is primarily a high volume, undesirable route for bicycling. Although it is also possible to bike on CTH K to reach the Bearskin State Trail that leads to Minocqua, CTH K is also a high-volume undesirable route without paved shoulders.	Poor Condition
Monico	Rhinelander	14 Miles	The corridor between Rhinelander and Monico follows USH 8/STH 47, most of which is rated as undesirable conditions for bicycling.	Poor Condition
Rhinelander	Three Lakes	21-24 Miles	The corridor from Rhinelander to Three Lakes travels primarily along town roads until reaching a brief segment along CTH A, a high-volume route for that segment.*	Moderate Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017
**=denotes a route marked as a desired future route by participants in the NCWRPC Wikimapping Exercise*

Table 3-12: Bike Corridors in Portage County

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Amherst Junction	Rosholt	14-16 Miles	The most direct and safest route from Rosholt to Amherst Junction involves travelling on town roads to CTHs A, Z, and ZZ, through Nelsonville and into Amherst Junction via CTH Q. All the CTHs on this route are rated as best condition for cycling, except for CTH Q.	Moderate Condition
Amherst Junction	Stevens Point Area	16-19 Miles	The entirety of the corridor between Amherst Junction and the Stevens Point Area follows the Tomorrow River State Trail.	Good Condition
Junction City	Stevens Point Area	12-15 Miles	While the quickest route from the Stevens Point area to Junction City follows CTH HH, a road listed in moderate condition with three-foot paved shoulders, an alternative route exists along CTHs C and O, both of which are listed as "best condition for biking.*	Good Condition
Rosholt	Stevens Point Area	17-22 Miles	The corridors between Rosholt and the Stevens Point area all involve some amount of travel along STH 66, a moderately condition road for cycling with paved shoulders. Most County highways that branch off the main road are better conditioned for bicycling, but provide a more indirect route to Stevens Point.	Moderate Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017
**=denotes a route marked as a desired future route by participants in the NCWRPC Wikimapping Exercise*

Table 3-13: Bike Corridors in Vilas County

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Boulder Junction	Conover	24-32 Miles	The majority of the corridor between Boulder Junction and Conover consists of local roads and portions of Rustic CTH K rated as "best condition." However, portions near Conover are labeled as moderate condition, while the brief travel along a USH 45 segment is rated as high volume, undesirable.	Moderate Condition
Boulder Junction	Manitowish Waters	15 Miles	A bicyclist can travel from Boulder Junction to Manitowish Waters entirely on the Heart of Vilas County Trail.	Good Condition
Boulder Junction	Sayner	15-19 Miles	A bicyclist can travel from Sayner to Boulder Junction entirely along the Crystal Lake Trail.	Good Condition
Conover	Eagle River	11 Miles	The corridor between Eagle River and Conover follows USH 45 on a segment designated as a high volume road unsuitable for bicycling.*	Poor Condition
Conover	Land O'Lakes	Nine Miles	The corridor between Conover and Land O'Lakes follows USH 45 on a segment moderately-to-undesirably conditioned for bicycling up to the Michigan border, and then following CTH B west into Land O'Lakes.*	Poor Condition
Conover	Phelps	10-12 Miles	A bicyclist can travel from Conover to Phelps entirely along portions of CTH K rated as best condition for bicycling. There are also existing off-road trail segments between Conover and Phelps, and future trails are being planned as of 2018.	Good Condition
Conover	Sayner	17 Miles	Most of the route between Sayner and Conover lies on portions of CTHs K and N rated as best conditioned for bicyclists, although portions near Conover are labeled as moderate condition; however, the route requires briefly traveling along USH 45, which is rated as high volume, undesirable.	Moderate Condition
Eagle River	St. Germain	16-20 Miles	While the most direct corridor between the two communities runs along STH 70 – a high volume undesirable roadway for bicycles, other more indirect corridors exist along local roads.	Moderate Condition
Lac du Flambeau	Manitowish Waters	19-21 Miles	The most ideal route between Lac du Flambeau to Manitowish Waters follows STH 47 (mostly designated as best condition for bicycling, then onto Powell Road and finally finish the route along the Hart of Vilas County Trail. Although this route is mostly a best-condition route for bicycling, small segments are high volume and undesirable, whilst parts of the town road are marked as unpaved.	Moderate Condition
Land O'Lakes	Phelps	11 Miles	The corridor between Land O'Lakes and Phelps travels along local roads and portions of CTH E rated as best condition for bicycling.	Good Condition
Manitowish Waters	Presque Isle	14 Miles	The corridor from Manitowish Waters to Presque Isle may be completed along the Heart of Vilas County Trail, and portions of CTHs P and W rated as best condition for bicycling.	Good Condition
St. Germain	Sayner	5-6 Miles	A bicyclist can travel from St. Germain to Sayner entirely along the St. Germain Bike Trail.	Good Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017
**=denotes a route marked as a desired future route by participants in the NCWRPC Wikimapping Exercise*

Table 3-14: Bike Corridors in Wood County

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Arpin	Auburndale	8-9 Miles	The corridor between Arpin and Auburndale may be completed entirely along portions of STH 186 rated as best condition for bicycling.	Good Condition
Arpin	Marshfield	15-20 Miles	The most direct corridor from Arpin to Marshfield involves CTHs N and A. While formally rated as a best condition route for bicycling, 2016 WisDOT traffic counts indicate annual daily traffic of 3,319 on this road, 20 percent of which is truck traffic.	Moderate Condition
Arpin	Pittsville	12-13 Miles	The corridor between Arpin and Pittsville can be completed on portions of CTHs E, C, and A rated as best condition for bicycling.	Good Condition
Arpin	Vesper	Seven Miles	The safest corridor between Arpin and Vesper involves taking town roads and heading south to CTH C to bicycle into Vesper.* While formally rated as a best condition route for bicycling, 2016 WisDOT traffic counts indicate annual daily traffic of 2,600, 23 percent of which is truck traffic.	Moderate Condition
Auburndale	Marshfield	10-13 Miles	The safest corridor between Auburndale and Marshfield follows town roads and travelling north along CTHs H and Y (both designated as best condition for cycling) before reaching City roads.*	Moderate Condition
Marshfield	Pittsville	17-21 Miles	The corridor between Marshfield and Pittsville involves portions of CTH A rated as best condition for bicycling, and a short amount of travel is required along either high volume STH 13 or local roads. Based on 2016 WisDOT traffic counts which indicate heavy truck traffic on the northern half of this corridor, it is rated as overall poor condition for bicyclists.	Poor Condition
Pittsville	Wisconsin Rapids	18-22 Miles	The most direct route between Pittsville and Wisconsin Rapids involves either travel along STH 73, much of which is high volume road segments rated undesirable or moderate, or a more indirect system of local roads.	Moderate Condition
Rudolph	Wisconsin Rapids	9-11 Miles	The safest corridor from Rudolph down to Wisconsin Rapids involves first heading west along CTH C, then heading south on CTH S until reaching Wisconsin Rapids. This is not the most direct route, but both segments are classified as "best condition" for bicycling.	Moderate Condition
Vesper	Wisconsin Rapids	11-13 Miles	The corridor between Vesper and Wisconsin Rapids follows CTH F between the two communities – nearly the entire segment is classified as "best condition" for bicycling.*	Good Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017
**=denotes a route marked as a desired future route by participants in the NCWRPC Wikimapping Exercise*

Connections between Counties

Tables 3-15 – 3-29 will evaluate the overall conditions of bicycle corridors between communities across county lines throughout the North Central Wisconsin Region, all based on the bicycle suitability map. Further intergovernmental cooperation may be required to make facility improvements on these routes. Please note that lengths of travel are estimated and provided for illustrative purposes only and are not intended to serve as units of analysis.[4]

Table 3-15: Bike Corridors between Adams & Juneau Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Adams/Friend-ship	Necedah	19 Miles	Most of this route follows STH 21, most of which is designated as a high volume, undesirable route with paved shoulders between the two communities.	Poor condition
Adams/Friend-ship	Mauston	25 Miles	This route follows STH 13, a moderate condition bike route with paved shoulder and then crosses the Wisconsin River at STH 82, a high volume undesirable road for bicycling with paved shoulders.	Poor condition
Adams/Friend-ship	Wisconsin Dells	25 Miles	The entirety of this route runs along STH 13 on paved shouldered road, most of which is listed as moderate condition for bicycling.	Moderate condition
Lyndon Station	Wisconsin Dells	Nine Miles	CTH N is an ideal bicycle route that runs uninterrupted from Lyndon Station to the Wisconsin Dells.	Good condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-16: Bike Corridor between Adams & Wood Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Rome	Wisconsin Rapids	44 Miles	The entirety of this route runs along STH 13 on paved shouldered road, most of which is listed as high volume, undesirable conditions for bicycling.	Poor condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

[4] Throughout the Region, some State and local trails may be closed during the winter months and alternative routing may be required for winter travel.

Table 3-17: Bike Corridors between Forest & Langlade Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Crandon	Elcho	22 Miles	Most of this route runs along CTH B, listed as a best conditioned road for bicycling. However, near Crandon and Elcho, cyclists must ride on some amount of undesirable routes or town roads in order to complete the trip between the two communities.	Moderate Condition
Crandon	White Lake	38-45 Miles	The corridor between Crandon and White Lake may be completed in its entirety along the off-road Wolf River State Trail.	Good Condition
Wabeno	White Lake	30 Miles	The routes between Wabeno and White Lake all involve some combination of town roads and dedicated paths (Nicolet State Trail and/or the Wolf River State Trail), and/or a dirt path along STH 32. Conditions are mostly optimal for biking, but connectivity should be addressed.	Moderate Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-18: Bike Corridors between Forest & Oneida Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Crandon	Monico	11 Miles	The corridor between Monico and Crandon follows USH 8, a high volume undesirable route for bicyclists.	Poor Condition
Crandon	Three Lakes	26 Miles	Nearly the entire route between Crandon and Three Lakes follows STH 32, a road listed in its entirety as "best condition."	Good Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-19: Bike Corridors between Forest & Vilas Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Eagle River	Nelma	25 Miles	The route between Nelma and Eagle River crosses through the Chequamegon-Nicolet Forest along CTH A and STH 70, the routes of which are both classified as "best condition" for bicycling for most of the duration of the route.	Good condition
Nelma	Phelps	17-20 Miles	The corridor between Nelma and Phelps runs along CTHA and STH 17 on segments rated as best condition for bicycling	Good Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-20: Bike Corridors between Juneau & Wood Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Necedah Wildlife Refuge	Pittsville	33 Miles	The primary corridor from the Wildlife Refuge to Pittsville lies on STH 80, which directly connects the two areas. While most of this segment is classified as best condition for bicycling, STH 80 becomes a moderately conditioned road heading north towards Pittsville.	Moderate Condition
Necedah Wildlife Refuge	Wisconsin Rapids	41-42 Miles	The main corridor between the wildlife refuge and the Wisconsin Rapids area involves town roads running adjacent to Petenwell Lake until reaching Nekoosa, where bicyclists can travel along a designated bicycle trail into the City.	Moderate condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-21: Bike Corridor between Langlade & Lincoln Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Antigo	Merrill	28-30 Miles	The primary corridor from Merrill to Antigo follows STH 64 through Langlade County Forest, which is classified at various points as “best condition” or “moderate condition.”	Moderate Condition
Elcho	Tomahawk	31 Miles	The corridor from Elcho to Tomahawk begins on Moccasin Lake Road until reaching CTH Q and STH 17. Bicyclists will eventually encounter CTH D, which continues into Tomahawk. While most roads on the route are either town roads or “best condition” roads, CTH D becomes a high volume, undesirable bicycle route before entering Tomahawk.	Poor Condition
Elcho	Underdown Recreation Area	26-34 Miles	Most of the corridor between Elcho and the Underdown Recreation Area lies on segments rated as best condition along CTHs CC, CCC, T, and H, and on local roads, but also along a stretch of USH 45 rated as high volume, undesirable.	Moderate Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-22: Bike Corridor between Langlade & Marathon Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Antigo	Dells of the Eau Claire	18 Miles	The route between the Dells of the Eau Claire County Park and Antigo lies along local roads and a portion of CTH Y rated as best conditioned for bicyclists.	Good Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-23: Bike Corridor between Langlade & Oneida Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Elcho	Monico	11 Miles	Most of the route between Elcho and Monico follows USH 45, most of which is listed as an undesirable, poorly conditioned route for bicyclists.	Poor Condition
Elcho	Rhinelander	22-28 Miles	The corridor from Elcho to Rhinelander follows town roads north until encountering CTH G, which continues north into Rhinelander. CTH G fluctuates between classifications as "high volume, undesirable" and "best" condition" along this corridor.	Moderate Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-24: Bike Corridors between Lincoln & Marathon Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Brokaw	Merrill	13-14 Miles	Most of the corridor between Brokaw and Merrill follows CTH K, which is mostly rated as high volume undesirable for bicycling, and a brief portion of CTH WW rated as best condition.	Poor Condition
Athens	Merrill	29 Miles	The safest route from Athens to Merrill involves following CTH A east until reaching STH 107, riding north and following the highway until reaching. Although indirect, the vast majority of this route is marked as "best condition"	Good Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017
**=denotes a route marked as a desired future route by participants in the NCWRPC Wikimapping Exercise*

Table 3-25: Bike Corridors Lincoln & Oneida Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Hazelhurst	Tomahawk	28-34 Miles	While most of the corridor between Hazelhurst and Tomahawk consists of the Hiawatha Trail and the Bearskin State Park Trail, some travel on high volume, undesirable portions of CTH L are required to complete the journey.	Moderate Condition
Rhinelander	Tomahawk	23-24 Miles	The corridor between Rhinelander and Tomahawk contains large portions of USH 8 that are high volume and rated undesirable for bicyclists.	Poor Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-26: Bike Corridors between Marathon & Portage Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Elderon	Rosholt	19 Miles	Bicyclist can travel this corridor on highways entirely designated as "best condition" for bicycling by travelling south along STH 49, and then heading west on STH 66 until reaching Rosholt.	Good Condition
Mosinee	Stevens Point Area	22 Miles	The route from Mosinee to the Stevens Point Area begins on CTH DB/Old Highway 51, which is classified for the most part as a moderately conditioned road for bicycling. CTH DB then intersects with Sunset Drive, a town road, and continues south, turning into N 2nd Drive and continuing into the Stevens Point Area.	Moderate Condition
Mosinee	Junction City	18-19 Miles	Bicyclists travelling along the Mosinee-Junction City Corridor ride along STH 153 and CTHs C, G, H and O. While most of this route is rated as best condition for bicycling, segments along CTHs C and O, and STH 153 are rated as moderate or undesirable condition for bicycling.	Moderate Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-27: Bike Corridors between Marathon & Wood Counties

Node 1	*Node 2*	*Length of Travel*	*Description of Route*	*Overall Corridor Condition*
Spencer	Marshfield	Nine Miles	The main route between Spencer and Marshfield lies on STH 13, a four-lane highway with paved shoulders.*	Poor Condition
Stratford	Marshfield	13 Miles	The main route between Stratford and Marshfield lies on STH 97, a high volume road with paved shoulder designated as undesirable for bicycle suitability	Poor Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017
**=denotes a route marked as a desired future route by participants in the NCWRPC Wikimapping Exercise*

Table 3-28: Bike Corridors between Oneida & Vilas Counties

Node 1	*Node 2*	*Length of Travel*	*Description of route*	*Overall Corridor Condition*
Eagle River	Three Lakes	11 Miles	These two communities are connected by the Three Eagle Trail, a dedicated rail-trail that allows for walking, biking, cross-country skiing and snowmobiling.	Good Condition
Hazelhurst	Lac Du Flambeau	19 Miles	The corridor between Hazelhurst and Lac du Flambeau involves travel along the Hiawatha Trail and Bearskin State Park Trail,	Moderate Condition
Manitowish Waters	Minocqua	24-27 Miles	The corridor between Minocqua and Manitowish Waters follows USH 51, most of which is rated as poor conditioned, undesirable, high volume riding for bicyclists.	Poor Condition
Minocqua	St. Germain	17 Miles	The corridor from Minocqua to St. Germain goes along CTH J, which is rated as best conditioned for bicyclists.	Good Condition
Minocqua	Sayner	16-18 Miles	The corridor from Minocqua to Sayner goes along CTH J (listed as best condition), then takes local roads to STH 70, listed as an undesirable, high volume route for bicyclists, before crossing onto the St. Germain Bike Trail, which continues into Sayner.	Moderate Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017

Table 3-29: Bike Corridors between Portage & Wood Counties

Node 1	*Node 2*	*Length of Travel*	*Description of route*	*Overall Corridor Condition*
Stevens Point	Wisconsin Rapids	19 Miles	The shortest route primarily follows STH 66, a road with a paved shoulder listed under moderate condition.	Moderate Condition
Auburndale	Junction City	12 Miles	A straight route along CTH P exists between the two communities. Most of the road is classified as under best condition.*	Good condition
Junction City	Rudolph	Eight Miles	The route between the two communities follows a series of State highways – CTH P in Junction City, CTH C in Rudolph, and CTH G in between. While most of CTH G is in prime condition for bicycling, the route also contains unpaved town roads.	Moderate Condition

Source: WisDOT Bicycle Suitability Map 2015/NCWRPC 2017
**=denotes a route marked as a desired future route by participants in the NCWRPC Wikimapping Exercise*

Connections to the Future U.S. Bike Route System

As of 2017, the State of Wisconsin is one of twenty-seven states without approved routes as part of the United States Bike Route System (USBR). However, the National Corridor Plan of October 2017, written by the Adventure Cycling Association and AASHTO (American Association of State Highway and Transportation Officials), designates three routes that are planned to cross through the North Central Wisconsin Region at some point in the future. USBR Route 20 currently crosses Michigan from east-to-west, ending at Ludington along Lake Michigan. However, the route is planned to begin at the ferry crossing in Manitowoc and cross the Region towards the Twin Cities Area. USBR Route 10 currently crosses Michigan's Upper Peninsula from east to west, ending at Iron Mountain along the Michigan-Wisconsin border. The route is projected to extend across northern Wisconsin and connect to the Twin Cities Area. USBR 30 is planned to extend east-to-west from Milwaukee to La Crosse, including 32 miles of the Elroy-Sparta Trail. While these extensions of the USBRs are not complete, future bicycle facility infrastructure developments and improvements should be prepared to host future USBRs.

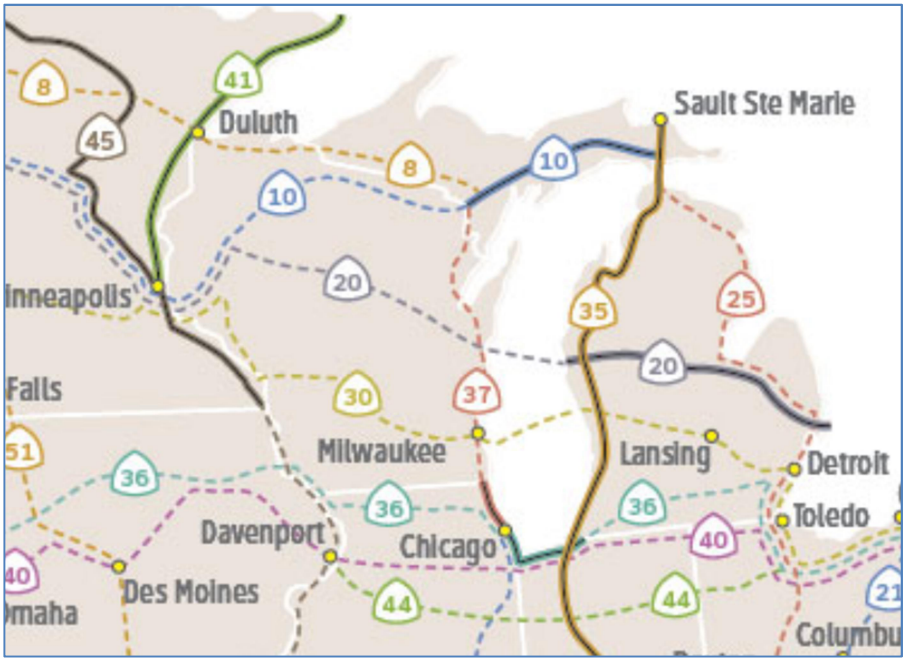


Figure 3-1: Proposed USBR Routes in Wisconsin
Source: Adventure Cycling Association, 2017

Proposed Corridors to Locations outside the Region

The plan proposes a series of interconnected corridors of alternative transportation between communities and counties throughout the North Central Wisconsin Region, and connected to adjacent communities outside the ten-county area. Equally important to bicycle and pedestrian connectivity within the Region is connectivity of the Region to the rest of Wisconsin and to Michigan's Upper Peninsula. The corridors listed in **Table 3-30** should be developed to the following communities surrounding the Region in implementing this Plan.

Table 3-30: Proposed Connections to Communities outside the Region

Community		*Community Outside the Region*	
Adams/Friendship	Adams County	Wautoma	Waushara County
		Westfield	Marquette County
		Oxford	Marquette County
Amherst Junction	Portage County	Iola	Waupaca County
		Plainfield	Waushara County
		Waupaca	Waupaca County
Antigo	Langlade County	Wittenberg	Shawano County
Athens	Marathon County	Medford	Taylor County
Camp Douglas	Juneau County	Oakdale	Monroe County
Hatley	Marathon County	Wittenberg	Shawano County
Hazelhurst	Oneida County	Park Falls	Price County
Lac Du Flambeau	Vilas County	Park Falls	Price County
		Ironwood	Michigan
Land O'Lakes	Vilas County	Watersmeet	Michigan
Laona	Forest County	Goodman	Marinette County
		Iron River	Michigan
Manitowish Waters	Vilas County	Ironwood	Michigan
Marshfield	Wood County	Neillsville	Clark County
Mauston	Juneau County	Oxford	Marquette County
Merrill	Lincoln County	Rib Lake	Taylor County
Necedah	Juneau County	Oakdale	Monroe County
Necedah Wildlife Refuge	Juneau County	Warrens	Monroe County
Nelma	Forest County	Iron River	Michigan
Pittsville	Wood County	Neillsville	Clark County
Presque Isle	Vilas County	Wakefield	Michigan
Rome	Adams County	Plainfield	Waushara County
Stevens Point Area	Portage County	Plainfield	Waushara County
Tomahawk	Lincoln County	Prentice	Price County
Union Center	Juneau County	Hillsboro	Vernon County
Unity	Marathon County*	Abbotsford	Clark County*
Wabeno	Forest County	Lakewood	Oconto County
White Lake	Langlade County	Shawano	Shawano County
Wisconsin Dells	Juneau County*	Lake Delton	Sauk County
		Portage	Columbia County
Wonewoc	Juneau County	Hillsboro	Vernon County
		Reedsburg	Sauk County

Source: NCWRPC, 2017
** = Community only partially located within county*

Other Key Destinations

During the wikimapping exercise, participants frequently indicated various destination points for bicyclists other than municipalities, and also recommended future bicycle routes, some of which chart new destinations, while others supplement current corridors. Table 3-31 list the locations of bicycle destinations throughout the Region, and identified future routes to be pursued. Additional bicycle parking could also enhance future corridors – participants in the wikimapping exercise marked areas in the Wausau, Rhinelander, Stevens Point, and Wisconsin Rapids area where additional bicycle parking could be beneficial.

Table 3-31: Popular Bicycling Location

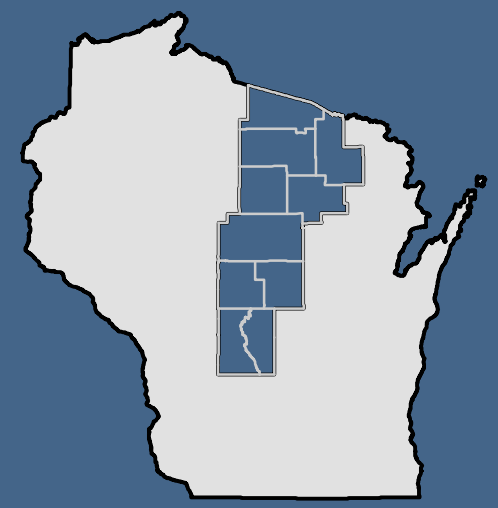
Destination	*Location*
Spring Lake	
Donlin Road/Ptrowitz Road	Mauston
Mountain Bay State Trail	Marathon County
Big Eau Plaine County Park	Mosinee
Newbold Trail	Oneida County
Downtown Rhinelander Chamber Bike Route	Rhinelander
Nine-Mile Recreation Area Rib Mountain Drive	Rib Mountain
Twin Lakes	Rome
Evergreen Kort Street Boat Launch Rothschild Pavilion River Street Park	Rothschild
Mead Park Main Street Corridor	Stevens Point
Three Lakes	Three Lakes
Marathon County Public Library Grand Avenue Ross Avenue Stewart Avenue Corridor UW-Marathon County 3rd Street Corridor 400 Block Wausau Athletic Park Wausau West High School Northcentral Technical College Sylvan Hill Park	Wausau
South Wood County Park Rapids Municipal Zoo Witter Athletic Field McMillan Memorial Library Quality Foods IGA Walmart Super Center Nepco Lake County Park	Wisconsin Rapids

Source: NCWRPC Wikimapping Exercise, 2017

North Central Wisconsin Regional Bicycle & Pedestrian Plan

Adams, Forest, Juneau, Langlade, Lincoln, Marathon, Oneida, Portage, Vilas, & Wood Counties

Conceptual Corridors



North Central Wisconsin Regional Bicycle & Pedestrian Plan

Goodman
Lakewood
Shawano
Iron River
Laona
Wabeno
Forest Co.
White Lake
Nelma
Crandon
Watersmeet
Land O' Lakes
Phelps
Conover
Eagle River
Three Lakes
Monico
Elcho
Antigo
Wittenberg
Elderon
Dells of the Eau Claire
Hatley
Iola
Amherst Junction
Waupaca
Rosholt
Plainfield
Wautoma
Rhinelander
Langlade Co.
Underdown Recreation Area
Merrill
Brokaw
Wausau Area
Stevens Point Area
Wakefield
Boulder Junction
St Germain
Manitowish Waters
Sayner
Minocqua
Lac Du Flambeau
Hazelhurst
Vilas Co.
Oneida Co.
Tomahawk
Lincoln Co.
Marathon Co.
Mosinee
Junction City
Rudolph
Wisconsin Rapids
Portage Co.
Adams Co.
Juneau Co.
Rome
Adams / Friendship
Westfield
Oxford
Wisconsin Dells
Portage
Lake Delton
Reedsburg
Ironwood
Park Falls
Prentice
Rib Lake
Medford
Abbotsford
Unity
Spencer
Athens
Marathon City
Edgar
Stratford
Marshfield
Auburndale
Arpin
Vesper
Pittsville
Wood Co.
Warrens
Nellsville
Necedah
Necedah Wildlife Refuge
Oakdale
Camp Douglas
New Lisbon
Hustler
Mauston
Elroy
Union Center
Wonewoc
Hillsboro

Legend

- County Boundaries
- Nodes
- Links

For planning purposes only. Not for navigation. Some routes may not be open year-round. Alternate routing on adjacent roads may be required. Check local sources for route conditions and skill level requirements.

N

0 2.5 5 10 15 20 25 30 Miles

North Central Wisconsin Regional Planning Commission

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715-849-5510 - staff@ncwrpc.org - www.ncwrpc.org

Chapter Four: Facility Types, Recommendations & Guidance

Recommendations & Inventory of Context-Appropriate Bicycle and Pedestrian Facilities for Urban and Rural Settings throughout the North Central Wisconsin Region, and Funding Opportunities & Issues

Chapter Four identifies possible improvements that may be implemented to address unsuitable segments within local and regional bicycle networks throughout North Central Wisconsin. Facility treatments are ultimately determined by available funding sources and local stakeholders.

Building infrastructure to support and encourage walking and bicycling is easiest when planning a community from scratch. However abandoning every town in the United States that was designed for the automobile is impractical, at the very least. Most communities need to reimagine themselves and strategize how infrastructure could be retrofitted to accommodate walkers and bicyclists.

Changing the perception that roads are for pedestrians and bicyclists, and not only spaces meant to accommodate the automobile, is difficult. There is no single model of active transportation retrofitting that can be applied to every town as each community has its own unique bundle of challenges and resources. Not only is the planning process economically and logistically challenging, there will be competing visions and priorities among community members and leaders will face resistance from the public which likely has a bias for public infrastructure spending that prioritizes the automobile.

Communities in North Central Wisconsin may wish to practice incrementalism when approaching the challenges of walkability. Creating walkable and bikeable environments that will be readily utilized requires thoughtfulness and a plan thoroughly tailored to the needs and expected uses of each community. Finding appropriate routes within a community for pedestrians and bicyclists, for example, may need a period of trial and error. Retrofitting as a road needs to be resurfaced or install ADA compliant road cut outs for sidewalks can be more cost efficient and can create a more gradual change. Communities can also focus on one area at a time, such as a shared use path along a river front that may be the catalyst for further improvements.

The following sections outline infrastructure retrofitting treatments to create walkable and bikeable routes and are meant to serve both individual and collaborating communities. It covers retrofitting treatments including mixed traffic facilities, physically separated facilities, and several areas of focus for local communities. Each treatment is described in detail, including its benefits, drawbacks, needed considerations and appropriate traffic scenario use to provide a starting point for communities to reimagine their transportation infrastructure. For more detailed information, including case studies and examples, see the Federal Highway Administration (FHWA)'s *Small Town and Rural Multimodal Networks* guide released in December of 2016 and the *Urban Bikeway Design Guide* released in 2011 by the National Association of City Transportation Officials (NACTO).

Mixed Traffic Facilities

Mixed Traffic Facilities are designed to accommodate active transportation as well as motorized vehicles in the same road space. These facilities are most appropriate for roads with low volumes of traffic, traveling at low speeds. Mixed traffic facilities include yield roadways, bicycle boulevards, and advisory shoulders, which tend to require lower levels of community investment.

Yield Roadway

A yield roadway, as pictured in **Figure 4-1**, is a bidirectional motor roadway that utilities a road diet to slow traffic and create a comfortable space for pedestrians and bicyclists on the road. The narrow design of the road as well as unmarked lanes forces vehicles to slow as well as to yield when they meet other motorized vehicles on the road. The constricted road width and the unmarked lanes prioritize pedestrians, bicyclists, and local traffic.

Yield Roadways located in appropriate locations have several benefits. They are economic to construct and maintain, compared to wider roadways. The narrow width is visually appealing, allowing for larger tree canopies, uncurbed road edges, and a traditional neighborhood quality. The greater amount of permeable surface minimizes storm water runoff. The design can also support on-street or shoulder parking for residents.

The yield roadways are best utilized on local residential roadways with low volumes of traffic and speed. They are not suited for roadways with through traffic and are best when motorists are familiar with the local conditions and uses of the roadway. Signs can be used to warn motorists of potential pedestrians and bicyclists.

A yield roadway should be between twelve to twenty feet in width. If the roadway is 15 feet or narrower, it operates as a two-way single lane street and should follow the guidance of the AASHTO Low Volume Roads 2001. Pull-out areas should be provided every 200 to 300 feet when the roadway functions as a two-way single lane street. Emergency vehicles can access a yield roadway and deploy fire department apparatus if parking openings 16 to 20 feet wide provided every 200 to 300 feet are present. Road dieting and visuals can be used to retrofit existing streets. For example, a tree may be planted within the roadside area to both visually and physically narrow the corridor.

If parking is provided, it may be located on the paved roadway surface or on gravel or dirt shoulders. When possible, a different material other than the roadway should be used to differentiate between the parking area and the roadway. Parking areas can also be utilized as a pull-out area while yielding.

Bicycle Boulevard

A bicycle boulevard prioritizes bicyclists by designing routes to local destinations and through neighborhoods on low stress roadways shared with motorists. Traffic calming, access management, and crossing treatments are needed to craft a safe and enjoyable route. Routes should be identified through a mix of traffic counts on local roads as well as local input.

A well routed bicycle boulevard can offer several benefits. It provides a comfortable and safe experience for bicyclists, by reducing motor vehicle speed and directing bicyclists to routes with low volumes of traffic. The boulevard should also connect bicyclists to important community and commercial centers

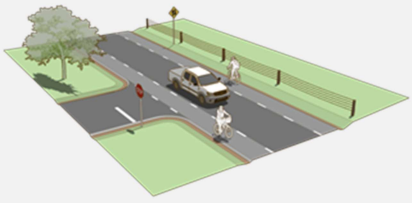
Figure 4-1: Mixed Traffic Facilities

Mixed Traffic Facilities accommodate active transportation on shared roads with low traffic volumes

Yield Roadways, most appropriate for residential streets, narrow roadwidths to lower speeds and prioritize bicyclists and pedestrians.

Bicycle Boulevards, most appropriate for low-volume, residential roads, provide enjoyable local routes to cyclists, shared with vehicular traffic.

Advisory shoulders provide visually delineated lines for cyclists and pedestrians on roads too narrow to support a bike lane.



Images from FHA Small Town & Rural Multimodal Networks, 2016

to easily access events and complete errands. However, bicycle boulevards require more additionally paved surfaces for sidewalks to make room for pedestrians.

Many small cities and villages in Wisconsin have the perfect conditions to implement bicycle boulevards, although their construction would be more challenging in more rural settings which can sometimes lack connectivity beyond major roads. Bicycle boulevards are useful in areas that have low volumes of traffic and low motor vehicle speeds in residential areas. Traffic calming techniques can also be utilized in this scenario to create these conditions. Bicycle boulevards can also be developed to connect physically separated paths for alternative transportation when a continuous route for a path cannot be identified.

Bicycle boulevards are created by identifying an appropriate route and installing road markings and signs, traffic calming techniques, and road crossing improvements to create comfort for bicyclists and awareness for motorized traffic. A number of options exist for creating safe and comfortable road crossing for bicyclists, including median islands to divide crossing into multiple stages.

Bicycle boulevards should not cross major roadways if possible. When it is not possible for the route to avoid crossing a major roadway, special attention needs to be given on how bicyclists can safely and comfortably navigate that crossing as it will significantly affect the use of the boulevard.

Advisory Shoulder

The concept of an advisory shoulder is similar to a yield roadway, the key difference being that shoulders are visually delineated for bicyclists with hashed line markings. An advisory shoulder provides a defined but nonexclusive space for bicyclists on a roadway that is otherwise too narrow for reserved bike lane. Roads with this feature oblige two-way motorized traffic to slow with little or no alternation of a paved roadway surface.

The benefit of the presence of the advisory shoulder is that it works as a road diet feature, slowing motorized traffic and obliging a vehicle to use caution when passing another driver or bicyclist. Unlike a yield roadway, the advisory shoulder offers more predictability for all users about the locations to expect other users, both motorized and non-motorized. The feature requires little community investment beyond acclimation, signage, and road striping and offers the same aesthetic appeal as a yield roadway. Like bicycle boulevards, additional space and pavement is needed to accommodate pedestrians.

Advisory shoulders are best suited to a rural and small town traffic and land use context. They are more appropriate than yield roadways for collector streets, rather than local streets, where the presence of low to moderate volumes of traffic and moderate motorist speeds exists.

Contrasting with a traditional road shoulder, an advisory shoulder is a part of the traveled roadway and is regularly used when two motorized vehicles meet and pass. The advisory shoulder is visually separated by road striping and is recommended to be 6 feet in width. The center two-way travel lane should range from ten to eighteen feet, and should follow the guidance of the AASHTO Low Volume Roads 2001.

Visually Separated Facilities

Pedestrian Lane

A pedestrian lane is similar to an advisory shoulder in that it delineates space for a particular mode of travel, walking in this example. However, unlike an advisory lane, the space is exclusively reserved for pedestrians and motorized vehicles do not utilize the pedestrian lane for passing. In Wisconsin, a pedestrian lane would need to be marked on both sides of the roadway, with pedestrians walking towards vehicular traffic. Two-way on-road pedestrian facilities along the same

side are not allowed. Pedestrian lanes connect important destinations in a community but are meant to serve as a temporary pedestrian accommodation on roadways lacking sidewalks. [1]

While pedestrian lanes can provide interim connectivity, they have a number of issues and potential challenges. They pose a particular safety risk to people with vision disabilities. There may be undesired use by bicyclists causing potentially unsafe conflicts. Maintenance may also be an issue, causing challenges for snow removal and sweeping.

Pedestrian lanes are appropriate for streets with low to moderate volumes of traffic at low to moderate speeds. They are recommended for small villages and cities on their local and collector streets. Due to the high speeds traveled on many rural roads, they are not recommended for rural routes.

Pedestrian lanes should be designed to encourage side-by-side walking within a lane, and as such a minimum of five feet is required, while eight feet is preferred. The surface of the route should be firm, stable, and slip resistant and should not exceed the general grade of the adjacent street or highway. Pedestrian lanes require road markings, usually a double white line for extra emphasis as well as appropriate pavement legends and road warning signs.

Bike Lane

Like a pedestrian lane, a bike lane designates an exclusive space for bicyclists on the roadway, adjacent to road traffic lanes, through the use of pavement markings and signs. This can provide a consistent area for bicyclists to travel and provide a more comfortable experience in moderate traffic at moderate speeds when compared to a bicycle boulevard. They can provide a route for moderate distances, connecting local bikeway routes to regional corridors.

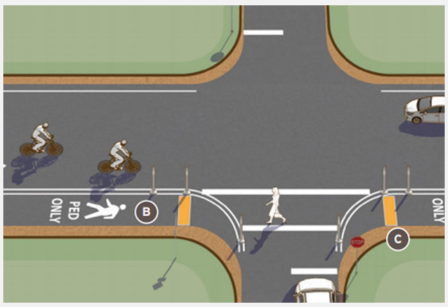
Bike lanes can be used in multi-lane streets with heavy traffic, but this usually is a high stress experience for riders. Bike lanes are useful in built-up areas of small communities and can be particularly useful at providing a visual cue to drivers as they transition to a built-up area from a highway context. They can also be appropriate for school access when designed as a wide bike lane on lower-speed, lower-volume streets.

Bike lanes should be planned to reduce the stress of motor vehicle passing events. Bike lanes are marked with a solid white lane and may be enhanced with a market buffer area for more separation and comfort. Optional bike lane signage may be added to supplement the bike lane markings. To allow for bicyclists to ride side-by-side or pass each other without leaving the lane, a preferred minimum width of a bike lane is 6.5 feet, while the absolute

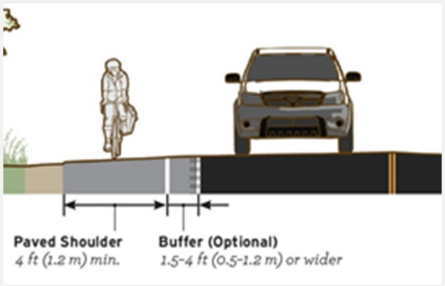
Figure 4-2: Visually Separated Facilities

Visually Separated Facilities share the roadway with vehicular traffic, but also give active transportation designated, separated routes.

Pedestrian Lanes mark an exclusive space for pedestrians on roadways, and are most appropriate local and collector routes in small villages and cities throughout North Central Wisconsin.



Bike Lanes mark exclusive spaces for bicyclists on along the roadways, adjacent to vehicular traffic. While highly versatile, they are most appropriate on moderate traffic roadways with moderate speeds.



Images from FHA Small Town & Rural Multimodal Networks 2016

[1] In Wisconsin, State Law required pedestrians walking along a road to face oncoming traffic, rather than walking with traffic.

minimum is four feet when no curb and gutter is present. Widths greater than seven feet may encourage motor vehicle parking within the bike lane.

Intersections also need particular attention when design bike lanes to reducing speeds, minimize exposure, raising awareness, and communicating right-of-way priority. Markings and signage should indicate that bicyclists have priority over turning traffic and remind motorists to yield. Where a right-turn lane is established to the right of a bike lane, signs are needed to remind motorists to yield to bicyclists before entering this lane.

Contraflow Bike Lane

Designed especially to allow bicyclists to travel in the opposite direction of vehicular traffic, contraflow bike lanes turn regular one-way vehicular roadways from standard one-way streets, to two-way streets for bicyclists. This facility design can be an especially useful treatment for roads that already suffer from wrong-way bicycle traffic, or on roads where bicyclists ride on sidewalks. Low speed and low volume roads are typically the most appropriate for contraflow bike lanes.

The bike lane moving in the opposite direction from vehicular traffic remains separated, whilst bicyclists headed in the same direction as vehicular traffic ride in closer proximity to cars and trucks. The lane for bicyclists travelling opposite the direction of traffic should be separated by yellow center-line striping. Both bike lanes should include corresponding sharrows to direct bicycle traffic. Contraflow bike lanes should also have clear "One Way" signage for vehicular traffic that exempts bicyclists. Contraflow bike lanes should also have traffic control signals or signs at intersections that are oriented to bicycle traffic.

NACTO guidelines also highly recommend placing the bicycle lanes on either side of vehicular traffic, and including "Do not enter" signs as is deemed appropriate.

Paved Shoulder

A combined pedestrian and bike lane, paved shoulders can provide more separated facilities through the use of rumble strips, enhanced longitudinal markings, and/or contrasting pavement when other options are unsuitable. Paved shoulders do require wider road ways, but can be a solution to rural routes where the installation of sidewalks or a shared path is cost prohibitive.

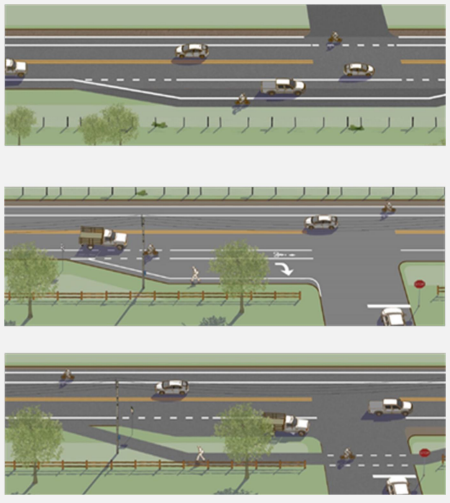
Paved shoulders improve active transportation experiences on roadways with higher speeds or traffic volumes. This feature reduces pedestrian "walking along roadway" crashes and "bicyclist struck from behind" crashes, which represent a significant portion of rural road crashes.

Paved shoulders are most appropriate on collector roads and highways when motorized traffic is traveling at moderate to high speeds, and on roadways with a large amount of truck traffic. Paved shoulders are appropriate in built up areas, especially near transit locations and school zones where there is high

Figure 4-3: Visually Separated Facilities, Continued

Contraflow Bike Lanes are specialized facilities designed for one-way vehicular roadways that provide bicyclists bi-directional routes on the roadway.

Paved Shoulders are an appropriate facility improvement for higher speed and traffic volume roadways. Paved shoulders are useful for reducing crashes, and are a cost-friendly alternative to sidewalks or shared paths.



Images from FHA Small Town & Rural Multimodal Networks 2016 & NACTO Urban Bikeway Design Guide 2011

expected pedestrian and bicycle activity. They are also appropriate for rural routes for those active travelers traversing long distance and regional travel as well as those using it for active transportation.

Guidelines advise that any clear paved shoulder width can benefit pedestrians and bicyclists, however the paved shoulder should be wide enough to accommodate side-by-side ridership or walking or bicycle passing. Rumble strips will reduce "roadway departure" crashes and protect bicyclists and pedestrians, in addition to road markings. Pavement contrast and color also may be used to differentiate the shoulder from adjacent travel lands. Intersection options include bypass and turn lanes, configuring an on-street bike lane, or building a separated bike lane or share use path, as displayed in **Figure 4-3**.

Buffered Bike Lane

While similar in design to standard bike lanes, buffered bike lanes are accompanied by designated space to separate the bicycle lanes from the vehicular and parking lanes. As required features, buffered bike lanes must have bike lane arrow markings and solid white lane markers on either side of the lane (with diagonal hatching if three feet or wider). It is also highly recommended that bicycle buffers bet at least 18 inches wide.

Buffered bike lanes can be an especially useful facility installation on roads with high travel volumes and/or speeds where bicyclists may feel unsafe on a standard bike lane. On a buffered bicycle lane, bicyclists can also pass another at varying speeds without interfering with oncoming traffic and also physically separates bicycles from the "door zone" (where parked car doors open onto the street).

Climbing Bike Lane

Some roadways are simply too narrow to accommodate bicycle lanes going both directions – for these special type of road segments, climbing bicycle lanes can be an appropriate bicycle facility treatment. A dedicated bike lane is only placed in the uphill direction on a road, while "sharrows" are painted in the roadway on the downside hill of the road, where bicyclists may bike at a more comparable speed to traffic.

Physically Separated Facilities

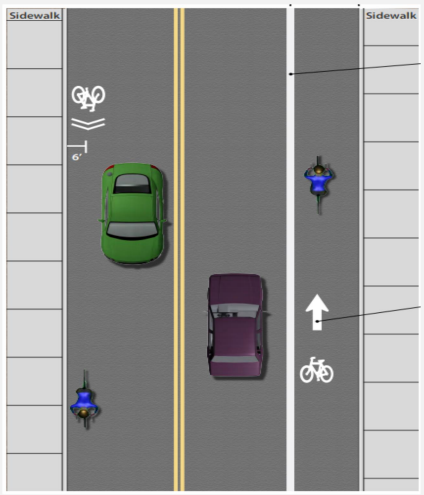
Shared Use Path

While a side path is immediately adjacent to a roadway network, a shared use path provides a travel area separate from motorized traffic for bicyclists, pedestrians, skaters, wheelchair users, joggers, and other users. A shared use path operates as a network alternative to local roads and highway connections.

Figure 4-4: Other Bike Lanes

Buffered Bike Lanes are similar to standard bike lanes, but they have as added featured lane arrow markings and solid white lane markers separating the lane from vehicular traffic. This makes buffered bike lanes a useful facility treatment on highly travelled roads.

Climbing Bake Lanes are a fairly specialized facility improvement intended for narrow and/or hilly roads. One dedicated bike lane is placed going in the uphill direction, while the downhill lane is shared with cars and cyclists, and delineated with shared arrow markings.



Images from NACTO Urban Bikeway Design Guide 2011& NACTO Bicycle Facilities Design Manual for the City of Redmond, 2012

A shared use path offers a low stress experience for a variety of users and ages. They often provide non-motorized transportation access to natural and recreation areas, or are recreation designations in and of themselves. They often attract tourism and provide opportunities for economic development. In some instances, shared use paths provide a short-cut between cities or neighborhoods, increasing connectivity.

A shared use path serves as a connection independent of the street network. Generally they are appropriate outside of built-up areas and can display a distinctly rural character. In some cases they do serve as a corridor connection within built-up areas. Facilities are often located in parks, along rivers, beaches, and in greenbelts or utility corridors where there are few conflicts.

The design of a shared use path should consider the speed and volume of expected user types. Ten feet in width is recommended in most situations and will be adequate for moderate to heavy use. In most scenarios, center line markings are not essential as path users will naturally keep right except to pass. In a mixed user environment, yield etiquette signs may be used. Asphalt is the most common surface for shared use paths, although other materials, such as gravel or concrete may be used as well.

Sidepath

A sidepath is a bidirectional shared use path, situated directly parallel to a roadway. An off road facility, a sidepath enhances comfort for all non-motorized users because it offers a buffer zone and reduced crossing distances. Unlike a bike lane or sidewalk, a sidepath is commonly used near roadways without curb and gutter and therefore a sidepath maintains rural and small town character.

One of the main benefits of a sidepath is that it is inviting to users of all skill levels and ages. It offers more comfort than a paved shoulder or other mixed use facilities and can serve as a long or short route connection where bicycle boulevards or other facilities are inappropriate due to high volume or speeds.

Unlike many of the other facilities mentioned, a sidepath is an appropriate treatment for highways, as well as collector roads. They are suitable for roadways with high volumes of traffic and high speeds, as well as for built-up and rural areas.

The ideal sidepath is ten feet in width and has a buffer between the path and the highway of at least five feet. On high-speed roads, a separation width of 16.5 to 20 feet is recommended. Trees or landscaping can be used to create a physical blockade as well as rumble strips or a concrete barrier.

Funding:

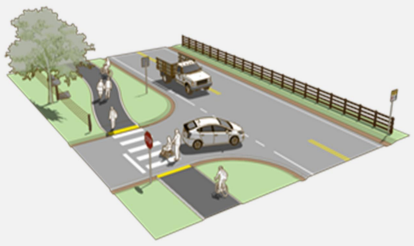
- *The Federal Recreational Trails Program provides funds to the States to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Each state administers its own program.*

Figure 4-5: Physically Separated Facilities

Physically Separated Facilities are facilities that operate separately and independently of roadways.

Shared Use Paths are separated from the network, offering low-stress experiences for pedestrians, bicyclists, wheelchair users, skaters, and others alike. These are most appropriate outside of built-up areas and have potential to enhance rural character.

Sidepaths run parallel to the roadway, but offers a similar low stress environment for active transportation to the shared use path. These are highly versatile facilities, appropriate near highways and collector roads alike.



Images from FHA Small Town & Rural Multimodal Networks 2016

Sidewalk

Sidewalks are familiar to urban and rural dwellers alike. They are a separated space dedicated, in most instances, to pedestrians. They promote pedestrian safety and comfort in areas with a mix of land uses and are ideal for built up areas on collector streets with high traffic volumes or speeds.

A sidewalk offers a decidedly safe space for pedestrians to reduce pedestrian collisions in rural areas. Sidewalks may notably increase levels of walking in areas with high traffic speeds and/or volumes. However, the building of sidewalks can be expensive and can require extensions into the roadway or in the right-of-way if there is not enough space for their installation. In many communities, the requirement of sidewalks in new developments has been waived to reduce costs and adding sidewalks can be a challenge due to the lack of space.

Sidewalks are appropriate in built-up areas in small villages and cities. They provide connections between neighborhoods, schools, and commercial businesses and are recommended for all but the lowest speed and lowest volume roadways.

Most sidewalks should be at least six feet wide. This allows for side-by-side walking and meets accessibility guidelines for turning and maneuvering. There should also be a buffer, or furnishing zone, between the street and the sidewalk. This provides space for mailboxes, signs, street lighting, and other utilities. A buffer zone also increases the comfort of pedestrians, especially when sidewalks are adjacent to high speed motorized traffic. Most sidewalks are constructed out of concrete, yet other less expensive materials including asphalt, crushed stone, or other stabilized surfaces may be utilized.

Depending on the scenario, a number of treatments can be used at intersections to increase the awareness of motorists to the present of pedestrians. Lane markings, stop lines, yield lines, or other traffic control markings should be placed outside of the unmarked crosswalk area. Marked crosswalks are at intersections or midblock crossings based on engineering judgement.

Separated Bike Lane

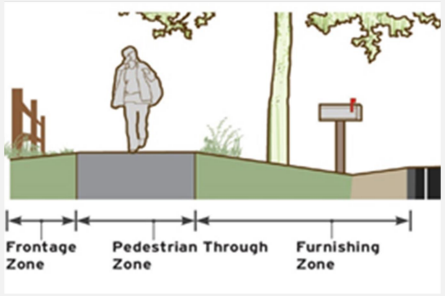
A separated bike lane runs parallel to the roadway but is physically separated by a barrier. This provides a reduced stress ride in heavy traffic. A lane solely dedicated for bicycles reduces potential conflict with pedestrians or other transportation alternatives.

A separated bike lane is more appropriate than on-road shoulders on high-speed and high volume roads, providing a more comfortable experience for riders. Unlike sidepaths or shared use paths, separated bike lanes have fewer operational and safety concerns over bidirectional or bimodal paths.

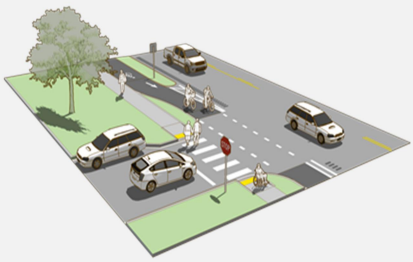
However, a separated bike lane projects a more urban environment than a sidepath, although a landscaped buffer may lessen the visual impacts. A

Figure 4-6: Physically Separated Facilities, Continued

Sidewalks are an appropriate facility treatment to foster pedestrian networks throughout villages and cities, and are suitable complements to most road types. Though expensive, sidewalks offer safe spaces for pedestrians in urban and rural areas.



Separated Bike Lanes are most appropriate for urban environments with high bicycle demand, and run parallel to roadways, reducing changes for collisions with pedestrians and other users.



Images from FHA Small Town & Rural Multimodal Networks 2016

separated bike lane also requires a wide roadside for its installation and consideration for driveway conflicts, accessible parking, and transit stop access and egress. Separated bike lanes are also more expensive than other bicycle treatments, especially with the existence of curb and gutter.

Separated bike lanes are most appropriate for built up areas with high numbers of bicyclists and pedestrians. The installation of a separated bike lane is reserved for roads with high motor vehicle volumes and moderate to high speed motor vehicle traffic. They do not belong on highways, but can serve as primary connections on main collector roads between and across communities.

The preferred minimum width of a separated bike lane is seven feet, which allows for side-by-side passing. A narrower bike lane will not allow the passing of slower users unless there is a break in the facility. The minimum width of the roadway separation is one foot, where there is a mountable or vertical curb face. Otherwise, a separation of three feet is recommended to provide space for motorized vehicle parking on the main roadway and to accommodate doors and passenger unloading. The planning process of a separated lane should take into account if public works equipment is able to clean and plow the designed separated lane.

Cycle Tracks

Cycle tracks are ideal facility types that combine ideal, safe modes of transportation for bicyclists, pedestrians and cars alike. Cycle tracks bolster a healthy amount of separation from vehicular traffic, increasing perceived safety and comfort. Cycle tracks also yield added benefits to pedestrians, as these facilities greatly reduce the chance of bicyclists opting to ride on the sidewalk. These facilities can be advantageous when constructed during the creation of a new road, or a significant redevelopment of a road. While more expensive, these facilities require overall less maintenance than more standard applications.

There are three broad categories of cycle tracks: a) raised cycle tracks, facilities that are either set at the level of sidewalks or at a level between the road and the sidewalk to further separate the bike lane from vehicular traffic; b) one-way protected cycle tracks, one-way bicycle facilities that provide an extra level of barrier from vehicular traffic in the form of parking lanes, more buffer space, etc.; and c) two-way cycle tracks, bicycle facilities that provide routes in both directions.

Figure 4-6: Cycle Tracks

Cycle Tracks are most appropriate when installing a new road that seeks to accommodate safe and convenient travel for cars, pedestrian, and bicyclists alike. While these typically urban facility treatments are expensive to construct, they require overall less maintenance than other facility types. All three types of cycle track (listed below) host physically separate spaces for cars, bikes, and pedestrian travelers.

- *One-Way Protected Cycle Tracks*
- *Raised Cycle Tracks*
- *Two-Way Cycle Tracks*

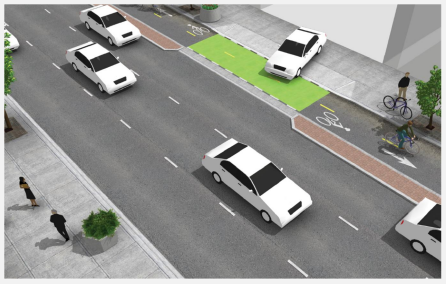


Image from NACTO Urban Bikeway Design Guide 2011

Railroad Crossings

Railroad cross tracks are often unavoidable for bicyclists, and can prove to be fairly cumbersome obstacles, often damaging bicycle wheels and contributing to the occasional crash, primarily due to asphalt and timber deterioration over time. Concrete crossings for bicyclists over train tracks can easily prevent these problems and provide safer routes for bicyclists. Rubber can also be an alternative treatment for bicycle crossings as well.

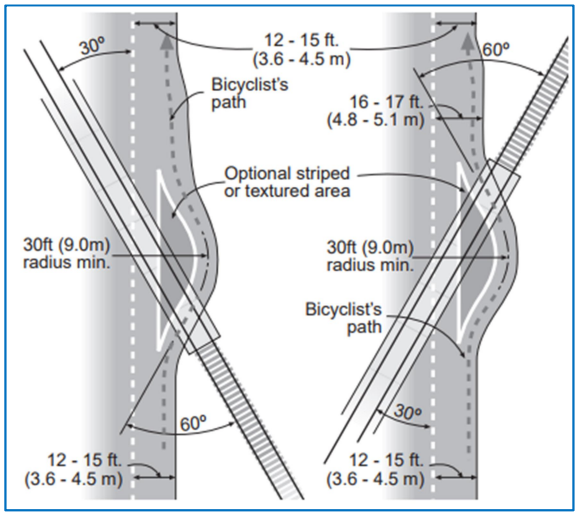


Figure 4-7: Railroad Crossing Design
Source: WisDOT, Wisconsin Bicycle Facility Design Handbook, 2004

Signals

Active Warning Beacon

These are manually or automatically actuated beacons placed at un-signalized intersections or mid-block crossings to supplement warning signs. These should be used to warn motorists to yield where bicycles or pedestrians have the right of way.

Hybrid Beacon

A hybrid beacon, also known as a High-intensity Activated Crosswalk (HAWK), consists of a signal-head with two red lenses over a single yellow lens on the major street, and pedestrian and/or bicycle signal heads for the minor street. There are no signal indications for motor vehicles on the minor street approaches. Hybrid beacons are used to enhance pedestrian and bicycle crossings of major streets.

Figure 4-8: A hybrid crossing at a crosswalk
Source: Mike Cynecki, pedbikeimages.org

Signal Detection & Actuation

Bicycle detection is used to actuate traffic signals when a bicycle approaches the intersection. Bicycle detection occurs either through the use of push-buttons or by automated means (e.g., in-pavement loops, video, microwave, etc.). Inductive loop vehicle detection at many signalized intersections is calibrated to the size or metallic mass of a vehicle. For bicycles to be detected, the loop must be adjusted for bicycle metallic mass. Otherwise, undetected bicyclists must either wait for a vehicle to arrive, dismount and push the pedestrian button (if available), or cross illegally.

Figure 4-9: A bicycle signal head can be used at a crossing where a hybrid beacon is used
Source: Nacto.org

Signage & Wayfinding

A bicycle wayfinding system consists of comprehensive signing and/or pavement markings to guide bicyclists to their destinations along preferred bicycle routes. Signs are typically placed at decision points along bicycle routes – typically at the intersection of two or more bikeways and at other key locations leading to and along bicycle routes. Signage can indicate distance and/or time estimates for destinations. Wayfinding signage particularly benefits infrequent bicyclists by reducing the barrier to entry of figuring out a route. It also serves to remind motorists that they are likely to encounter bicycle traffic.

Figure 4-10: Wayfinding Sign
Source: Bicycle Wausau

Paint

Painting clear bicycle lanes as well as shared-lane arrows (or, "sharrows") on roads provides both clear routes for cyclists and automobile drivers alike. Additionally, there are multiple designs for painting a high visibility crosswalk that bring increased visibility and awareness of proper pedestrian pathways. These relatively cost-effective methods can bring a sense of clarity and safety to both drivers and bicyclists utilizing the roads.

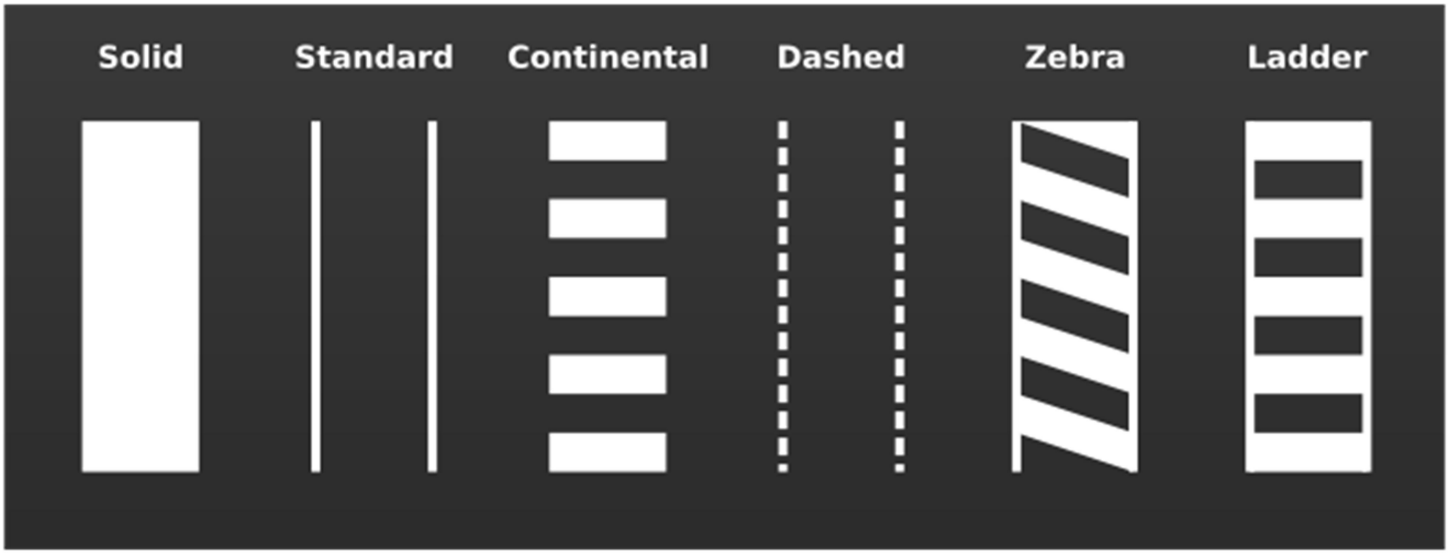


Figure 4-11: Sidewalk pavement treatments
Source: SFbetterstreets.org

Local Opportunities

Multimodal Streets

As transportation priorities have changed, so have the main streets in rural America. Today many main streets are a part of a county road or a State owned highway. Starting in the 1950s, main streets have been designed for traffic volume, speed, and parking while not providing a comfortable experience for pedestrians or other users who would more readily drive across the street rather than cross multiple lanes of traffic on foot. Yet downtowns can thrive when people prefer to drive rather than walk. Downtowns flourish when drivers park their cars and run errands, browse gift shops, grab a bite to eat and chat with community members on foot.

As main streets struggle across the country, redesigning main streets to be vibrant attractive spaces is the key to attracting customers and new business investments. A part of this transformation should be the adaptation of the local roadways for low stress multi-modal transportation. Multiple studies have found benefits to developing walkable and bikeable main streets and maintaining them as the center of a community's commercial, civic, and historical identity.

As such, there are several challenges and features a community should contemplate during the redesign of their main street, including pedestrian and bicyclist infrastructure improvements, streetscaping, and building design, and attracting a variety of tenants and balancing it with public spaces. The ITE Walkable Urban Thoroughfares Guide 2010 recommends the following infrastructure design features for walkable and bikeable commercial main streets: a minimum of six feet of sidewalk for walking and six feet for the furnishing zone, for items such as street lamps, trees, or benches. The roadway should have two through lanes, ten to eleven feet in width with a maximum speed of 25 miles per hour and parallel on-street parking. The through lanes should be framed by a bike lane about five to six feet. Other traffic calming techniques, such as bulb-outs or road diets should be considered while special attention should be given to the safety and comfort of pedestrian and bicycle crossings.

While infrastructure improvements increase the safety and comfort of alternative transportation users, streetscaping is an important part of placemaking. Placemaking is the intentional creation of public spaces that capitalizes on a local community's assets and potential with the intention of strengthening community pride and identify as well as promoting community health and building social capital. Main streets can improve community identity by enhancing aesthetics, creating spaces for civic activities, and developing an environment for attracting and retaining businesses.

A variety of options exist in streetscaping. The best action to improve the attractiveness of a downtown is to plant trees. Not only do they improve scenery, they provide shade for shoppers and restaurant patrons and they create visual separation of traffic from pedestrians. Other options include attractive lighting, street furniture, and outdoor dining. Public art, such as murals or sculptures, or water features, both traditional and interactive, are other beatification initiatives that can become designations for locals and tourists. It is important when selecting items such as lighting or flag poles, that they are scaled to pedestrians and bicyclists, not to the passing automobile. This increases the perception that the main street has been built to accommodate walkers and bicyclists.

The placement and design of building in the downtown is an essential part of creating a successful downtown. Downtown buildings should face the street and abut the sidewalk, creating easy access to entrances and enticing browsing through window displays. Large windows diminish the formidableness of large buildings and are inviting. The exterior facades of larger buildings should also be broken up when possible, to create the illusion of smaller quaint shops which are also to the pedestrians.

Connectivity from block to block is also important. Buildings should frame the streets, as it creates a sense of comfort. When there are gaps, empty lots or buildings that are set back such as gas stations or parking lots adjacent to the sidewalk or road, pedestrians can feel exposed and the experience is not as pleasant. As such, communities should practice in-fill and select appropriate building designs if such gaps are identified. Placing parking lots in back of buildings or planting trees to frame sidewalks adjacent to parking lots are other design features to consider.

The redesign of a main street is usually a major investment for a small community, not only in terms of funding but in the time and effort expended to secure grants, loans, and gap funding. However, a major renovation is not always necessary or advised. Small projects can have a large impact, such as the installation of bicycle parking or the installation of ADA approved street crossings. Opportunities such as roadway resurfacing or enhancements associated with individual development projects can be the first step in a gradual transformation.

School Connections

While main streets are commercial centers, the schools are the centers of the community for villages and cites of all sizes. This is especially true in rural communities where schools serve the community members of all ages with a wide variety of services and activities. Yet, schools are no longer built to accommodate children walking or biking to school, or other community members using alternative means of transportation.

Figure 4-12: School zone crossing near McDill Elementary School in Stevens Point
Source: Stevens Point City Times, 2017

Only fifty years ago, almost half of American school children walked to schools. Today only 13 percent of children walk to school, and this figure is lower in rural areas as long distances can separate households from schools. While fewer students are walking or biking to schools, the lack of physical activity is contributing to high rates of being overweight or obese in childhood.

The consolidation of schools is partly to blame for the current trend, creating further distances between school facilities and the households that they serve. However, when school buildings are in their planning stages the focus is usually on school busses, automobile access, and drop off sites when transportation is discussed. As a result, students who walk or bike to school must traverse traffic congestion, unsafe roadway crossings, and an indirect route to the front door.

Given the prominence of schools in rural daily life and the need for children to have opportunities for physical activity, it is essential to plan for active transportation to and from the schools. When in the planning stages, safety, connectivity, and opportunities for activity should be considered.

Careful planning for pedestrian and bicyclist safety should be considered when designing school drop-off zones, school parking lots, and front doors. At student arrival and departure times, there is increased traffic volume that can lead to conflicts between different modes of transportation and can be unsafe for pedestrians and bicyclists. To solve this issue, there should be a primary path to the front door that is separated from the bus and car loading zones to minimize conflicts. The path should also be separate from the parking lot which can also serve as a car loading zone.

Additionally, schools should be located on a network of safe streets and roadway crossings. When active transportation facilities are planned for schools, separation is usually always recommended over mixed traffic facilities for increased safety. While children have a wide range of abilities to navigate traffic, traversing traffic can be difficult or uncomfortable for some children. Therefore facilities should be separated from the roadway, both vertically, such as by a curb and gutter, and horizontally, such as by a landscaped buffer zone. Sidewalks, separated bike lanes, or sidepaths are most appropriate when planning connections for school routes.

Inevitably, students walking or biking to school will need to cross the street. Street crossings can be improved for safety in several ways. Signs alerting motorists to crossing students can be installed, as can flashing beacons. A safe crossing

may include a pedestrian countdown signal. Curb bump-outs, reduced parking at intersections, and maintained lines of sight can increase visibility for both pedestrians and motorists. Crosswalk markings can also be repainted to be more visible to motorists with ladder or continental markings as illustrated in **Figure 4-11**.

The location of a school in an accessible part of the community for users is essential. School facilities should be located near residential neighbors, near the households that they will serve. Schools situation on high speed roadways create difficult and dangerous routes for students using active transportation. In these situations, a lighted shared use path may be most appropriate.

Given the long distances between schools and the households that they serve, creating connectivity for active transport can be impractical. In rural areas, opportunities for physical activity can be created by developing drop off sites for buses and cars near schools or in residential areas. If these sites are served by the appropriate transportation facilities, students can be dropped off at a satellite location and walk or bike a safe distance to school or home. In certain situations, satellite locations may be able to mitigate some of the traffic challenges associated with school pick up and drop off times.

Bridges

Bridges are an essential part of connectivity for many communities and should be addressed in most regional multimodal transportation networks.
Constructing a new bridge exclusively for bicycle or pedestrian traffic can be expensive; therefore many communities look to incorporate existing bridges into their pedestrian and bicycle networks.

Bridges for motorized traffic usually fall into one of two categories: bridges that have some potential space for reconfiguration and those that are too narrow to accommodate separated pedestrian and bicycle facilities.

For bridges that have travel lanes greater than eleven feet, or have some existing but substandard bicycle and pedestrian facilities, the bridge can be reconfigured for increased multimodal accommodations. The first option would be to remove narrow or substandard sidewalks and create a wider shoulder when only one facility can be accommodated. This would add greater flexibility for users.

When a bridge has the space accommodate multiple facilities, widen sidewalks and add bicycle lanes. Sidewalks should be a minimum of five feet and should be as wide as possible to increase comfort and safety.

Where a sidepath exists, it may be possible to reconfigure all the traffic to one side of the bridge and accommodate the sidepath on one side of the bridge. This will also most likely be accomplished by narrowing the through lanes. Providing a barrier if possible between the travel lanes and the sidepaths is also recommended.

Figure 4-13: Sharrow along S 3rd Avenue in Wausau
Source: BicycleWausau.org, 2017

When bridges are not wide enough to reconfigure lanes for pedestrian and bicycle accommodation, there are several options to consider. In the first scenario, active warning beacons many be used to alert bridge users to the likely presence of bicyclists on the roadway. Bicycle sharrows can also be added to the pavement.

Similar to yield roadways, another option is advisory shoulders. An advisory shoulder creates a space for pedestrians and bicyclists by narrowing the travel lanes with dashed road markings. Vehicles may have to yield to each other if they pass on the bridge and a pedestrian or bicyclist is present. As with yield roadways, this treatment is only appropriate if there are low volumes and low speeds on the bridge.

The bridge could also be converted to one lane, especially along roadways with low motor vehicle volumes and adequate sight distance. Separated shoulders can be added and this provides a dedicated space for pedestrians and bicyclists.

Where other on-deck retrofit strategies are impractical, it may be possible to cantilever a path on one or both sides of a bridge structure. The AASHTO Bike Guide 2012 describes this process in further detail.

Access to Public Lands

A significant portion of land in the United States belongs to the public. The Federal Government alone is steward to almost 30 percent, with national parks, forests, wildlife refuges, and the Bureau of Land Management lands. In addition, there are state and county parks and preserves. These assets are important to the identities and economies of small communities across the country. Improved walking and bicycling access to public lands can provide opportunities for physical activity as well as create new economic opportunities.

Funding Opportunities:

- *The Federal Lands Transportation Program was established to improve transportation facilities for the following Federal Land Management Agency partners: The National Park Service, Fish and Wildlife Service, USDA Forest Service, Bureau of Land Management, the US Army Corps of Engineers, Bureau of Reclamation, and the Independent Federal Agencies.*
- *The Federal Lands Access Program exists to enhance transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The Access Program supplements state and local resources for public roads, transit systems, and other transportation facilities with an emphasis on high-use recreation sites and economic generators.*

Facility Cost Estimates

In 2013, The University of North Carolina Highway Safety Research Center prepared a report, Costs for Pedestrian and Bicyclist Infrastructure Improvements: A Resource for Researchers, Engineers, Planners, and the General Public, for the FHWA. While costs for pedestrian and bicycle safety infrastructure vary greatly from state to state, infrastructure costs were collected from states and cities across the Country for this report. By collecting nationwide cost information, this data was meant to be useful for any given state or city.

While a new roadway for automobiles can cost tens of millions of dollars to construct, many of the pedestrian and bicycle infrastructure projects and facilities are extremely low-cost in comparison. By providing decisions-makers with the costs of pedestrian and bicycle infrastructure treatments they will be able to dedicate funds to those treatments secure in the knowledge that these investments are often affordable as well as determine which treatment is the most cost-effective.

Generally, infrastructure cost information in **Table 4-1** includes engineering, design, mobilization, and furnishing and installation costs. Note that costs can vary widely, therefore the cost information contained here is to be used for estimating purposes only and not necessarily for determining actual bid prices for specific infrastructure projects. Costs

presented in the table are from Portage County's Countywide Bicycle and Pedestrian Plan to provide context for bicycle costs in the North Central Wisconsin Region.

Table 4-1: Facility Cost Estimates

Type of Infrastructure	*Major Actions*	*Total Cost per mile (2011)*	*Total Cost per mile (2013)*	*Percent Change, 2011-2013*
Bike Lanes	Add Striping	$59,600	*$63,200*	*6.0%*
Bike Lanes	Lane Diet	$75,800	*$72,200*	*-4.7%*
Bike Lanes	Pave Existing Shoulders – 5' each side	$124,900	*$177,000*	*+41.7%*
Bike Lanes	Road Diet	$106,900	*$101,100*	*-5.4%*
Bike Lanes	Widen Road/Construction Shoulders – 5' each side	$124,900	*$444,200*	*+255.6%*
Buffered Bike Lanes	Lane Diet	$168,200	*$153,900*	*-8.5%*
Climbing Lanes	Lane Diet	$112,100	*$102,600*	*-8.5%*
One-Way Cycletrack	Construct New Cycletrack - -7' asphalt with curb & gutter & median – one side of the street	$1,233,700	*$1,390,500*	*+12.7%*
Paved & Striped Shoulders	Add Striping	$22,600	*$24,000*	*+6.2%*
Paved & Striped Shoulders	Build Shoulders – 2' each side	$199,100	*$243,000*	*+22.0%*
Paved & Striped Shoulders	Build Shoulders – 4' each side	$422,500	*$511,800*	*+21.1%*
Paved & Striped Shoulders	Lane Diet	$72,200	*$60,300*	*-16.5%*
Paved and Striped Shoulders	Road Diet	$102,400	*$97,700*	*-4.6%*
Shared Use Path	Construct New Path – 10' asphalt	$361,600	*$491,600*	*+36.0%*
Shared Use Path	Widen Existing Path – 4' asphalt	$144,700	*$196,700*	*+35.9%*
"Sharrows"	Add Markings	$10,800	*$11,500*	*+6.5%*
Sidewalks with Bikes Permitted	Construct new side walk – 6' concrete	$303,100	*$394,100*	*+30.0%*
Sidewalks with Bikes Permitted	Widen Existing Sidewalks – 2' concrete	$99,600	*$121,500*	*+22.0%*
Signed Bike Route	Add Signs	$2,800	*$3,300*	*17.9%*
Two-Way Cycletrack	Construct New Cycletrack – 10' asphalt with curb and gutter and median	$1,312,900	*$1,496,200*	*+14.0%*

Source: Portage County Countywide Bicycle and Pedestrian Plan 2014, NCWRPC 2017

Bicycle & Pedestrian Funding

U.S. Department of Transportation

The USDOT has numerous programs available for funding bicycle and pedestrian facilities, plans, and improvements. Most of these programs are highly competitive due to the limited funding available and high demand for bicycle and pedestrian funding. Programs available are listed and summarized below. See **Appendix One** for more details regarding available funding from USDOT:

Table 4-2: U.S. DOT Bicycle and Pedestrian Funding Resources

U.S. DOT Program Name	*Description*
Transportation Investment Generating Economic Recovery (TIGER)	The highly competitive TIGER grant program supports innovative projects, including multi-modal and multi-jurisdictional projects, which are difficult to fund through traditional Federal programs. This year's awards focus on capital projects that generate economic development and improve access to reliable, safe and affordable transportation for communities, both urban and rural.
Transportation Infrastructure Finance and Innovation Act (TIFIA)	The Transportation Infrastructure Finance and Innovation Act (TIFIA) program provides credit assistance for qualified projects of regional and national significance. Many large-scale, surface transportation projects - highway, transit, railroad, intermodal freight, and port access - are eligible for assistance. Eligible projects include shared use paths, sidewalks, traffic calming, bicycle lanes, bicycle and pedestrian scale lighting, historic preservation, crosswalks, curb cuts or ramps, bridges and overcrossings, bicycle share programs, paved shoulders, bicycle racks on transit, and many other improvements identified in this plan.
Federal Transit Administration (FTA) Grant Programs	Linking bicycles and transit together is a win-win proposition. Bicycle friendly transit vehicles and stations provide cyclists with expanded travel options, and expand transit ridership by helping people more easily access transit stations. For transit operators, encouraging bicycle travel to and from transit facilities can be much less expensive and require much less space than providing automobile parking.
Highway Safety Improvement Program (HSIP)	The Highway Safety Improvement Program (HSIP) funds highway safety projects at sites that have experienced a high crash history. Emphasis is on low-cost options that can be implemented quickly. The overall objective of HSIP is to develop and implement, on a continuing basis, stand-alone safety projects designed to reduce the number and severity of crashes on all streets and highways (state and local). The Federal funding ratio for HSIP funds is usually 90%, requiring a 10% match of state and/or local funds.
National Highway Performance Program (NHPP)	The purposes of the National Highway Performance Program (NHPP) are to provide support for the condition and performance of the National Highway System (NHS); to provide support for the construction of new facilities on the NHS; and to ensure that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a State's asset management plan for the NHS. Many bicycle and pedestrian related improvements are eligible for funding through the NHPP.
Surface Transportation Block Grant Program (STBG)	The Surface Transportation Block Grant program (STBG) provides flexible funding that may be used by States and localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals.
Transportation Alternatives (TA)	The Fixing America's Surface Transportation (FAST) Act replaced the Transportation Alternatives Program (TAP) with a set-aside of Surface Transportation Block Grant (STBG) Program funding for transportation alternatives (TA). These set-aside funds include all projects and activities that were previously eligible under TAP, encompassing a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity.
Recreational Trails Program (RTP)	The Recreational Trails Program (RTP) provides funds to the States to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Federal transportation funds benefit recreation including hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles.
State Highway Safety Program (Section 402)	Section 402 supports State highway safety programs, designed to reduce traffic crashes and resulting deaths, injuries, and property damage. A State may use these grant funds only for highway safety purposes; at least 40 percent of these funds are to be used by or for the benefit of political subdivisions of the State to address local traffic safety problems. To receive Section 402 grant funds, a State must have an approved HSP and provide assurances that it will implement activities in support of national goals that also reflect the primary data-related factors within the State, as identified by the State highway safety planning process. States can distribute highway safety grant funds to a wide network of sub-grantees, including local law enforcement agencies, municipalities, universities, health care organizations, and other local institutions.
NHTSA Section 405	Under Section 405, NHTSA awards grants for occupant protection, state traffic safety information systems, impaired driving countermeasures, distracted driving, motorcyclist safety and state graduated driver licensing laws.
Federal Lands Transportation Program (FLTP)	The Federal Lands Transportation Program (FLTP) was established to improve the transportation infrastructure owned and maintained by the following Federal Lands Management Agencies: National Park Service (NPS), US Fish and Wildlife Service (FWS), USDA Forest Service (Forest Service), Bureau of Land Management (BLM), US Army Corps of Engineers (USACE), Bureau of Reclamation and independent Federal agencies with land and natural resource management responsibilities.

Source: US DOT, FHWA https://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/funding_opportunities.cfm

Wisconsin Department of Transportation Funding

WisDOT funding for bicycle and pedestrian projects is awarded through the Transportation Alternatives Program (TAP). Funding is competitive and is awarded through four year award cycles every two years. Previous programs, including Transportation Enhancements (TE) and Safe Routes to Schools (SRTS) have been combined into TAP. All of these programs, are now part of the Federal Surface Transportation Block Grant Program for Transportation Alternatives.

Projects that improve safety for bicyclists and pedestrians indirectly may be eligible for funding through the Highway Safety Improvement Program (HSIP). Other road aids such as the Local Bridge Improvement Assistance Program, the Local Roads Improvement Program (LRIP), and the Surface Transportation Program (STP) may be used for eligible projects that include enhancements for bicycle and pedestrian transportation as part of a road project. STP is now part of the Federal Surface Transportation Block Grant Program.

Bicycle Registration & Taxes

Many communities across the United States have attempted to implement bicycle registration or taxation as a method of funding road improvements. In most of the cases, the administrative costs of these programs has exceeded the revenue generated, leaving no money for improvements. Reasons for this include a perception that bicycles do not pay for their use of the roads. However, only about half of nationwide road funding comes from user fees and gas taxes, and most of these funds go toward state and Federal highways.[2] Additionally, since gasoline is exempt from sales tax in Wisconsin, the relationship between road funding and the use of the roads is not linear. In Wisconsin, approximately two percent of State transportation improvement project funding is allocated to bicycle and pedestrian projects, despite making up over ten percent of trips.[3] This section describes some case studies and research on registration and taxation for bicycles and transportation funding equity among bicycles and automobiles.

A study published by the Victoria Transportation Policy Institute found that after accounting for external costs and benefits associated with both bicycles and automobiles, bicycles actually pay a disproportionate amount relative to the impact on the road network.[4] One successful bicycle registration/licensing policy has been implemented in Honolulu, HI, which requires a fee at the point of sale for a new bicycle. In other communities that do have licensing requirements in place, they are often only used to help recover stolen bicycles, and do not make any money for the community. The State of Oregon recently passed legislation requiring a three percent sales tax on bicycles over $500, so this attempt will have to be monitored to determine if it is successful. The State of Oregon does not have a general sales tax.

[2] Dutzik, Tony and Benjamin Davis. 2011. "Do Roads Pay for Themselves? Setting the Record Straight on Transportation Funding." *U.S. PIRG Education Fund.*
[3] http://www.bfw.org/2017/06/10/how-should-wisconsin-pay-for-bicycling/

[4] Littman, Todd. 2013. "Whose Roads? Evaluating Bicyclists' and Pedestrians' Right to Use Public Roadways." *Victoria Transport Policy Institute.*

Chapter Five: Strategies & Policies Guidance

Strategies, Policies & Key Partners to Foster a Sustainable Bicycle & Pedestrian Transportation System throughout North Central Wisconsin

Complete Streets

A complete street is a street that is designed to accommodate all modes of transportation, including bicycling, walking, transit, and automobiles. As every community's needs are different, there is not a one-size-fits-all policy. A low volume, low speed neighborhood street may not need any additional facilities to accommodate pedestrians and bicyclists, while a major arterial through a community may need sidewalks and bicycle lanes, and a rural highway may only need paved shoulders to accommodate all modes of transportation.

However, a Complete Streets policy directs future street projects to be designed in a comprehensive manner that incorporates the perspective bicyclists and pedestrians of all ages and abilities into every road project rather than being auto-centric. A complete street takes into consideration the volume and type of traffic, the speed of traffic, street connectivity, and the potential volume of bicycle and pedestrian traffic to build and modify the appropriate type of infrastructure to increase pedestrian and bicyclist safety and comfort, as well as the automobile. While very few communities in North Central Wisconsin have fixed route transit systems, all communities have potential for walkers and bicyclists.

Focus on Low Street Networks

As Complete Streets policies focus on accommodating the widest range of ages and abilities, from children to seniors, and fitness enthusiasts to people with mobility challenges. For this reason, communities looking to implement Complete Street policies should focus on low stress networks, which include multi-use trails and paths that are separate from traffic to serve the widest range of bicycle and pedestrian users. As real and perceived dangers are often barriers to walking and bicycling, a low stress network has the greatest potential to attract people that do not currently bike or walk for transportation, but would like to do so.

A low stress network includes low volume neighborhood streets. While bike lanes on an arterial street may be an important connection and will be used by more confident bicyclists, if there are low traffic neighborhood streets nearby that can serve as an alternative, those streets are likely to be more attractive to the majority of bicyclists.

Speed Management

While Complete Streets generally focus on creating networks through low stress networks, this is not always possible or practical. In some cases high stress roadways can be converted or improved through road dieting and/or traffic calming techniques. As **Figure 5-1** shows, slowing speeds greatly reduces the likelihood that a crash involving a pedestrian and motorist results in a fatality. Similar results would likely been seen for bicyclists as well.

At a relatively low cost, four lane roads can be restriped to two travel lanes, a center turn lane, and bidirectional bicycle lanes. The US DOT found that this classic road diet typically results in a 19 to 47 percent reduction in crashes, reduced

vehicle speed differentials, improved mobility and access by all road users, and integration of the roadway into surrounding uses that result in an enhanced quality of life (https://safety.fhwa.dot.gov/road_diets/).

Traffic can be slowed on two lane roads through the use of bump/bulb outs which act as a chokepoint at intersections or on the middle of the road, forcing motor vehicles to slow down. A chicane is an artificial feature that creates extra turns in a road. Speed bumps or speed tables can achieve the same effect.

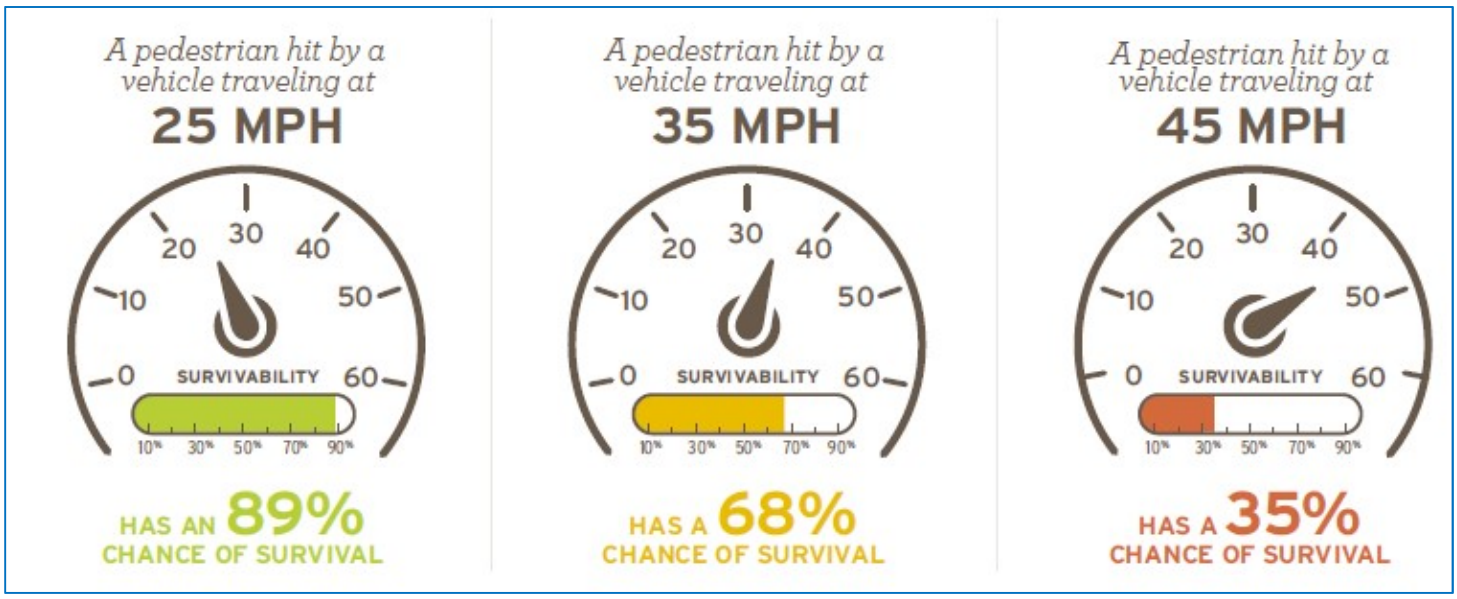


Figure 5-1: Teft, 2011
Source: FHWA, 2016

Engage in Short & Long Term Infrastructure Planning

When communities adopt a Complete Streets policy, the transformation is usually a gradual process. Immediate priorities are identified, such as missing street cut outs and missing sidewalks that are critical to the network. The community and friendship groups may start committees to raise funds for off-road trails. However, major pedestrian and bicycle street improvements are usually planned as a part of future road maintenance and improvement projects in much the same way that older water and sewer lines are replaced opportunely. Future improvements should be included in the community Capital Improvement Plan (CIP). This increases the support for the project as costs are reduced and reduces the likelihood of opposition and stalling.

Current Status of Complete Streets in Wisconsin

In Wisconsin, the Complete Streets law was changed in the State's 2015 biannual budget and now State transportation projects shall give due consideration to establishing bicycle and pedestrian accommodations. Only seven communities in the State of Wisconsin have developed a Complete Streets policy, while 1,140 communities nationwide have done so. [1] This is an increase of 241 communities from April of 2016.[2] Meanwhile Wisconsin, ranked second from 2008 to 2010, dropped to the twenty-sixth spot in bike-friendly rankings in 2017 by the League of American Bicyclists which cited broad declines in cycling legislation and enforcement, as well as policy and program implementation in Wisconsin. [3]

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[1] (Rriv, 2017)

[2] (Thomas, 2016)

[3] League of American Bicyclists 2017 Bicycle Friendly State Ranking, available at < https://bikeleague.org/content/ranking>

Further Resources for Complete Streets

Nonetheless, there are several model policies for Complete Streets that North Central Wisconsin communities can use for guidance. The American Planning Association (APA) partnered with the National Complete Streets Coalition to prepare a report. *Complete Streets: Best Policy and Implementation Practices* draws on lessons learned from more than 30 communities around the country. It provides insight into successful policy and implementation practices that have resulted in complete streets. While communities initially will support multi-modal transportation, more tangible actions such traffic calming and road diets techniques are often met with community resistance. This report offers lessons learned in building community support as well as design issues, handling costs, and working with various stakeholders. Additionally, it offers guidance in adopting a policy and integrating complete street concepts into plans, processes, and standards as well as model policies prepared by the National Policy & Legal Analysis Network to Prevent Childhood Obesity.

Zoning

While city councils and village boards are declaring their support for walkable and bike friendly communities, the local zoning codes are often a barrier to these goals. Walkable communities have dense populations and compact designations, preferably within a twenty minute walk or less. However, zoning codes prohibit mixed use buildings and neighborhoods as well as demand minimum lot sizes and parking requirements. These zoning requirements create urban sprawl and lower density, which do as much damage to walkability as the lack of sidewalks or bike lanes.

Mix the Uses

Mixed use zoning allows for the colocation of residential and commercial buildings, which have been mostly separated in the same manner as residential and industrial. By combining commercial ventures such as restaurants, grocery stores, and other shops with residential neighborhoods, distances become shorter and the likelihood that a household trip be taken by foot or bike increases. Likewise, the residential neighborhood becomes a source for customers for businesses. For increased density, apartments can be added to the upper floors of commercial buildings and multifamily housing can be used for infill. The greater density provides more potential customers and can support more commercial ventures and a higher quality of life if done correctly. These businesses will also require less parking as more patrons will choose to walk.

Reduce the Parking Requirements

Parking lots destroy the feeling of comfort for pedestrians. Many large department stores have sidewalks and other facilities that encircle their property and lead to the front entrance, as well as large suburban shopping centers. Many of these sidewalks are buffered from the street and are lined with trees. Yet rarely are pedestrians and bicyclists present at these suburban facilities. The open space of large lots and the resulting empty spaces in between are uncomfortable for pedestrians.

Too much parking is an issue for many communities, but too little parking can also be a problem. Parking requirements came about because there were issues when developers failed to provide enough parking and parking spilled over into nearby areas. Yet in many municipalities, the parking requirements are arbitrary and unscientific.

As Donald Shoup points out, parking requirements were often directly copied from the ordinances from the adjacent town. While it may seem practical to survey surrounding towns for parking requirements, it assumes that other municipalities knew what they were doing when writing these codes. However, in most places parking lots, such as those at department stores, sit empty most of the time, indicating that the formula for parking requirements has not been perfected. In the meantime, parking requirements thwart property redevelopments and growth in property taxes as business ventures and high density housing are abandoned when they cannot find the required space for parking for

tenants or patrons, especially in more established business areas and infill development projects further impeding walkability.

Frame the Streets

A community striving to become walkable needs to think about more than pedestrian and bicycle facilities. The distances between everyday designations need to be short. Not only are the distances between designations short, but create a truly walkable community, the pedestrian and bike space need to be "framed" on a pedestrian level. Great walkable downtowns have buildings and their entrances directly adjacent to the sidewalks. Other than the streets, there are few "gaps" between buildings, such as sidewalk adjacent parking lot or empty lots. These gaps usually mark the end of a city's walkable districts.

Figure 5-2: Walkable 3rd Street in Wausau
Source: WAOW, 2017

Install Street Furniture & Plant Trees

In addition to street framing, consideration is given for street furniture. There are benches for the elderly and mobility limited to take a rest during trips. Lighting, planters, and public art are designed and sized for the pedestrian and bicyclist, rather than the passing motorist. Utility poles and trash receptacles are not placed in the way of the pedestrian. Also, trees line the streets providing color, shade, safety, and limbs to hang holiday lights.

Review Crosswalk Lighting

For pedestrians, adequate crosswalk intersection lighting provides greater perceived safety and security both for pedestrians, and aids vehicular traffic in seeing pedestrian traffic in time to stop for pedestrians at crosswalks. Lighting at sidewalk intersections traditionally center in on four-way intersections. However, recent findings from the Federal Highway Administration recommend that street lights illuminate parallel to crosswalks. This lighting arrangement greatly increases overall luminescence, and added comfort levels for drivers and pedestrians alike. The preferred lighting arrangement recommended by FHWA is shown in **Figure 5-3**.

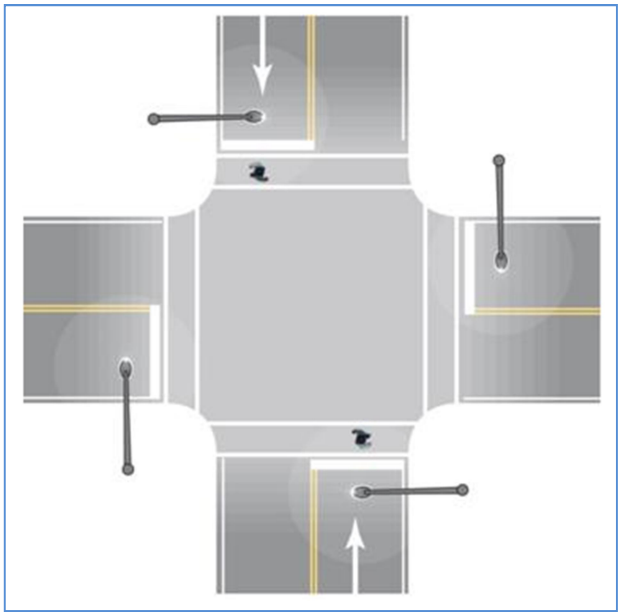

Figure 5-3: FHWA recommended crosswalk lighting
Source: FHWA, 2008

Prioritize Bicycle Parking

In addition to street parking for cars, there are requirements for bicycle parking. Bicycle parking is crucial to encouraging bicycling for transportation and recreation. Without bicycle parking, riders may be forced to leave their bikes unsecure, to carry bicycles inside or clutter sidewalks by chaining bicycles to available street infrastructure or furniture. This is a clear impediment to bicycle use. Convenient and secure bicycle parking legitimatizes bicycling as a transportation mode by prioritizing its parking in the same way that motorized parking is. Other considerations are lockers, showers, and clothes changing facilities for bicyclists, some of which could possibly be located in conveniently located parks. **Appendix Four** in the back of this plan includes a summary of bicycle parking structural recommendations from the Association of Pedestrian and Bicycle Professionals, compiled by the NCWRPC.

Further Zoning Resources

There are a variety of resources for communities looking to change their zoning policies. The National League of Cities Sustainable Cities Institute provides a framework for creating compact, walkable, and mixed-use neighborhoods. Their templates are on their website: sustainablecitiesinstitute.org. Another resource from the Environmental Protection Agency is the *Essential Smart Growth Fixes for Urban and Suburban Zoning Codes* as well as the *Essential Smart Growth Fixes for Rural Planning, Zoning, and Development Codes*. These are meant to serve as tools to evaluate existing codes and ordinances and to apply the information to create more environmentally, economically, and socially sustainable communities.

Multi-Use Trails & User Compatibility

Trails offer a number of benefits to communities. They are low-stress, encourage exercise, and can themselves become destinations, creating economic development opportunities. Scenic walkways along rivers and lakes, as well as other interesting and unique geological formations, can revitalize districts and become community assets. However, they also present their challenges and consideration needs to be given to the interaction of different user groups.

Figure 5-4: Lincoln County ATV trails
Source: Tomahawk Regional Chamber of Commerce, travelwisconsin.com

Over the past fifteen years, efforts have been made to more clearly define proper administration and uses of multi-use trails. As the number of recreational activities and technologies proliferate, the increasing number of user groups has come to uncertainty as to who utilizes the trails, and when. Several research efforts have been dedicated to understanding multi-use trail conflicts in Wisconsin including the 2005-2010 WDNR Wisconsin Statewide Comprehensive Outdoor Recreation Plan and a case study of the Gandy Dancer Trail.

The DNR study found certain activities to be more mutually compatible than others, the details of which can be found in the chart immediately below this paragraph. The plan identified a spectrum of interaction types. Activities that positively impact one another are called complementary, such as camping which tends attract visitors who then go hiking. Other recreational activities, such as Snowmobiling and ATV riding, have a neutral impact on each other. Most activities are

considered competitive, meaning that there are some conflicts when these users groups interact. Conflicts may result from competition for space, trail infrastructure, viewscapes, and soundscapes. These conflicts are, for the most part, minor. Motorized recreational activities are most compatible when uses are seasonal, such as allowing snowmobiles during winter.

Table 5-1: Average Land-Based Recreational Activity Compatibility Ratings, [a] [b]

	INTERACTS:										
PRIMARY USE	***ATV Riding***	***Hunting***	***Snow-mobiling***	***Horseback Riding***	***Mountain Biking***	***Cross-Country Skiing***	***Linear Trail Biking***	***Hiking***	***Wildlife Watching***	***Camping***	***Average Compatib-ility***
ATV Riding	x	5.3	6.5	5.1	5.5	4.9	5.5	6.1	6.9	7.5	6.0
Hunting	3.3	x	3.7	4.7	4.3	5.3	5.7	5.4	6.0	6.3	5.0
Snowmobiling	4.3	4.0	x	4.0	4.8	4.3	5.8	5.3	6.3	7.2	5.1
Horseback Riding	2.2	3.5	3.0	x	3.8	4.9	4.5	6.3	7.3	7.7	4.8
Mountain Biking	3.1	3.6	4.7	4.8	x	5.7	8.1	6.1	7.4	8.0	5.7
Cross-County Skiing	1.8	3.6	2.6	3.3	4.2	x	5.6	4.9	8.1	8.5	4.7
Linear Trail Biking	2.6	3.9	5.5	5.3	8.2	7.1	x	7.4	8.0	8.7	6.3
Hiking	2.4	3.5	3.5	5.7	4.7	6.1	6.5	x	8.9	9.2	5.6
Wildlife Watching	2.2	3.2	2.9	6.4	5.2	7.6	6.8	8.6	x	8.3	5.7
Camping	3.9	4.1	5.0	7.5	7.8	8.2	8.2	8.9	8.5	x	6.9
Average Compatibility	2.9	3.9	4.2	5.2	5.4	6.0	6.3	6.6	7.5	7.9	x

Source: Wisconsin SCORP 2005-2010

[a] Compatibility ratings are for how column activity interacts with the row activity. Rating should therefore be read horizontally across rows.
[b] Rating below 4.0 (highly competitive or antagonistic) are highlighted in red, ratings between 4.0 and below 6.9 are highlighted in orange (moderately to mildly competitive), and ratings 7.0 (supplementary or complementary) and above are highlighted in green. Results are based on responses from 23 Wisconsin recreation professionals.

Likewise, the differences between motorized and non-motorized activities becomes less pronounced when more specialized trail-based activities such as cross-country skiing, horseback riding, mountain biking, and linear trail biking are compared to motorized activities. This is most likely because these activities often require specialized trail infrastructure and are often separated from other recreational activities.

According to the Gandy Dancer study, non-motorized recreationalists used the trail for connecting with nature, health, and safety. Many of the recreationalists liked having a trail that was separate from vehicular traffic and felt that jogging or bicycling on these roads could be treacherous. Walkers also commented that there were very few sidewalks in the small cities and villages or in the countryside. They were vocal about the topic of user conflicts, not wishing to see the trail motorized in the summer. They felt it was unsafe to go hiking with ATV riders traveling at 20 miles per hour and that the resulting dust was an issue. Snowmobiles pose less of a concern due to separation of seasons.

The motorized sports enthusiasts' focus group generally felt that different uses on the trails can work well together. While they recognized that there have been some problems on the trails, they believe those conflicts are the result of a small number of users who are "bad apples." Some in the group did not accept the arguments that the dust, smell, and noise from motorized use, particularly ATV use, affected other users. Some members of the group acknowledged ATV challenges. According to these members the use of ATVs has rapidly increased in Wisconsin and that the education of riders has not been able to keep pace.

ATV usage has increased in Wisconsin. The ATV registration program began in 1986. However, ATVs did not gain popularity until the mid-1990s, after which ridership boomed. Registration of ATVs tripled from 2000 to 2013 to almost 300,000. As ATV ridership has exploded, user groups and the motorized sports industry has pushed for more trail access and fewer restrictions.

Figure 5-5: ATVs on the Parrish Highlands Trail in Langlade County
Source: Antigo/Langlade County Chamber of Commerce & Visitors Center, 2017

One area of concern is the use of ATVs on vehicular roadways. Many local jurisdictions through Wisconsin have opened roadways to ATVs in recent years. However, ATVs are not designed to operate on paved surfaces and about 300 people per year are killed in ATV-related accidents on public roadways. The U.S. consumer Product Safety Commission warns against operating ATVs on public roads, ATV manufacturers include warning labels instructing riders to never operate on roadways, and the Specialty Vehicle Institute of America calls for the prohibition of ATVs on public roads, with the exception of crossing roads in its model legislation. 60 percent of all ATV-related deaths are on public roads, with the majority occurring on paved surfaces, according to the health journal, Injury Prevention.

Of the fatal crashes, Federal statistics indicate nearly a third of fatal crash victims are under the age of 18. 39 percent of operators involved in fatal crashes were under the influence of alcohol, according to the National Highway Traffic Safety Administration (NHTSA). Lastly, the vast majority of riders killed were not wearing helmets.

Managing Trail Conflict

All recreational trails will experience user conflict in some form. Trail planners and commissions should be aware of this and the first steps to mitigate these conflicts should be taken during the planning stage. Trail planners and recreational managers should understand the spectrum of possible conflict as well as possible management interventions for different user groups. Conflict intervention ranges from trail design, to local outreach and education, and rule enforcement. They should also understand how a particular trail fits into the county or regional trail system and how it advances overall user diversity.

Trails should be built to encourage proper user behavior and to mitigate common trail issues. Influencing proper behavior through the subtleties of design is preferable and often more effective than attempting to do so after the fact through education programs or regulations. Design includes building trails wide enough to accommodate the expected use and for safe passing. Construct trails to minimize erosion, by designing for surface drainage, avoiding steep grades, and building trails in areas of erosion-resistant soils. Multi-use trails should also be designed with adequate sight distances to increase safety and mitigate near misses or collusions on corners and hills.

Thought should be given to which groups will be allowed on the trails, and if there will be separation by segment or season. With the proliferation of new recreational technologies, it is difficult to forecast the needs of future users, but there is plenty of information about the goals and infrastructure needs of current trail user groups. Trail planners and designers therefore must decide the level of inclusivity of a trail and understand how that will impact different user

groups. These decisions and goals for trail usage should be communicated and explained to the public to let them know how these goals fit into an overall county or regional plan to accommodate different user groups.

While some trail uses are complimentary, such as camping and virtually every other trail use, others are considered to be less compatible and separation may be considered in these cases. In some instances competitive or antagonistic user groups can be separated seasonally, as was the case with the Gandy Dancer Trail. Other conflicts could be mitigated through alternating days that certain user groups are allowed on trails. Additionally, segments of the trail could be assigned to a particular activity.

In some circumstances, a separate trail may be necessary only for problem sections. In other situations, whole trails or separate systems should be provided for different uses. Providing separate trails for different user groups have many drawbacks, however, they point out that it can be expensive, cause resentment, be difficult to enforce, and limit opportunities for communication and cooperation among users.

One way to approach potential conflict is to take a holistic view to trail planning for the Region. Provide adequate trail mileage and a variety of trail opportunities in terms of terrain, difficulty, scenery, etc. Trail impacts, including user conflicts, may be due more to the number of users one the trail than the types of users present or their behavior. By varying the difficulty, the length, and infrastructure, conflict issues between users may sort themselves out as user seek trails that best fit their recreational expectations.

Education of trail users may be as simple as installing signage explain rules and expectations. Brochures at locations for trail passes, yearly articles in local newspapers, and websites dedicated to explaining rules are also recommended. Meetings with users groups are also an option to discuss proper behavior. User groups can also be required to repair trail damage from their usage, particularly after a major event on the trail.

In some cases, enforcement of rules may become necessary. The Cheese Country Trails actively enforces speed limits and fines those riders who are not in compliance. Enforcement is often a last resort for trail management as it can be expensive. The challenge is that much of conflict may be contributed to "bad apples," although DNR SCORP participants could not agree on what percentage of recreational users fall into this category.

Public-Private Partnerships

Given the benefits that businesses receive from a location in a walkable community, chambers of commerce and downtown groups represent an opportunity to walk on common goals. Walkable areas benefit from increased foot traffic and research shows that business patrons who walk or drive are likely to spend more money than their driving counterparts. Traffic calming and other safety measures will create a more comfortable environment for drivers who become pedestrians once they leave their cars. Additionally, walkable communities are selling points to recruiting and retaining employees to the area.

Figure 5-6: Safety Instructions during Rodeo & Safety Day in Wausau
Source: Bicycle Wausau, 2014

Chambers and other business groups sponsor festivals and build band shells or pavilions, which

bring in tourists and enhance the quality of life of residents. By demonstrating the benefits of pedestrian and bicycle infrastructure a chamber could be convinced to sponsor the building of a trail, the installation of bicycle parking, or finance another important walkability feature in the community. Temporary or pop-up changes can be made to test or trial changes, such as bump outs or protected bike lanes. These temporary changes often demonstrate the improvements to adjacent businesses and property owners, using minimal investment, and can reduce the opposition to more permanent installations.

Partnering with a hospital foundation may be another option. Many hospitals are sponsoring healthy initiatives in the community, such as Bike to School Day, Ladies Bike Night, or Bike Rodeos and looking for opportunities to help make the community healthier. While education and awareness is an important part of the equation to creating walkable communities, people still need safe places to walk and bike and many communities are struggling with the funding to build these spaces. Considering that increasing walkable and bikeable infrastructure has the potential to create healthier lifestyles, communities may start to speak with these foundations to see if there could be potential for a partnership.

Build Support

Building sidewalks and installing bicycle lanes is often met with resistance from adjacent property owners. A property owner may balk at the responsibility to shovel snow on a new sidewalk adjacent to their property, not to mention his or her portion of the special assessment. Removing traffic lanes in a road diet do not seem like logical actions for many residents who are used to the city prioritizing cars, speed, and capacity. A reduction in lanes will likely seem backwards rather than advancement to at least a few residents.

Communities need to educate residents and businesses about the benefits of walkability and safety improvements that road diets and traffic calming bring, and they should use a number of platforms. The Wisconsin Department of Health Services put together a Walkable Communities Media Advocacy Toolkit to help communities with the process. The first step is to put together a strategic media plan by selecting a leader for the effort and establishing and reviewing policies and goals for walkability. Then establish media goals, actions, and timelines. The process can be found here: https://www.dhs.wisconsin.gov/publications/p01282.pdf.

The toolkit includes a fact sheet, a media guide, a news release template, and tips for writing a letter to the editor and an Op-Ed. In addition to traditional newspapers, these items can be placed on the municipal website, Facebook groups, and neighbor groups. Local TV and radio stations will likely be interested in covering local walkability plans and issues if they are notified and helped along with the story. The benefits of walkability may also be presented at informal events, such as a coffee and cookies with the mayor event, or the community could hold a walkability workshop or neighborhood walk and talk event.

Safety & Awareness Programming & Education

Resources and responsibility exist for drivers, pedestrians and bicyclists alike to ensure multi-modal road safety. The resources are readily available from multiple sources, from State and Federal agencies to advocacy groups. Resources are detailed in the following sections:

Federal Resources

Federal Highway Administration (FHWA)

The United States FHWA hosts multiple resources for recreational bicyclists and pedestrians, and units of government alike. The FHWA Office of Safety has developed a strategic pedestrian safety plan for the nation, and provides access to key legislation and design and educational guidelines designed around "the Five E's":

- ***Enforcement*** *– Bicycle police, laws that protect bicycles, targeted enforcement programs to encourage people to share the road.*
- ***Engineering*** *– Bike lanes, bike routes, trails, bike parking, etc.*
- ***Education*** *– Availability of cycling education, safety materials, Safe Routes to School programs and number of League cycling instructors*
- ***Evaluation*** *– Community Bike Plan, annual bike counts, evaluation of crash data, mode share, etc.*
- ***Encouragement*** *– Bike to Work Week events, Bike Challenge participation, printed materials such as maps and brochures, fun events like Tour de Fat, etc.*[4]

A key resource from the FHWA is the Pedestrian & Bicyclist Safety Information Tool, a comprehensive database of safety guides, training documents and reports (located here: https://safety.fhwa.dot.gov/ped_bike/safety_info_search/).

The FHWA also works in tandem with the University of North Carolina to host the Pedestrian and Bicycle Information Center (PBIC), an open resource that provides tools to communities to ensure timely information and current best practices in encouraging safety walking and bicycling, both for travel and exercise. Some of the available resources from PBIC include the following:

- *Case studies & white papers*
- *Community organizing resources along bicycle and pedestrian issues*
- *Data and facility design resources*
- *Webinars and trainings*

These resources are timely for units of government, advocacy organizations and interested citizens alike and may be easily accessed here: http://www.pedbikeinfo.org/index.cfm.

National Highway Traffic Safety Administration (NHTSA)

NHTSA provides general guidance and support to state agencies in terms of bicycle and pedestrian safety programming. Although NHTSA primarily focuses on vehicular safety and regulations, the agency also provides safety resources for bicycles and pedestrians.

Center for Disease Control (CDC)

While the CDC is not traditionally known for work on bicycle and pedestrian safety, the CDC publishes reports that do guide Federal policies and practices on best safety practices. These include the Guide to Promoting Moderate Physical Activity and Physical Activity and Health; A Report of the Surgeon General. The National Bicycle Safety Network, an open-source hub for bicycle safety resources, is hosted by the CDC.

State Resources

WisDOT: Bureau of Transportation Safety

The WisDOT Bureau of Transportation Safety (BOTS) hosts various workshops including the 2017 Teaching Safe Bicycling Classes, a series of free workshops across Wisconsin that teach adults how to host youth bike rodeos in their communities. BOTS also works with advocacy groups like the Bicycle Federation of Wisconsin and the League of American Bicyclists to provide "Basics of Bicycling" courses in schools, as well as brochures and informational videos. Additionally, BOTS provides resources and training for law enforcement agencies to provide enforcement of proper safety measures for bicycles and pedestrians, often in partnership with NHTSA.

[4] Language from Bike Fed's explanation of "the Five E's"

Wisconsin Department of Tourism

The Department of Tourism publishes the Wisconsin Biking Guide for safe, recreational trails across the State for both road biking and mountain biking. The guide can be accessed here: https://www.travelwisconsin.com/uploads/medialibrary/2b/2bce6970-594e-4a1c-9ca0-20839f42ebd5-2014-biking-guide.pdf.

Advocacy Groups

Bicycle Federation of Wisconsin (Bike Fed)

The Bicycle Federation of Wisconsin (or, 'Bike Fed') is a Wisconsin-based advocacy organization for bicycling resources statewide. The Bike Fed provides resources for units of government, and also for businesses and community organizations to foster a health bicycling environment. The Bike Fed most prominently provides the following services:

- *Legislative efforts to support bicycle-friendly legislation.*
- ***Share & Be Aware**: The Bike Fed partners with the Wisconsin Department of Transportation Bureau of Transportation Safety to increase awareness of bicycle safety best practices.*
- ***Bike Walk Civics Program**: The Bike Fed hosts a series of workshops with the American Heart Association to hosts classes, workshops and webinars to teach citizens to be both active and responsible bicyclists and pedestrians.*
- *The Bike Fed provides resources for Wisconsin communities to become certified Bicycle Friendly Communities by the League of American Bicyclists. So far, seventeen communities in Wisconsin are considered bicycle friendly communities, including two in the North Central Wisconsin Region – the City of Stevens Point, and the Wausau MPO region.*
- *Bike Fed provides ambassadors throughout the State of Wisconsin upon request to carry out community outreach and education events.*
- *The Federation provides guidelines and incentives to businesses to provide bicycle-friendly facilities.*

Figure 5-7: Bike Fed Logo
Source: Bicycle Federation of Wisconsin, 2017

The Bike Fed also provides facilitation and advocacy for bicycle-related events.

American Association of Retired Persons (AARP)

The American Association of Retired Persons (AARP) provides incentives and promotion of pedestrian and bicycle infrastructure as a means to boosting health living for persons over 55 years old. Some of the AARP's chief resources include the following:

- *The AARP circulates the AARP Livable Communities Newsletter for residents and decision-makers alike to share best practices, ideas, instructions and other qualities related to healthy community living, in which bicycling and walking make frequent appearances.*
- *Additionally, the AARP provides the Livability Index, an interactive online tool that gives each state, county, city, community and neighborhood a score from 0-100 based on livability. There scores are calculated based on the quality of:*
  - *Housing: Affordability and access*
  - *Neighborhood: Access to life, work, and play*
  - *Transportation: Safe and convenient options*
  - *Environment: Clean air & water*
  - *Health: prevention, access and quality*

- *Engagement: civic & social involvement*
- *Opportunity: inclusion and possibilities*

The Transportation score of the Livability Index is compiled by a combination of the following metrics: frequency of local transit services, walk trips, congestion, household transportation costs, speed limits, crash rates, ADA-accessible stations & vehicles, as well as whether or not a community has complete streets policies, state human services transportation coordination, state volunteer driver policies, and plans to create age-friendly communities.

- *The AARP also provides open-source walk audits for individuals, and tools for advocating for stop signs and traffic lights, and a complete streets evaluation tool kit.*

Figure 5-8: AARP Livable Communities Logo
Source: AARP, 2017

Walking Techniques to keep up the Pace: AARP provides a guidance report for best walking practices, accessible here: https://www.aarp.org/health/fitness/info-2007/walking_techniques_to_keep_up_the_pace.html.

League of American Bicyclists (LAB)

The LAB annually reviews communities across the nation and offers an open application for business, municipalities and other units of government to apply for an award to be designated as a "bicycle friendly community" on a bronze, silver, gold, and platinum scale. Two areas in the North Central Wisconsin Region were recognized by the LAB: The City of Stevens Point and the Wausau MPO area both received a bronze designation. Their scorecards may be reviewed in **Figures 5-9 and 5-10**.

WAUSAU METROPOLITAN AREA, WI

BICYCLE FRIENDLY COMMUNITY Fall 2015 BRONZE THE LEAGUE

TOTAL POPULATION	POPULATION DENSITY	# OF LOCAL BICYCLE FRIENDLY BUSINESSES	0
84,831	527		
TOTAL AREA (sq. mile)		# OF LOCAL BICYCLE FRIENDLY UNIVERSITIES	0
160.7			

10 BUILDING BLOCKS OF A BICYCLE FRIENDLY COMMUNITY

	Average Silver	Wausau Metro Area
Arterial and Major Collector Streets with Bike Lanes	45%	30%
Total Bicycle Network Mileage to Total Road Network Mileage	30%	19%
Public Education Outreach	GOOD	GOOD
Share of Transportation Budget Spent on Bicycling	7%	1.5%
Bike Month and Bike to Work Events	GOOD	GOOD
Active Bicycle Advocacy Group	ACTIVE	YES
Active Bicycle Advisory Committee	ACTIVE	MEETS MONTHLY OR MORE
Bicycle-Friendly Laws & Ordinances	SOME	FEW
Bike Plan is Current and is Being Implemented	YES	YES
Bike Program Staff to Population	1 PER 70K	1 PER 84.8K

CATEGORY SCORES

ENGINEERING *Bicycle network and connectivity*	2/10
EDUCATION *Motorist awareness and bicycling skills*	3/10
ENCOURAGEMENT *Mainstreaming bicycling culture*	3/10
ENFORCEMENT *Promoting safety and protecting bicyclists' rights*	3/10
EVALUATION & PLANNING *Setting targets and having a plan*	1/10

KEY OUTCOMES

	Average Silver	Wausau Metro Area
RIDERSHIP *Percentage of Commuters who bike*	3.5%	0.7%
SAFETY MEASURES **CRASHES** *Crashes per 10K bicycle commuters*	180	662
SAFETY MEASURES **FATALITIES** *Fatalities per 10K bicycle commuters*	1.4	13.3

KEYSTEPSTOSILVER

» Continue efforts to adopt a Complete Streets policy and offer implementation guidance. By adopting a Complete Streets policy, communities direct their transportation planners and engineers to routinely design and operate the entire right-of-way to enable safe access for all users, regardless of age, ability, or mode of transportation.

» Adopt and implement the bicycle plan that is currently being prepared. Ensure that there is a feedback mechanism to help the community meet goals for the implementation of your bicycle plan.

» Bicycle-safety education should be a routine part of education, for students of all ages, and schools and the surrounding neighborhoods should be particularly safe and convenient for biking and walking. Particularly as students learn to drive cars; it is important that they continue to learn about safe bicycling practices and how to safely share the road as drivers. Work with your local bicycle groups or interested parents to expand the Safe Routes to School program to all schools.

» Provide a variety of targeted bicycle events to engage women, seniors, and other demographic groups that may benefit from non-traditional or group-specific bicycle events. Targeted events may help to encourage groups that have specific concerns about bicycling or which have not previously been engaged in supporting bicycling improvements.

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SUPPORTED BY TREK

Figure 5-9: LAB Scorecard for the Wausau MPO Area
Source: League of American Bicyclists, 2015

STEVENS POINT, WI

BICYCLE FRIENDLY COMMUNITY Fall 2016 BRONZE THE LEAGUE

TOTAL POPULATION	POPULATION DENSITY
27040	1469.6
TOTAL AREA (sq. mile)	
18.4	

OF LOCAL BICYCLE FRIENDLY BUSINESSES 0

OF LOCAL BICYCLE FRIENDLY UNIVERSITIES 0

10 BUILDING BLOCKS OF A BICYCLE FRIENDLY COMMUNITY

	Average Silver	Stevens Point
High Speed Roads with Bike Facilities	47%	19%
Total Bicycle Network Mileage to Total Road Network Mileage	51%	43%
Bicycle Education in Schools	GOOD	AVERAGE
Share of Transportation Budget Spent on Bicycling	14%	UNKNOWN
Bike Month and Bike to Work Events	VERY GOOD	AVERAGE
Active Bicycle Advocacy Group	YES	YES
Active Bicycle Advisory Committee	MEETS EVERY TWO MONTHS	MEETS AT LEAST MONTHLY
Bicycle-Friendly Laws & Ordinances	AVERAGE	NEEDS IMPROVEMENT
Bike Plan is Current and is Being Implemented	YES	YES
Bike Program Staff to Population	1 PER 89K	1 PER 54 K

CATEGORY SCORES

ENGINEERING *Bicycle network and connectivity*	4/10
EDUCATION *Motorist awareness and bicycling skills*	4/10
ENCOURAGEMENT *Mainstreaming bicycling culture*	4/10
ENFORCEMENT *Promoting safety and protecting bicyclists' rights*	2/10
EVALUATION & PLANNING *Setting targets and having a plan*	4/10

KEY OUTCOMES

	Average Silver	Stevens Point
RIDERSHIP *Percentage of Commuters who bike*	2.8%	3.7%
SAFETY MEASURES **CRASHES** *Crashes per 10K bicycle commuters*	498	228
SAFETY MEASURES **FATALITIES** *Fatalities per 10K bicycle commuters*	8	0

KEY STEPS TO SILVER

» Develop a design manual that meets current NACTO standards or adopt the NACTO Urban Bikeway Design Guide. This will make it easier for city staff to propose and implement bicycle facility designs that have been shown to improve conditions for people who bike in other cities throughout the United States.

» The current on-street bicycle network includes many paved shoulders and shared lane markings. Consider road diets, lane diets, and other ways to upgrade those bicycle facilities to ones more suitable to use by people of all ages and abilities.

» Specify mode share and safety goals. Make sure that you have data collection processes in place to evaluate the performance, including safety performance, of corridors and networks for all modes of transportation.

» It is great to hear that your Bicycle and Pedestrian Advisory Committee is collaborating with University of Wisconsin-Stevens Point GIS/Geography faculty and students on a new bicycle route map of Stevens Point based on comfort level (perceived safety). This will provide a strong basis for improvements in the bicycle network with context-appropriate facilities that provide a connected network for people of all ages and abilities.

» Increase the amount of staff time spent on improving conditions for people who bike and walk. Increasing staff time, either by creating a position or changing the responsibilities of current staff, can have a positive impact on the ability of your community to execute bicycling and walking-related projects and programs.

LEARN MORE » WWW.BIKELEAGUE.ORG/COMMUNITIES SUPPORTED BY planet bike AND LEAGUE MEMBERS

Figure 5-10: LAB Scorecard for the City of Stevens Point
Source: League of American Bicyclists, 2016

Chapter Six: Conclusion

Summary of the North Central Wisconsin Regional Bicycle & Pedestrian Plan 2018 & Recommendations Regarding Appropriate Implementation throughout the Ten-County Region

This plan was adopted as part of the Regional Livability Plan (RLP). The RLP forms the regional comprehensive plan as outlined in Wisconsin Statute 66.1001. As an advisory organization, the NCWRPC will encourage the implementation of the Regional Bicycle and Pedestrian Plan at the local level. As the Region's many local units of government develop and update their own bicycle and pedestrian plans, they can incorporate the concepts and recommendations of this Regional Plan.

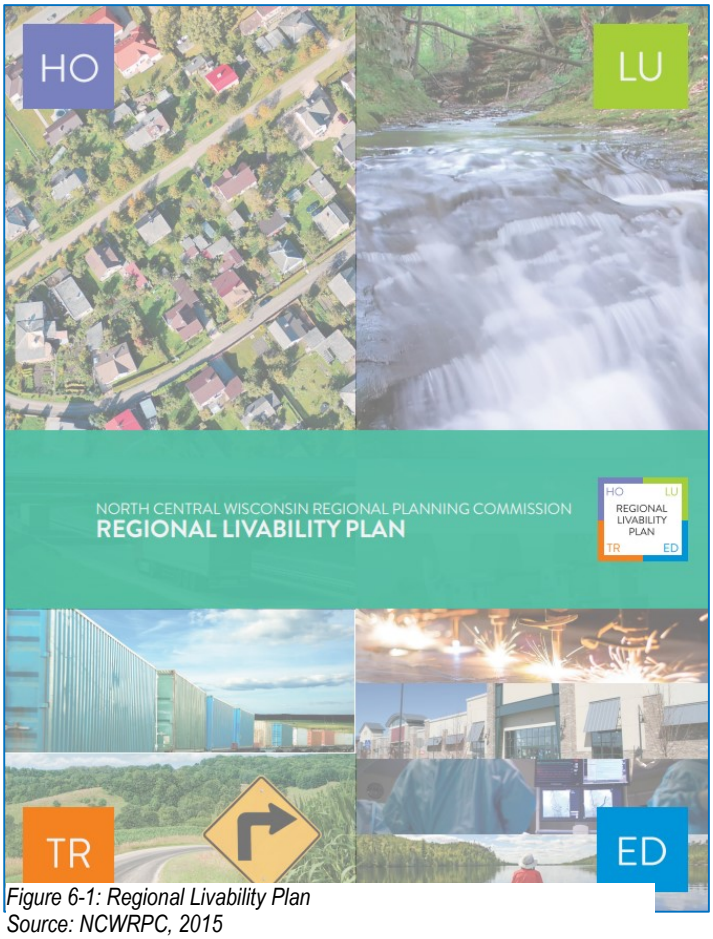

Figure 6-1: Regional Livability Plan
Source: NCWRPC, 2015

The Regional Bicycle and Pedestrian Plan will be implemented through the efforts of many. Since the NCWRPC has no implementation authority, it is the local communities that will integrate the Regional Bicycle and Pedestrian Plan into their local plans. In addition, Federal, State and regional government agencies and quasi-governmental organizations will be directly involved in project coordination, funding and implementation based on the recommendations of the Regional Bicycle and Pedestrian Plan. Although many of the objectives outlined in the plan can only be fully implemented by government agencies, nonprofit and community organizations can carry out many activities that make the vision of the Regional Bicycle and Pedestrian Plan a reality. Various nonprofits' missions coincide with the objectives of livability and bicycle-pedestrian development providing opportunity for project sponsorship.

This document is intended to provide a general starting point for county and local units of government as they plan and develop their bicycle and pedestrian networks. It is at the local level where these plans will be adopted, designed and funded. But no community should plan in isolation. All communities need to look at State and Regional plans, as well as plans of surrounding communities, and develop a local plan that is compatible with the plans of other jurisdictions, especially in terms of interconnectivity. This plan provides a framework for that interconnectedness which locals can take and refine with more in-depth analysis and detail specific to their individual needs.

Based on regional planning functions established in state statute, the NCWRPC's plans, such as the Regional Bicycle and Pedestrian Plan, are only advisory to the local governments within the Region. As such, the NCWRPC defers to local officials and plans. In the case of a conflict between the Regional Bicycle and Plan and a county or local unit plan, which build on and refine the Regional Plan, those local plans supersede and take precedence over the Regional Plan.

WisDOT may look at the Regional and other bicycle and pedestrian plans when reviewing road projects that will utilize State or Federal funding that they have oversight for. However, these plans are not the only criteria the department considers when determining the need for bicycle and pedestrian accommodations. They also take into consideration the bike suitability rating, traffic counts, surrounding land uses, such as proximity to a residential area, commercial area, school park/recreational area, and/or serving a community (incorporated or unincorporated). This kind of review will likely occur with or without the presence of the Regional Bicycle and Pedestrian Plan.

How to Use This Plan

A four step process is recommended for use of this Plan in reviewing potential projects for implementation.

- ***1. Review Current Conditions**: What is the current bicycle suitability rating? Has there been a change in conditions that might affect the suitability rating? Look at factors such as traffic count, percent truck traffic (if available), and surrounding land use. Refer to Chapter 2 for an overview of the suitability rating process and see the Wisconsin Rural Bicycle Planning Guide (Appendix - **Resource Four**) for methodology to reevaluate the rating.*

  If the rating is good, then it is likely no design improvements are needed. If moderate or poor, then design improvements may be warranted.

- ***2. Review Potential Design Improvements**: If the suitability rating is moderate or poor, review **Chapter Four** for potential design improvement options appropriate for the situation. Planning level cost estimates for the various improvement types are provided for comparison and preliminary budgeting purposes. Project specific scopes and engineering estimates are needed to more accurately determine costs.*

- ***3. Review Ways to Fund**: Budgets continue to be a major concern for local units of government in this era of levy limits and ever shrinking resources. Chapter 4 also identifies some potential funding programs for bicycle and pedestrian projects. Community foundations, local fundraisers and donations should not be overlooked. Return-on-investment is an important consideration for any tax-payer supported project. There may be certain routes or sections of routes that cannot provide safe accommodation for all potential users, or the cost to do so would outweigh the benefit.*

- ***4. Consider Non-Infrastructure Policies and Strategies to Support the Infrastructure Investment**: Chapter 5 identifies a variety of non-infrastructure strategies to encourage bicycling and walking and promote safety. Many may be implemented for little to no cost. Communities can select options that best fit their situation to enhance their bicycle and pedestrian network.*

Although the Regional Bicycle and Pedestrian Plan envisions and encourages a Region-wide interconnected network of bike and pedestrian routes (see **Appendix One** for maps showing existing and recommended regional network), it also acknowledges the reality of the long-term impact of facility maintenance and bridge reconstruction. County and local units should target paved shoulders on those highway segments that pass through areas of concentrated populations, rural strip commercial developments, and/or high levels of pedestrian and bicycle activities, such as schools, parks, resorts, campgrounds, and youth camps.

Amending the Plan

An essential characteristic of any planning process is that it be ongoing and flexible. Periodic updating of the plan is necessary for continued refinement to insure that the plan reflects changing conditions over time. The NCWRPC will seek to complete a comprehensive update of the Regional Bicycle and Pedestrian Plan at least every ten years.

In order to keep the Regional Bicycle and Pedestrian Plan fresh and alive in the interim, the NCWRPC will periodically amend the Plan as needed to reflect local level planning that builds on and refines the Regional Plan. As the NCWRPC completes county and local level bicycle and pedestrian plans on behalf of its member communities, those plans will be automatically incorporated into the Regional Bicycle and Pedestrian Plan by official amendment action at a regularly scheduled meeting of the North Central Wisconsin Regional Planning Commission. Other local bicycle and pedestrian plans will be periodically amended into the Regional Plan as the NCWRPC becomes aware of their local adoptions.

Figure 6-2: North Central Wisconsin Regional Bicycle & Pedestrian Plan Logo
Source: NCWRPC, 2018

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Appendix One

Existing & Recommended Bicycle & Pedestrian Network Maps

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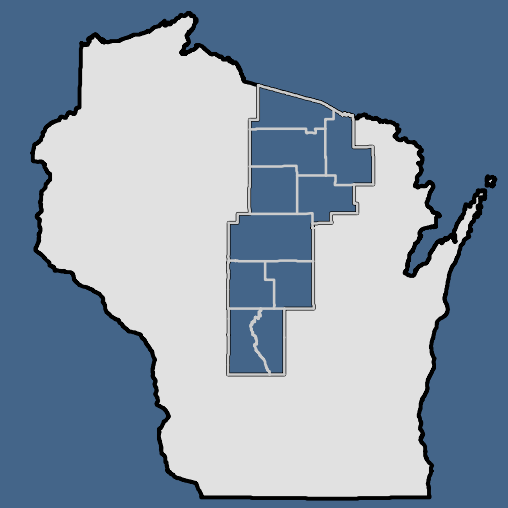
North Central Wisconsin Regional Bicycle & Pedestrian Plan

Adams, Forest, Juneau, Langlade, Lincoln, Marathon, Oneida, Portage, Vilas, & Wood Counties

Existing & Recommended Network



North Central Wisconsin Regional Bicycle & Pedestrian Plan

Forest Co.
Langlade Co.
Oneida Co.
Vilas Co.
Lincoln Co.
Marathon Co.
Portage Co.
Adams Co.
Juneau Co.
Wood Co.

Legend

- County Boundaries
- Existing On Road
- Recommended On Road
- Existing Off Road
- Recommended Off Road

For planning purposes only. Not for navigation. Some routes may not be open year-round. Alternate routing on adjacent roads may be required. Check local sources for route conditions and skill level requirements.

N

0 2.5 5 10 15 20 25 Miles

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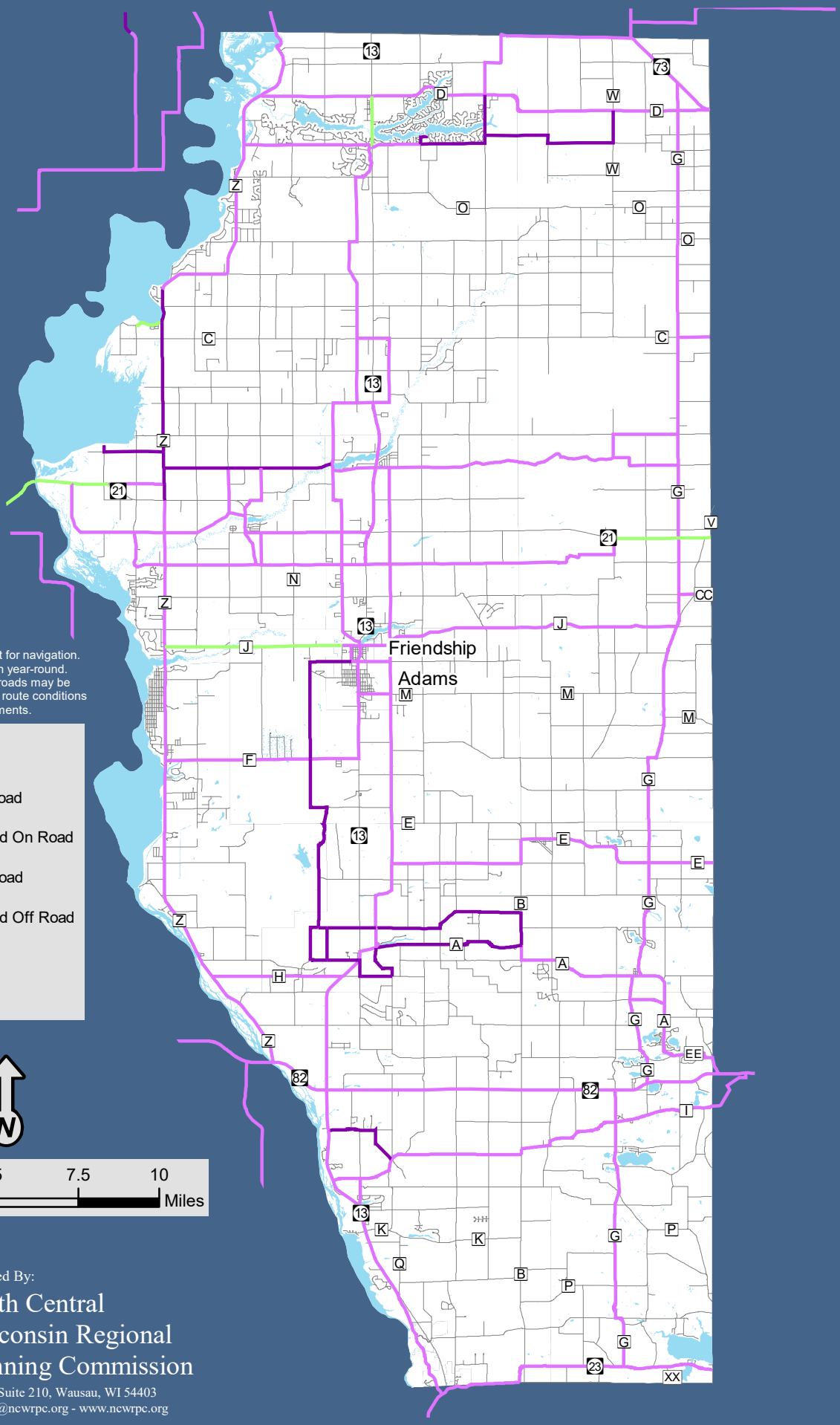
Adams County, Wisconsin



For planning purposes only. Not for navigation. Some routes may not be open year-round. Alternate routing on adjacent roads may be required. Check local sources for route conditions and skill level requirements.

Legend

- Existing On Road
- Recommended On Road
- Existing Off Road
- Recommended Off Road
- Roads
- Water

N

0 1.25 2.5 5 7.5 10 Miles

Source: NCWRPC

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Forest County, Wisconsin

For planning purposes only. Not for navigation.
Some routes may not be open year-round.
Alternate routing on adjacent roads may be required. Check local sources for route conditions and skill level requirements.

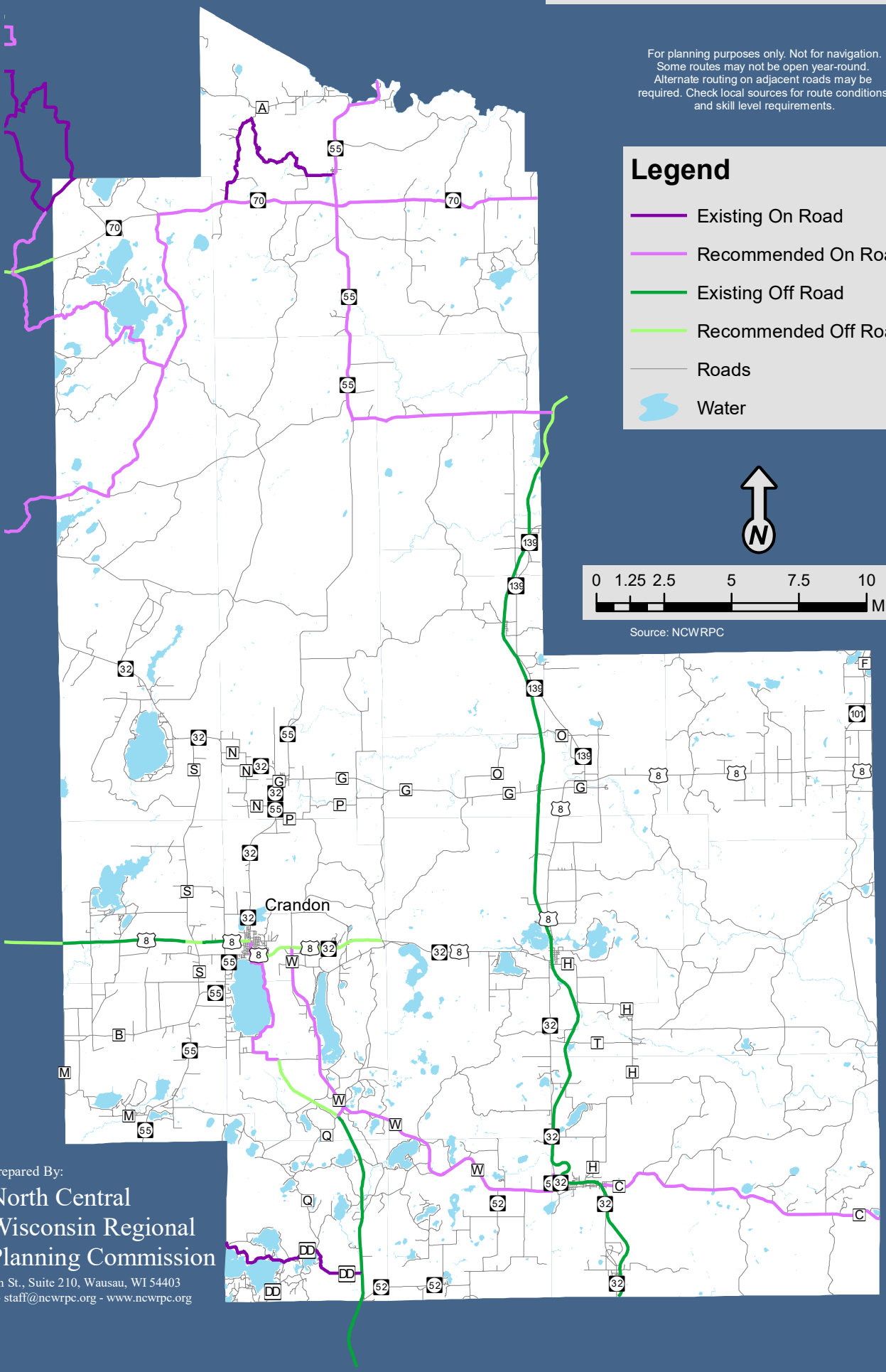
Legend

- Existing On Road
- Recommended On Road
- Existing Off Road
- Recommended Off Road
- Roads
- Water

N

0 1.25 2.5 5 7.5 10 Miles

Source: NCWRPC



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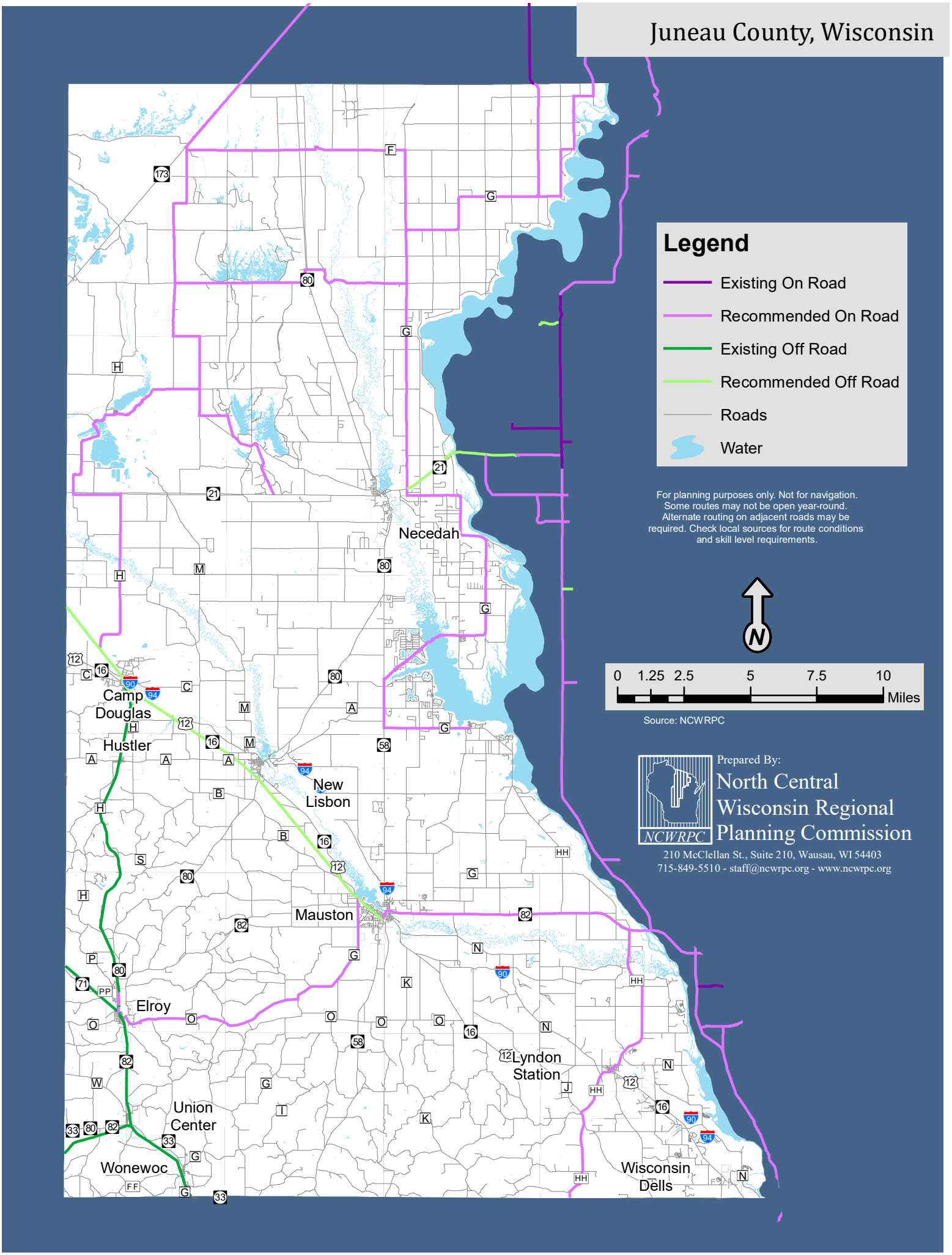
Juneau County, Wisconsin



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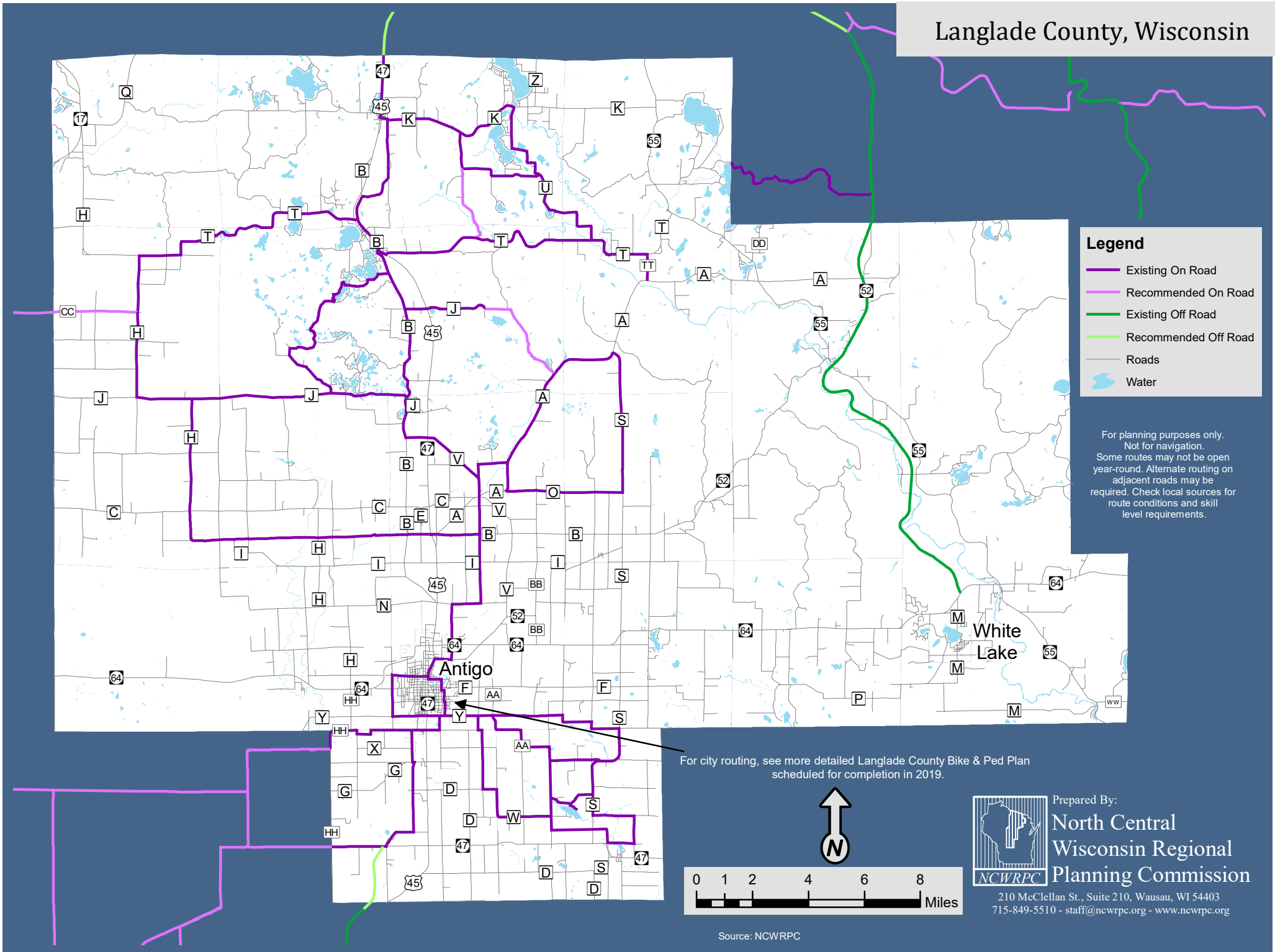
Langlade County, Wisconsin



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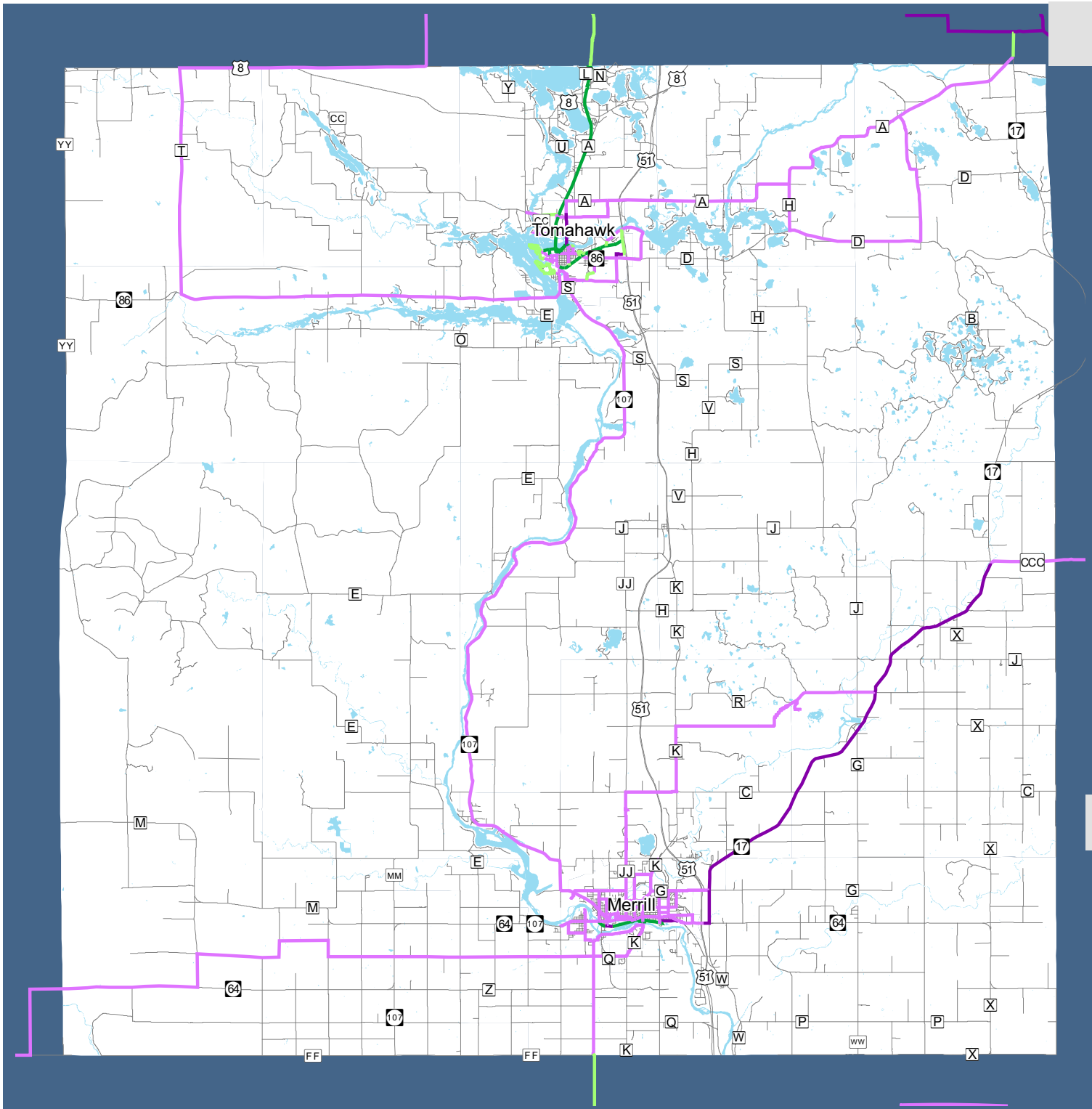
Lincoln County, Wisconsin



Legend

- Existing On Road
- Recommended On Road
- Existing Off Road
- Recommended Off Road
- Roads
- Water

For planning purposes only. Not for navigation. Some routes may not be open year-round. Alternate routing on adjacent roads may be required. Check local sources for route conditions and skill level requirements.

N

0 1 2 4 6 8 Miles

Source: NCWRPC

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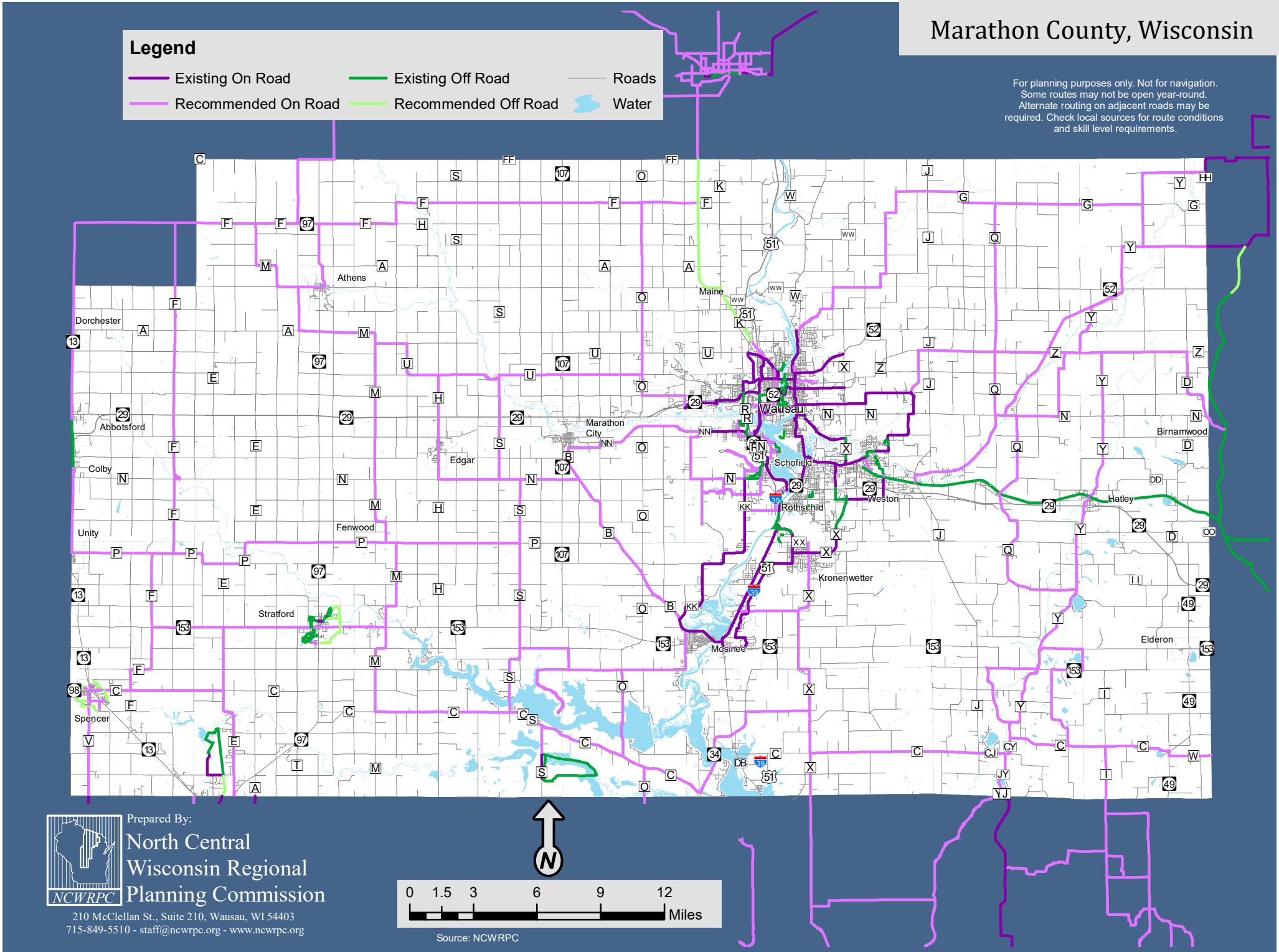
Marathon County, Wisconsin



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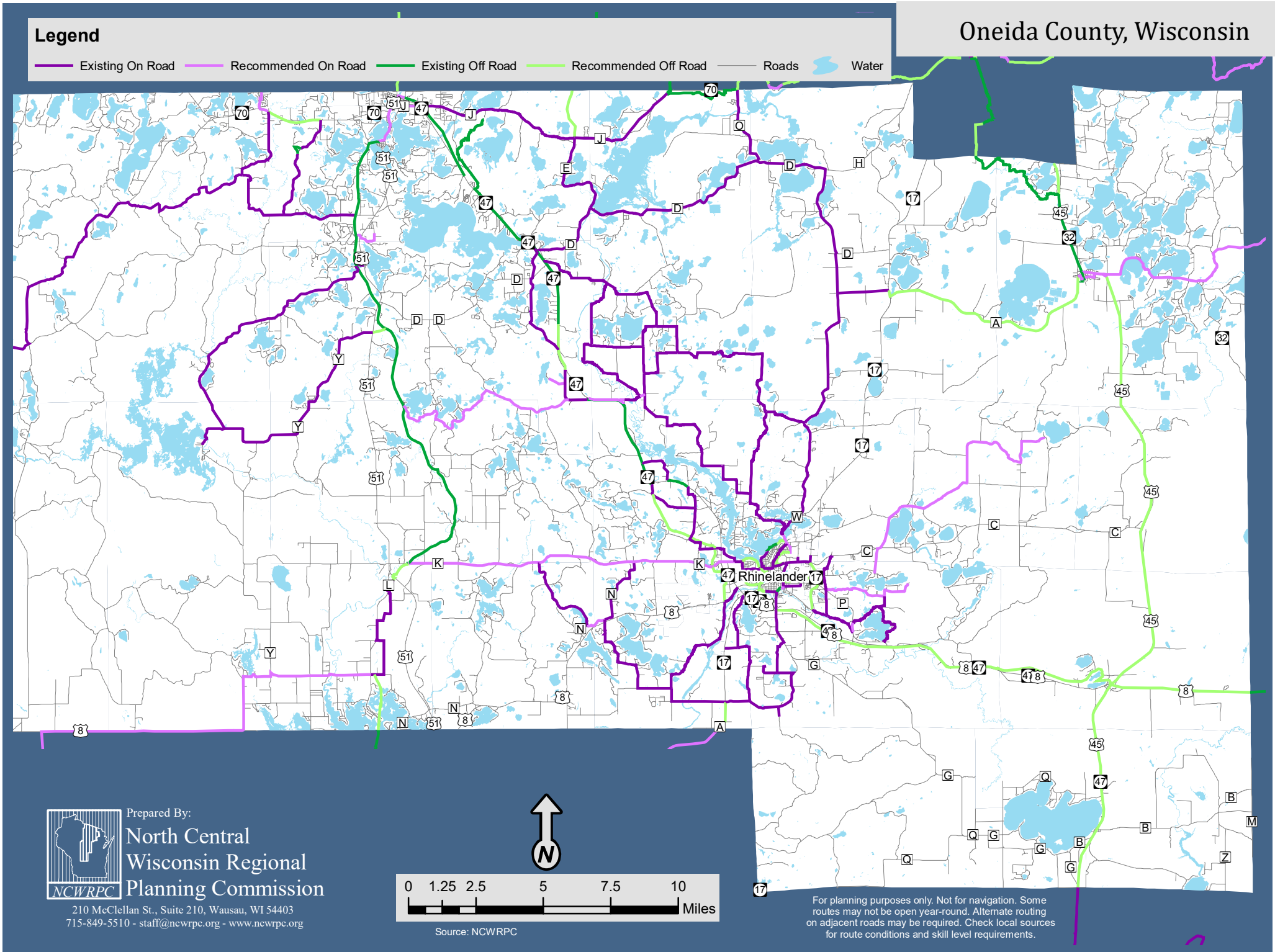
Oneida County, Wisconsin



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Source: NCWRPC

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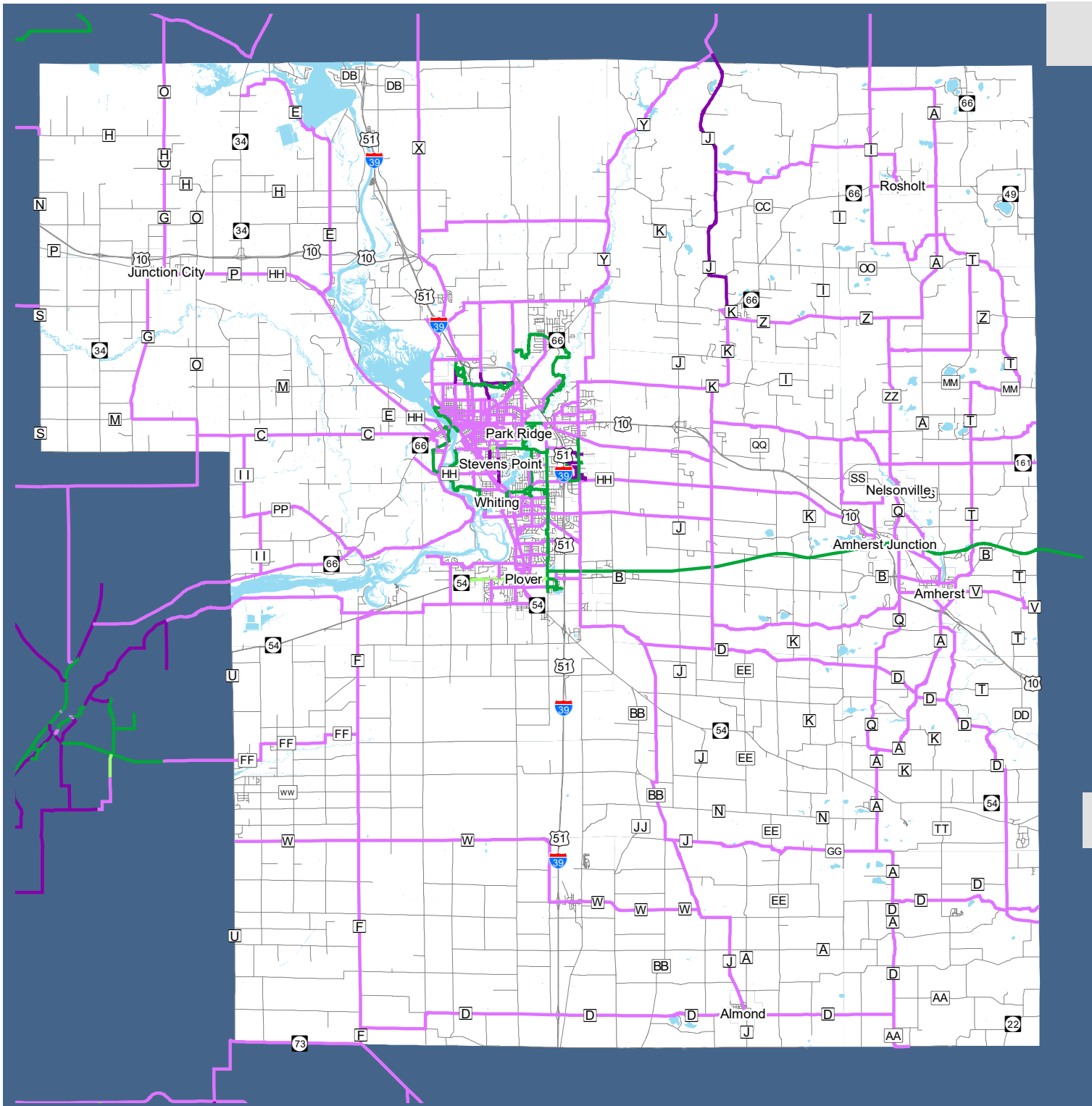
Portage County, Wisconsin



Legend

- Existing On Road
- Recommended On Road
- Existing Off Road
- Recommended Off Road
- Roads
- Water

For planning purposes only. Not for navigation. Some routes may not be open year-round. Alternate routing on adjacent roads may be required. Check local sources for route conditions and skill level requirements.

N

0 1.25 2.5 5 7.5 10 Miles

Source: NCWRPC

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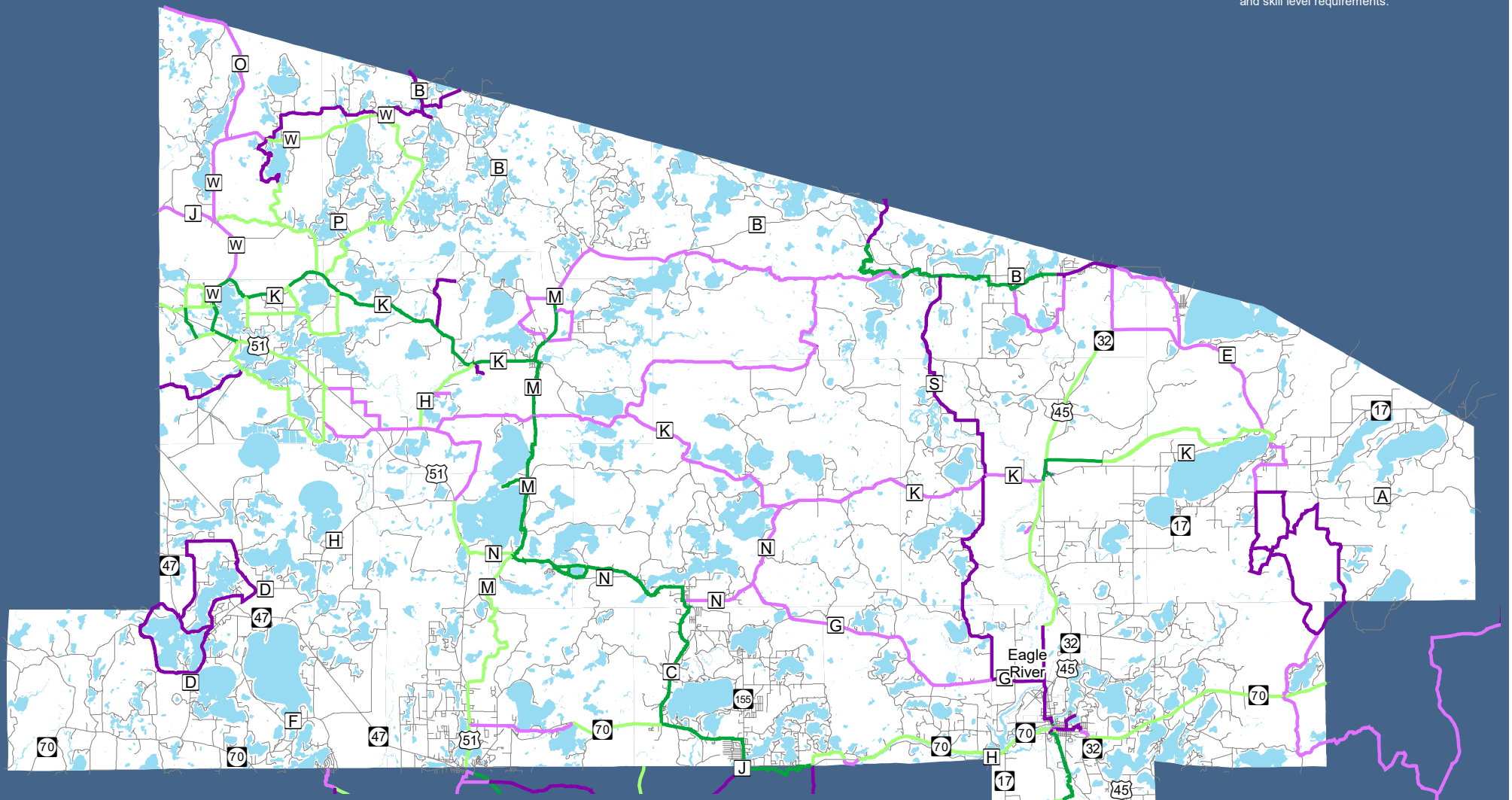
Vilas County, Wisconsin

Legend

Existing On Road | Recommended On Road | Existing Off Road | Recommended Off Road | Roads | Water

For planning purposes only. Not for navigation. Some routes may not be open year-round. Alternate routing on adjacent roads may be required. Check local sources for route conditions and skill level requirements.



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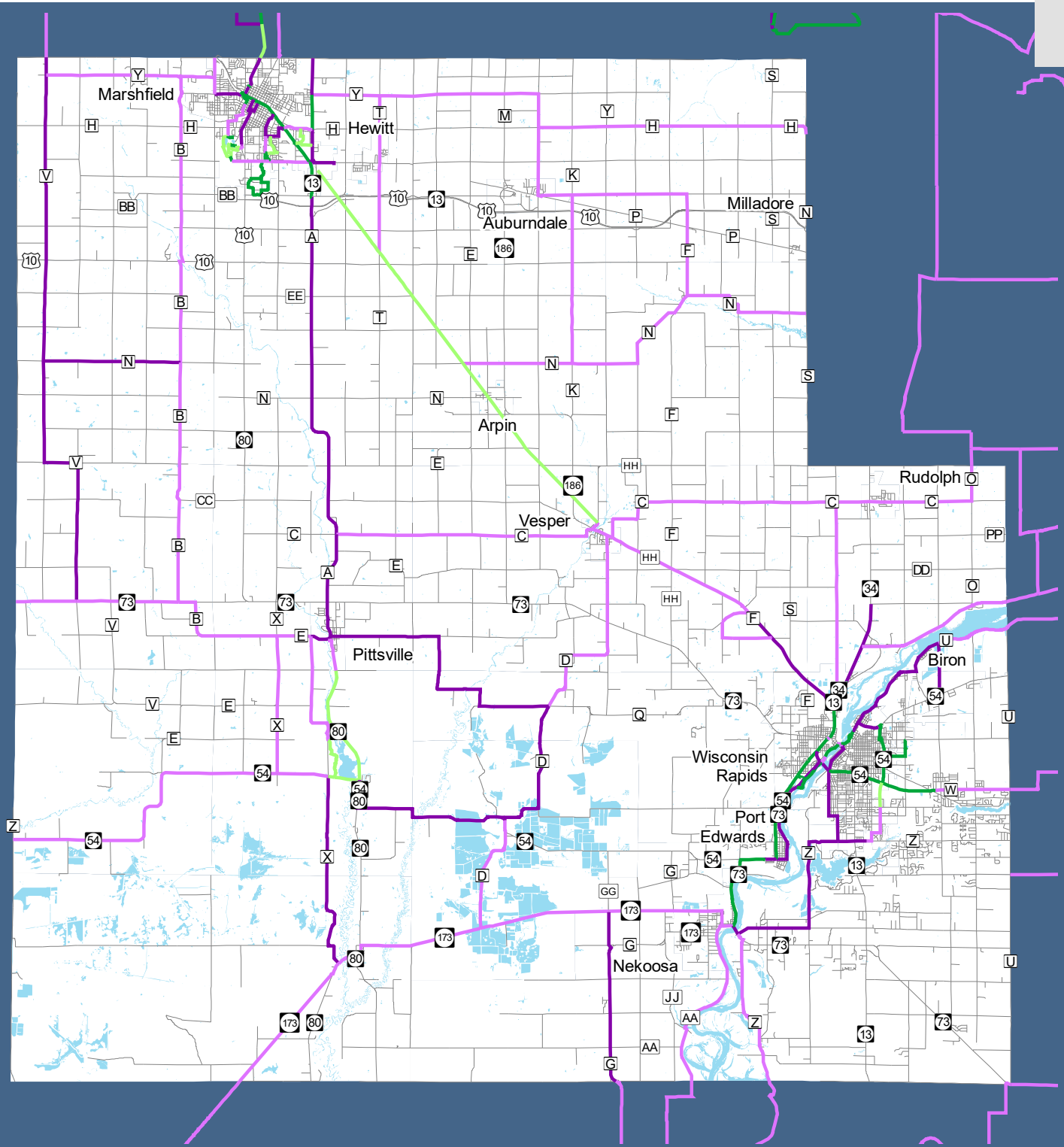
Source: NCWRPC

Wood County, Wisconsin



Legend

- Existing On Road
- Recommended On Road
- Existing Off Road
- Recommended Off Road
- Roads
- Water

For planning purposes only. Not for navigation. Some routes may not be open year-round. Alternate routing on adjacent roads may be required. Check local sources for route conditions and skill level requirements.

N

0 1 2 4 6 8 Miles

Source: NCWRPC

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Appendix Two

Survey Results: Total

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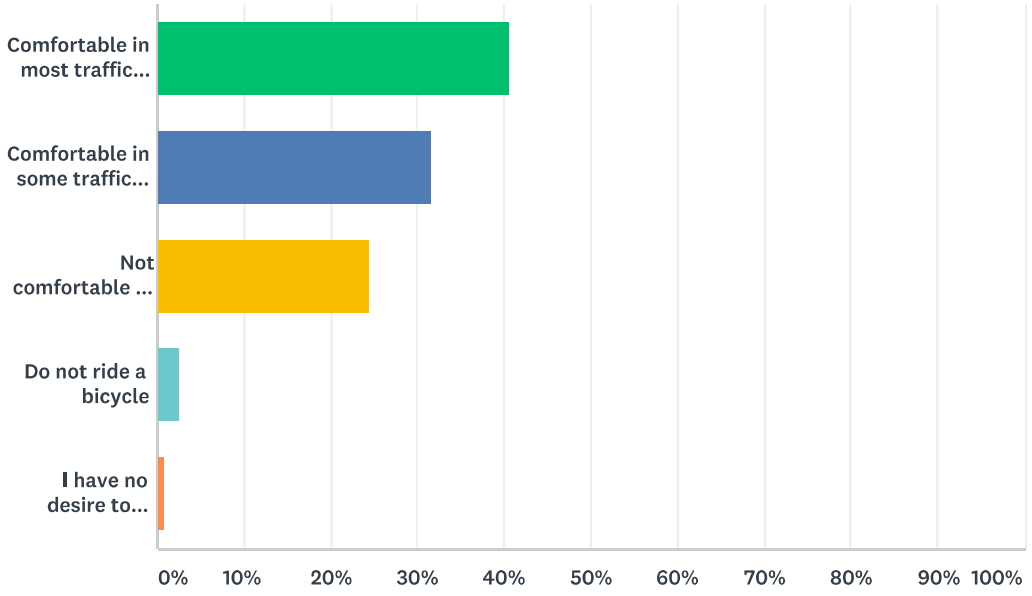
Q1 Please choose the answer that best describes your level of comfort riding a bicycle.

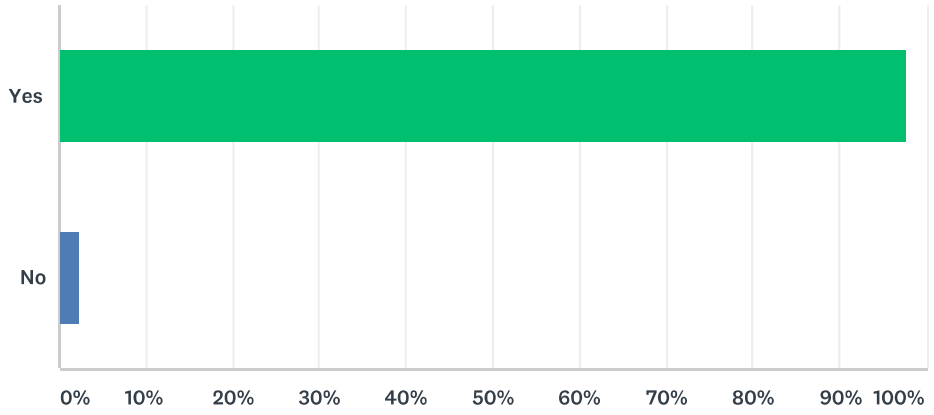
Answered: 358 Skipped: 1



ANSWER CHOICES	RESPONSES	
Comfortable in most traffic situations	40.50%	145
Comfortable in some traffic situations	31.56%	113
Not comfortable in traffic situations, but comfortable riding on separate paths.	24.58%	88
Do not ride a bicycle	2.51%	9
I have no desire to bicycle (skips to walking questions)	0.84%	3
TOTAL		358

Q2 Do you own a bicycle?

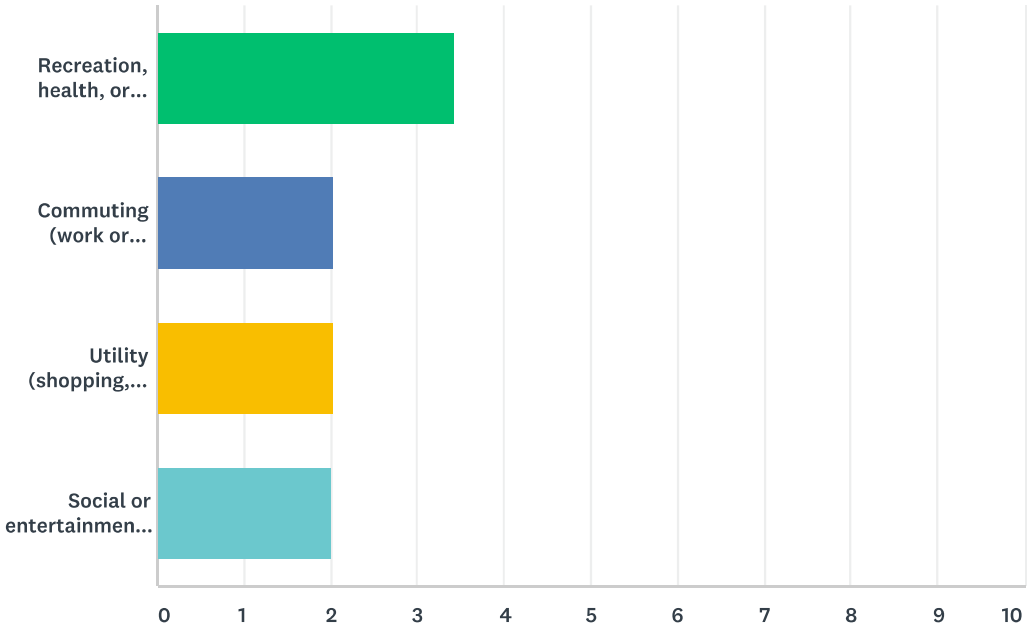
Answered: 358 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	97.77%	350
No	2.23%	8
TOTAL		358

Q3 How often do you currently bicycle for the following purposes?

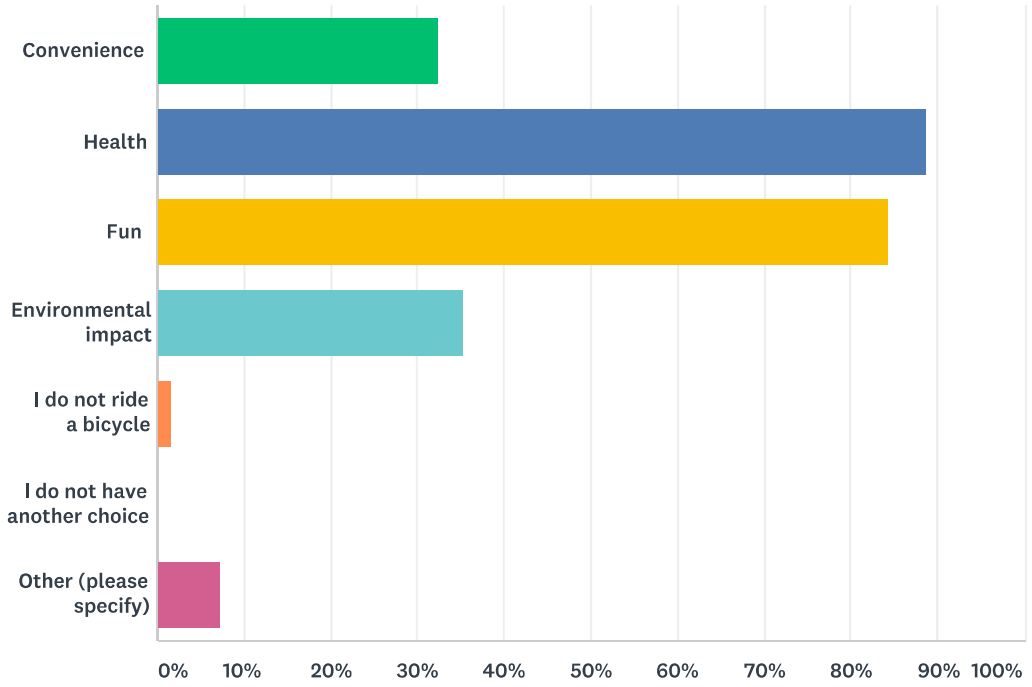
Answered: 349 Skipped: 10



	5 OR MORE DAYS PER WEEK	2-4 DAYS PER WEEK	1-8 DAYS PER MONTH	6-11 TIMES PER YEAR	LESS THAN 6 TIMES PER YEAR	TOTAL	WEIGHTED AVERAGE
Recreation, health, or exercise	13.47% 47	45.85% 160	21.20% 74	8.88% 31	10.60% 37	349	3.43
Commuting (work or school)	7.64% 21	13.82% 38	10.91% 30	8.36% 23	59.27% 163	275	2.02
Utility (shopping, errands)	3.47% 10	13.19% 38	19.10% 55	11.11% 32	53.13% 153	288	2.03
Social or entertainment (dining out, events, etc.)	2.13% 6	9.93% 28	22.70% 64	17.02% 48	48.23% 136	282	2.01

Q4 What encourages you most to ride a bicycle? (select all that apply)

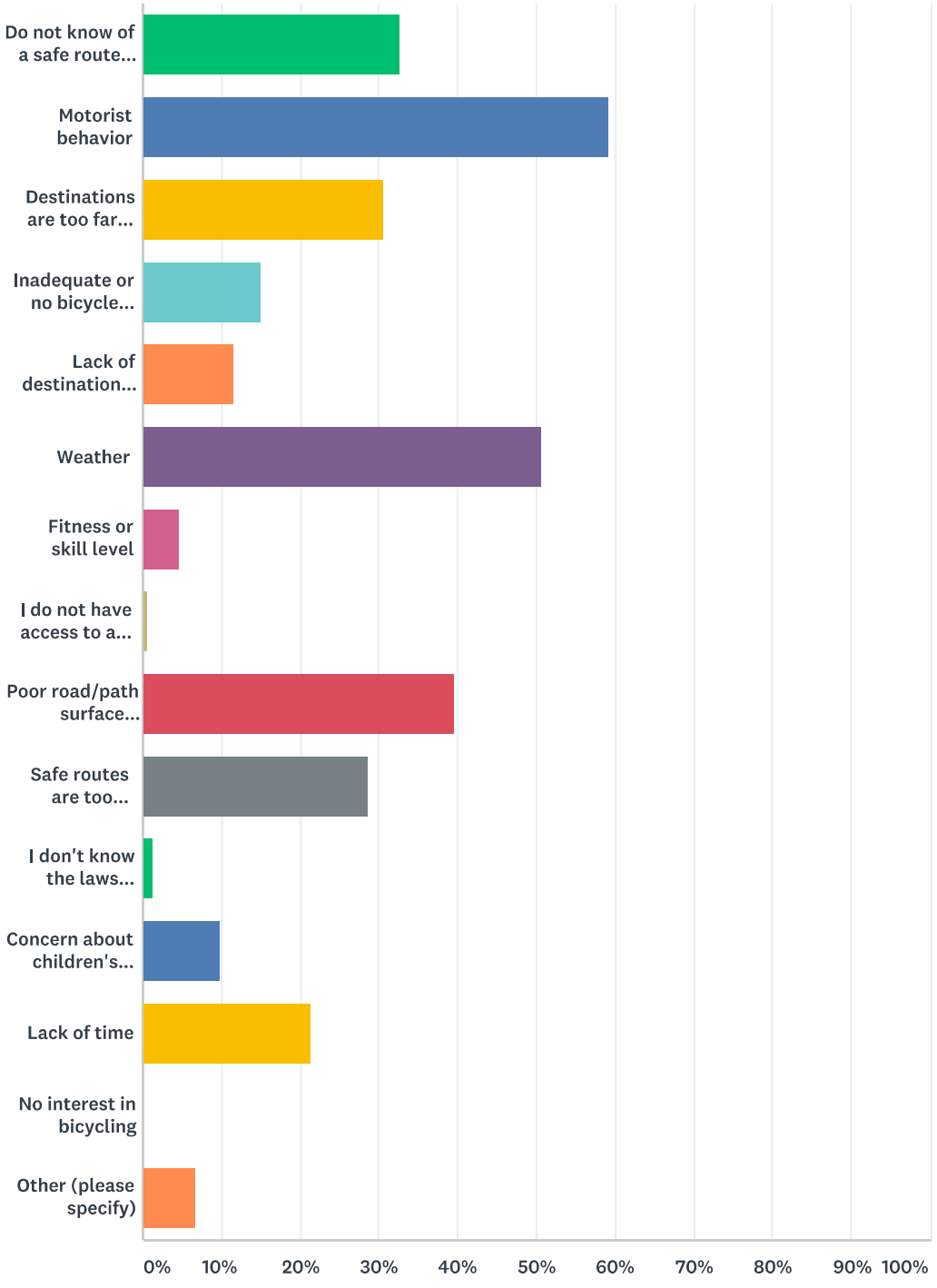
Answered: 351 Skipped: 8



ANSWER CHOICES	RESPONSES	
Convenience	32.48%	114
Health	88.60%	311
Fun	84.33%	296
Environmental impact	35.33%	124
I do not ride a bicycle	1.71%	6
I do not have another choice	0.00%	0
Other (please specify)	7.41%	26
Total Respondents: 351		

Q5 What discourages you most from riding a bicycle? (select all that apply)

Answered: 346 Skipped: 13

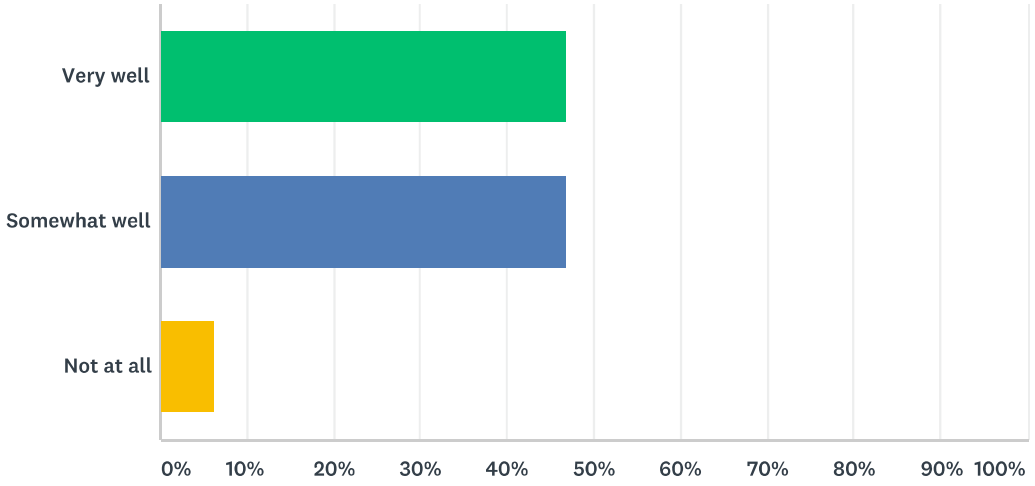


ANSWER CHOICES	RESPONSES	
Do not know of a safe route to destinations	32.66%	113
Motorist behavior	59.25%	205

Destinations are too far away	30.64%	106
Inadequate or no bicycle parking	15.03%	52
Lack of destination amenities (showers, lockers)	11.56%	40
Weather	50.58%	175
Fitness or skill level	4.62%	16
I do not have access to a bicycle	0.58%	2
Poor road/path surface conditions	39.60%	137
Safe routes are too indirect/long	28.61%	99
I don't know the laws related to bicycling	1.16%	4
Concern about children's safety	9.83%	34
Lack of time	21.39%	74
No interest in bicycling	0.00%	0
Other (please specify)	6.65%	23
Total Respondents: 346		

Q6 How well do you know the laws pertaining to operating a bicycle on public roadways?

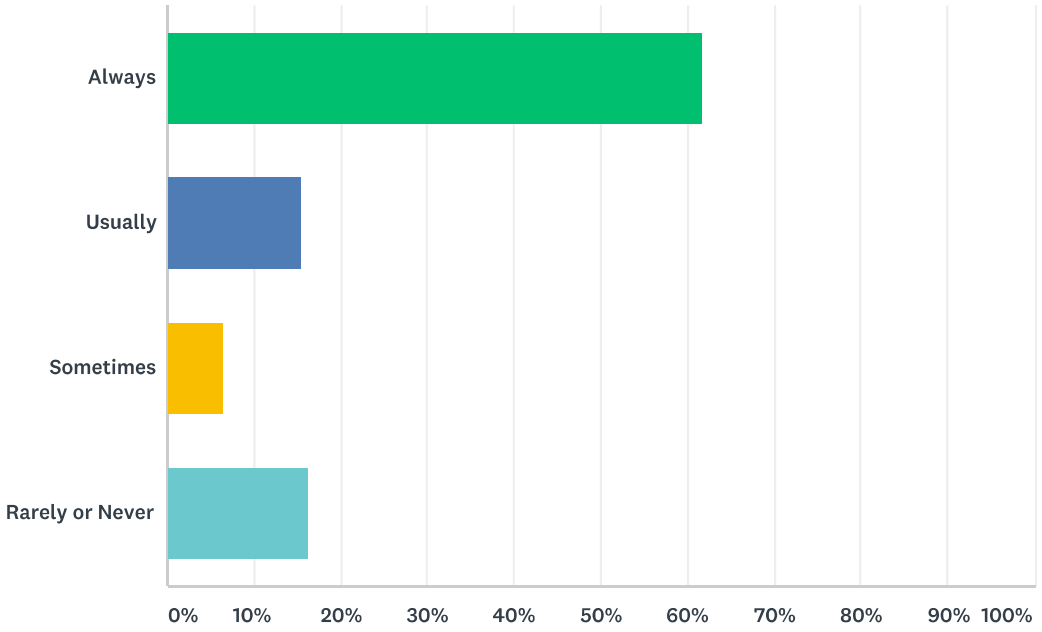
Answered: 350 Skipped: 9



ANSWER CHOICES	RESPONSES	
Very well	46.86%	164
Somewhat well	46.86%	164
Not at all	6.29%	22
TOTAL		350

Q7 Do you wear a helmet while bicycling?

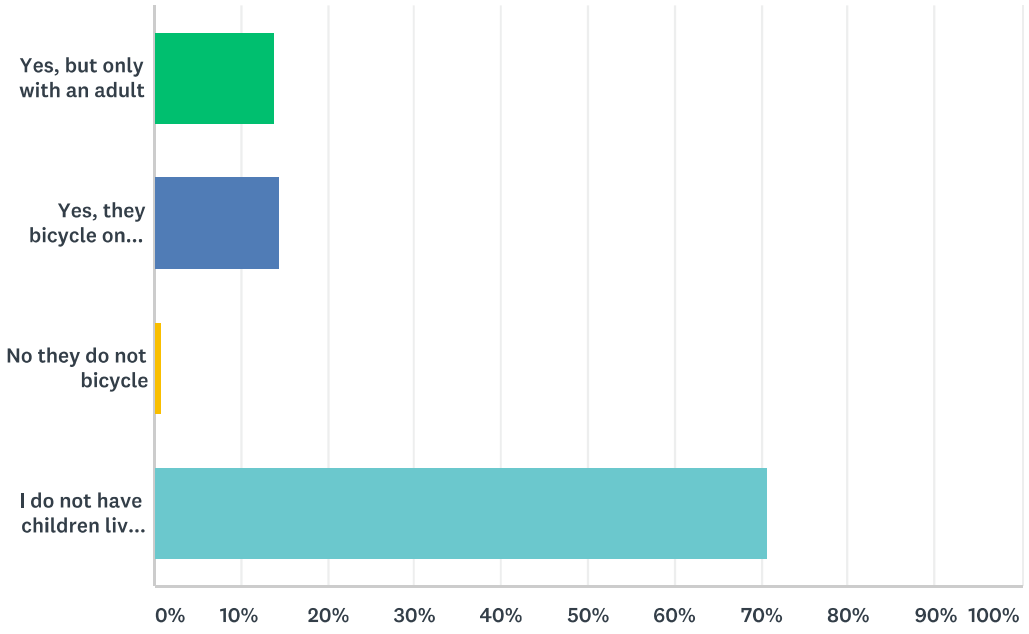
Answered: 350 Skipped: 9



ANSWER CHOICES	RESPONSES	
Always	61.71%	216
Usually	15.43%	54
Sometimes	6.57%	23
Rarely or Never	16.29%	57
TOTAL		350

Q8 If you have children at home, do they bicycle?

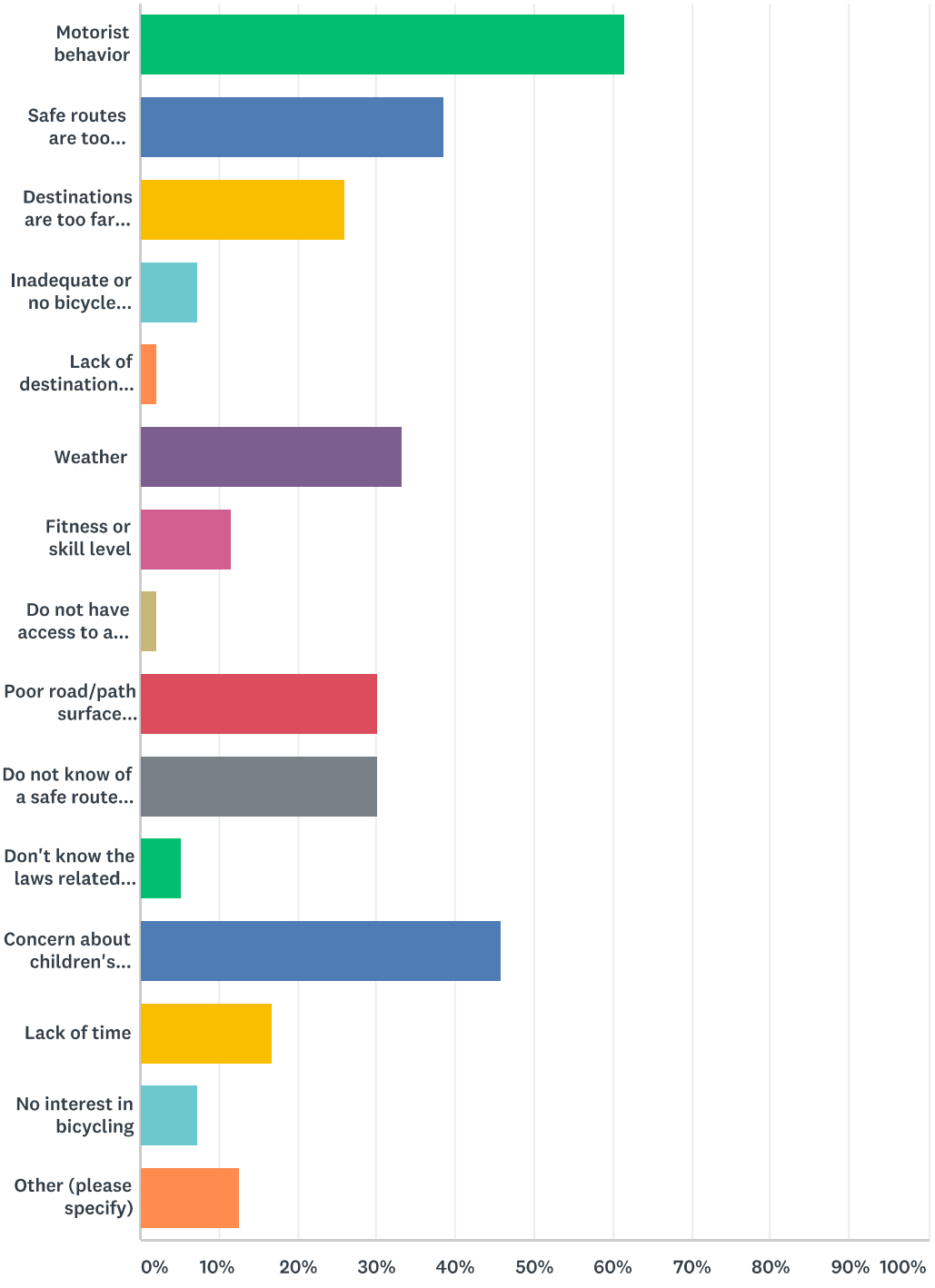
Answered: 346 Skipped: 13



ANSWER CHOICES	RESPONSES	
Yes, but only with an adult	13.87%	48
Yes, they bicycle on their own	14.45%	50
No they do not bicycle	0.87%	3
I do not have children living at home.	70.81%	245
TOTAL		346

Q9 What are the primary barriers that prevent your children from riding a bicycle? (check all that apply)

Answered: 96 Skipped: 263

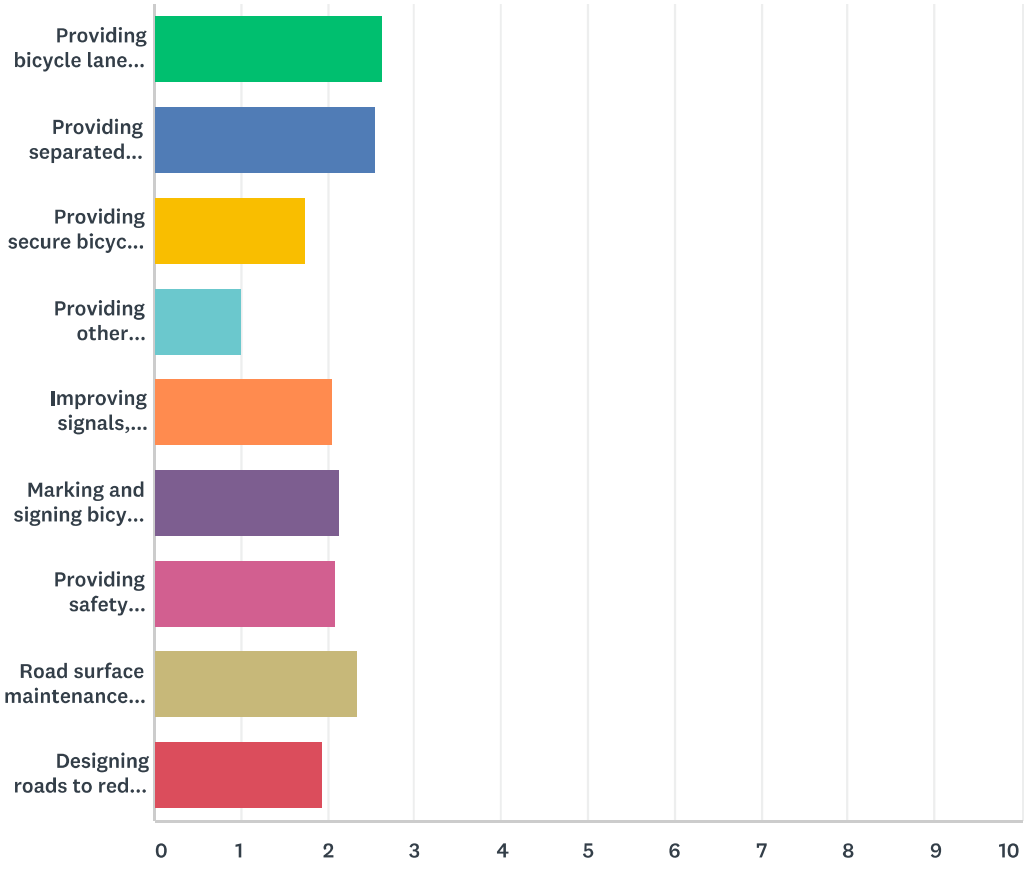


ANSWER CHOICES	RESPONSES	
Motorist behavior	61.46%	59
Safe routes are too indirect/long	38.54%	37

Destinations are too far away	26.04%	25
Inadequate or no bicycle parking	7.29%	7
Lack of destination amenities (showers, lockers)	2.08%	2
Weather	33.33%	32
Fitness or skill level	11.46%	11
Do not have access to a bicycle	2.08%	2
Poor road/path surface conditions	30.21%	29
Do not know of a safe route to destinations	30.21%	29
Don't know the laws related to bicycling	5.21%	5
Concern about children's safety	45.83%	44
Lack of time	16.67%	16
No interest in bicycling	7.29%	7
Other (please specify)	12.50%	12
Total Respondents: 96		

Q10 How important are the following ways in which bicycling in your area would be improved?

Answered: 340 Skipped: 19

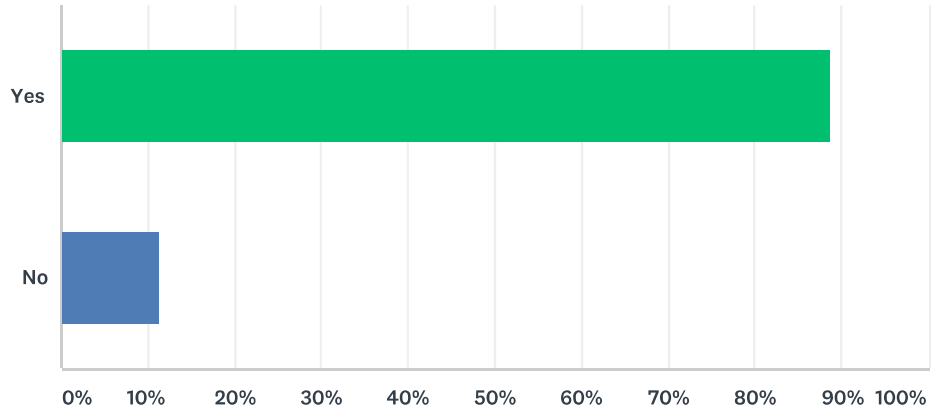


	NOT AT ALL IMPORTANT	LEAST IMPORTANT	SOMEWHAT IMPORTANT	VERY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Providing bicycle lanes (urban) or paved shoulders (rural) on main roads	2.37% 8	1.48% 5	26.33% 89	69.82% 236	338	2.64
Providing separated off-road paths	1.47% 5	4.13% 14	31.56% 107	62.83% 213	339	2.56
Providing secure bicycle parking	10.28% 33	27.73% 89	40.81% 131	21.18% 68	321	1.73
Providing other destination amenities (showers, lockers)	31.66% 101	40.75% 130	22.26% 71	5.33% 17	319	1.01
Improving signals, intersections and road crossings for bicyclists	4.83% 16	17.82% 59	43.81% 145	33.53% 111	331	2.06
Marking and signing bicycle routes	4.53% 15	13.29% 44	46.22% 153	35.95% 119	331	2.14
Providing safety education for motorists and bicyclists	4.32% 14	18.21% 59	41.67% 135	35.80% 116	324	2.09
Road surface maintenance (crack and pothole filling, resurfacing)	2.74% 9	9.45% 31	39.33% 129	48.48% 159	328	2.34

Designing roads to reduce travel speeds (narrower/fewer travel lanes, reduced speed limits, traffic calming)	8.00% 26	24.00% 78	33.85% 110	34.15% 111	325	1.94

Q11 Would you bicycle more if safe bicycle routes were provided?

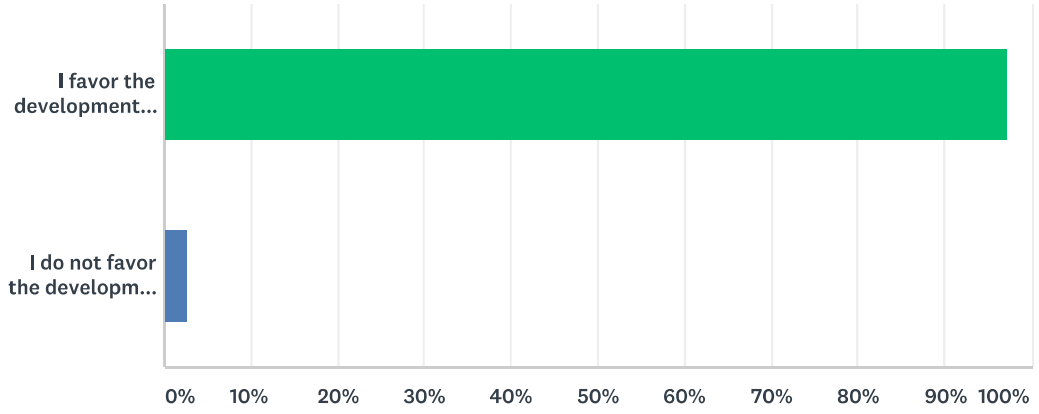
Answered: 339 Skipped: 20



ANSWER CHOICES	RESPONSES	
Yes	88.79%	301
No	11.21%	38
TOTAL		339

Q12 Do you favor the creation and expansion of regional routes and trails to connect between communities and places?

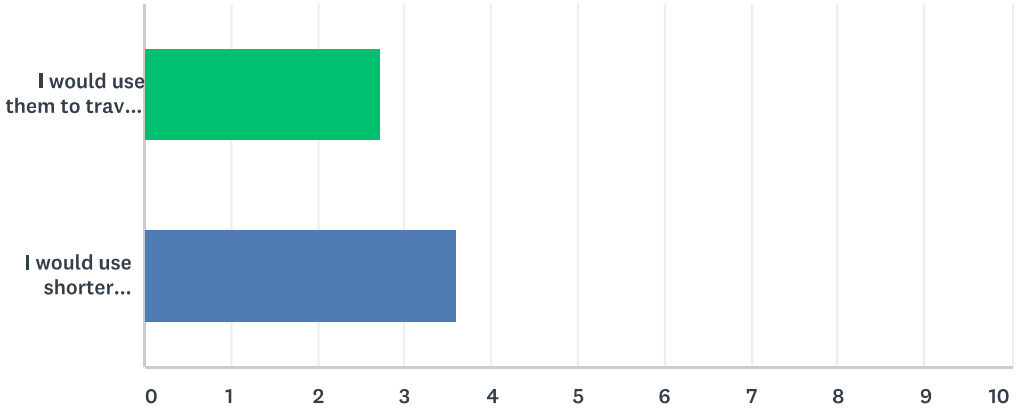
Answered: 338 Skipped: 21



ANSWER CHOICES	RESPONSES	
I favor the development regional routes and trails	97.34%	329
I do not favor the development of regional routes and trails.	2.66%	9
TOTAL		338

Q13 If safe regional routes and trails were developed to connect between communities and places, how would you use them and how often?

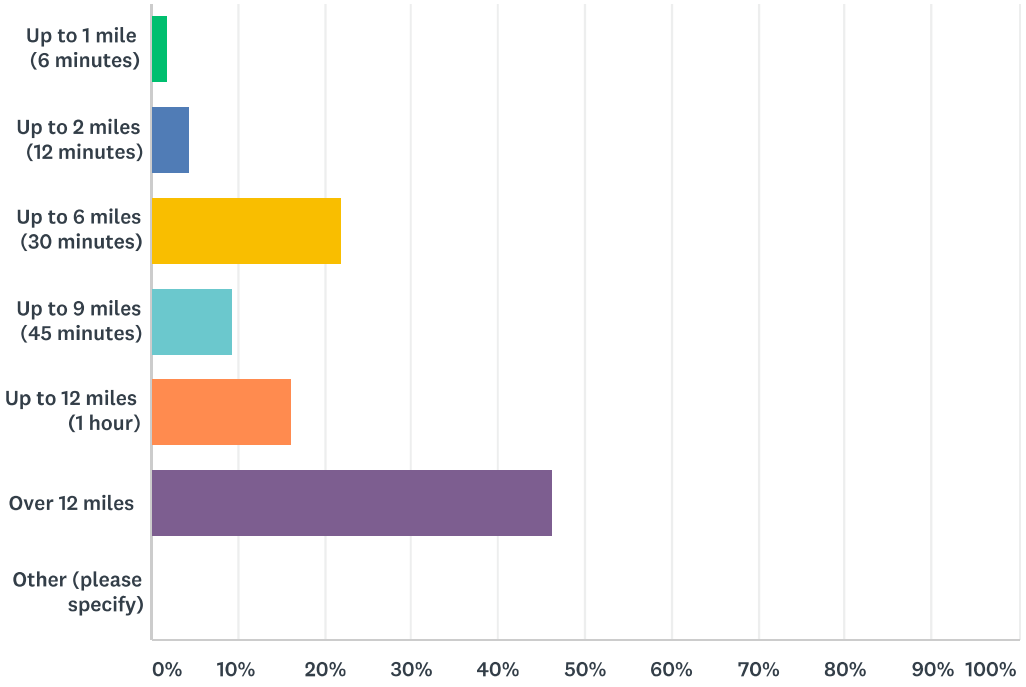
Answered: 338 Skipped: 21



	5 OR MORE DAYS PER WEEK	2-4 DAYS PER WEEK	1-8 DAYS PER MONTH	6-11 TIMES PER YEAR	LESS THAN 6 TIMES PER YEAR	TOTAL	WEIGHTED AVERAGE
I would use them to travel long distances to other communities and places.	6.60% 21	19.50% 62	34.91% 111	18.55% 59	20.44% 65	318	2.73
I would use shorter segments of these trails for local trips.	19.33% 63	42.02% 137	21.78% 71	11.66% 38	5.21% 17	326	3.59

Q14 Approximately how far would you be willing to bicycle to your destinations if safe routes existed?

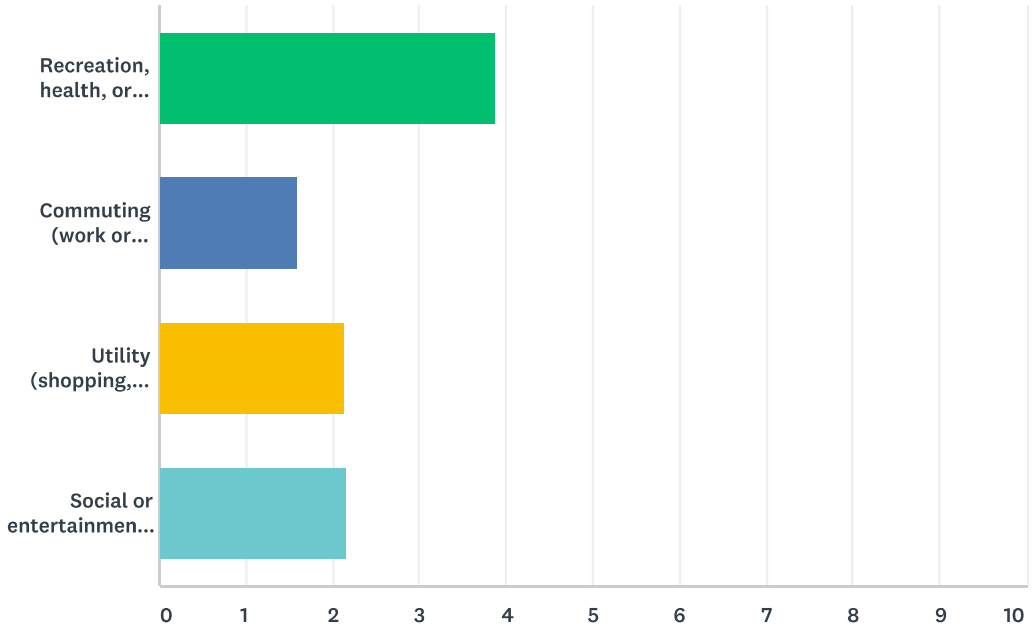
Answered: 337 Skipped: 22



ANSWER CHOICES	RESPONSES	
Up to 1 mile (6 minutes)	1.78%	6
Up to 2 miles (12 minutes)	4.45%	15
Up to 6 miles (30 minutes)	21.96%	74
Up to 9 miles (45 minutes)	9.50%	32
Up to 12 miles (1 hour)	16.02%	54
Over 12 miles	46.29%	156
Other (please specify)	0.00%	0
TOTAL		337

Q15 How often do you currently walk for the following purposes?

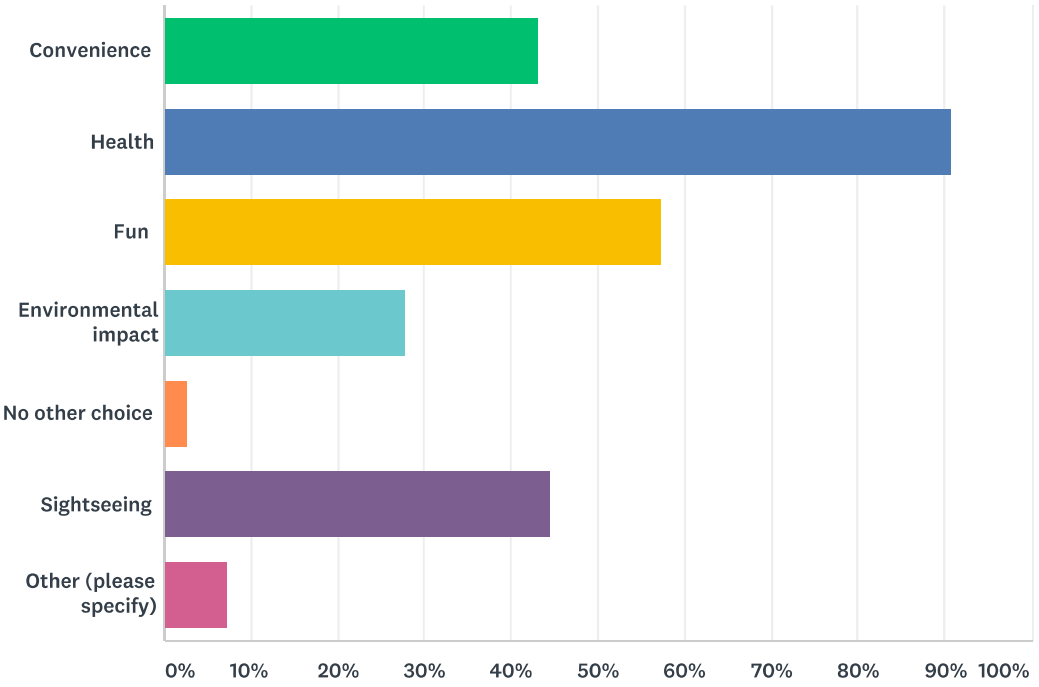
Answered: 337 Skipped: 22



	5 OR MORE DAYS PER WEEK	2-4 DAYS PER WEEK	1-8 DAYS PER MONTH	6-11 TIMES PER YEAR	LESS THAN 6 TIMES PER YEAR	TOTAL	WEIGHTED AVERAGE
Recreation, health, or exercise	28.96% 97	41.49% 139	20.60% 69	4.78% 16	4.18% 14	335	3.86
Commuting (work or school)	7.19% 21	4.79% 14	6.16% 18	4.11% 12	77.74% 227	292	1.60
Utility (shopping, errands)	7.62% 23	10.60% 32	18.54% 56	13.25% 40	50.00% 151	302	2.13
Social or entertainment (dining out, events, etc.)	3.92% 12	9.80% 30	26.14% 80	17.65% 54	42.48% 130	306	2.15

Q16 What encourages you most to walk? (select all that apply)

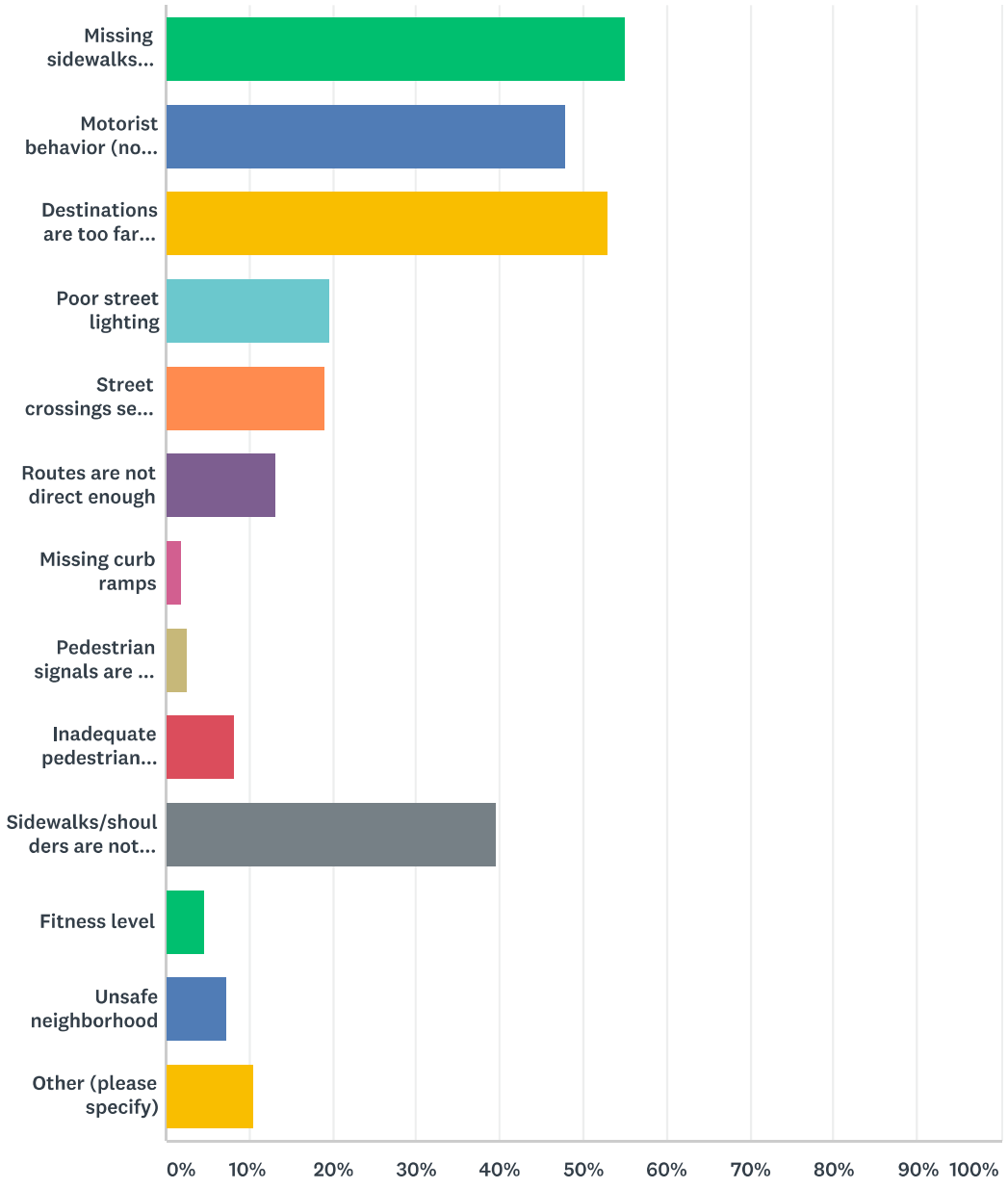
Answered: 337 Skipped: 22



ANSWER CHOICES	RESPONSES	
Convenience	43.03%	145
Health	90.80%	306
Fun	57.27%	193
Environmental impact	27.89%	94
No other choice	2.67%	9
Sightseeing	44.51%	150
Other (please specify)	7.42%	25
Total Respondents: 337		

Q17 What discourages you most from walking? (select all that apply)

Answered: 327 Skipped: 32

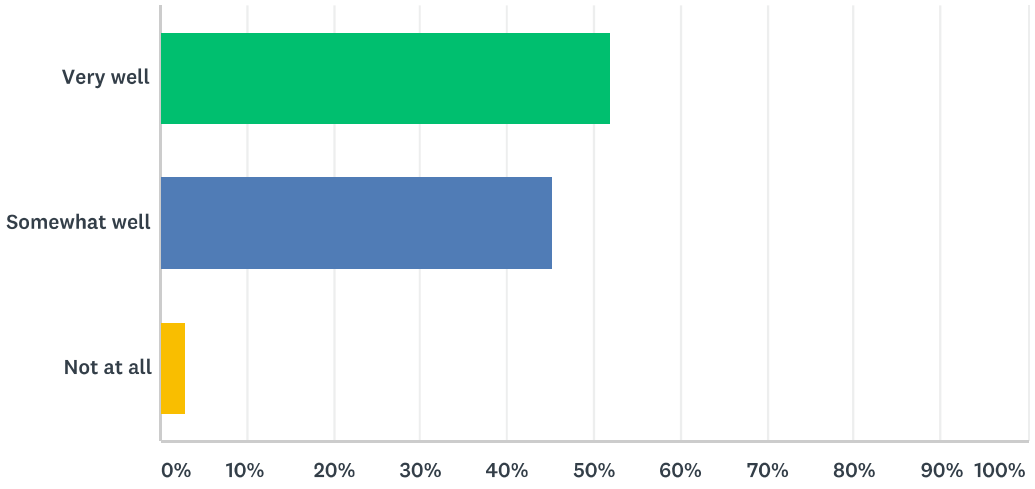


ANSWER CHOICES	RESPONSES	
Missing sidewalks (urban) or paved shoulders (rural)	55.05%	180
Motorist behavior (not yielding, speeds, etc.)	48.01%	157
Destinations are too far away	52.91%	173
Poor street lighting	19.57%	64
Street crossings seem dangerous	18.96%	62
Routes are not direct enough	13.15%	43

Missing curb ramps	1.83%	6
Pedestrian signals are not audible	2.45%	8
Inadequate pedestrian signals (not enough, too short, do not work)	8.26%	27
Sidewalks/shoulders are not maintained in winter (shoveled, salted, sanded)	39.45%	129
Fitness level	4.59%	15
Unsafe neighborhood	7.34%	24
Other (please specify)	10.40%	34
Total Respondents: 327		

Q18 How well do you know the laws pertaining to pedestrians?

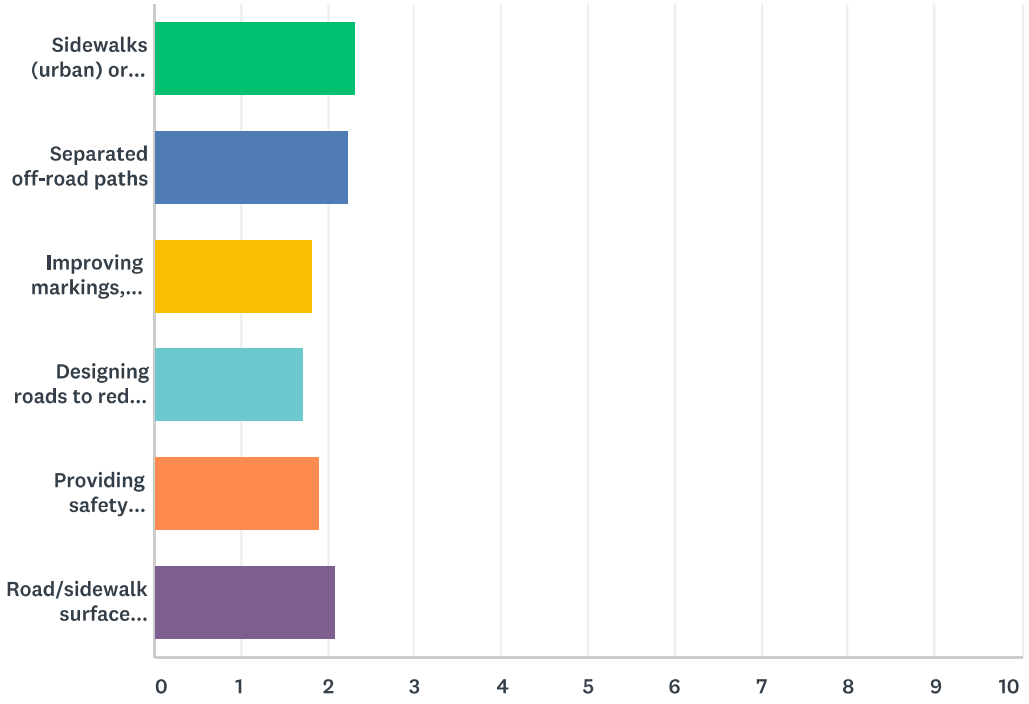
Answered: 337 Skipped: 22



ANSWER CHOICES	RESPONSES	
Very well	51.93%	175
Somewhat well	45.10%	152
Not at all	2.97%	10
TOTAL		337

Q19 How important are the following ways in which walking in your area would be improved?

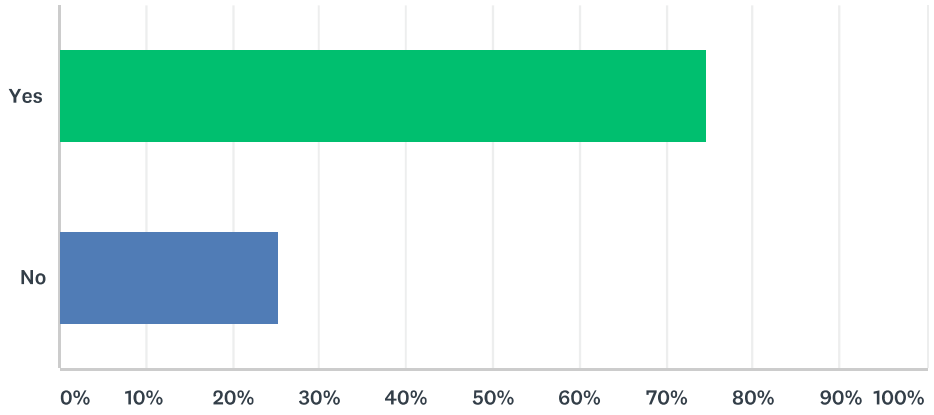
Answered: 336 Skipped: 23



	NOT AT ALL IMPORTANT	LEAST IMPORTANT	SOMEWHAT IMPORTANT	VERY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Sidewalks (urban) or paved shoulders (rural)	5.44% 18	7.85% 26	34.74% 115	51.96% 172	331	2.33
Separated off-road paths	4.50% 15	13.81% 46	36.34% 121	45.35% 151	333	2.23
Improving markings, signals and lighting at intersections	8.15% 26	22.57% 72	49.53% 158	19.75% 63	319	1.81
Designing roads to reduce travel speeds (narrower/fewer travel lanes, reduced speed limits, traffic calming)	14.33% 46	26.17% 84	32.71% 105	26.79% 86	321	1.72
Providing safety education for motorists	8.81% 28	23.27% 74	36.79% 117	31.13% 99	318	1.90
Road/sidewalk surface maintenance	6.83% 22	15.22% 49	40.37% 130	37.58% 121	322	2.09

Q20 Would you walk more if safe walking routes were provided?

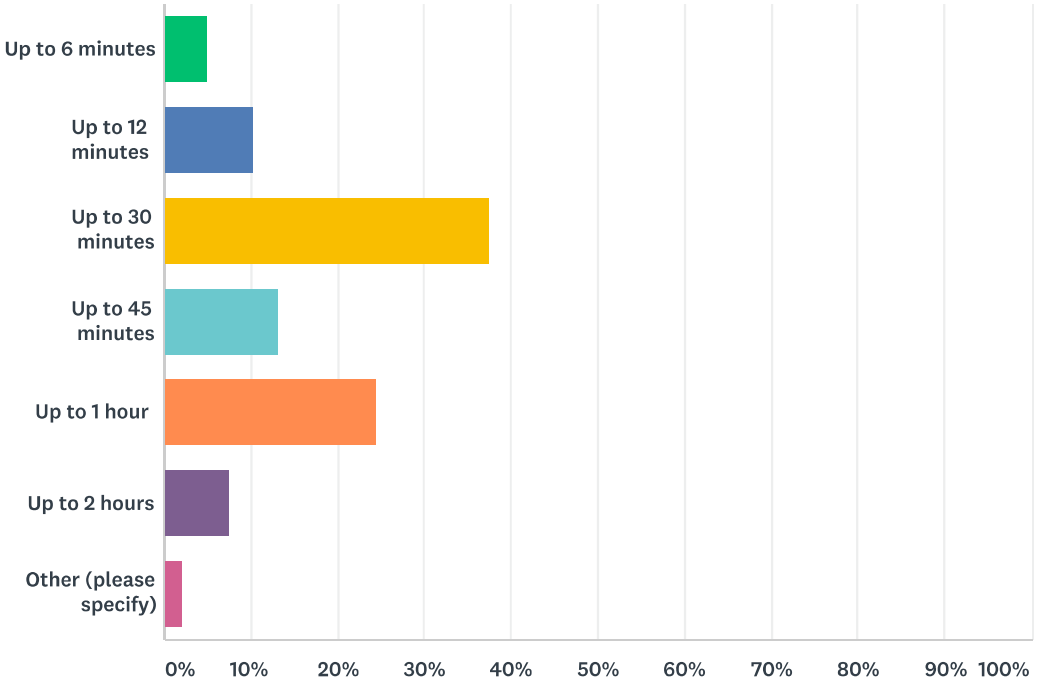
Answered: 337 Skipped: 22



ANSWER CHOICES	RESPONSES	
Yes	74.78%	252
No	25.22%	85
TOTAL		337

Q21 Approximately how far would you be willing to walk to your destinations if safe routes existed?

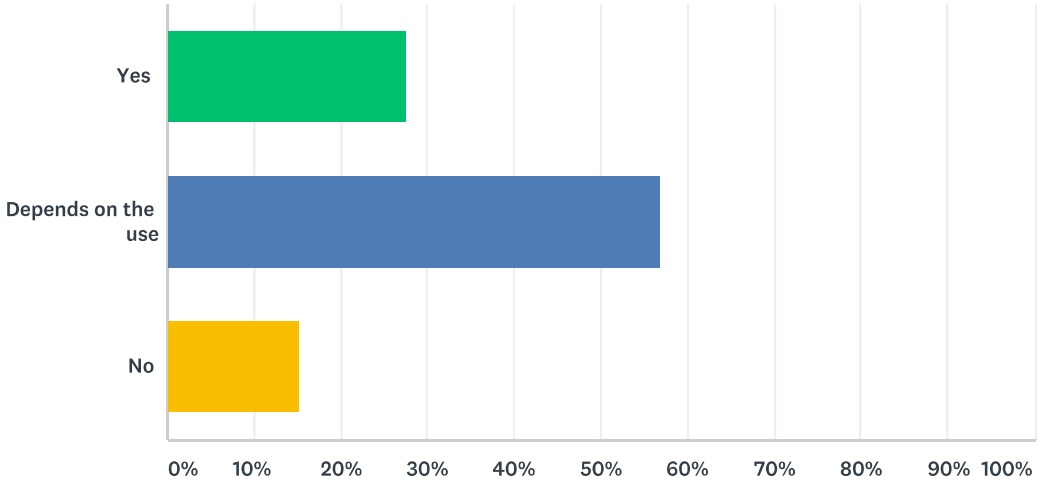
Answered: 334 Skipped: 25



ANSWER CHOICES	RESPONSES	
Up to 6 minutes	5.09%	17
Up to 12 minutes	10.18%	34
Up to 30 minutes	37.43%	125
Up to 45 minutes	13.17%	44
Up to 1 hour	24.55%	82
Up to 2 hours	7.49%	25
Other (please specify)	2.10%	7
TOTAL		334

Q22 Are you comfortable sharing bicycle and pedestrian routes and trails with other uses (e.g. horseback riding, inline skating, ATVing)?

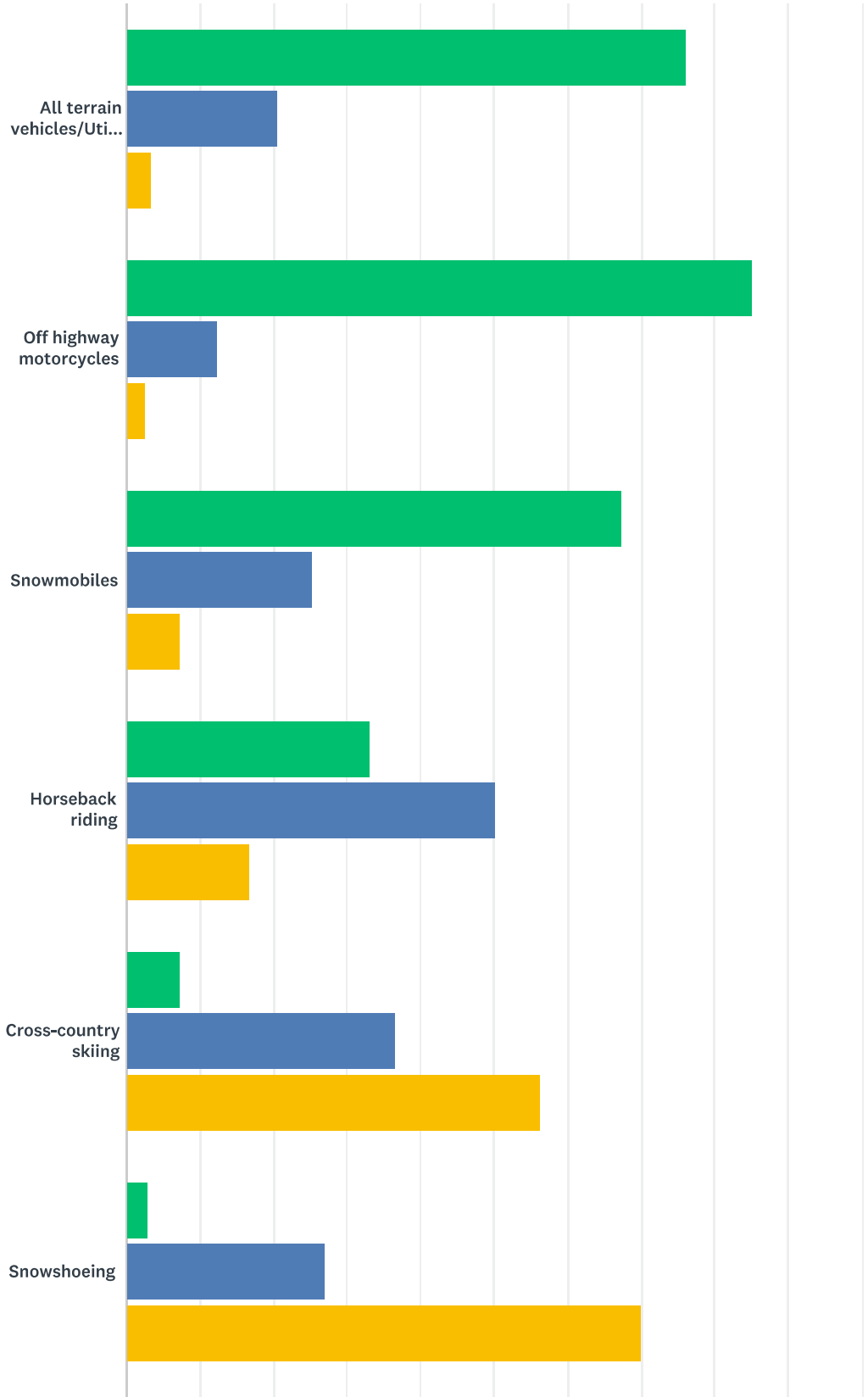
Answered: 332 Skipped: 27

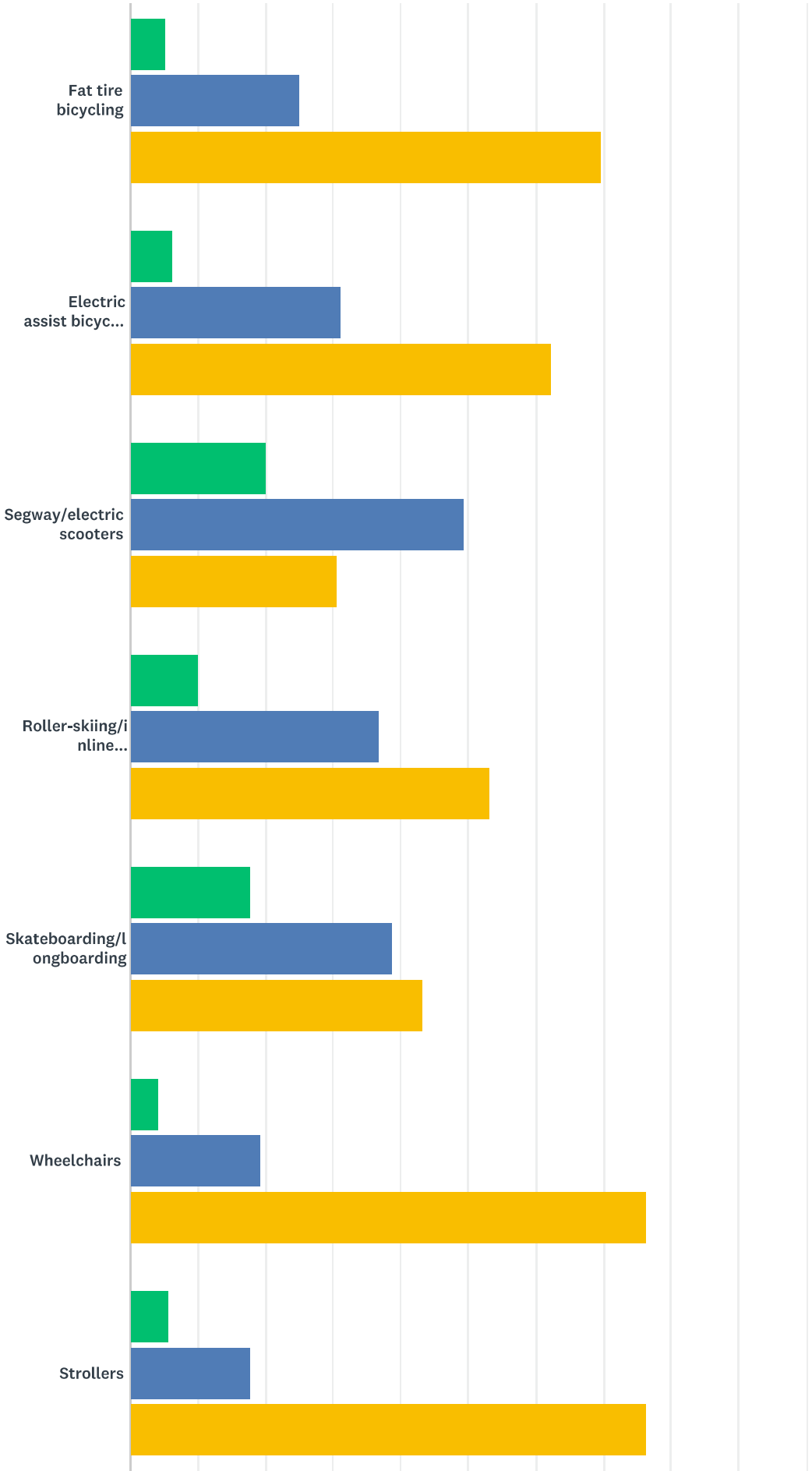


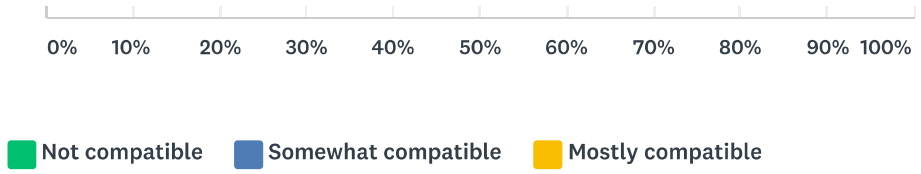
ANSWER CHOICES	RESPONSES	
Yes	27.71%	92
Depends on the use	56.93%	189
No	15.36%	51
TOTAL		332

Q23 How compatible are these other uses with bicycle and pedestrian routes and trails?

Answered: 332 Skipped: 27



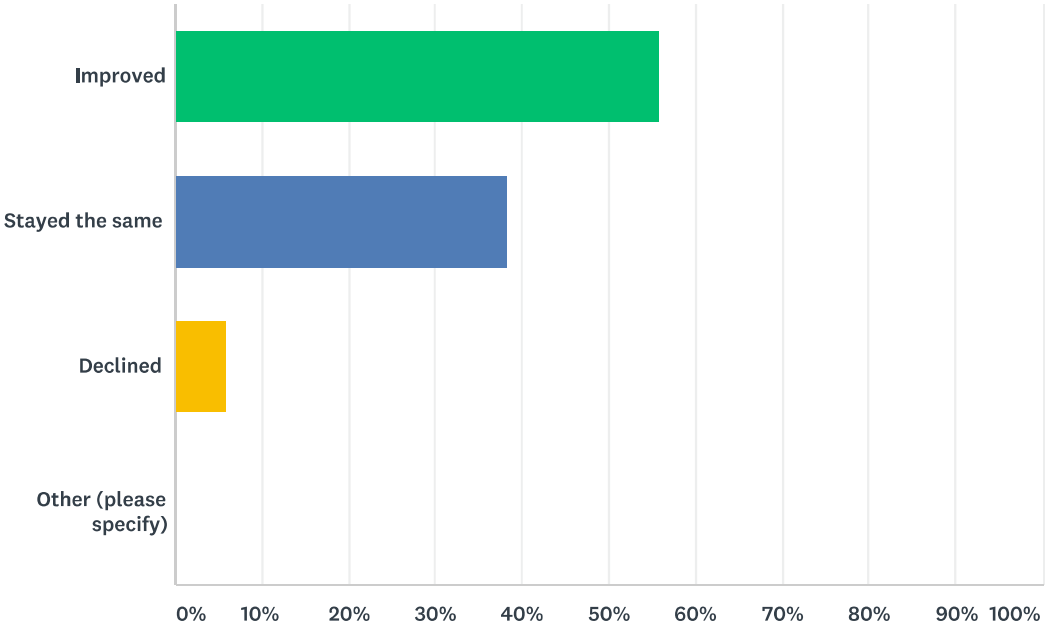

Fat tire bicycling
Electric assist bicyc...
Segway/electric scooters
Roller-skiing/inline...
Skateboarding/longboarding
Wheelchairs
Strollers



	NOT COMPATIBLE	SOMEWHAT COMPATIBLE	MOSTLY COMPATIBLE	TOTAL
All terrain vehicles/Utility task vehicles (ATV/UTV)	76.13% 252	20.54% 68	3.32% 11	331
Off highway motorcycles	85.15% 281	12.42% 41	2.42% 8	330
Snowmobiles	67.37% 223	25.38% 84	7.25% 24	331
Horseback riding	33.03% 109	50.30% 166	16.67% 55	330
Cross-country skiing	7.25% 24	36.56% 121	56.19% 186	331
Snowshoeing	3.02% 10	26.89% 89	70.09% 232	331
Fat tire bicycling	5.15% 17	25.15% 83	69.70% 230	330
Electric assist bicycles (requires pedaling)	6.36% 21	31.21% 103	62.42% 206	330
Segway/electric scooters	20.12% 66	49.39% 162	30.49% 100	328
Roller-skiing/inline skating/roller skating	9.97% 33	36.86% 122	53.17% 176	331
Skateboarding/longboarding	17.88% 59	38.79% 128	43.33% 143	330
Wheelchairs	4.23% 14	19.34% 64	76.44% 253	331
Strollers	5.74% 19	17.82% 59	76.44% 253	331

Q24 Thinking about the last 5 years, has bicycling and walking in your area improved?

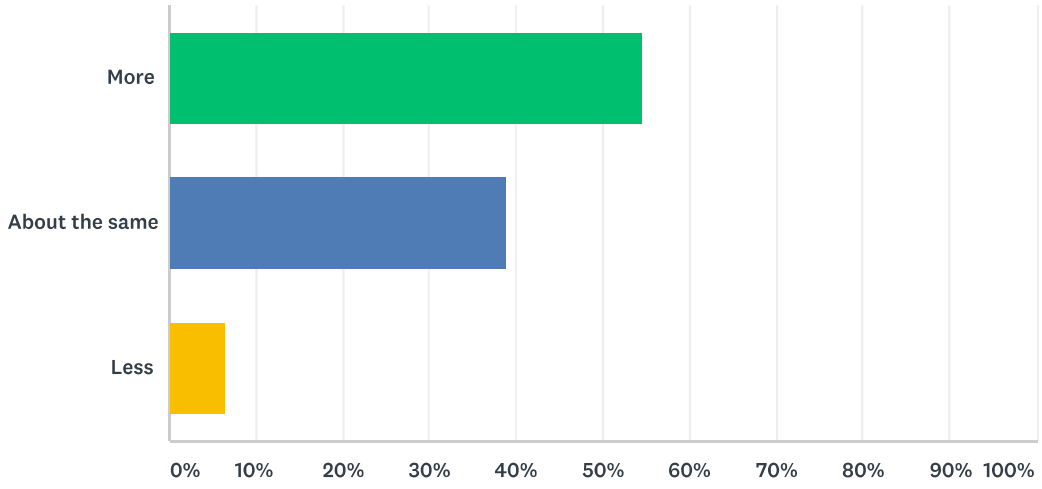
Answered: 337 Skipped: 22



ANSWER CHOICES	RESPONSES	
Improved	55.79%	188
Stayed the same	38.28%	129
Declined	5.93%	20
Other (please specify)	0.00%	0
TOTAL		337

Q25 Are you bicycling or walking more or less than 5 years ago?

Answered: 337 Skipped: 22



ANSWER CHOICES	RESPONSES	
More	54.60%	184
About the same	38.87%	131
Less	6.53%	22
TOTAL		337

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Appendix Three

Bicycle Suitability Map Legend

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Welcome to the 2015 Wisconsin Bicycle Map

Wisconsin has long been considered a premier state for bicycling. This map will help bicyclists get from one location in the state to another. The map includes roadway bicycling conditions utilizing a classification scheme based on traffic volume and roadway characteristics. Also on the map are statewide bicycle trails, mountain bike trails, rustic roads, Scenic Byways, and bicycle shop locations. The map is a product of a partnership between the Wisconsin Bike Fed and the Wisconsin Department of Transportation (WisDOT).

BIKE CONDITIONS MAPPED

The Wisconsin Bicycle Map highlights the most favorable bicycling conditions while presenting the full continuum of roadways—from narrow town roads to U.S. Highways. This approach enables bicyclists of all abilities to select their own routes to meet their individual transportation and recreational needs. The methodology used with this map is applicable to rural roadways, but not urban streets. Increased traffic volumes, lower speeds, and changing road design affect bicycle travel in urban areas in ways that cannot be accurately depicted on this map. Thus, the bicycling condition ratings for roadways stop at urban fringes; however, the major streets are still depicted. Local bicycle maps are available for many communities and are listed on the WisDOT website - www.wisconsindot.gov.

DISCLAIMER

The user of this map bears full responsibility for his or her safety. The bicyclist assumes the risks encountered and is advised to use good judgment and obey traffic laws on all roads, regardless of the classification depicted on this map. The State, counties, cities, villages and their officers and employees, the Wisconsin Bike Fed, and the University of Madison-Cartography Lab shall not be answerable or held accountable in any manner for loss, damage or injury that may be suffered by bicyclists who use this map.

The information on this map should be used by state and local transportation planners to improve conditions for bicyclists, especially in areas that are currently less suitable for bicycle travel and experiencing growth or increased auto congestion. Transportation planners should also consult the WisDOT State Bicycle Plan 2020, as well as bicycle groups and local bicycle plans, before any decisions are made that could affect the use of a route for bicycling.

LEGEND & HOW TO USE THIS MAP

The map is provided to assist bicyclists age 16 and over who have had drivers training and are capable of riding longer distances between communities. As you use the following legend, know your level of skill and comfort in sharing roadways with motor vehicles, and select routes with conditions that match your abilities.

Town Roads

Unpaved Paved

This is the most extensive system of local roads in the state. These could not be individually evaluated or classified as part of this map in the same way county and state highways were. Most are likely to have narrow pavements with no paved shoulders and low volumes of traffic. Traffic volumes are likely to be heavier when traveling these roads into cities. Town roads will be quite steep with poor sight lines in the Southwestern and Mississippi Valley areas of the state. The map depicts whether town roads are paved or unpaved, as well as identifying undesirable town roads with higher levels of traffic.

Best Conditions for Bicycling

Paved shoulder

These county and state highways will have light volumes of traffic and may have many other favorable factors such as good sight distance and minimal truck traffic. This classification also includes highways approaching a moderate level of traffic but with paved shoulders.

Moderate Conditions for Bicycling

Paved shoulder

These roadways have moderate traffic volumes for the amount of pavement width present. This classification may also include county highways and state highways with paved shoulders, but slightly more traffic. Due to moderate traffic volumes, less experienced bicyclists should use care on these segments.

Higher Volume, Wider Paved Shoulders

Wider paved shoulder 4-lane highway

These roadways have moderately-high car and/or truck volumes, but have wider paved shoulders (generally 4 or 5 feet). This classification also includes a select number of 4-lane highways that have wide paved shoulders and moderate levels of traffic. Due to traffic volumes, less experienced bicyclists should use care on these segments.

High Volume, Undesirable Conditions

Paved shoulder 4-lane highway

These roadways have moderately-high traffic volumes with no paved shoulders, or high traffic volumes with narrow paved shoulders, and many have moderate to high truck traffic. This classification could also include some moderate volume roadways, but with an assortment of negative factors for bicycling. Bicyclists should try to plan around these roads and/or use considerable caution when using them. Bicyclists should have appropriate amounts of expertise with these types of riding conditions if choosing these roads.

Bicyclists Prohibited

These roadways are 4-lane Interstates and freeways posted as "Pedestrians Bicycles Non Motorized Traffic Motor Bicycles Prohibited". There are some 4-lane divided highways that will permit bicycling, but pay close attention to how they are rated on the map.

Bicycle Touring Trails

These are bicycling trails that include state, regional, and local trails. The state trails are often a finely screened limestone. These trails are excellent for use with hybrid and mountain bikes and most are also suitable for road bikes. Most of the trails are paved in urban areas. Many of these trails are particularly good for children and inexperienced bicyclists.

Urban Escape Routes

These routes are likely to be the best connections into and out of large cities and are often routes recommended by area bicyclists. However, many have moderate or high traffic volumes without bike lanes or paved shoulders.

Major Urban Streets

Bicycling conditions are not presented for these streets. They are likely to have high volumes of traffic. The urban boundaries depicted on this map are based on a combination of municipal boundaries, speed zones, and built-up areas.

Rustic Roads

RUSTIC

Wisconsin's designated system of scenic, lightly-traveled country roads. Many of these roads are identified with the word "Rustic" near the name of the road. See wisconsindot.gov for additional information.

Scenic Byways

SCENIC BYWAY

Wisconsin Scenic Byways are formally designated routes that maintain and promote some of our most scenic and historic state highway corridors. These routes offer wonderful scenery and access to unique recreational or cultural opportunities. These highways may have moderate conditions for bicycling or higher traffic volumes and are identified with scenic byway logo signs along the route.

Mountain Bike Trails

The mountain bike trails identified on this map include both off-road single and double track trails. Several off-road trails are also open to All-Terrain Vehicles and other motorized uses. Check the web or contact the trail manager for local conditions and details.

Amtrak Service

Passenger rail service is available through part of the state. However, only certain stations (Milwaukee, Columbus, La Crosse and Winona, MN) provide the baggage service necessary to transport a bicycle. Bicycles must be boxed; you may provide the carton or purchase one from Amtrak. The boxed bicycle will be included as one of the two allowed pieces of checked luggage and a nominal fee is charged. See www.amtrak.com for the most current information.

Ferries

There are six ferry services in Wisconsin. All ferries charge a fee except the publicly owned Colsac II at Merrimac/Highway 113, (608) 246-3871, on the Wisconsin River. Contact ferries directly for schedules and rates, or visit www.wisconsindot.gov. Washington Island Ferry, (920) 847-2546; Madeline Island Ferry, (715) 747-2051; Mississippi River Ferry (Cassville, Wis. to Turkey Creek, Iowa), (608) 725-5180; Lake Michigan Ferry (Manitowoc, Wis., to Ludington, Mich.), (888) 337-7948; Lake Express (Milwaukee to Muskegon), (866) 914-1010.

Important Note: By including a ferry trip across Lake Michigan, bicyclists are able to ride cross-country and into Canada without having to route around the lake.

CONTACTS FOR OTHER STATE & NATIONAL BICYCLE ROUTE INFORMATION

Detailed state trails information is available at dnr.wi.gov.

Detailed national guide maps for two Adventure Cycling routes that run through Wisconsin are available from Adventure Cycling, www.adventurecycling.org. Information on the Mississippi River Trail, including a long segment of trail in Wisconsin (Great River Road Bicycle Route), is available at www.mississippirivertrail.org.

A map of the Great River Road Bicycle Route is available at www.wisconsindot.gov.

To promote recreational trips within Wisconsin, the Department of Tourism publishes the Wisconsin Biking Guide, a detailed ride guide including attractions and amenities along 30 bicycle tours and trails. The guide is free from the Wisconsin Department of Tourism, www.travelwisconsin.com or Toll-free (800) 432-TRIP

CONTACTS FOR LOCAL BICYCLE ROUTE INFORMATION

A number of local communities and counties offer detailed and complete maps and information on recommended routes through their respective areas. An assortment of map information can be obtained by going to www.wisconsindot.gov.

SUPPLEMENTAL SERVICES

Lodging

Wisconsin's hospitality industry ranges from small inns and bed & breakfasts to resorts and hotels. Reservations are recommended, particularly on weekends. Call the Wisconsin Department of Tourism, (800) 432-TRIP or go to www.travelwisconsin.com. The Wisconsin Lodging Directory or the Wisconsin Bed & Breakfast Directory can be downloaded from that site or ordered for mail delivery.

Campgrounds

Campgrounds are located throughout Wisconsin offering a variety of services and facilities. For information and locations of state campgrounds, visit dnr.wi.gov, or contact the Wisconsin Department of Tourism at (800) 432-TRIP, or www.travelwisconsin.com, for a Campground Directory.

Youth Hostels

In Wisconsin, youth hostels provide inexpensive accommodations for self-propelled travelers. For information contact the Hostelling International-American Youth Hostels at www.hiusa.org. Currently hostels are located in Eagle, West Bend, and Madison, Wisconsin.

National Forests

For information on National Forests, contact the Chequamegon National Forest Office, 1170 Fourth Avenue S., Park Falls, WI 54552, (715) 762-2461; or the Nicolet National Forest Office, 68 S. Stevens St., Rhinelander, WI 54501, (715) 362-1300.

WISCONSIN BIKE FED

WISCONSIN DEPARTMENT OF TRANSPORTATION

Scale

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North

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Appendix Four

Bicycle Parking Guidelines, NCWRPC

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Bicycle Parking Guidelines

A summary of recommendations from the Association of Pedestrian and Bicycle Professionals

Bicycle Parking Design

- Required spaces shall be at least 2 feet by 6 feet.
- An access aisle of at least 5 feet shall be provided in each facility.
- Racks shall be situated to allow a minimum of 2 feet between adjacent bike parking stalls.
- Spaces shall have a vertical clearance of at least 80 inches.

Bicycle Rack Design

Structures that require a user-supplied locking device:

- must accommodate U-shaped locking devices,
- support the bike frame at two points,
- be securely anchored to the cround or the building structure, and
- be designed and maintained to be mud and dust free.

Bicycle Rack Location

- Racks should be located in a clearly designated safe and convenient location.
- Racks should be designed and located to be harmonious with the surrounding environment.
- Racks should be at least as convenient as the majority of auto parking spaces provided.

To learn more about bicycle parking guidelines, visit the Association of Pedestrian and Bicycle Professionals at: www.apbp.org.

These bicycle racks do NOT meet the design guidelines:

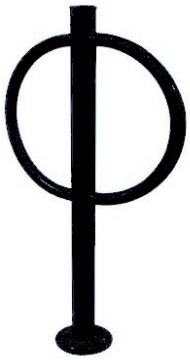
Grid or Fence Style Racks

Wave or Ribbon Style Racks

These bicycle racks DO meet the design guidelines:

Inverted-U Style Racks

Post Hitch Style Racks



Freestanding Style Racks

The above images are examples only. NCWRPC does not endorse any particular bicycle rack manufacturers.

If you have questions about whether a particular bicycle parking rack you are considering using meets these requirements, please contact NCWRPC planner **Fred Heider**, AICP at **fheider@ncwrpc.org**.

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Appendix Five

Pedestrian & Bicycle Funding Opportunities

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Pedestrian and Bicycle Funding Opportunities
U.S. Department of Transportation Transit, Highway, and Safety Funds

Revised August 12, 2016

This table indicates potential eligibility for pedestrian and bicycle projects under U.S. Department of Transportation surface transportation funding programs. Additional restrictions may apply. See notes and basic program requirements below, and see program guidance for detailed requirements. Project sponsors should fully integrate nonmotorized accommodation into surface transportation projects. Section 1404 of the Fixing America's Surface Transportation (FAST) Act modified 23 U.S.C. 109 to require federally-funded projects on the National Highway System to consider access for other modes of transportation, and provides greater design flexibility to do so.

Key: $ = Funds may be used for this activity (restrictions may apply). $* = See program-specific notes for restrictions. ~$ = Eligible, but not competitive unless part of a larger project.

	Pedestrian and Bicycle Funding Opportunities U.S. Department of Transportation Transit, Highway, and Safety Funds														
Activity or Project Type	TIGER	TIFIA	FTA	ATI	CMAQ	HSIP	NHPP	STBG	TA	RTP	SRTS	PLAN	NHTSA 402	NHTSA 405	FLTTP
Access enhancements to public transportation (includes benches, bus pads)	$	$	$	$	$		$	$	$						$
ADA/504 Self Evaluation / Transition Plan								$	$	$		$			$
Bicycle plans			$					$	$		$	$			$
Bicycle helmets (project or training related)								$	$SRTS		$		$*		
Bicycle helmets (safety promotion)								$	$SRTS		$				
Bicycle lanes on road	$	$	$	$	$	$	$	$	$		$				$
Bicycle parking	~$	~$	$	$	$		$	$	$	$	$				$
Bike racks on transit	$	$	$	$	$			$	$						$
Bicycle share (capital and equipment; not operations)	$	$	$	$	$		$	$	$						$
Bicycle storage or service centers at transit hubs	~$	~$	$	$	$			$	$						$
Bridges / overcrossings for pedestrians and/or bicyclists	$	$	$	$	$*	$	$	$	$	$	$				$
Bus shelters and benches	$	$	$	$	$		$	$	$						$
Coordinator positions (State or local)					$ 1 per State			$	$SRTS		$				
Crosswalks (new or retrofit)	$	$	$	$	$*	$	$	$	$	$	$				$
Curb cuts and ramps	$	$	$	$	$*	$	$	$	$	$	$				$
Counting equipment			$	$		$	$	$	$	$	$	$*			$
Data collection and monitoring for pedestrians and/or bicyclists			$	$		$	$	$	$	$	$	$*			$
Historic preservation (pedestrian and bicycle and transit facilities)	$	$	$	$				$	$						$
Landscaping, streetscaping (pedestrian and/or bicycle route; transit access); related amenities (benches, water fountains); generally as part of a larger project	~$	~$	$	$			$	$	$						$
Lighting (pedestrian and bicyclist scale associated with pedestrian/bicyclist project)	$	$	$	$		$	$	$	$	$	$				$
Maps (for pedestrians and/or bicyclists)			$	$	$			$	$		$	$*			
Paved shoulders for pedestrian and/or bicyclist use	$	$			$*	$	$	$	$		$				$

Key: $ = Funds may be used for this activity (restrictions may apply). $* = See program-specific notes for restrictions. ~$ = Eligible, but not competitive unless part of a larger project.															
	Pedestrian and Bicycle Funding Opportunities U.S. Department of Transportation Transit, Highway, and Safety Funds														
Activity or Project Type	TIGER	TIFIA	FTA	ATI	CMAQ	HSIP	NHPP	STBG	TA	RTP	SRTS	PLAN	NHTSA 402	NHTSA 405	FLTTP
Pedestrian plans			$					$	$		$	$			$
Recreational trails	~$	~$						$	$	$					$
Road Diets (pedestrian and bicycle portions)	$	$				$	$	$	$						$
Road Safety Assessment for pedestrians and bicyclists						$		$	$			$			$
Safety education and awareness activities and programs to inform pedestrians, bicyclists, and motorists on ped/bike safety								$SRTS	$SRTS		$	$*	$*	$*	
Safety education positions								$SRTS	$SRTS		$		$*		
Safety enforcement (including police patrols)								$SRTS	$SRTS		$		$*	$*	
Safety program technical assessment (for peds/bicyclists)								$SRTS	$SRTS		$	$*	$		
Separated bicycle lanes	$	$	$	$	$	$	$	$	$		$				$
Shared use paths / transportation trails	$	$	$	$	$*	$	$	$	$	$	$				$
Sidewalks (new or retrofit)	$	$	$	$	$	$	$	$	$	$	$				$
Signs / signals / signal improvements	$	$	$	$	$	$	$	$	$		$				$
Signed pedestrian or bicycle routes	$	$	$	$	$		$	$	$		$				$
Spot improvement programs	$	$	$			$	$	$	$	$	$				$
Stormwater impacts related to pedestrian and bicycle projects	$	$	$	$		$	$	$	$	$	$				$
Traffic calming	$	$	$			$	$	$	$		$				$
Trail bridges	$	$			$*	$	$	$	$	$	$				$
Trail construction and maintenance equipment								$RTP	$RTP	$					
Trail/highway intersections	$	$			$*	$	$	$	$	$	$				$
Trailside and trailhead facilities (includes restrooms and water, but not general park amenities; see guidance)	~$*	~$*						$*	$*	$*					$
Training					$	$		$	$	$	$	$*	$*		
Training for law enforcement on ped/bicyclist safety laws								$SRTS	$SRTS		$			$*	
Tunnels / undercrossings for pedestrians and/or bicyclists	$	$	$	$	$*	$	$	$	$	$	$				$

Abbreviations

ADA/504: Americans with Disabilities Act of 1990 / Section 504 of the Rehabilitation Act of 1973
TIGER: Transportation Investment Generating Economic Recovery Discretionary Grant program
TIFIA: Transportation Infrastructure Finance and Innovation Act (loans)
FTA: Federal Transit Administration Capital Funds
ATI: Associated Transit Improvement (1% set-aside of FTA)
CMAQ: Congestion Mitigation and Air Quality Improvement Program
HSIP: Highway Safety Improvement Program
NHPP: National Highway Performance Program
STBG: Surface Transportation Block Grant Program
TA: Transportation Alternatives Set-Aside (formerly Transportation Alternatives Program)
RTP: Recreational Trails Program
SRTS: Safe Routes to School Program / Activities
PLAN: Statewide Planning and Research (SPR) or Metropolitan Planning funds
NHTSA 402: State and Community Highway Safety Grant Program
NHTSA 405: National Priority Safety Programs (Nonmotorized safety)
FLTTP: Federal Lands and Tribal Transportation Programs (Federal Lands Access Program, Federal Lands Transportation Program, Tribal Transportation Program, Nationally Significant Federal Lands and Tribal Projects)

Program-specific notes

Federal-aid funding programs have specific requirements that projects must meet, and eligibility must be determined on a case-by-case basis. For example:

- TIGER: Subject to annual appropriations.
- TIFIA: Program offers assistance only in the form of secured loans, loan guarantees, or standby lines of credit, but can be combined with other grant sources, subject to total Federal assistance limitations.
- FTA/ATI: Project funded with FTA transit funds must provide access to transit. See Bikes and Transit and the FTA Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements under Federal Transit Law.
  - Bicycle infrastructure plans and projects funded with FTA funds must be within a 3 mile radius of a transit stop or station, or if further than 3 miles, must be within the distance that people could be expected to safely and conveniently bike to use the particular stop or station.
  - Pedestrian infrastructure plans and projects funded with FTA funds must be within a ½ mile radius of a transit stop or station, or if further than ½ mile, must be within the distance that people could be expected to safely and conveniently walk to use the particular stop or station.
  - FTA funds cannot be used to purchase bicycles for bike share systems.
  - FTA encourages grantees to use FHWA funds as a primary source for public right-of-way projects.
- CMAQ projects must demonstrate emissions reduction and benefit air quality. See the CMAQ guidance at www.fhwa.dot.gov/environment/air_quality/cmaq/ for a list of projects that may be eligible for CMAQ funds. Several activities may be eligible for CMAQ funds as part of a bicycle and pedestrian-related project, but not as a highway project. CMAQ funds may be used for shared use paths, but may not be used for trails that are primarily for recreational use.
- HSIP projects must be consistent with a State's Strategic Highway Safety Plan and either (1) correct or improve a hazardous road location or feature, or (2) address a highway safety problem.
- NHPP projects must benefit National Highway System (NHS) corridors.
- STBG and TA Set-Aside: Activities marked "$SRTS" means eligible only as an SRTS project benefiting schools for kindergarten through 8th grade. Bicycle transportation nonconstruction projects related to safe bicycle use are eligible under STBG, but not under TA (23 U.S.C. 217(a)).
- RTP must benefit recreational trails, but for any recreational trail use. RTP projects are eligible under TA and STBG, but States may require a transportation purpose.
- SRTS: FY 2012 was the last year for SRTS funds, but SRTS funds are available until expended.
- Planning funds must be used for planning purposes, for example:
  - Maps: System maps and GIS;
  - Safety education and awareness: for transportation safety planning;
  - Safety program technical assessment: for transportation safety planning;
  - Training: bicycle and pedestrian system planning training.
- Federal Lands and Tribal Transportation Programs (FLTTP) projects must provide access to or within Federal or tribal lands:
  - Federal Lands Access Program (FLAP): Open to State and local entities for projects that provide access to or within Federal or tribal lands.
  - Federal Lands Transportation Program: For Federal agencies for projects that provide access within Federal lands.
  - Tribal Transportation Program: available for federally-recognized tribal governments for projects within tribal boundaries and public roads that access tribal lands.
- NHTSA 402 project activity must be included in the State's Highway Safety Plan. Contact the State Highway Safety Office for details: http://www.ghsa.org/html/about/shsos.html
- NHTSA 405 funds are subject to State eligibility, application, and award. Project activity must be included in the State's Highway Safety Plan. Contact the State Highway Safety Office for details: http://www.ghsa.org/html/about/shsos.html

Cross-cutting notes

- FHWA Bicycle and Pedestrian Guidance: http://www.fhwa.dot.gov/environment/bicycle_pedestrian/
- **Applicability of 23 U.S.C. 217(i) for Bicycle Projects:** 23 U.S.C. 217(i) requires that bicycle facilities "be principally for transportation, rather than recreation, purposes". However, sections 133(b)(6) and 133(h) list "recreational trails projects" as eligible activities under STBG. Therefore, the requirement in 23 U.S.C. 217(i) does not apply to recreational trails projects (including for bicycle use) using STBG funds. Section 217(i) continues to apply to bicycle facilities other than trail-related projects, and section 217(i) continues to apply to bicycle facilities using other Federal-aid Highway Program funds (NHPP, HSIP, CMAQ). The transportation requirement under section 217(i) is applicable only to bicycle projects; it does not apply to any other trail use or transportation mode.
- There may be occasional DOT or agency incentive grants for specific research or technical assistance purposes.
- Aspects of many DOT initiatives may be eligible as individual projects. For example, activities above may benefit Ladders of Opportunity; safe, comfortable, interconnected networks; environmental justice; equity; etc.

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Appendix Six

Highway Commissioner Comments on Regional Bike-Ped Plan

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Subject: Re: Request to Review Regional Bike-Ped Plan
From: BBraun@co.langlade.wi.us
Date: 1/14/2018 7:11 PM
To: "Darryl L. Landeau" <dlandeau@ncwrpc.org>

Darryl,

After reviewing the document I have several questions and concerns including the following:

1.) According to the Rhinelander DOT Langlade County does not have an exisitng Bicycle and Pedestrian Plan. On the map for Langlade County in your document it shows many "Existing On Road" sections of highways. I did attend a Langlade County Forestry Committee meeting last Thursday and according to Eric Rantala Langlade County is just starting to develop a County plan. In which the Highway Department will be involved. I would like to be given a chance to review all County Highways in this new plan being developed and have this Langlade County Plan incorporated into the North Central plan.

2.) I circled a "Proposed On Road" portion of County Highway A. This portion of Highway is considered a "Truck Route" and has had a bicycle fatality in the recent past. I do not feel it is an appropriate use and asked input from my Highway Committee (portion of minutes attached) they also do not wish to see this as a bicycle route.

3.) What are the proposed accommodations for the routes? What would the costs associated with these improvements be?

Thank you for the opportunity to provide comments on this plan. I am concerned for the safety of all users of Langlade County Highways, and also with the potential costs associated with potential bicycle and pedestrian accommodations. Langlade County has several sections of highways that are ATV/UTV routes. How well do these uses work together? I definately need more input on the Existing Roads and know that the Highway Committee wants involvement in this as well.

Please keep me up to date on the status of this plan and how the Langlade County Plan will be incorporated into it.

(See attached file: SKMBT_C224e18011420470.pdf)

Brian Braun
Commissioner
Langlade County Highway Department
(715)627-6272 (office)
(715)219-4012 (cellphone)

"Darryl L. Landeau" ---01/03/2018 03:36:44 PM---Greetings: I am pleased to present for your review and comment, the final draft of

From: "Darryl L. Landeau" <dlandeau@ncwrpc.org>
To: Pat Kotlowski - Hwy Com <pkotlowski@co.adams.wi.us>, Dennis Weiss - Hwy Com <dweiss@co.juneau.wi.us>, Nick Scholtes - Hwy Com <vchwy@co.vilas.wi.us>, Brian Braun - Hwy Com <bbraun@co.langlade.wi.us>, Jim Griesbach - Hwy Com <james.griesbach@co.marathon.wi.us>, Bruce Stefonek - Hwy Com <bstefonek@co.oneida.wi.us>, Nathan Check - Hwy Com

<checkn@co.portage.wi.us>, Doug Passineau - Hwy Com <dpassineau@co.wood.wi.us>, William Anderson - Hwy Com <dmclaughlin@co.forest.wi.us>, John Hanz - Hwy Com <jhanz@co.lincoln.wi.us>, "Meurett, David - DOT" <David.Meurett@dot.wi.gov>, aaron.ruff@co.marathon.wi.us, jgrueneberg@co.wood.wi.us, Jeff Schuler <Schulerj@co.portage.wi.us>, "Dave T. Mack" <Dave.Mack@co.marathon.wi.us>, kkleinschmidt@co.lincoln.wi.us
Cc: "Dennis Lawrence (E-mail)" <dlawrence@ncwrpc.org>
Date: 01/03/2018 03:36 PM
Subject: Request to Review Regional Bike-Ped Plan

Greetings:

I am pleased to present for your review and comment, the final draft of our North Central Wisconsin Regional Bicycle and Pedestrian plan. You have been selected as a reviewer for this plan based on your position within county or municipal government related to planning, transportation or health. All key components of such an effort.

This plan envisions development of a regional system of interconnected bicycle and pedestrian facilities for Adams, Forest, Juneau, Langlade, Lincoln, Marathon, Oneida, Portage, Vilas, and Wood Counties. This effort updates the 2004 Regional Bicycle Facilities Network Plan and is the first phase in the implementation of the Regional Livability Plan which is intended to integrate the principles of livability and sustainability into the Region.

This project represents the culmination of 18 months of outreach by Commission Staff to key stakeholders and the general public in each of the Region's ten counties. Over 43 people from around the Region participated in workshops held in Wausau, Stevens Point, Rhinelander and the Town of Rome. Another 358 responded to an online survey and 216 more provided route specific input through a wikimapping exercise.

This regional plan will assist county and local units of government in planning and developing their own trail and route systems that interconnect with neighboring municipalities.

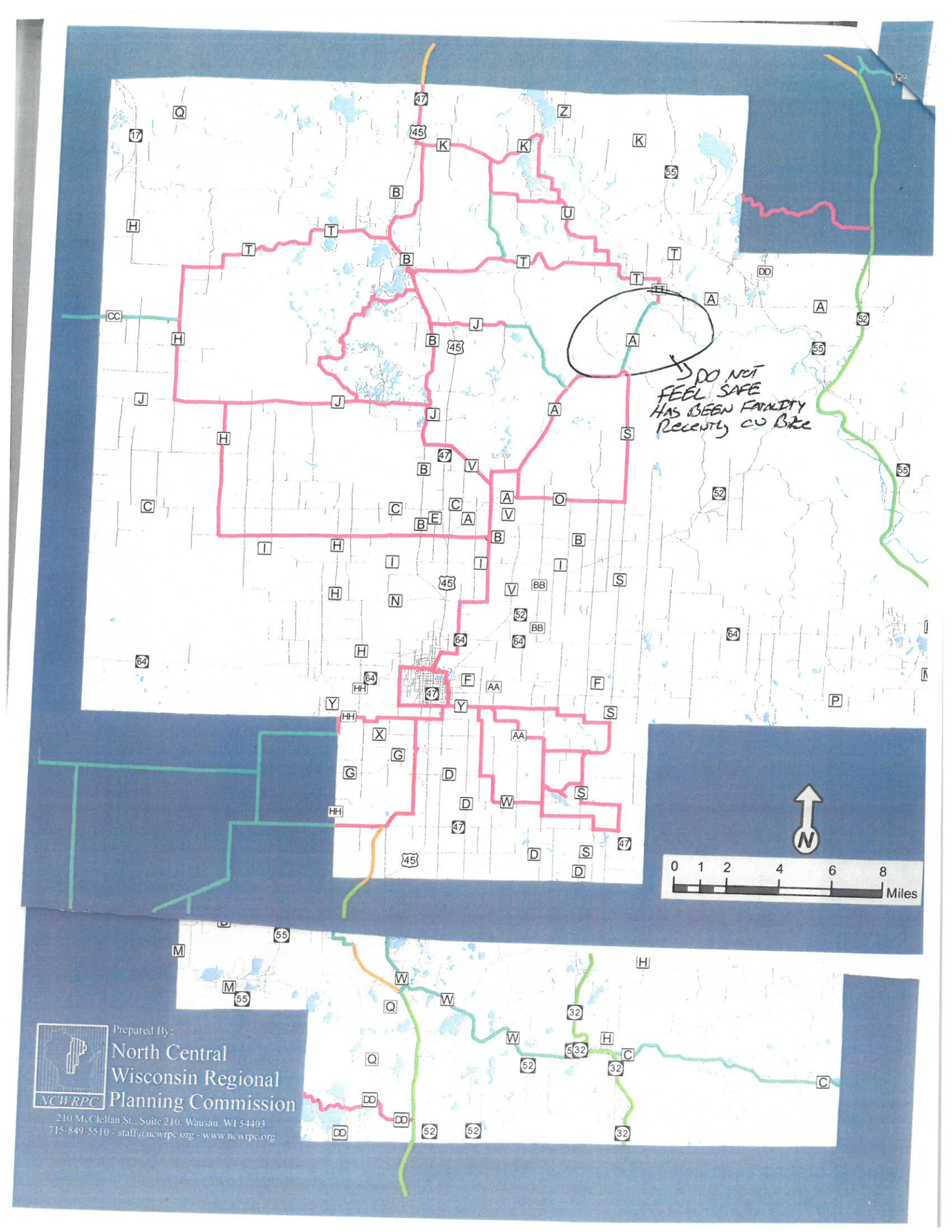
Please review the attached document, and feel free to provide comments back in the form or your choosing. If possible please return comments by January 15. My contact information is shown below.

Thank you.

--
Darryl L. Landeau, AICP
Senior Planner
North Central Wisconsin Regional Planning Commission (NCWRPC)
210 McClellan St., Ste 210
Wausau, WI 54403
715-849-5510 Extension 308
dlandeau@ncwrpc.org
www.ncwrpc.org[attachment "Draft_2018_BikePed_Regional_Plan.pdf" deleted by Brian Braun/LANGLADE]

Attachments:

SKMBT_C224e18011420470.pdf 1.1 MB


DO NOT FEEL SAFE HAS BEEN FATALITY RECENTLY ON BIKE
N
0 1 2 4 6 8
Miles
Prepared By:
North Central Wisconsin Regional Planning Commission
NCWRPC
210 McClellan St., Suite 210, Wausau, WI 54403
715-849-5510 - staff@ncwrpc.org - www.ncwrpc.org

800 CLERMONT STREET
ANTIGO, WI 54409-1948
WWW.CO.LANGLADE.WI.US

LANGLADE COUNTY

TELEPHONE: (715)627-6200
FAX: (715)627-6303

MEETING MINUTES

Committee: Highway
Date: Wednesday, January 10, 2018
Time: 7:30 AM
Location: Forestry Conference Room, 1633 Neva Road, Antigo, WI

The following discussion was held by the Committee at the meeting detailed above:

1. Meeting called to order at 7:30 A.M.

2. Roll call was conducted.
Motion by Pennington, second by Bonacci to excuse James Jansen. All ayes, motion carried.
Chairman Solin will be seated at the Committee for Jansen for this meeting.

Highway Committee		
Name	Role	Status
Richard H. Hurlbert	Chair	Present
Arlene Bonacci	Vice Chair	Present
James R. Jansen	Secretary	Absent
Pete Pennington	Member	Present
Richard Schuh	Member	Present
David J. Solin	County Board Chairman	Present (for James Jansen)

Non- Committee Members Present	
Name	Interest
Brian Braun	Highway Commissioner
Jason Thom	Assistant Highway Commissioner
Judy Nagel	County Clerk
Steve Fuller	Retired Highway Employee
Erik Rantala	Forest Administrator

3. The Committee recited the Pledge of Allegiance.

4. Approval of previous meeting minutes: Motion by Bonacci, second by Schuh to approve the December 13, 2017 meeting minutes. All ayes, motion carried.

5. Public comment on agenda items and the consideration of items to be added to future agendas: No public comment.

6. Acknowledgment of Steve Fuller for 27 years of service. The Committee welcomed and thanked Steve Fuller, as he has just retired the end of December, 2017. Commissioner Braun presented a Certificate to Fuller, thanking him for his 27 years of service to Langlade County Highway Department.

7. Update on status of Highway Staff Accountant Position: Commissioner Braun stated that he received an email from the Finance Director stating that the applications for Highway Staff

Motion by Solin, second by Schuh to allow Commissioner Braun and Department Heads the ability to determine and operate their office hours as they see fit. All ayes, except Bonacci nay. Motion carried.

15. Discuss Langlade County/North Central Regional Bicycle and Pedestrian Plan: Commissioner Braun received a draft North Central Wisconsin Regional Bicycle and Pedestrian Plan that includes Adams, Forest, Juneau, Langlade, Lincoln, Marathon, Oneida, Portage, Vilas and Wood Counties. Discussion held as to the existing bike routes and the proposed additional routes. After reviewing the draft plan, Commissioner Braun is recommending not using Highway A as a proposed bike route due to high traffic volume and safety concerns. Motion by Bonacci, second by Pennington to give Commissioner Braun permission to contact North Central Regional Planning in regard to withdrawing County Highway A as a proposed bike route. All ayes, motion carried.

16. Highway building renovation Project update: The Ad Hoc Highway Committee will be meeting Thursday, January 11, 2018. Advertising for the bid proposals for Bids #1, #2 and #3 will begin on January 12, 2018, with bids to be submitted by February 16, 2018 and bids will be opened on February 22, 2018. Information only.

17. Update on WISDOT Functional Classification System, Langlade County: Commissioner Braun explained that the proposed changes in road classification will impact State funding for Langlade County. Proposed roads that could change classifications are: County Roads Q, H, T, WW, and AA. Commissioner Braun will be submitting a rebuttal, listing concerns as he would like these roads to remain at a higher classification. Information only.

18. Schedule next meeting: February 14, 2018 at 7:30 a.m. in the Forestry Office. Chairman Hurlbert will not be at the meeting.

19. Adjourn meeting: Motion by Bonacci, second by Schuh to adjourn the meeting at 8:45 a.m. All ayes, motion carried.

Minutes transcribed and submitted[i] by:
Judy Nagel
County Clerk

MARATHON COUNTY HIGHWAY DEPARTMENT

OFFICE OF HIGHWAY COMMISSIONER
1430 WEST STREET
WAUSAU, WI 54401

Telephone
(715) 261-1800
Fax (715) 261-1810

March 1, 2018

Mr. Darryl L. Landeau, AICP
Senior Planner
North Central Wisconsin Regional Planning Commission
210 McClellan St., Ste. 210
Wausau, WI 54403

Re: Marathon County Highway Department Comments of the January 2018 Draft of the North Central Wisconsin Regional Bicycle and Pedestrian Plan

Dear Mr. Landeau:

The Marathon County Highway Department recently reviewed the North Central Wisconsin Regional Bicycle and Pedestrian Plan January 2018 Draft. As the document is 160 pages, an exhaustive review of the document was not completed; however, the Department appreciates the opportunity to review the document and would like to provide some comments on the document. The Department is also requesting some additional information to be included in the document.

The Department is concerned about the level of the "Proposed On Road" facilities included in Appendix 4. The roadways illustrated are significantly more than the plan developed in 2009; this plan was adopted by the Marathon County Infrastructure Committee. The plan from 2009 focused on providing bike/ped facilities on county highways near population centers. This approach was used in attempt to build facilities that are likely to serve a larger segment of the residents of Marathon County. The 2018 draft plan most all of the facilities from 2009 and adds many "On Road" facilities on high speed, rural county highways in sparsely populated areas.

The two primary concerns with the additional quantity of bike/ped routes included in the 2018 draft plan are cost and safety. According to Table 4-1, the cost of adding paved shoulders on a county highway is approximately $177,000 per mile. If paved shoulders are required on all routes illustrated in the 2018 draft plan, the cost of this work will be in the magnitude of millions of dollars. In addition to the roadway pavements, all of the bridges on these corridors will require deck widening during reconstruction and rehabilitation projects. The wider decks add tens of thousands of dollars per bridge and may also push projects that could be rehabilitation projects into complete reconstruction projects.

In order to better inform the readers on the impacts of the plan, the Department believes the document should include two tables for each county plan. The first table should document the level of requested facilities for roadways; i.e. a table that lists the width of paved shoulders or off road facilities requested for a rural highway. This table would likely be based on traffic data. The second table should include the miles of county highway included in the plan and the estimated cost for the requested facilities. These tables would provide a more clear illustration of what the facilities are along with the level of investment the report is requesting.

Regarding the safety concern, the Department is concerned with the requested expansion of bike/ped facilities on county highways. County highways are built and used with the intention to move goods, services and people in higher volumes and at higher speeds relative to other local streets. Significant investments and efforts are made to maintain a high level of mobility to efficiently move these goods and services within the county. It is known that survival rates of pedestrians hit by higher speed traffic are exponentially lower compared to lower speed traffic. Therefore the Department would encourage the use of lower speed and lower ADT local roadways over the use of county highways for bike/ped facility expansions.

The Department would like clarification/expansion on some of the statements in the report.

- There is a statement that 2% of the state transportation improvement project funding is used for bike/ped accommodations, but bike/ped trips make up 10% of total trips; is there a statistic similar to this that utilizes miles traveled?
- There are points referenced from data from a public survey, but it appears the respondents to the survey were initiated from bike/ped workshop attendees. This appears that it would provide data specific to the segment of the population that has a high level of interest in bike/ped facilities rather than a cross section of the general public. As the funding and the construction of these facilities will impact the general public, is there comparable data obtained from the general public?

Conclusion:

The Highway Department is satisfied with the proposed level of facilities in the Marathon County Highway Department Policy and Procedure Manual that is based on the 2009 plan. The Department proposes to maintain the current plan for paved shoulders on county highways and encourages the use and improvement of off road facilities and facilities on low volume/low speed roadways for the following reasons;

- The research in Portland Oregon concluded that 93% of cyclists are not likely to use a high speed county highway as they are not comfortable to ride amongst motor vehicle traffic.
- The survival rate of pedestrians hit by traffic is 89%, 68% and 35% for 25, 35 and 45 mph speeds respectively; it can be assumed that survival rates for pedestrians hit by vehicles traveling at 55 and 60 mph are significantly less than 35%.
- Many of the routes are in very rural areas with sparse populations and will likely see minimal use, relative to a facility built in a densely populated area.
- The Complete Streets Strategies and Policies Guidance notes a focus on low stress networks which include multi-use trails and paths that are separate from traffic to serve the widest range of bicycle and pedestrian users…has the greatest potential to attract people that do not currently bike or walk…"
- The report states, "Many communities have found that the most growth in bicycling has not been expert bicyclists, but those that can be categorized as "interested but concerned." Even among the enthused and confident and the strong and fearless, there is a significant share of those that do not bicycle for transportation. Planning and building infrastructure for this "middle" group is most likely to have the largest effect and promote the greatest comfort for bicyclists."

Sincerely,

James Griesbach
Highway Commissioner

N

W E

S

ATHENS

DORCHESTER

ABBOTSFORD

COLBY

UNITY

FENWOOD

STRATFORD

SPENCER

MARSHFIELD

EDGAR

MARATHON CITY

BROKAW

WAUSAU

SCHOFIELD

WESTON

ROTHSCHILD

KRONENWETTER

MOSINEE

BIRNAMWOOD

HATLEY

ELDERON

Marathon County

Paved Shoulders on County Highways

Paved Shoulders
- Complete
- Future

State & US Highways
County Roads
Local Roads

0 1 2 4 6 8 Miles

Path: O:\Common\gisdata\mpo\paved_shoulders.mxd

MARATHON COUNTY
MAP CREATED BY MARATHON COUNTY CPZ GIS

Portage County
Highway Department

800 Plover Road
Plover, WI 54467

Nathan Check, PE
Commissioner

Phone: 715-345-5355
Fax: 715-345-5356

January 11, 2018

Mr. Darryl L. Landeau, AICP
Senior Planner
North Central Wisconsin Regional Planning Commission
210 McClellan St., Ste. 210
Wausau, WI 54403

Re: Portage County Highway Department Comments on January Draft Regional Bicycle and Pedestrian Plan

Dear Mr. Landeau:

As requested, below are comments, questions, and concerns from a cursory review performed by Portage County Highway Department staff of the January 2018 DRAFT North Central Wisconsin Regional Bicycle & Pedestrian Plan document.

1. Additional proposed routes – The draft North Central Wisconsin Regional Bicycle and Pedestrian Plan includes additional routes not included on the approved 2014 Portage County Bicycle and Pedestrian Plan. With these additional routes, along with all the routes included in the Portage County plan, we have a concern with the potential cost to provide the accommodation. If these routes are identified in the plan, there is the potential for the local government to be required to provide these accommodations depending on the funding mechanism used for a project. This has the potential to force local governments into providing the identified accommodations when it comes to utilizing the taxpayer funds for infrastructure improvements. This may not allow a local government to prioritize and select how they allocate their budget to their operations and capital improvements.
2. Better definition of costs associated with improvements - To expand on the costs mentioned in no. 1 above, we believe the costs for all proposed improvements should be defined more clearly in the plan to provide transparency. This would include planning, design, construction, and maintenance costs. Based on our review of the document, we did not see maintenance costs discussed which will be another important factor to understand the overall impact of the plan and its implementation. We believe it would be beneficial to have the proposed improvements well defined in the plan, which would allow for more accurate costs to be associated with each improvement. Currently the per mile costs by improvement type does not layout a clear picture of the fiscal impact of what the plan is laying out.
3. Better definition of accommodations being requested – For Proposed On Road routes identified in this regional plan for Portage County, we feel it would be beneficial to define the scope of improvement so there is a clear understanding of the proposed improvement and costs. From the Regional Plan, it may be interpreted that all Proposed On Road routes identified are recommended to have improvements such as paved shoulders. There are several proposed routes which are best suited for biking already and would not need any improvement based on the WisDOT bike conditions analysis. This may lead to confusion. The roads should be clearly

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identified as routes currently best-suited for biking and those that would need other improvements such as paved shoulders.

4. Existing On Road- The Portage County map in the Regional Plan does not show any existing on road improvements while in fact there are some routes on the County system that have had additional width and paved shoulders added. An example of this would be CTH J from STH 66 to the Marathon County line which has a 4' paved shoulder. Based on our interpretation, we would expect these to be shown as existing routes based on the biking conditions and/or paved widths. This should be clarified.
5. Portage County map in appendix needs correcting – The attached map is a markup of the proposed plan map for Portage County which has several routes that are labeled incorrectly. Please reference the attached to update and correct.
6. Urbanized areas – There are outlying locations in Portage County adjacent to urbanized areas that have commercial development plans or potential which should be reviewed for consideration of an off road accommodations instead of an on road accommodations due to the traffic volume increases and truck traffic.
7. Miscellaneous – Some graphics in plan have poor resolution and are hard to read.

Overall, the Portage County Highway Department is concerned for the safety of all users of the highway system and the costs associated with improvements for these bicycle and pedestrian accommodations. Unfortunately, there may be certain roads or sections of roads that cannot provide a safe accommodation for all potential users or the cost to do so outweighs the benefit. Being able to provide a methodology for a cost to benefit analysis for these accommodations and improvements would make the process more transparent and provide the taxpayers with a justification for doing them which will be important as funding sources and revenues are more difficult to obtain.

Thank you for allowing the Portage County Highway Department provide comments and feedback on this draft plan. If you have any questions or need anything further in regard to this matter, please do not hesitate to contact me.

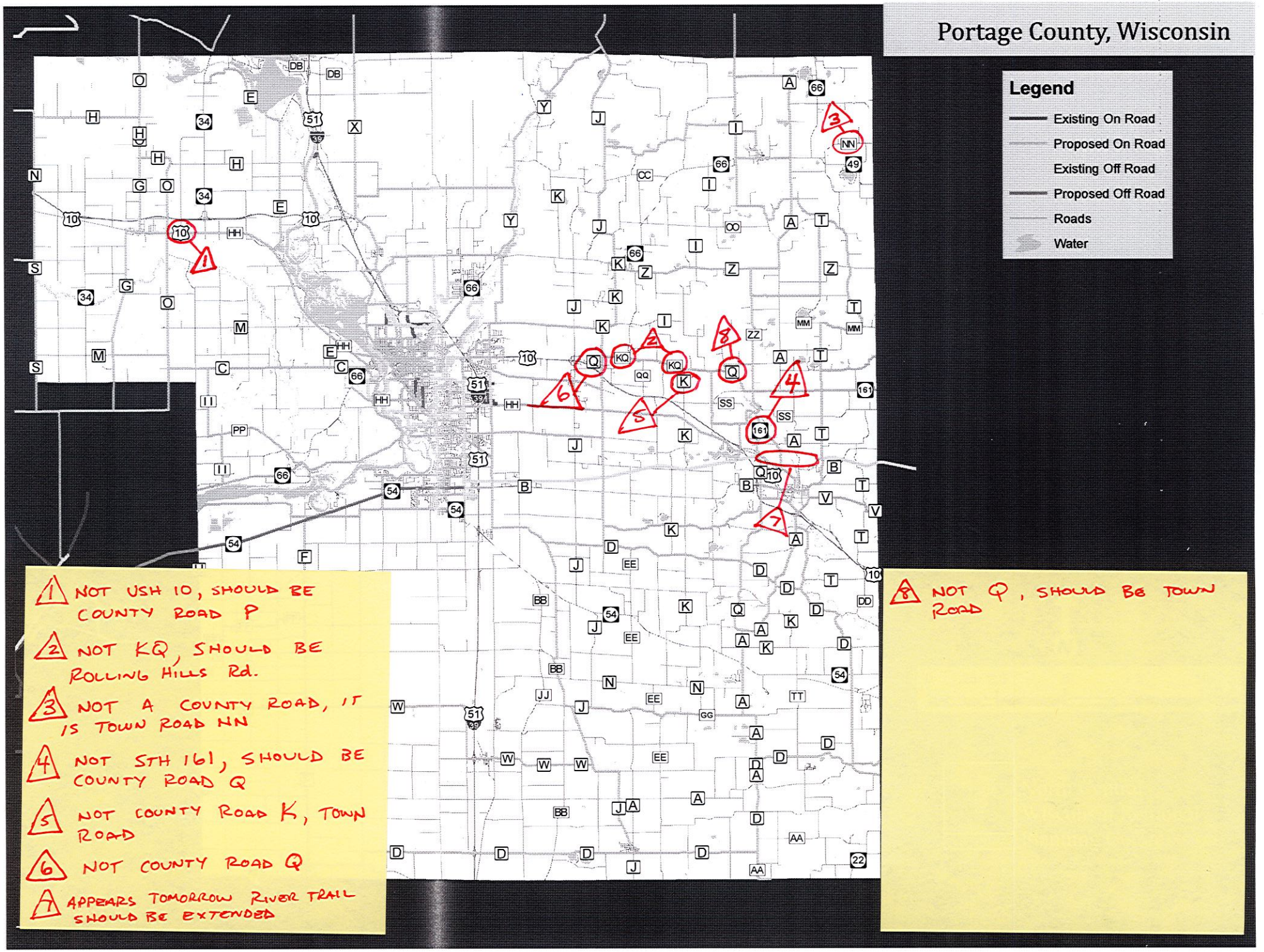
Sincerely,

Nathan Check

Nathan Check, PE
Highway Commissioner

Enclosure

Portage County, Wisconsin



Appendix Seven

Adoption of North Central Wisconsin Regional Bike and Pedestrian Plan

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NORTH CENTRAL REGIONAL PLANNING COMMISSION
RESOLUTION 2018 - 1

ADOPTION OF NORTH CENTRAL WISCONSIN REGIONAL BIKE AND PEDESTRIAN PLAN

WHEREAS, the North Central Wisconsin Regional Planning Commission is the designated rural transportation planning organization for northcentral Wisconsin, and charged with conducting cooperative, comprehensive and continuing transportation planning as prescribed by agreement with the State of Wisconsin; and

WHEREAS, development of the North Central Wisconsin Regional Bike and Pedestrian Plan helps promote the implementation of the Regional Livability Plan which is designed to incorporate the principals of livability and sustainability into the Region: and

WHEREAS, the North Central Wisconsin Regional Bike and Pedestrian Plan provides a mechanism for guiding, coordinating, and implementing the efforts of local organizations concerned with bicycle and pedestrian accommodations; and

WHEREAS, the organization's staff has worked with and will continue to work with municipality representatives, health professionals, school representatives, advocacy organizations, the Wisconsin Department of Transportation, and a variety of bicycle and pedestrian stakeholders; and

WHEREAS, a North Central Wisconsin Regional Bike and Pedestrian Plan document was prepared to meet the requirements of the awarded Wisconsin Department of Transportation Bicycle and Pedestrian Facilities Program Grant; and

NOW, THEREFORE BE IT RESOLVED, that the NCWRPC, as the recipient of the Wisconsin Department of Transportation Bicycle and Pedestrian Facilities Program Grant funds, adopts the *North Central Wisconsin Regional Bike and Pedestrian Plan.*

ADOPTED this 25th day of April 2018.

Paul J Millan

Paul Millan, Chairperson

Edmund Wafle

Edmund Wafle, Secretary-Treasurer

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Resources

Description of External Resources used to inform the North Central Wisconsin Regional Bicycle and Pedestrian Plan 2018

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Resource 1: Small Town & Rural Multimodal Networks Guide, FHWA

The Federal Highway Administration (FHWA) published the Small Town and Rural Multimodal Networks guide in 2016 to detail rural-specific facilities and project planning for multimodal transportation networks in rural and smaller communities. Given the comparatively rural nature of much of the ten-county region, facility planning guidelines from this federal resource are especially influential in creating the regional bicycle and pedestrian plan, and is a potentially useful resource for other communities in the region developing their own multimodal transportation strategies.

The full FHWA guide may be accessed at the following link: https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/fhwahep17024_lg.pdf.

Resource 2: Urban Bikeway Design Guide, NACTO

The National Association of City Transportation Officials (NACTO) published the Urban Bikeway Design Guide in 2013 to provide communities practical strategies, ideas and facility guidelines to implement complete streets-style improvements. The North Central Wisconsin Bicycle and Pedestrian Plan references resources from this guide to formulate facilities recommendations. Communities in the region are encouraged to explore this guide in detail.

A filter of best practices from the Guide may be accessed at the following link: https://nacto.org/publication/urban-bikeway-design-guide/.

Resource 3: Guidelines for Geometric Design of Very Low-Volume Local Roads, AASHTO

The American Association of State Highway and Transportation Officials (AASHTO) published Guidelines for Geometric Design of Very Low-Volume Local Roads.

The full set of guidelines may be access at the following link: https://bookstore.transportation.org/imageview.aspx?id=451&DB=3.

Resource 4: Wisconsin Rural Bicycle Planning Guide, WisDOT

The Rural Bicycle Planning guide released by the Wisconsin Department of Transportation (WisDOT) provides rural facilities and planning standards and set of practices in the context of operations within the State of Wisconsin.

The full Bicycle Planning Guide may be accessed at the following link: http://wisconsindot.gov/Documents/projects/multimodal/bike/rural-guide.pdf.

Resource 5: Wisconsin Bicycle Facility Design Handbook, WisDOT

WisDOT also published the Wisconsin Bicycle Facility Design Handbook in 2004, which provides overall guidelines for common bicycle facilities with a Wisconsin-specific application.

The full Bicycle Facility Design Manual can be accessed at the following link: http://wisconsindot.gov/Documents/projects/multimodal/bike/facility.pdf.

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North Central Wisconsin Regional Bicycle & Pedestrian Plan

2018

North Central Wisconsin Regional Planning Commission