

MDOT Grand Region

Regional Nonmotorized Plan

2017



Acknowledgements

This document has been prepared by MDOT in coordination with multiple agencies, communities, and regional stakeholders. MDOT would especially like to thank the individuals who participated as a member of the Nonmotorized Plan Team for their assistance in the development of this Plan.

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Additional thanks to all those who participated in the Outreach sessions and provided review and comments during the Plan development.

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Executive Summary

Nonmotorized transportation, commonly referred to as bicycle and pedestrian travel, is vitally important to Michigan residents. Walking and biking serve as both a means of transportation, getting people to important places in their daily lives, and as a means of recreation, better connecting residents to nature and their community. **Nonmotorized transportation is important to the region and state because it contributes to increased mobility, safety, transportation choices, recreation, placemaking, economic development, and the health of our residents.**

The MDOT Grand Region encompasses the western central portion of lower Michigan and includes 13 Counties: Mason, Oceana, Muskegon, Ottawa, Lake, Osceola, Newaygo, Mecosta, Montcalm, Kent, Ionia, Allegan, and Barry. The MDOT Grand Region: Regional Nonmotorized Plan was developed over a 13-month period from July 2016 – August 2017.

The primary goals of the Plan are to:

- Document the existing and proposed network
- Identify opportunities to enhance nonmotorized transportation
- Help prioritize nonmotorized investment
- Foster cooperative planning across municipal/county boundaries and continue to coordinate these efforts

The focus of this document and associated GIS database is on regional facilities for bicyclists and pedestrians. Specifically, how a regional network of trails, paths, and on-road facilities can provide connections between communities, counties, and adjacent regions.

There are a significant number of pedestrian/bike research projects, initiatives, and programs within MDOT that are cumulatively working toward

increased safety, achieving greater connectivity, educating, documenting, and collaborating. They are contributing to the understanding, growing, and implementation of context sensitive solutions and complete streets throughout the state. The development of this Regional Nonmotorized Plan document is just one of those efforts and tools that can help to further ensure we are all working together toward a more livable, sustainable community.

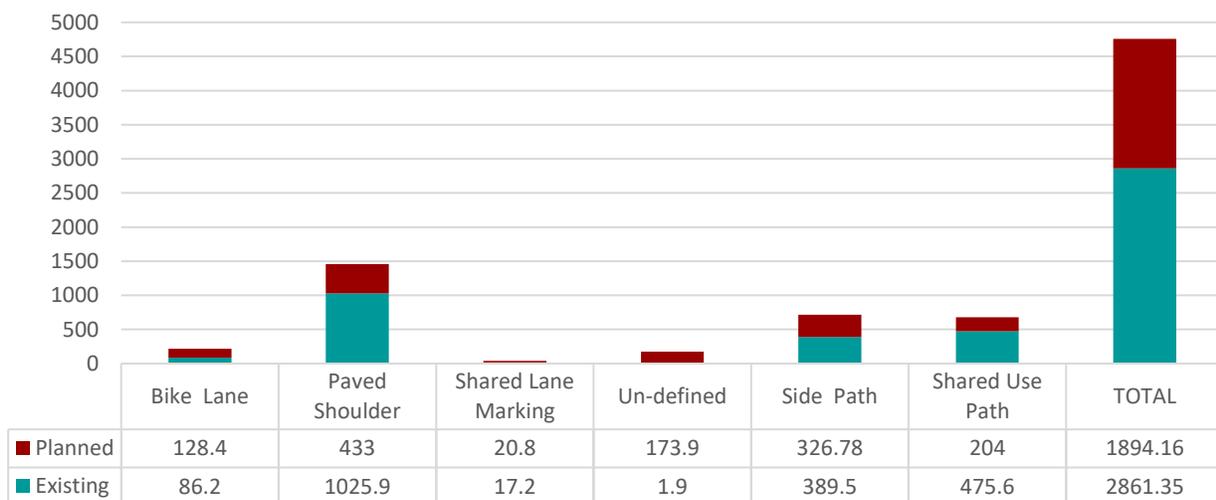
This Plan is focused on the regional level. For MDOT, this document serves as a critical piece for context-sensitive planning and development along with guidance on filling gaps along or across MDOT-owned trunklines as well as focusing resources, including the allocation of Transportation Alternatives Program (TAP) funds. At the community level, it is hoped that this plan provides tools, information and resources to assist in identifying and improving key corridors that serve both a local and regional need within the greater nonmotorized network as well as prioritizing work on efforts that can benefit the region as a whole.

A significant amount of effort associated with this project was devoted to understanding and documenting the existing and proposed facilities within the region. This Plan, and the associated GIS database, are considered a first step at capturing the existing nonmotorized conditions, various agency

plans for future connections, and identification of priorities within the region and within each geographic county. Agencies, organizations, cities, and communities have made substantial investments in bicycle and pedestrian infrastructure, particularly in the last decade. The system and network are evolving at a rapid pace, therefore, the maps and graphics included in this Plan represent a “snapshot” in time. **It is fully realized that the database that has been created during this planning effort will need to be regularly and continually updated to reflect the most current conditions and plans.**

During the planning process, multiple nonmotorized transportation routes were identified within each county. This Plan highlights **Regional Corridors** on the maps. Regional Corridors illustrate desirable connections between existing nonmotorized transportation facilities (on-road and off-road), population centers, recreational areas, and points of interest. In some instances, they may not necessarily represent actual or planned routes – rather they reflect the desire for connectivity. In several cases, alternate, nearby routes, even though they are not as direct, may be a preference due to lower stress vehicle speeds, vehicle volumes, or trucks. **Further planning by a variety of agencies and stakeholders may be required to fully vet these systems and routes.**

Grand Region Facilities By Type (miles)





Purpose, Process, and Overview

Why Create a Regional Plan?

Agencies, community leaders, public health officials, residents, non-profits, and businesses are recognizing the benefits of bicycle and pedestrian travel and are looking for ways to better accommodate people who travel this way – whether they do so by choice or by necessity. The benefits of safe and connected pedestrian and bicycle facilities are well researched and documented – whether they are related to the economy, the environment, increased mobility, health, recreation, livability, or social justice. This document and the accompanying GIS database were developed in order to continue to support these overall goals and benefits.

In order to provide and plan for nonmotorized travel, many agencies and communities have

adopted nonmotorized and complete streets plans. These plans incorporate nonmotorized elements into planning documents, such as recreation plans, transportation plans, corridor plans, or master plans. These documents can cover every scale, from the neighborhood level, progressing to community or county level, and even up to the regional, state and national level. **This plan is focused on the regional level.** For MDOT, this document serves as a critical piece for context-sensitive planning and development along with guidance on filling gaps along or across MDOT-owned trunklines as well as focusing resources, including the allocation of Transportation Alternatives Program (TAP) funds. At the community level, it is hoped that this plan provides tools, information and resources to assist in identifying and improving key corridors that serve both a local and regional need within the greater nonmotorized network as well as prioritizing work on efforts that can benefit the region as a whole.

Why Is Nonmotorized Transportation Important?

Walking and biking serve as both a means of transportation, getting people to and from a variety of destinations, as well as a means of recreation and way to connect people to nature and to each other. Nonmotorized transportation is important to the region and state because it contributes to increased mobility, safety, transportation choices, recreation, placemaking, economic development, and the health of our residents. A few of these are further described here.

Increased mobility and equity. Ensuring mobility options for all is paramount, particularly for our young people, seniors, or those physically or financially unable to drive. The number of young drivers in the US has been decreasing steadily. In 1983, about 87% of 19-year-olds had drivers' licenses and in 2014, only 69% did.¹ A 2014 MDOT study showed that 39 percent of households in Michigan reported someone in their home used a bike for transportation in the last year. A connected nonmotorized network provides an opportunity to meet multiple mobility needs. Pedestrian and bicycle facilities that are coordinated and connected to transit can increase the range that people can travel. Infrastructure that supports bicycling and walking expands transportation options.

Less than 2 miles

According to a national travel survey, about 40 percent of trips are shorter than two miles—about a 30-minute walk or a 10-minute bike ride.

--Ped & Bike Information Center

Recreation and health. While some Michigan residents use the nonmotorized system as a way to increase mobility, many use the system for recreational and health benefits. The correlation between land use patterns, transportation systems, and public health are being recognized and studied

by a number of agencies including the Centers for Disease Control and the National Institutes of Health. There is a movement to integrate public health objectives in transportation decision-making because of the link to increased physical activity and reduction in air pollutants.

Economic development and talent attraction.

Nonmotorized transportation contributes to continued economic growth. The [2014 Community and Economic Benefits of Bicycling in Michigan](#) found that bicycling provides an estimated \$668 million per year in economic benefit to Michigan's economy, including employment, retail revenue, tourism expenditure, and increased health and productivity. The statewide study included case studies for Grand Rapids and Holland that found a \$45.5 million total annual economic impact for these two areas alone. In order to maintain and enhance economic viability, communities are seeking to attract millennials and knowledge-based workers. According to research by the Rockefeller Institute, more than 50 percent of millennials surveyed said they would consider moving to another city if it had more and better transportation options.

Improved safety. Pedestrians and cyclists are the most vulnerable roadway users. While crashes involving pedestrians and cyclists make up only 0.2% of the Grand Region's total crashes, they account for 17.0% of fatal crashes and 10.7% of incapacitating injury crashes (between 2011-2015).² Incorporating well-designed pedestrian and bicycle facilities encourages predictable behavior and alerts motorists to their presence, thus improving safety for all roadway users.

The graphic on the following page is from the 2014 Community and Economic Benefits of Bicycling in Michigan Study that was completed by MDOT. The graphic summarizes findings for the City of Grand Rapids.

¹ The Decline of the Driver's License – The Atlantic. January 22, 2016

² Michigan Traffic Crash Facts Query

Bicycling in GRAND RAPIDS



Population: 189,340

Miles of existing infrastructure: 42

"Riding a bike isn't just about getting somewhere and saving gas...From a local economic perspective, there's a serious trickle-down effect."

- Matt Ruiters, Velocity Cycles



Bicycling retail revenue

\$1.7 million

39%

Residents who place an annual value of at least \$100 on the ability to use bicycle infrastructure

Total annual spending associated with bicycling events and vacations in Michigan

\$4.3 million

55%

Bicyclists who bike at least twice a week

People employed by bicycling industry: 32



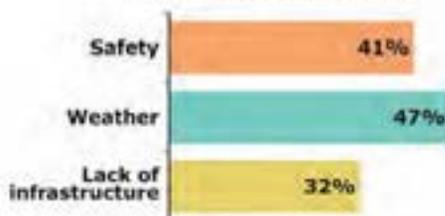
18%

Bicyclists who commute by bicycle at least twice a week

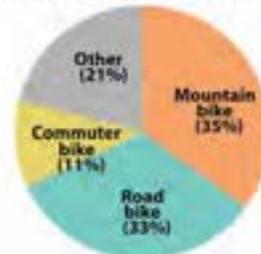
11%

Residents who participated in a bicycling event or bicycle-oriented vacation in Michigan in the past year

Key barriers to bicycling



Top primary bicycle types



Total annual economic impact of bicycling **\$39.1 million**

Study funded by **MDOT**

For more information contact Josh DeBruyn, MDOT Bicycle and Pedestrian Coordinator at debrujnj@michigan.gov

Project Goals + Planning Process

The Michigan Department of Transportation (MDOT) has worked to develop the Grand Region: Regional Nonmotorized Plan that serves as a tool, not only for MDOT staff, but also for the vast number of stakeholders, agencies, and organizations in the Region.

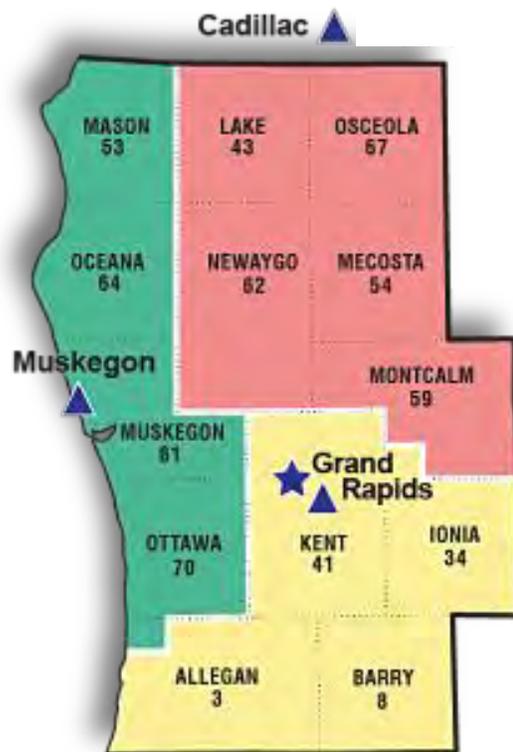
The primary goals of the Plan are to:

- Document the existing and proposed network
- Identify opportunities to enhance nonmotorized transportation
- Help prioritize nonmotorized investment
- Continue to foster cooperative planning across municipal/county boundaries
- Synchronization of Plans – understand what exists and what is planned to better coordinate efforts

This plan is not intended to supersede local planning efforts. It is focused at the regional level and the inventory included in this effort does not include more locally relevant facility types, such as sidewalks and crosswalks, nor does it prescribe detailed design recommendations for specific corridors. This project includes the development of new Grand Region Bike + Trail Maps: one for the northern and one for the southern portion of the region.

While the term “nonmotorized” means active transportation and includes walking, bicycling, travel by wheelchair, skates, skateboards, etc., the focus of this planning document is at the **regional** level. Specifically, how a regional network of trails, paths and streets can provide connections between communities, counties, and adjacent regions. The focus of this document is on **regional** facilities for bicyclists and pedestrians.

MDOT Grand Region



The MDOT Grand Region encompasses the western central portion of lower Michigan and includes 13 Counties: Mason, Oceana, Muskegon, Ottawa, Lake, Osceola, Newaygo, Mecosta, Montcalm, Kent, Ionia, Allegan, and Barry. The Region is divided into 3 Transportation Service Areas (TSAs): Cadillac, Grand Rapids, and Muskegon.

The MDOT Grand Region and Lansing staff facilitated the development of this Regional Nonmotorized Plan over a 13-month period from July 2016 – August 2017. The Plan development was also guided by a Nonmotorized Plan Core Team, and included a number of outreach efforts in order to gather input and feedback. The primary tasks associated with the development of the Plan included:

- Inventory and Data Gathering
- Outreach and Engagement
- Analysis
- Plan Development

Nonmotorized Plan Core Team

A number of MDOT staff and nonmotorized leaders were asked to be a part of the Nonmotorized Plan Core Team for this document. The purpose of the Core Team is to ensure this will be a useful tool for stakeholders in the region and state. The Core Team met periodically during the development of the Plan and served as a:

- Peer review team
- A local knowledge base
- A resource for community contacts
- A means to raise awareness of the plan and project

Nonmotorized Plan Core Team Members

Steve Redmond, MDOT Grand Region
Dennis Kent, MDOT Grand Region
Cynthia Krupp, MDOT Lansing
Susan Rozema, MDOT Grand Region
John Morrison, West MI Trails & Greenways Coalition
Elisa Hoekwater, Macatawa Area Coordination Council
Nikki Van Bloem, DNR Trails Specialist
Mike Smith, MDOT Lansing – TAP Manager
Amy Matisoff, MDOT Lansing – TAP
Travis Mabry, City of Walker
Joe Pung, City of Kentwood
Mark Sweppenheiser, City of Big Rapids
Jay Fowler, Greater Grand Rapids Bicycle Coalition
Laurel Joseph, Grand Valley Metropolitan Council

Outreach

In addition to the input gathered at the Plan Team meetings, three additional primary means of gathering input were utilized to develop this document.

Project Website

A website was developed in conjunction with the Plan development at www.walkbike.info/grand-region. The website has been active since Fall 2016. The primary purpose of the site was to serve as an informational portal to describe the project, announce meeting dates/times, post draft maps and documents for review, provide opportunity for online input, and provide contact information.



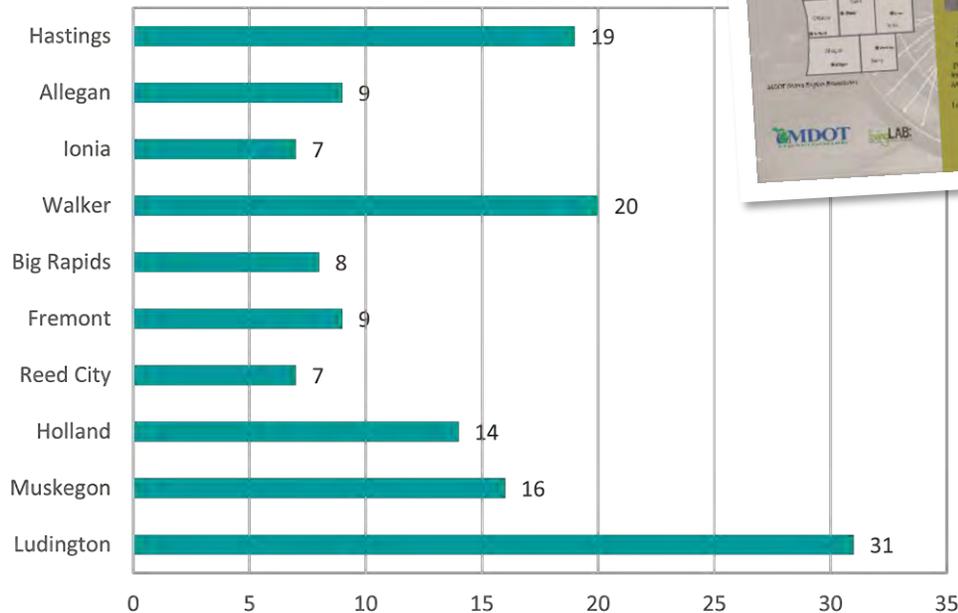
Email Distribution

An email list was created in conjunction with the development of the Plan that grew to approximately 300 people, including a large cross-section of agencies, advocacy groups, trail organizations, bike clubs, residents, etc. The distribution list includes all attendees of the Outreach Meetings, the Grand Region Ped/Bike Committee, as well as those that provided their email address via the project website. Emails were sent throughout the project to gather input, announce meetings, and ask for review of draft documents.

Outreach Meetings

A series of Outreach Meetings were held during the development of the Plan. The first set of Outreach Meetings included ten Open Houses held throughout the region from October-December 2016. The goals for the Outreach Meetings were to learn more about the project, view and confirm data that had been collected, help the team understand what's happening in each geographic area, and provide input related to major connections, gaps, priorities, and concerns. Over 140 people attended this initial series of outreach meetings.

Fall 2016 Outreach Meeting Locations + Attendees



General observations regarding the Fall 2016 series of ten Outreach Meetings included:

- A broad cross-section of groups, communities and organizations attended
- Overall, attendees were supportive and enthusiastic
- Attendees were looking forward to continuing to provide input and ensure connections
- A lot of “new” existing facilities and plans were collected to add to the database and maps
- The handful of concerns heard at the meetings focused on:
 - Ensuring connectivity
 - Coordinating wayfinding
 - Understanding how to fund projects
 - Use of consistent terminology to describe the various facility types

Once a draft document was developed and reviewed by the Plan Core Team, a second series of Outreach Meetings were held including four Open Houses held in June 2017 in Ludington, Walker, Holland, and Hastings. Approximately 80 people attended (Walker – 31; Ludington- 20; Holland – 17; Hastings – 11) and provided comments that were used to further refine the Plan.



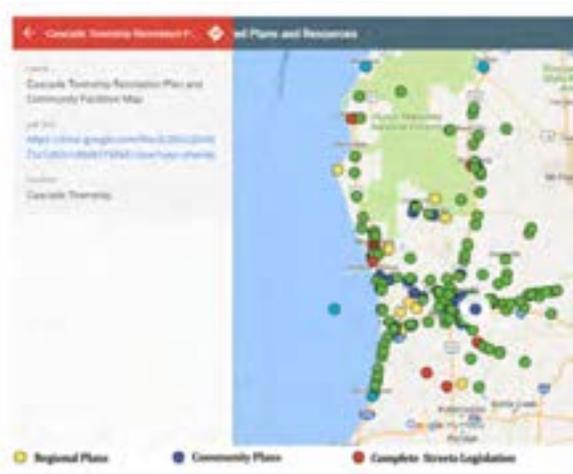
Data Sources and Database Basics

Development of a Geographic Information Systems (GIS) database and related mapping was a crucial and extensive part of the planning process. The inventory and data gathering process was extensive including: online research of existing plans and data on nonmotorized facilities; aerial imagery interpretation; feedback from community agencies; outreach meetings; online public input; and input from MDOT staff. Both existing and proposed nonmotorized facilities along with other existing data sets related to bicycle and pedestrian travel were synthesized into the GIS to form the basis for an understanding of existing and planned nonmotorized facilities in the region.

The Existing and Proposed Nonmotorized Inventory was created using ArcGIS Pro 1.4 and organized in a geodatabase. The GIS database is built using the Michigan Geographic Framework (MGF) base information version 14a. All attributes of the roadway and right-of-way (route designations, bike lanes, sidepaths, etc.) are referenced to the centerline using a unique segment identifier. This facilitates data portability and permits the information to be mapped at a variety of scales. *Contact Cindy Krupp, MDOT for GIS data files availability (kruppc@michigan.gov).*

Existing Nonmotorized Plans and Resources

During the development of this plan, considerable effort went into collecting existing plans and resources in the Grand Region that document various agencies nonmotorized visions. These were all mapped using [Google MyMaps](#) and .pdfs are



available for others to reference. When a dot on the map is clicked, a box will pop up with a link to the .pdf.

How Does This Plan Fit into MDOT's Bigger Picture?

In recent years, the US Department of Transportation (USDOT) and Federal Highway Administration (FHWA) have elevated their focus, [resources, research, and encouragement](#) of the importance and need for quality, accessible, and connected pedestrian and bicycle facilities.

The USDOT developed a [Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations](#) (2010) (see next page) to reflect the Department's support for the development of fully integrated active transportation networks. The Policy Statement goes on to recognize that legislation and regulations exist that require inclusion of bicycle and pedestrian policies and projects into transportation plans and project development. Accordingly, transportation agencies should plan, fund, and implement improvements to their walking and bicycling networks, including linkages to transit. In addition, USDOT encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities, and utilize universal design characteristics when appropriate. Transportation programs and facilities should accommodate people of all ages and abilities, including people too young to drive, people who cannot drive, and people who choose not to drive.

Since 2005, MDOT has pursued the Context Sensitive Solution (CSS) approach as a core value of its business practices and approach to project development. CSS centers on engaging stakeholders and interdisciplinary teams to resolve transportation problems together. An understanding of the land use and the community is essential in responding to the unique needs and qualities of individual communities. At each step inclusiveness, flexibility, and creativity fuel development of fresh solutions

and increase the prospects for success.³ This dialogue helps to ensure bridges, interchanges, and other transportation projects "fit" into their communities. The goal of the CSS approach is to result in projects that respect a community's scenic, aesthetic, historic, economic, and environmental character.

There are a significant number of pedestrian/bike research projects, initiatives and programs within MDOT that are cumulatively working toward increased safety, achieving greater connectivity, educating, documenting, and collaborating. They are contributing to understanding, growing, and implementing context sensitive solutions and complete streets throughout the state.

The development of this Regional Nonmotorized Plan document (and the Regional Bike Maps) is just one of those efforts and tools that can help to further ensure we are all working together toward a more livable, sustainable community.

Several of the related MDOT initiatives and programs are further detailed on the following pages.

HOW DOES THIS PLAN FIT INTO THE BIGGER MDOT PICTURE?



³ MDOT CSS Website

United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodations (2010)

Recommended Actions include:

Considering walking and bicycling as equals with other transportation modes.

The primary goal of a transportation system is to safely and efficiently move people and goods. Walking and bicycling are efficient transportation modes for most short trips and, where convenient intermodal systems exist, these non-motorized trips can easily be linked with transit to significantly increase trip distance. Because of the benefits they provide, transportation agencies should give the same priority to walking and bicycling as is given to other transportation modes. Walking and bicycling should not be an afterthought in roadway design.

Ensuring that there are transportation choices for people of all ages and abilities, especially children. Pedestrian and bicycle facilities should meet accessibility requirements and provide safe, convenient, and interconnected transportation networks. For example, children should have safe and convenient options for walking or bicycling to school and parks. People who cannot or prefer not to drive should have safe and efficient transportation choices.

Going beyond minimum design standards.

Transportation agencies are encouraged, when possible, to avoid designing walking and bicycling facilities to the minimum standards. For example, shared-use paths that have been designed to minimum width requirements will need retrofits as more people use them. It is more effective to plan for increased usage than to retrofit an older facility. Planning projects for the long-term should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements.

Integrating bicycle and pedestrian accommodation on new, rehabilitated, and limited-access bridges.

USDOT encourages bicycle and pedestrian accommodation on bridge projects including facilities on limited-access bridges with connections to streets or paths.

Collecting data on walking and biking trips.

The best way to improve transportation networks for any mode is to collect and analyze trip data to optimize investments. Walking and bicycling trip data for many communities are lacking. This data gap can be overcome by establishing routine collection of non-motorized trip information. Communities that routinely collect walking and bicycling data are able to track trends and prioritize investments to ensure the success of new facilities. These data are also valuable in linking walking and bicycling with transit.

Setting mode share targets for walking and bicycling and tracking them over time.

A byproduct of improved data collection is that communities can establish targets for increasing the percentage of trips made by walking and bicycling.

Removing snow from sidewalks and shared-use paths.

Current maintenance provisions require pedestrian facilities built with Federal funds to be maintained in the same manner as other roadway assets. State Agencies have generally established levels of service on various routes especially as related to snow and ice events.

Improving nonmotorized facilities during maintenance projects.

Many transportation agencies spend most of their transportation funding on maintenance rather than on constructing new facilities. Transportation agencies should find ways to make facility improvements for pedestrians and bicyclists during resurfacing and other maintenance projects.

Complete Streets

[Michigan Public Act 135 of 2010](#) defines Complete Streets as: "...roadways planned, designed, and constructed to provide appropriate access to all legal users in a manner that promotes safe and efficient movement of people and goods whether by car, truck, transit, assistive device, foot, or bicycle."

Complete Streets is an approach to transportation planning – one that supports balanced mobility and the appropriate provision for safe and convenient travel by all the ground transportation modes: transit, walking, bicycling, motor vehicles, and freight movement. The context of the road and surrounding land use play a pivotal role in what may be the appropriate Complete Street response. A rural road may not have the same solutions and provisions as an urban road. There is no "one size fits all" solution that can be applied to all roads and corridors.

PA 135 of 2010 provided for the appointment of a Complete Streets Advisory Council (dissolved in 2016) to educate and advise the State Transportation Commission (STC) and others on Complete Streets policies. The State Transportation Commission approved their Complete Streets Policy in 2012 and as of January 2017, 97 communities have passed their own local complete streets policies. <https://michigancompletestreets.wordpress.com/>

Multi-Modal Development & Delivery (M2D2)

M2D2 is a project to support Michigan's economic recovery by partnering with Smart Growth America to work through an extensive process (in progress) to improve MDOT's institutional capacity to plan, design, construct, operate, and maintain Michigan's transportation system for Complete Streets and

multiple modes. M2D2 is intended to result in updated standards that consider multi-modal travel on state trunkline highway facilities, and provide MDOT staff with the knowledge and tools to effectively implement multi-modal travel.

Walkability Reviews/Training Wheels

Since 2006, MDOT has conducted a series of walkability and/or bikeability reviews (Training Wheels) on an annual basis to various communities in the State as funding is available. The sessions are designed to teach the basic principles of walkability from a non-technical perspective as well as details about the AASHTO guide and design of on-road bicycle facilities. The sessions are geared toward helping local administrators, officials, engineers, planners, business owners, residents, and other community stakeholders learn the benefits of providing safe and attractive environments for walking and biking.

Complete Streets

There is no one design prescription for complete streets. Ingredients that may be found on a complete street include: sidewalks, bike lanes (or wide paved shoulders), special bus lanes, comfortable and accessible public transportation stops, frequent crossing opportunities, median islands, accessible pedestrian signals, curb extensions, and more. A complete street in a rural area will look quite different from a complete street in a highly urban area. But both are designed to balance safety and convenience for everyone using the road.

--National Complete Streets Coalition

Safe Routes to School Program

Safe Routes to School (SRTS) is an international movement to make it safe, convenient, and fun for children to bicycle and walk to school. In Michigan, the program is funded under the Transportation Alternatives Program (TAP) and administered by The Michigan Fitness Foundation and MDOT. The program



Safe Routes to School

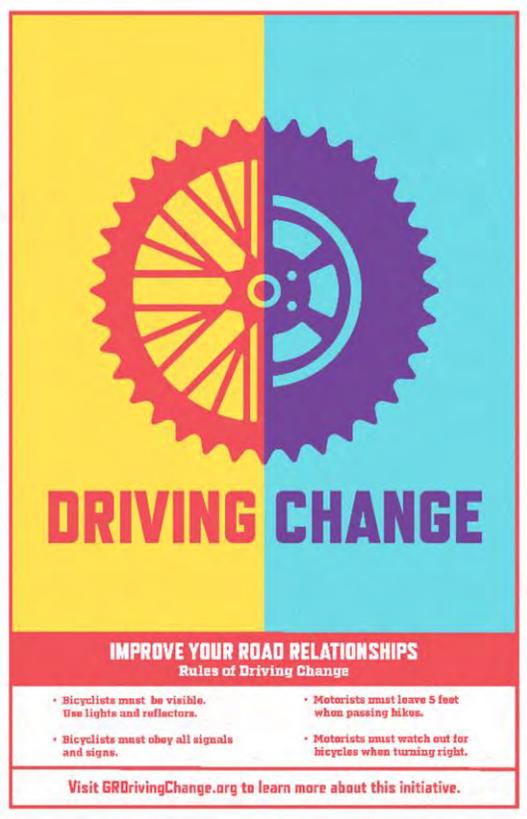
includes the development of a SRTS Plan by each school and then eligibility to apply for funding for a variety of infrastructure, education, and encouragement projects. The program is focused on K-8 aged children and facilities that serve K-8 schools. <http://saferoutesmichigan.org/>

Studies + Research

In recent years MDOT has received federal and state funding and contributed to funding a variety of nonmotorized initiatives, studies and research projects. Four of the most recent include:

Grand Rapids (GR) Driving Change

In 2014 the City of Grand Rapids secured considerable federal and local funding to embark on a multi-year project focused on reducing bicycle crashes. The focus of the project was to help people understand the “rules of the road” while fostering respect between motorists and bicycles and make everyone safer. Specific project tasks included research and analysis of bicycle related crashes, development of messaging, and broad community education and awareness through billboards, posters, tv and radio spots, a project website (grdrivingchange.org), training and much more. Among the project deliverables are a “playbook” that outlines the tasks the City undertook along with sample message and materials that can be replicated to a broader audience in the region and state. Several materials are available from the project website grdrivingchange.org.



Statewide Economic Impact of Biking

Phase I of the [Community and Economic Benefits of Bicycling in Michigan](#) report was completed in 2014 with Phase II completed in 2015. The two-phase project explains the economic benefit bicycling has on Michigan's local and statewide economies. The report finds that **bicycling provides an estimated \$668 million per year in economic benefit** to Michigan's economy, including employment, retail revenue, tourism expenditure, and increased health and productivity. Using both quantitative and qualitative data, the report takes a unique approach to illustrate both the economic benefits of bicycling on a statewide basis as well as broader benefits bicycling can have on communities. Case studies were done on five Michigan communities including Grand Rapids and Holland. Phase II of the project includes more specific data on the economic impact of bicycling "events," bicycle touring, and Michigan as a bicycle destination.

Best Design Practices for Walking and Bicycling in Michigan

MDOT led research and developed a document to assist in determining how to optimize pedestrian and bicycle safety while minimizing impacts to vehicular mobility. [The document](#), which was part of a larger study (Share the Road: Optimizing Pedestrian and Bicycle Safety and Vehicle Mobility) includes best



practices to provide guidance in the design of non-motorized improvements that have shown to reduce crashes involving pedestrians and bicyclists. The report is organized as a toolbox for planners and designers. Best practices are summarized into three categories: signalized intersections, unsignalized pedestrian crossing improvements, and corridor improvements.

Sidepath Applications for Bicycle Use

MDOT (Intermodal Division) began a research project in 2016 (slated for completion in 2018) to determine when on-road facilities are appropriate in addition to side paths in urban and suburban environments to accommodate bicyclists.

Inappropriate application and use of side paths may result in higher risk to bicyclists who perceive such facilities as “safe” due to separation from the motor vehicle traffic stream. Objectives of the two-year study include:

1. Gain better understanding of bicycle crashes with respect to frequency, location, bicyclists’ direction of travel and speed, and severity of sidewalk and side path crashes versus on roadway crashes.
2. Investigate land use characteristics and general context of the crash locations.
3. Develop an understanding of the different reasons bicyclists choose to ride where they do.
4. Produce a tool/spreadsheet model for assessing crash risk/potential of various bicycle facilities that can assist planners, engineers, and bicyclists with information on the facility appropriateness based on land use and crash potential.
5. Develop educational materials to inform bicyclists and motorists about safety and crash scenarios with respect to bicycling on different facility types in different land use contexts.

Regional Ped/Bike Committees

Each of the seven MDOT Regions (including the Grand Region) hosts a Regional Ped/Bike Committee that meets on a periodic basis. The Committees include state, regional, and local agencies, communities and advocates that meet to:

- Discuss education, encouragement, engineering, evaluation, and planning issues;
- Learn from each other and support each other’s efforts; and
- Build relationships and partnerships.

The meetings are a venue to identify issues and become more knowledgeable of each other’s planning, design, engineering, and funding processes in order to enhance pedestrian and bicycle safety and mobility for improved quality of life in our communities. Contact Steve Redmond, MDOT Region Planner (redmonds@michigan.gov) for more information or to join the email list.

Grand Region Setting + Profile

The MDOT Grand Region encompasses the western central portion of lower Michigan and includes 13 Counties: Mason, Oceana, Muskegon, Ottawa, Lake, Osceola, Newaygo, Mecosta, Montcalm, Kent, Ionia, Allegan, and Barry. The MDOT Grand Region correlates with the boundaries of the [West Michigan Regional Prosperity Alliance](#) – one of 10 economic regions in Michigan that are focused on creating vibrant regional economies. The Region is fairly well connected in terms of major highways and roads including I-96, I-196, and US-131. The region has a main Amtrak passenger rail line between Grand Rapids and Chicago – The Pere Marquette (allows bikes on train car). The region is also connected to Wisconsin via two Lake Michigan passenger ferries: the SS Badger out of Ludington and the Lake Express out of Muskegon, both of which allow bikes on board. In addition, the first bus rapid transit (BRT) line in Michigan is the 9.6-mile Silverline along Division Avenue in Grand Rapids/ Wyoming/ Kentwood. All Silverline buses are also equipped with bike racks.

The Grand Region includes a number of destinations including the second most populated city in the state, Grand Rapids, and the fastest growing metro area in recent years. Major destinations and land uses include the Lake Michigan shoreline and beach towns, and a number of universities and colleges including Aquinas College, Calvin College, Cornerstone University, Davenport University, Ferris State University, Grace Bible College, Grand Valley State University, Hope College, and Kendall College of Art Design.

Major public lands in the region include the Manistee National Forest, as well as a number of State Parks and Recreation Areas including Ludington, Mears, Muskegon, Saugatuck Dunes, Silver Lake, PJ Hoffmaster, Grand Haven, Holland, and Newaygo State Parks. Also in the Grand Region are the Fred Meijer White Pine Trail State Park, William Field Memorial Hart-Montague Trail State Park, Yankee Springs, Bass River, and Ionia State Recreation Areas. Other major public lands include MDNR managed state game areas and forests, Millennium Park and the John Ball Zoo.

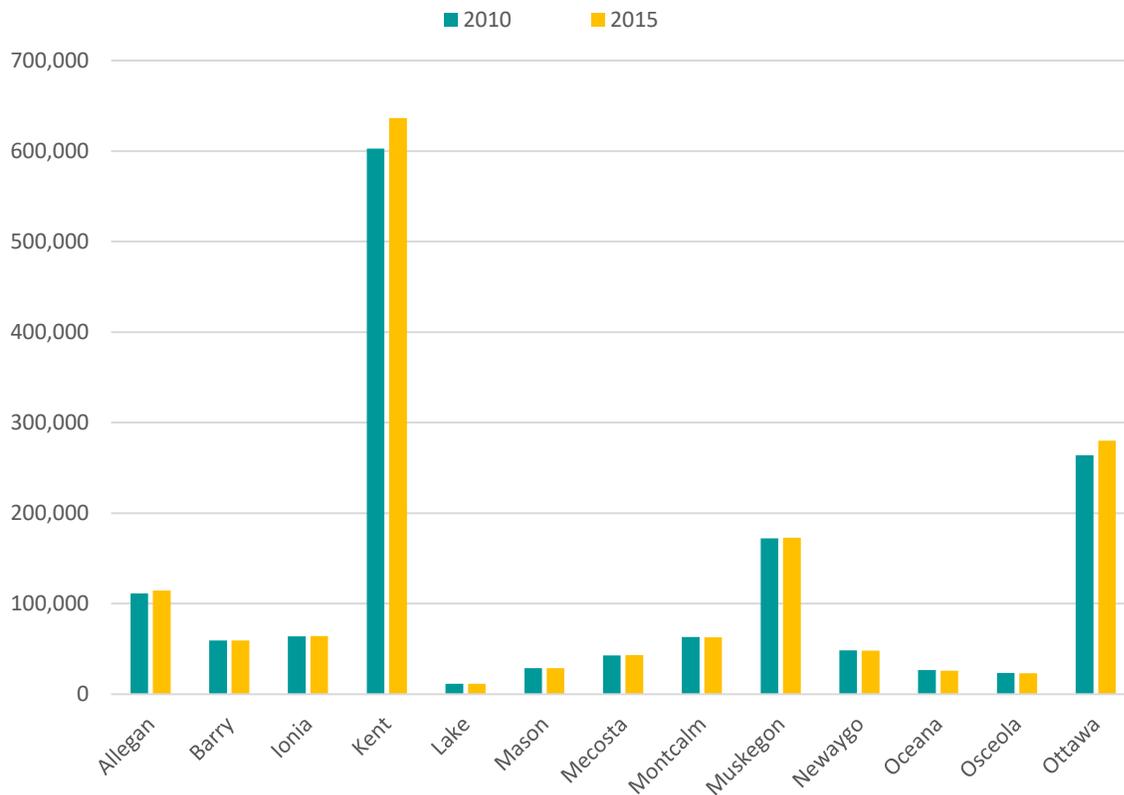
Population Change

LOCATION	2010 POPULATION	2015 POPULATION	% CHANGE
Allegan	111,408	114,625	2.9%
Barry	59,173	59,314	0.2%
Ionia	63,905	64,223	0.5%
Kent	602,622	636,369	5.6%
Lake	11,539	11,424	-1.0%
Mason	28,705	28,783	0.3%
Mecosta	42,798	43,067	0.6%
Montcalm	63,342	62,945	-0.6%
Muskegon	172,188	172,790	0.3%
Newaygo	48,460	47,948	-1.1%
Oceana	26,570	26,105	-1.8%
Osceola	23,528	23,058	-2.0%
Ottawa	263,801	279,955	6.1%
MDOT Grand Region	1,518,039	1,570,606	3.5%
Michigan	9,883,640	9,922,576	0.4%

Population Change

The 2015 US Census shows a population in the 13-County Grand Region of 1,570,606, a 3.5% increase from 2010. Populations (2015) range from 11,424 in Lake County to 636,369 in Kent County. Ottawa County and Kent County had the largest growth rates over the five-year period at 6.1% and 5.6% respectively. Kent, Ottawa and Muskegon Counties include 69.3% of the total population in the Grand Region.

Population per County

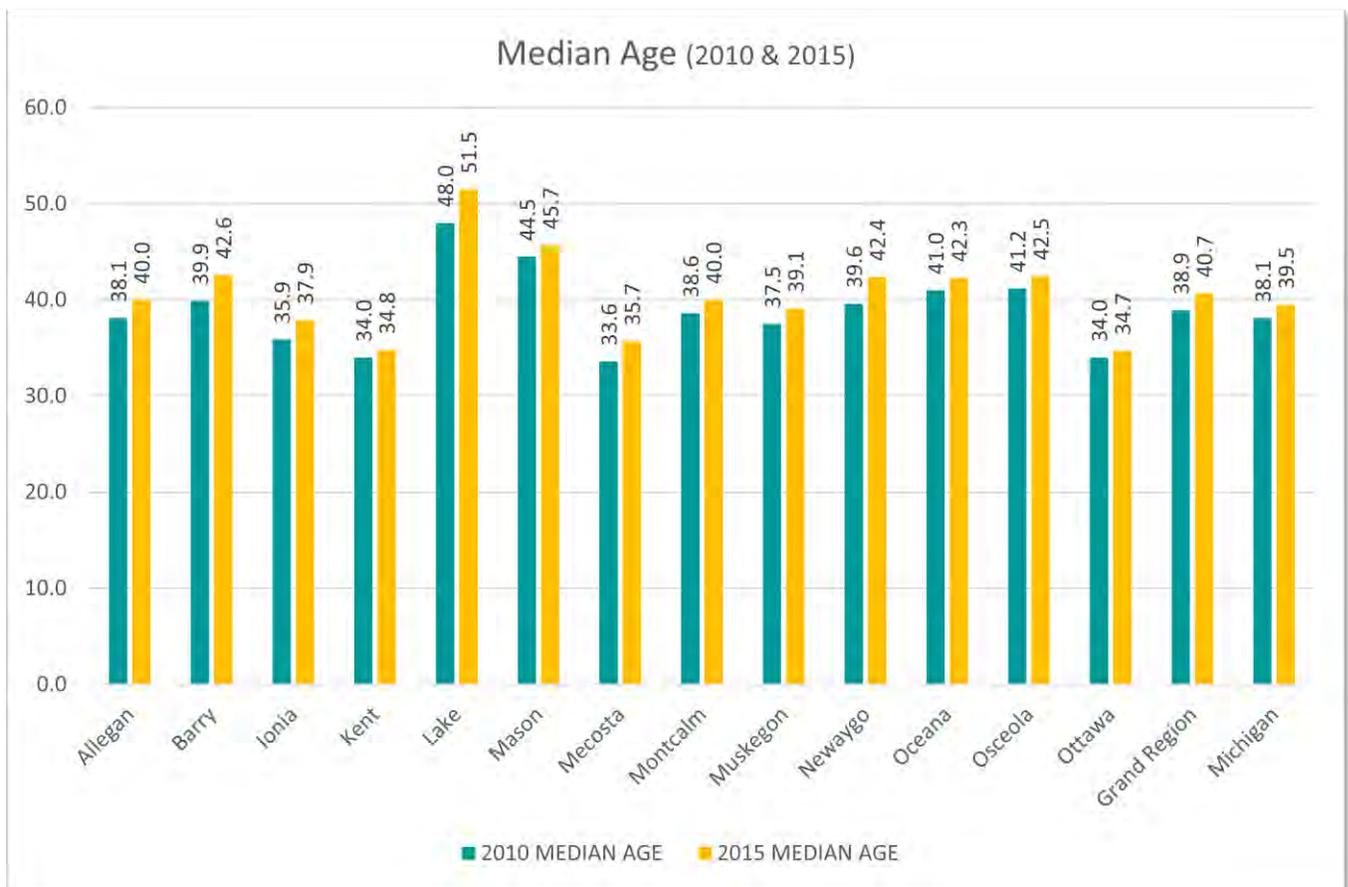


Median Age

The median age of those in the Grand Region has been increasing over the past several decades, as is the case statewide and nationally. In the past five years, the median age (US Census) in the Grand Region has increased by 4.6% from 38.9 to 40.7 years old, respectively. This is slightly older than the state as a whole which was at 39.5 in 2015. Within the Grand Region, Lake County (51.5) and Mason County (45.7) have the oldest population while Ottawa (34.7) and Kent (34.8) have the youngest. Eight of the 13 counties have a higher median age than the state. Behavior studies show that walking and biking for utilitarian purposes are highest for younger people, while the rates for exercise and recreation are highest among older people.⁴

Access to Vehicles

Ensuring mobility options for all is paramount for those that choose not to have a car and for young people, seniors, or those physically or financially unable to drive. A connected nonmotorized network provides an opportunity to meet multiple mobility needs. As estimated by the American Community Survey (five-year estimates 2011-2015), 8.0% of households in Michigan do not have access to a vehicle (9.1% in US). As is illustrated in the table on the following page, in the Grand Region, Muskegon County has the highest percentage (9.2%) of occupied housing units with no vehicle. This is followed by Osceola (8.4%), Kent (7.7%) and Mecosta County (7.6%).



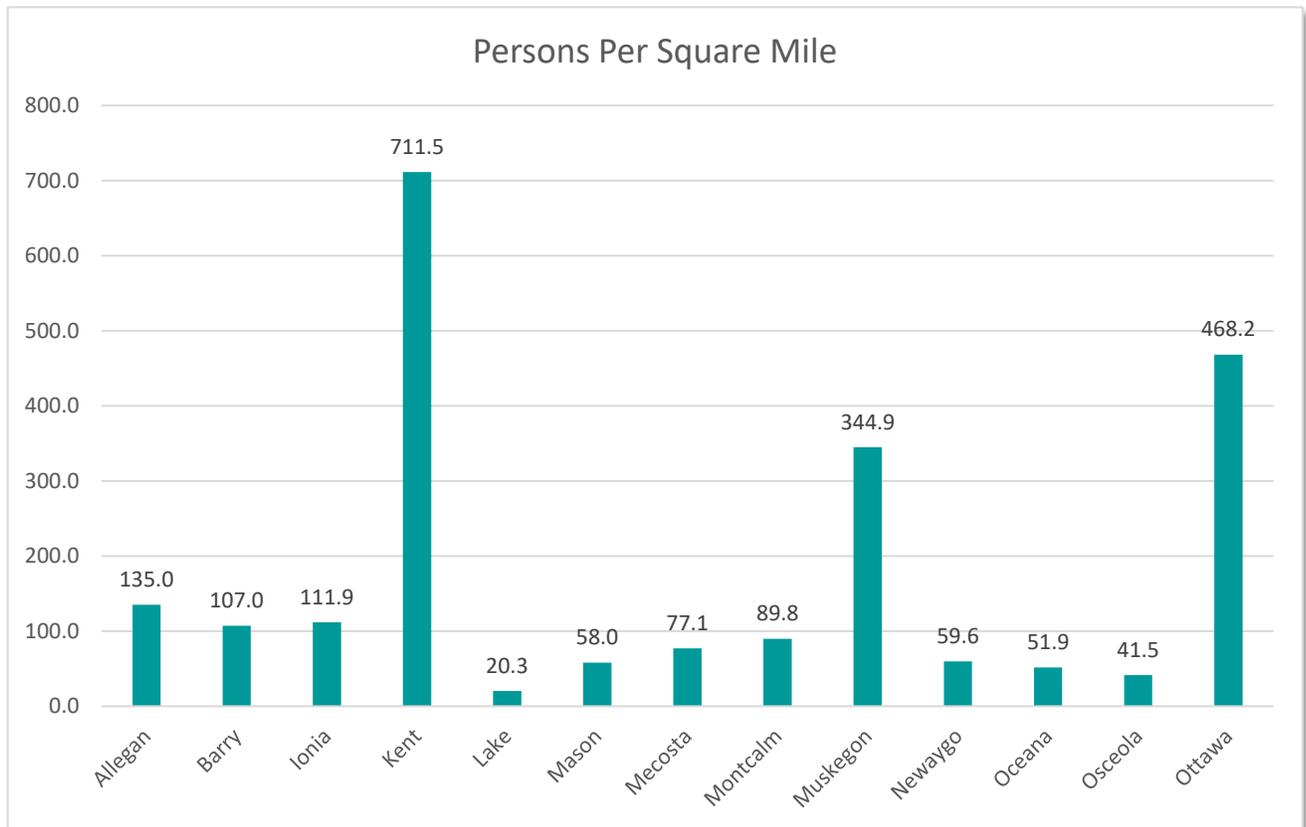
⁴ Estimating Bicycling and Walking for Planning and Project Development: A Guidebook (2014)

Vehicles Available Per Occupied Housing Units

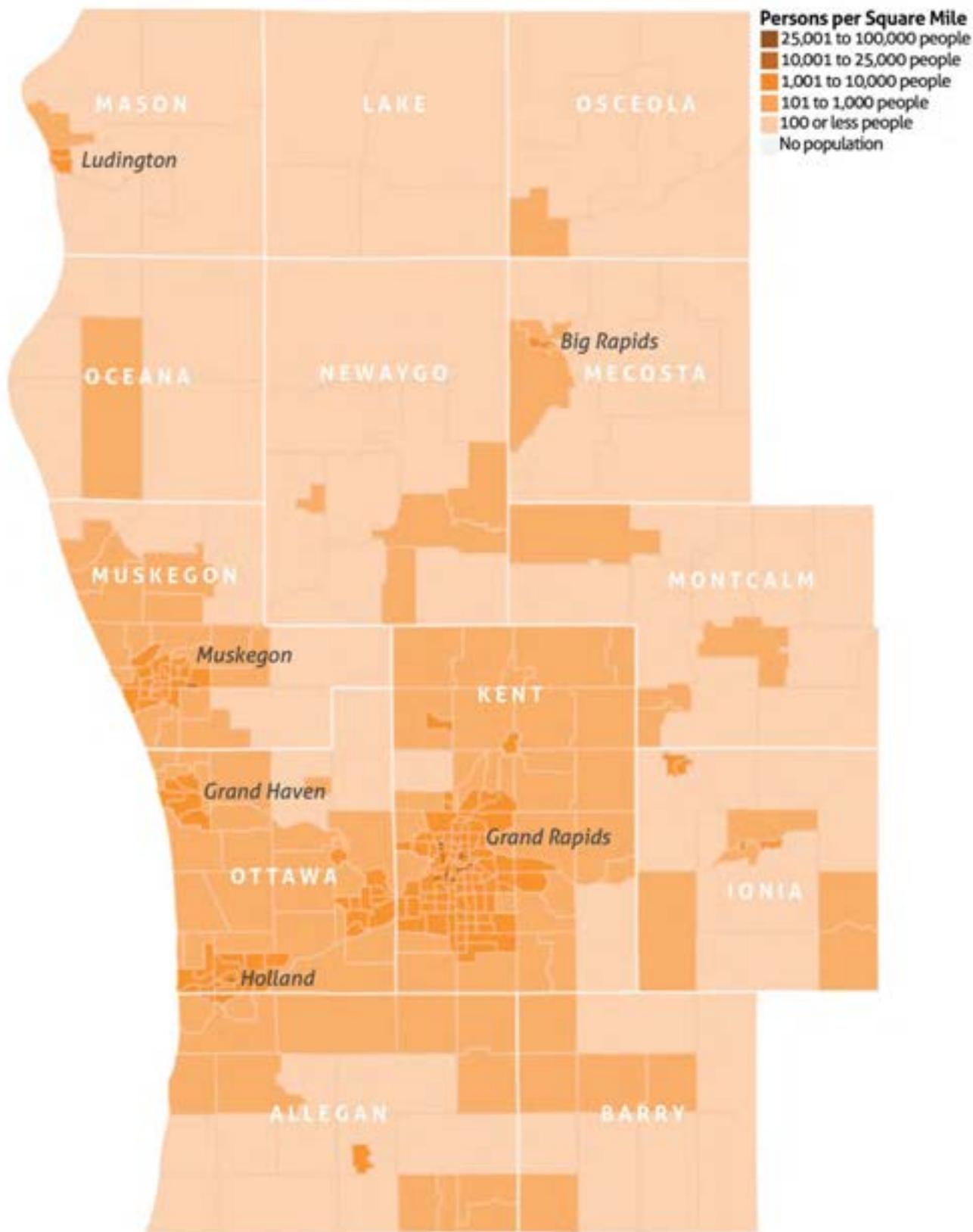
	% No Vehicle	% 1 Vehicle	% 2 Vehicles	% 3+ Vehicles
Allegan	3.8	28.6	42.6	25.0
Barry	4.8	25.2	42.7	27.4
Ionia	5.6	28.6	39.7	26.1
Kent	7.7	33.1	40.8	18.4
Lake	6.6	39.6	37.1	16.7
Mason	7.2	34.4	38.4	20.0
Mecosta	7.6	34.1	38.8	19.5
Montcalm	5.8	32.7	40.9	20.6
Muskegon	9.2	34.2	37.5	19.2
Newaygo	5.4	31.1	39.0	24.5
Oceana	5.0	30.8	40.4	23.7
Osceola	8.4	31.9	39.7	20.0
Ottawa	4.2	26.0	45.6	24.2
Michigan	8.0	34.9	38.4	18.7

Population Density

As is illustrated on the Population Density Map on the following page, the greatest density of people in the region are in and around the major cities including the Grand Rapids area, Holland, Grand Haven, Muskegon, Ludington, Big Rapids, and Ionia. Kent County has the greatest number of people per square mile (711), while Lake County has the lowest density with 20 people per square mile (2010).



2012 Population Density



Facility Types and Terminology

The Michigan Department of Transportation utilizes terms and definitions that are used by the Federal Highway Administration (FHWA) as it relates to the various types of nonmotorized facilities. The following are the most common “facility types” in the Grand Region and are based on the [AASHTO: Guide for the Development of Bicycle Facilities 2012](#). These are brief introductions to the common facility types. This is how facilities have been classified in the GIS Database that was developed in conjunction with this Plan document. More detailed design considerations can be found in the Design Considerations section of this document. Some of the facilities are for both pedestrians and cyclists such as Shared Use Paths and in some cases Wide Paved Shoulders and Side Paths. On-street bike lanes and marked shared lanes (sharrows) are facilities for cycling.

Design of nonmotorized facilities should be guided by the [AASHTO Guidebook](#), the [Michigan Manual on Uniform Traffic Control Devices](#) (MMUTCD) as well as the National Association of City Transportation Officials ([NACTO Urban Bikeway Design Guide](#)). As noted by the [FHWA 2013 Guidance Memo](#), the FHWA is in support of taking a flexible approach to bicycle and pedestrian facility design. The memo notes that the [NACTO Urban Bikeway Design Guide](#) as well as the Institute of Transportation Engineers (ITE) [Designing Urban Walkable Thoroughfares](#) guide builds upon the flexibilities provided in the AASHTO guides.

Facility Types and Terminology

Based on AASHTO: Guide for the Development of Bicycle Facilities 2012



Shared Use Path/Trail

- For use by pedestrians, bicyclists and other nonmotorized users
- Physically separated from motor vehicle traffic
- Two-way travel
- Examples include rail trails and river trails



Sidepath

- Specific type of Shared Use Path that run adjacent to a roadway
- Set back from edge of roadway or has physical barrier between path and roadway
- Depending on frequency of curb cuts, may not be safe for bicyclists due to intersection conflicts



Bike Lane

- On-street
- Designated and marked for use by bicyclists
- Typically one-way travel in same direction as motor traffic
- Can be buffered, protected/separated



Shared Lane Marking (sharrow)

- On-street
- Pavement symbol to help position and/or direct bicyclists while sharing lane with vehicles
- Not a substitute when bike lanes are otherwise warranted or space permits



Paved Shoulder

- 4+ feet wide
- Provides space for pedestrians/bicyclists but not marked as a bike lane
- Occasional use by disabled vehicles and mail delivery vehicles



Routes

- Designated through signage as a preferred route for bicycle or pedestrian use
- May be used in conjunction with any facility types listed above or on a road without any facilities
- Typically indicates cardinal direction along with number or name
- National, state, regional, and local route designations (eg. US Bike Route 35)

Refer to “Highlighted Design Considerations” section of the Plan for more details.

Credit: MDOT White Pine Trail over Rice Creek



Funding Options + Design Considerations

Financing the acquisition, development, and maintenance of the nonmotorized system is essential to sustaining the system. Several opportunities exist to fund acquisition and development of the nonmotorized system. Within the local government structure, understanding the far-reaching benefits of a walkable and bikeable community (economic, health, recreation, mobility, transit, etc.) can often times open up opportunities for cost-sharing, thereby reducing the financial burden on one entity, organization, or department. Additional information on federal transportation funding sources for bicycle and pedestrian projects can be found on the [Federal Highway Administration's](#) and [MDOT's Bicycling in Michigan website](#). Most federal funds can be used for bike/ped projects. A few of the most common funding programs are summarized here.

It should be noted that being a proposed/planned facility, priority, or desired connection in this Plan does not mean the project or facility meets eligibility requirements of these funding sources.

Infrastructure Projects

Regardless of the source of funding, it is advantageous for bicycle and pedestrian projects to be coordinated with other road and infrastructure projects. If included early in the planning and design phases of roadway projects, there is potentially more design flexibility and economies of scale. A number of communities and road agencies throughout Michigan have made significant progress by including pedestrian and bicycle facilities, striping, crosswalks, signals, ramps, signage, etc. in with a larger road improvement project.

ACT 51

Created by Public Act 51 of 1951, this is where all state fuel taxes and license plate fees are deposited. This revenue is shared among transportation agencies for construction, maintenance, and operation of Michigan's transportation systems. **The state transportation law (MCLA 247.660k) requires a minimum of 1% of state transportation funds be spent for non-motorized transportation.** The table on the following page provides greater detail regarding work items creditable against the Section 10k 1% expenditures. Act 51 funds can be spent on ped/bike items such as:

- Shared Use Paths
- Sidewalk/Ramps/Curb Cuts
- Nonmotorized Planning + Education
- Bike Lanes
- Shoulder Paving

Local agency work being funded with Michigan Transportation Funds must have a clear transportation purpose. This work typically takes place within the road rights-of-way or is reasonably appurtenant to the roadway.

Congestion Mitigation and Air Quality (CMAQ)

The primary goal of the Congestion Mitigation and Air Quality Improvement Program (CMAQ) is to reduce traffic congestion and enhance air quality. These funds can be used for either the construction of bicycle transportation facilities and pedestrian walkways (new construction), bike lanes on existing streets, or non-construction projects such as bike share equipment. Funds are available to counties designated as non-attainment areas for air quality, based on federal standards. The standard local match is 20%. Applicants are required to work with Metropolitan Planning Organizations or Regional Planning Agencies in selecting projects that are most effective in reducing congestion and transportation related emissions in a cost effective manner. Additional MDOT CMAQ program details at michigan.gov/cmaq

Transportation Alternatives Program (TAP)

TAP is a competitive grant program that uses federal transportation funds designated by Congress for specific activities that enhance the intermodal transportation system and provide safe alternative transportation options including pedestrian and bicycle infrastructure. Additionally, investments made through TAP support place-based economic development by offering transportation choices, promoting walkability, and improving quality of life. MDOT is responsible for selecting TAP projects in the Grand Region and has a considerable amount of information and frequently asked questions on their website for reference (www.michigan.gov/tap). The Grand Valley Metro Council also selects TAP funds in Kent County and eastern Ottawa County. The most competitive aspects for MDOT TAP funding are:

- to connect and develop documented regional or statewide bicycle and pedestrian transportation networks
- broad public engagement and strong support
- project coordinated with other infrastructure work, economic development, or community improvement initiative
- strong, detailed maintenance plan, including sources of funding
- high match (40% and higher, ability to pay is considered)
- high constructability level

Constructability on a typical trail project is measured by use of industry design standards, secured right-of-way, and ease of obtaining all necessary permits and approvals.

Eligible applicants include county road commissions, cities, villages, regional transportation authorities, transit agencies, state and federal natural resource or public land agencies, nonprofits responsible for the administration of local transportation safety programs, and tribal governments. MDOT may partner with a local agency to apply for funding and implement the project. Other organizations, such as townships or trail groups, may work with an eligible agency to apply. [Grant coordinators](#) are available to assist you by providing more information on the program, guidance on competitive projects, and how to best develop a competitive application.



WORK CREDITABLE AGAINST THE SECTION 10K 1% EXPENDITURE REQUIREMENT

PA 51 of 1951 as amended by PA 82 of 2006

DESCRIPTION OF WORK	WORK CREDITABLE AGAINST SECTION 10K 1% REQUIREMENT	ELIGIBLE COST	
		Engineering	Construction
NON – ROAD FACILITIES			
Shared Use Path as a project	All Engineering/construction	100%	100%
Shared Use Path as part of a road project	1) All path related construction 2) Non-path work in the road project, necessitated by the path component (e.g. extra fill, culvert extension, etc) 3) Prorated engineering costs	Prorated*	100% of 1 and 2
Shared Use Structures	All engineering/construction	100%	100%
Bicycle Parking	Acquisition and Installation	100%	100%
Sidewalks, ramps and curb cuts	All engineering/construction	100%	100%
Curb Extensions and Median Refuge Islands	All engineering/construction	100%	100%
Signs, Pavement Markings, Pedestrian Signals	All work specifically associated with the non-motorized facility and its pedestrian/non-motorized users	100%	100%
SERVICES			
Non-motorized Planning and Education	Costs associated with the development of non-motorized planning documents or educational materials intended to promote the development, benefits and use of non-motorized transportation.	NA	NA
ROAD FACILITIES			
New Bike Lanes and associated, pavement, pavement markings, and signage	That portion of the engineering and construction that can be attributed to the bike lane	Prorated	Prorated**
Shoulder Paving as a project	All Engineering/construction	100%	100%
Shoulder Paving as a part other road or bridge construction, reconstruction, resurfacing, or widening work	That portion of the engineering and construction that can be attributed to the paving shoulder portion of the work	Prorated	Prorated**
Road or bridge Construction, Reconstruction, Resurfacing, or Widening	That portion of the outside lane width in excess of the minimum design width for motor vehicles	Prorated	Prorated
* Proration: $E_{nm} = (C_{nm} / C_{tot}) \times E_{tot}$, where E=Engineering \$s, and C=Construction \$s			
** Proration: $C_{nm} = (W_{nm} / W_{tot}) \times C_{tot}$ where W=Width of roadway, and C=Construction \$s. Note only road/bridge project pay items which include the non-motorized width in the width proration.			
All work needs to be done to AASHTO and ADA standards.			

Non-road facilities are accommodations which occur off the edge of the road, and may or may not be within the road right of way. The shared use path (the appropriate name for what are often called bike paths or trails) and shared use structures on those paths are off-roadway facilities intended for non-motorized travel.

Road facilities are non-motorized accommodations built in a roadway. They include paving wide shoulders 4' or greater, and portions of road or bridge construction, reconstruction, resurfacing or widening suitable for non-motorized users. In general, any work that adds width to the roadway beyond the minimum design width provided for motor vehicles use is considered as an accommodation for bicyclists. "Road Diets" or the restriping costs associated with converting a roadway from four lanes to three lanes (two travel lanes, a turn lane and two bicycle lanes) within the existing curb alignment can also be considered an eligible expenditure.

Sidewalk "addition or improvement" are eligible non-motorized expenditures per Public Act 82 of 2006, effective March 29, 2006.

Michigan Transportation Alternatives Program (TAP) 2016 Accomplishments



MDOT and six metropolitan planning organizations invested **\$27.2 million** in funding in **47 projects in 63 communities within 25 counties**

- Leveraged \$12.1 million in matching funds, of which \$5.3 million was non-transportation funding.
- MDOT and the Michigan Department of Natural Resources partnered on eight projects utilizing \$5.7 million in TAP funds.
- Project highlights include:
 - Development of 60 miles of shared-use trails, paved shoulders, and bike lanes;
 - Construction of a pedestrian tunnel under M-45 in Walker to address regional trail system gap;
 - Construction of 3 miles of streetscape to improve safety and mobility for pedestrians and bicyclists;
 - Property acquisition of 5.3 miles of railroad right of way for a future trail;
 - Restoration and relocation of one historic bridge; and
 - Support for roughly 460 construction jobs.

Including SRTS Infrastructure...

- 6.2 miles of sidewalk repair or construction;
- Changeable speed signs and crosswalk enhancements;
- 3/4-mile, 10-foot shared-use path with Americans with Disabilities Act-compliant ramps; and
- Curb bump-outs to reduce pedestrian crossing distances.

\$2.1 million in Safe Routes to Schools (SRTS) infrastructure projects



\$203,617 in non-infrastructure investment

...and SRTS Education and Outreach



- Pedestrian and bicycle education and skills training;
- Walking school buses, bike trains, and other engagement activities;
- 60 percent of projects involved engaging communities with a multi-school planning process rather than single-school planning (process piloted with one community in 2014).



Bike to School Day

51,000 students at 201 schools

Number of Michigan schools participating ranked 3rd in the nation!

Walk to School Day

80,500 students at 325 schools



For More Information visit these websites at: www.saferoutesmichigan.org and www.michigan.gov/tap.

Safe Routes to School

Safe Routes to School (SRTS) is an international movement to make it safe, convenient, and fun for children to bicycle and walk



to school. In Michigan, the program is funded under the Transportation Alternatives Program (TAP) and administered by The Michigan Fitness Foundation and MDOT. Developing a SRTS Plan is a process that involves schools, cities, and community groups working together to develop a plan that helps students walk or bike to school safely and in greater numbers.

The Michigan SRTS program offers communities two kinds of opportunities to receive Federal funding for a SRTS program: The Mini Grant and the Major Grant. The **Mini Grant** is a programming only grant to help schools build a culture of walking, biking, and rolling among students. Mini grants fund things such as a walking school bus, incentive program, remote drop site, and bike rodeos. Schools can apply once a year for up to \$5,000 each or up to \$25,000 for multiple schools. Applications open in January.

The **Major Grant** is to help communities build sidewalks, crosswalks, and any other infrastructure improvements that may be needed to make it possible for students to walk, bike, and roll safely to school. There is up to \$200,000/school available for infrastructure, and up to \$8,000/school for the same programmatic activities funded by mini-grants. Application deadlines are on-going and quarterly. Major Grants require an in-depth planning process prior to submitting an application. Funding details can be found at www.saferoutesmichigan.org.

USDA Rural Development

The **Community Facilities (CF)** program offers primarily loan dollars to municipalities, non-profit organizations and tribal entities interested in improving or developing essential community facilities. This may include motorized and nonmotorized transportation infrastructure as well as equipment to maintain infrastructure. Loan rates are typically lower than those available on the open market and can have a term equivalent to the life of the infrastructure, up to 20 years. Loan guarantees may also be available to work in partnership with local lenders. Eligible rural areas must have a population of 20,000 or less, demonstrate a need for assistance and have a

documented ability to repay. Additional priority can be given to projects that include multi-jurisdictional collaboration. More details and local office contact information is available at www.rd.usda.gov/mi.

MDNR Trust Fund

The [Michigan Natural Resources Trust Fund \(MNRTF\)](#), provides grants to local governments and the DNR (with approved plan) to secure and develop lands for recreational purposes. Trail projects connecting communities to one another and to natural resources are a priority of the Trust Fund Board and are routinely awarded grants through the MNRTF. Additionally, since the MNRTF is a state source of funds, it can be used as match for TAP or other federal grant projects. Providing legal pedestrian access to the Great Lakes Shoreline (acquisition) and the Iron Belle Trail (among other items) are additional priorities for the Trust Fund Board in 2017. Applications are due April 1st and applicant must have a MDNR approved Recreation Plan. Development grant maximum is \$300,000 with a 25% local match.



MDNR Iron Belle Trail Appropriation

From 2015-2017, the [MDNR awarded funds](#) via a General Fund appropriations for engineering/design and signage for projects on the Iron Belle Trail. This was an annual appropriation with availability unknown in 2018.



Land and Water Conservation Fund (LWCF)

The LWCF Federal program provides matching grants to local governments and the MDNR (with approved plan) for the acquisition and development of public outdoor recreation areas and facilities. Applications are due April 1st, the maximum grant request is \$150,000, and there is a 50% local match. Pedestrian paths, trailheads, and support amenities have been funded in the past. [Additional LWCF details](#).



Recreation Passport

PA 32 of 2010 created the Local Public Recreation Facilities Fund to be used for the development of public recreation facilities for local units of government. Money for this fund is derived from the sale of the Recreation Passport which replaced the resident Motor Vehicle Permit (MVP) - or window sticker - for state park entrance. All local units of government are eligible. Applications are due April 1st. Maximum grant request in 2017 was \$75,000. Renovation of trails and trail heads, accessible pathways, restrooms, and related amenities have been funded in the past. [Additional RP details.](#)



Other Funding Sources

Non-traditional sources of funding can also be used for bicycle and pedestrian projects such as local millages, tax increment financing (TIF) district funds, and state and local philanthropic organizations. A number of “local” millages are in place in the Grand Region that are assisting in the implementation of road improvements, trails, and nonmotorized facilities.

Highlighted Design Considerations

This section of the document details some general design considerations, resources, and characteristics related to the accommodation of bicycles and pedestrians within road rights-of-way and off-road corridors. Information is also included related to comfort level and behaviors of pedestrians and bicyclists.

This section is not intended to replace the wealth of manuals and design guidance documents that exist. There are a number of design manuals and other guidance that should and/or must be used by agencies, designers, landscape architects, and engineers on how to best accommodate bicycles and pedestrians in their planning efforts.

Pedestrian and bicycle trips need to be viewed as part of an interconnected and multi-modal transportation system. Pedestrians and bicyclists have similar concerns and needs, including being vulnerable roadway users. However, those needs are not always identical.

Reference Material and Guidance

- AASHTO Guide for the Development of Bicycle Facilities, 4th Edition
- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities
- AASHTO Roadside Design Guide 2011
- ITE’s Designing Walkable Urban Thoroughfares: A Context Sensitive Approach
- The United States Access Board Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)
- National Association of City Transportation Officials’ Urban Bikeway Design Guide (NACTO) ([only portions compliant with AASHTO and MMUTCD are accepted by FHWA](#))
- FHWA table on Bicycle Facilities and the Manual on Uniform Traffic Control Devices
- FHWA’s Guide for Maintaining Pedestrian Facilities for Enhanced Safety
- FHWA Separated Bike Lane Planning & Design Guide 2015
- FHWA Achieving Multimodal Networks 2016
- The Michigan Manual of Uniform Traffic Control Devices (MMUTCD)
- MDOT’s Design Manual Standards and Guidelines

Pedestrian Considerations

Walking trips are typically around 20 minutes in length and under one mile in distance. The number of pedestrian trips tend to be higher in urban areas where there is a mix of land uses and the infrastructure exists to support pedestrian travel. Pedestrians are the most vulnerable roadway users. Unlike motorists and cyclists, pedestrians are capable of crossing a street in almost any location. This exposes pedestrians to conflicts with motor vehicles that are not prepared for their presence. Slow speeds, generally three miles per hour, also expose pedestrians to traffic for longer periods.⁵ One solution is to design clear pedestrian facilities including sidewalks, crosswalks, and crossings with signalization (where appropriate), that encourage predictable behavior and alert motorists to pedestrian presence.

Accommodating Pedestrians in the Public Right-of-Way

There are three primary ways in which pedestrians can be accommodated in the public right-of-way:

1. **Sidewalks**

The preferred pedestrian facility and provided on both sides of a street. Provide the greatest degree of comfort for pedestrians and are associated with increased safety for pedestrians.

2. **Shared Use Paths or Side Paths**

An off-road path can be an appropriate facility in rural or low-density suburban areas. Generally set back from the roads and separated by a green area or trees.

3. **Shoulders**

Wide shoulders on both sides of a road are a minimum accommodation for providing a possible place for people to walk.

--pedbikesafe.org

Bicycling Considerations

People bike for a number of reasons including recreation, exercise, and for transportation. Depending on the trip purpose, there are varying considerations when developing bicycle infrastructure. Commuting or transportation-related bicycling typically involves the shortest and easiest route to the destination, which is typically within or along road corridors. Trips for exercise or leisure are more likely to include scenic, low stress routes on off-road facilities and often during off-peak times and weekends.

Before discussing types of facilities and typical design considerations, it is important to discuss the general types of cyclists and how design decisions can impact the number of cyclists using the facilities. Most people can be categorized as one of four types of cyclists.⁶ as illustrated on the following page.

When working with agencies, stakeholders and advocates to discuss context sensitive solutions related to encouraging bicycling as a safe mode of transportation, it is the "Interested But Concerned" group of the population that should be kept in mind. This group represents the majority of latent demand for bicycle facilities. As such, their preference should be given significant consideration.

⁵ SEMCOG/Metro Region Nonmotorized Plan, 2014.

⁶ R. Gellar, Portland Office of Transportation

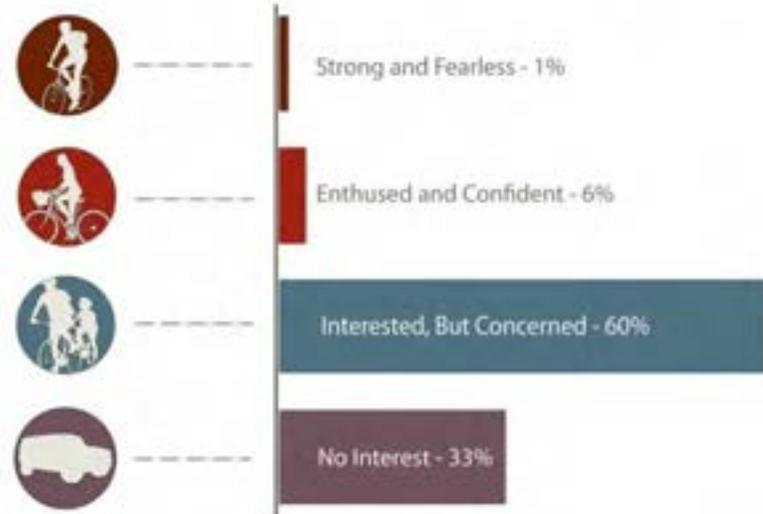
1 The “**Strong and the Fearless**” are the people who will ride regardless of designated facilities or roadway conditions.

2 The “**Enthusied and Confident**” are comfortable sharing the roadway with automotive traffic, but they prefer to do so with designated facilities.

3 The largest portion of people fall into the “**Interested but Concerned**” category. These people are curious about bicycling. They like riding a bicycle and they would like to ride more. They would ride if they felt safer on the roadways.

4 Finally, approximately one-third of the population falls into the last category of ‘cyclist.’ This is the “**No way, No how**” group that is currently not interested in bicycling at all, for reasons of topography, inability, etc.

The Four Types of Bicyclists



Portland DOT: 2006

Highlighted Design Resources and Facility Types

Design of nonmotorized facilities should be guided by the [AASHTO Guidebook](#), the Michigan [Manual on Uniform Traffic Control Devices](#) (MMUTCD) as well as the National Association of City Transportation Officials ([NACTO Urban Bikeway Design Guide](#)). As noted by the [FHWA 2013 Guidance Memo](#), the FHWA is in support of taking a flexible approach to bicycle and pedestrian facility design. The memo notes that the NACTO Urban Bikeway Design Guide as well as the Institute of Transportation Engineers (ITE) [Designing Urban Walkable Thoroughfares](#) guide builds upon the flexibilities provided in the AASHTO guides.

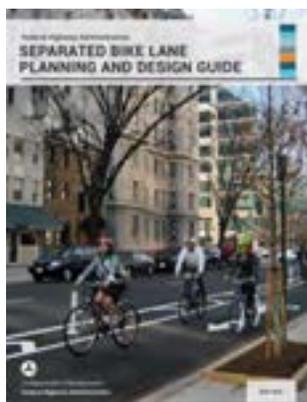
There are also an extensive number of design details, treatments and considerations that may be applicable to projects that strive to improve the safety and mobility of pedestrians and cyclists. As this document is not intended to replace existing

design standards, guidelines, and references, not all design considerations and treatments are discussed or illustrated. These include, but are not limited to elements such as:

- Mid-Block Crossings
- Intersection Treatments
- Road Diets
- Signalization
- Striping and Signage Details
- Design details of facilities such as pavement color/pattern

A few publications and resources are highlighted on the next page followed by a brief overview of design considerations for various nonmotorized facility types.

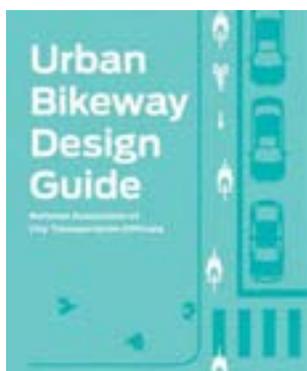
Highlighted Recent Design Resources



FHWA Separated Bike Lane Planning and Design Guide (2015)

Outlines planning considerations for separated bike lanes (also sometimes called “cycle tracks” or “protected bike lanes”) and provides a menu of design options covering typical one and two-way scenarios. Includes options for providing separation, midblock design considerations for driveways, transit stops, accessible parking, and loading zones. Includes detailed intersection design, case studies, and lessons learned.

A .pdf of the document can be accessed via [FHWA's website](#).



NACTO Urban Bikeway Design Guide, 2nd Edition

Based on the experience of the best cycling cities in the world. Substantive guidance for cities seeking to improve bicycle transportation in places where competing demands for the use of the right-of-way present unique challenges. Discusses bike lanes, cycle tracks, intersection treatments, bicycle signals, signing, marking, bike boulevards, etc.

FHWA issued a [memorandum](#) officially supporting use of the document in August 2013.

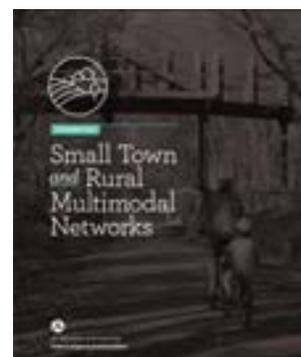
Organized to review on the NACTO website at [nacto.org](#).



MDOT Guidance for Trunkline Main Streets (2016)

Developed to serve communities and public agencies in Michigan that seek to study or implement modifications, improve multi-modal transportation options, and provide greater accessibility for residents, visitors, and businesses along trunkline main streets – **non-freeway business loops, business routes, M route or US route**. Includes discussion of MDOT Planning Process as well as Traffic Impact Analysis, Permitting, Jurisdictional Transfers of Road Mileage, Maintenance Agreements, etc.

A .pdf of the document can be accessed on MDOT's website [Michigan.gov/mdot](#).



FHWA Small Town and Rural Multimodal Networks (2016)

Resource and idea book intended to help small towns and rural communities support safe, accessible, comfortable and active travel for people of all ages and abilities. It provides a bridge between existing guidance on bicycle and pedestrian design and rural practice, encourage innovation in the development of safe and appealing networks for bicycling and walking in small towns and rural areas, and show examples of peer communities and implementation.

A .pdf of the document can be accessed at the FHWA website [fhwa.dot.gov](#).



Shared Use Path



Highlighted Design Considerations

- Provides a low-stress travel area for pedestrians and bicyclists separate from motorized traffic.
- Two-way travel that can provide direct access to key destinations and natural resources.
- 10-14' wide (per AASHTO) depending on user volumes.
- 2' clearance on both sides.
- Where paths intersect roads, enhancements should improve conditions for path users.

Modified from FHWA Small Town and Rural Multimodal Networks



Side Path



Highlighted Design Considerations

- Bidirectional shared use path located immediately adjacent and parallel to a roadway.
- Can offer quality experience for all user abilities (as compared to on-road facilities) in heavy traffic environments.
- Requires a wide right-of-way to provide for separation.
- 10-12' wide path with 5' minimum separation from road.
- Reduce frequency of driveway crossings.
- Design intersections to reduce driver speeds.

Modified from FHWA Small Town and Rural Multimodal Networks



Sidewalk



Highlighted Design Considerations

- Provides dedicated space intended for use by pedestrians.
- Physically separated from road by curb or buffer space.
- 5' minimum width to permit side-by-side walking and meet accessibility guidelines.

Modified from FHWA Small Town and Rural Multimodal Networks



Paved Shoulders



Highlighted Design Considerations

- 4-8' wide depending on volume and speed of adjacent road.
- Provides advantages for all roadway users by providing space for bicyclists, pedestrians, and motor vehicles. Lengthen life span of road and reduce maintenance costs.
- Guidance on optimizing rumble strip design to be more tolerable for bicyclists found in [FHWA Technical Advisory 5040.39](#).

Modified from FHWA Small Town and Rural Multimodal Networks



Bike Lane



Highlighted Design Considerations

- Exclusive space for bicyclists (not for pedestrians) located directly adjacent to motor vehicle travel lanes and following the same direction as motor vehicle traffic.
- Pavement markings and optional signs.
- 4' minimum when no curb and gutter is present or 5' minimum when adjacent to a curbface, on-street parking.
- 6.5' wide is preferred to allow for bike passing.
- When space is available, add buffer area to distance the bike lane from adjacent motor vehicle travel.

Modified from FHWA Small Town and Rural Multimodal Networks



Separated Bike Lane



Highlighted Design Considerations

- Allocated space exclusively for bicyclists (not for pedestrians) located within or directly adjacent to road and physically separated from motor vehicle traffic. Distinct from sidewalks.
- Offer bicyclists similar riding experience to side paths but with fewer operational and safety concerns.
- Reduces incidence of sidewalk riding and user conflicts.
- One-way: 5-7' wide lane with 3' separation width.

Modified from FHWA Small Town and Rural Multimodal Networks



Existing/Proposed Facilities + Priorities

A significant amount of effort was devoted to understanding and documenting the existing and proposed facilities within the region. This Plan and the associated database are considered a first step at capturing the existing nonmotorized conditions and agencies, organizations, and communities plans for facilities in the future. Many agencies, cities, and communities have made substantial investments in bicycle and pedestrian infrastructure, particularly in the last decade. The system and network are evolving at a rapid pace; therefore, the maps and graphics included in this Plan represent a “snapshot” in time. **It is fully realized the database created during this planning effort will need to be regularly and continually updated to reflect current conditions and plans.**

This section of the Plan is organized as follows:

- State and nationally significant systems
- Definition of regional corridors
- Region-wide conditions, strategies and priorities
- Alphabetically by county - text and map summary of findings related to existing and planned facilities, and priority projects and desired connections.

The maps and text reflect the emerging regional network of nonmotorized facilities that connect communities to one another, to major destinations, and to adjacent counties, regions, and states. The maps and text also reflect results of the work sessions held with the Nonmotorized Plan Core Team and the various outreach efforts and input sessions.

State and Nationally Significant Systems

There are four major pedestrian/bike routes that traverse through the Grand Region and provide connections for communities and counties within the region, to adjacent regions, to adjacent states and beyond. These systems and routes are further described below and they are illustrated on the Grand Region Existing and Proposed Nonmotorized Facilities Map. Priorities, within the context of the Grand Region, have also been noted.

US Bicycle Route 20 and 35

The US Bicycle Route System is a national network of regionally and nationally significant bicycling routes spanning multiple states. The purpose of the US Bicycle Route numbering system is to facilitate travel between states on routes identified as suitable for long-distance cycling and for those comfortable riding with traffic. US Bicycle Routes can include a variety of conditions and traverse various facility types including shared use trails, paved shoulders, no paved shoulders, etc. **US Bicycle Route 20** is an east-west route of just over 300 miles and connects Marine City on the east with Ludington on the west. **US Bicycle Route 35** is a 500-mile route that runs from Indiana through Michigan to Sault Ste. Marie, Canada, generally following the Lake Michigan shoreline and through the eastern Upper Peninsula. While some portions of [US Bicycle Routes 20 and 35](#) are signed, users should not rely solely on signs for navigating the route.



US Bike Route Priorities (in Grand Region)

1. Where USBR route modifications might be considered communities must take a coordinated approach involving MDOT Lansing staff (Josh DeBruyn – DeBruynJ@michigan.gov) and impacted local road agencies early in the process.
2. Consider pavement improvements along the route.
3. Whenever feasible include wide ($\geq 4'$) paved shoulders along the route.
4. Consider additional marking of the route including more frequent confidence markers as well as local wayfinding to amenities and other nonmotorized networks.



North Country National Scenic Trail

The National Park Service - North Country National Scenic Trail is a 4,600-mile long *hiking* trail that crosses seven northern states from New York to North Dakota, including traversing through the Grand Region via Barry, Kent, Newaygo, Lake, and Mason Counties. Sections of the North Country Trail vary on bicycle use; users should contact the North Country Trail Association or land management partners for more information. <https://northcountrytrail.org/>



Michigan's Iron Belle Trail

The MDNR announced the official name of the Iron Belle Trail in 2015. The trail (which has two routes) will traverse from Belle Isle in Detroit to Ironwood in the Upper Peninsula. Proposed by Governor Snyder in 2012, the trail includes a 1,273-mile hiking route (69% complete) that heads west from Detroit and connects up with the North Country National Scenic Trail. The 791-mile bicycle route (64% complete) utilizes existing multi-use trails and on-road facilities on the east side of the state. The MDNR is leading the effort and partners on the project include MDOT, the Michigan Trails Advisory Council, the Michigan Economic Development Corporation, the Michigan Recreation and Parks Association, and the Michigan Trails and Greenways Alliance. Projects along the Iron Belle Trail are a high priority for MDNR grant programs. This trail traverses through the Grand Region via Barry, Kent, Newaygo, Lake, and Mason Counties on the North Country National Scenic Trail.



North Country Trail and Iron Belle Trail Priorities (in Grand Region)

While there are a number of detailed plans and discussions underway, the overarching priorities for the NCT and IBT in the Grand Region are:

1. Look for opportunities to move on-road sections to off-road locations.
2. Improved signing and pavement markings for road crossings.
3. Incorporate marking routes through towns – urban trail blaze markings – to assist with wayfinding.
4. Work with Trail Towns to develop/implement Trail Town Master Plans.
5. Permanently protect a corridor for the Trail through easements or acquisitions when opportunities arise.

Regional Corridors

Through analysis of the existing and planned network, and a series of outreach and stakeholder meetings and input, *major* corridors for regional nonmotorized travel are identified in this Plan. These corridors serve as the primary arteries that connect to other more local corridors. They often include major existing and planned systems such as the Musketawa Trail, Paul Henry-Thornapple Trail, Blue Star Trail, Grand River Explorers Trail, and Fred Meijer Millennium Park Trails. At times, the Regional Corridors use parks, rail corridors, greenways along rivers, local community facilities, or routes with yet-to-be determined facility types to provide regional connectivity. Several of these Regional Corridors also serve as the route for state and national interests, such as the US Bike Routes or the North Country Trail/Iron Belle Trail.

Typical Elements of a Regional Corridor

- Connection from one community, county, and/or the region to another.
- Serve as primary “arteries” that connect to other more local corridors.
- Often include significant existing or planned on- or off-road systems.

The following pages identify Regional Corridors within the Grand Region as well as some of the gaps within them. Maps have been created that show these corridors and their relationship to the rest of the network. Readers can also visit MDOT’s Nonmotorized website for larger more detailed versions of the maps at: www.michigan.gov/mdot-biking. The **GIS Database** associated with this project is also available for use. *Contact Cindy Krupp, MDOT for GIS data files (kruppc@michigan.gov).*

This section of the Plan includes summary sheets and associated maps that highlight for the Grand Region as a whole as well as each County:

- Existing + Planned Networks
- Priorities + Desired Connections

This section of the Plan and the associated maps should be considered part of a living document that will need to be updated periodically. MDOT fully anticipates that there will be changes in these corridors over time. Facilities may need upgrading to accommodate more users. Portions of a corridor may change if other routes prove more feasible. Regional Corridors may be added. In several cases, alternate, nearby routes, even though they are not as direct, may be preferred due to lower stress vehicle speeds, volumes, or trucks. They may not necessarily represent actual or planned routes – rather they reflect the desire for connectivity. Priorities and desired connections in each county are at various stages – some are merely in the discussion phase, others have been fully vetted with detailed feasibility studies and cost estimates completed.

Further planning by a variety of agencies and stakeholders may be required to fully vet these systems and routes. Communities are encouraged to coordinate their bicycle and pedestrian planning efforts with this document thus strengthening local, county, and regional efforts.



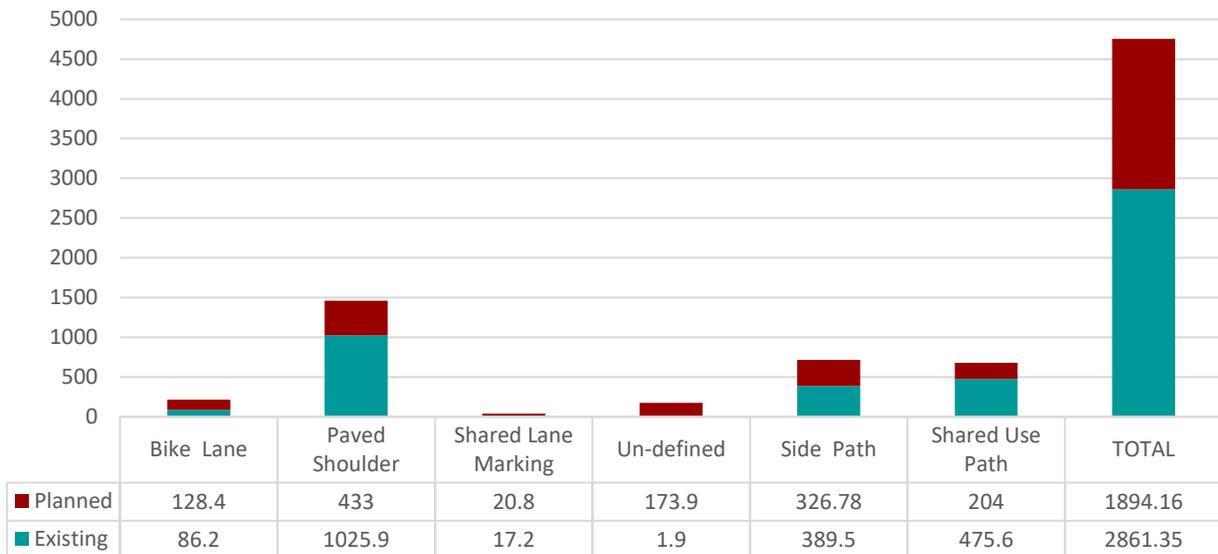
Grand Region As A Whole

Existing + Planned Networks

Population: 1,570,606 (15.8% of State)

The following pages summarize a variety of elements that together begin to capture the overall picture of existing and planned nonmotorized networks in the Grand Region as a whole.

Existing and Planned Facilities in the Grand Region



Source: Grand Region GIS (July 2017)

Crash Facts 2011 – 2015

0.8%

Percent of total **crashes** that involve peds/bikes in region

17.0%

Percent of total **fatalities** that involve peds/bikes in region

10.7%

Percent of **incapacitating injuries** that involve peds/bikes in region

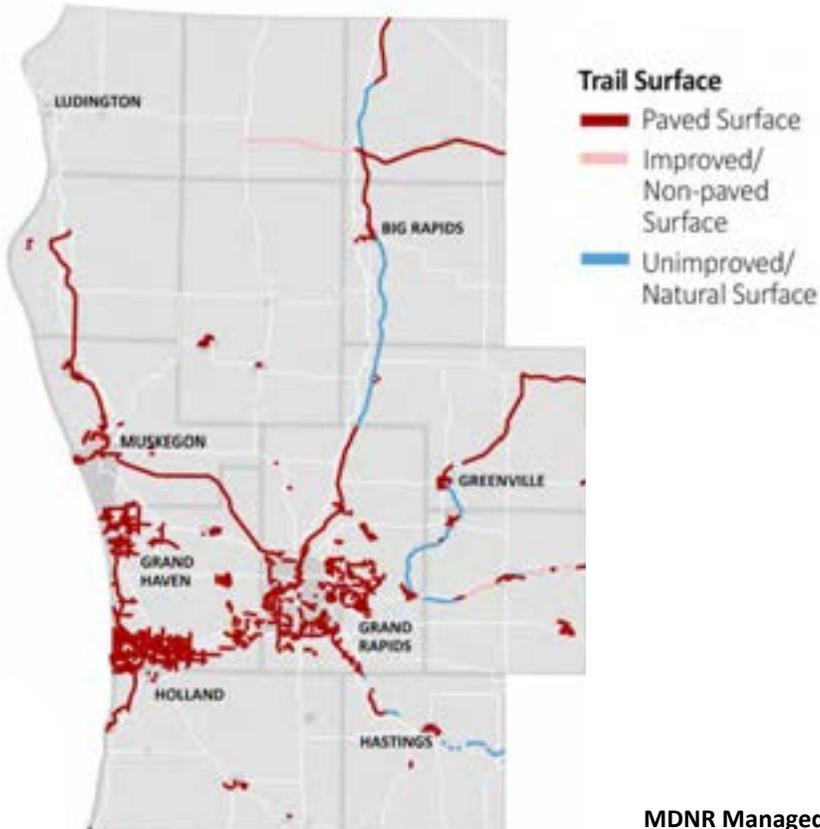
Existing Shared Use Regional Paths/Trails in Grand Region

As illustrated in these graphics (and in the associated GIS database), the Grand Region is home to an incredible network of significant shared use paths/trails – many of which are within converted rail corridors. With more than 865 miles of existing shared use paths and side paths, this 13-county region is arguably one of the leading trail areas in the State of Michigan, if not the country! Seven hundred and ninety-one miles of the network are improved (paved or crushed limestone), while 73.9 miles remain unimproved. Eight of the significant trail corridors are managed by the MDNR: the Fred Meijer White Pine Trail State Park, the William Field Memorial Hart-Montague Trail State Park, the Fred Meijer Barry Junction Trail, the Pere Marquette State Trail, the Musketawa Trail, the Fred Meijer River Valley Trails, and the Fred Meijer CIS Trail.

- 1 Beeline Trail 8 miles, paved
- 2 Fred Meijer Berry Junction Trail 11 miles, paved
- 3 Fred Meijer Clinton - Ionia - Shiawassee Rail Trail 41 miles, surface varies
- 4 Fred Meijer Flat River Valley Rail Trail 22 miles, surface varies
- 5 Fred Meijer Grand River Valley Rail Trail 16 miles, surface varies
- 6 Fred Meijer Heartland Trail 46 miles, paved
- 7 Fred Meijer Kenowa Trail 12 miles, paved
- 8 Fred Meijer Pioneer Trail 8 miles, paved
- 9 Fred Meijer M-6 Trail 9 miles, paved
- 10 Fred Meijer Millennium Park Trails 20 miles, paved
- 11 Fred Meijer Standale Trail 6 miles, paved
- 12 Fred Meijer White Pine Trail State Park 94 miles, surface varies
- 13 Kai-Haven Trail State Park 35 miles, crushed limestone
- 14 Kent Trails 13 miles, paved
- 15 Lakeshore Trail 20 miles, paved
- 16 Laketon Trail 4 miles, paved
- 17 Macatawa Trail 3 miles, paved
- 18 Muskegon Lakeshore Trail 10 miles, paved
- 19 Musketawa Trail 26 miles, paved
- 20 Paul Henry Thornapple Trail 19 miles, surface varies
- 21 Pere Marquette State Trail 56 miles, surface varies
- 22 White Lake Pathway 3 miles, paved
- 23 William Field Memorial Hart-Montague Trail State Park 22 miles, paved



Existing Shared Use Path/Trail



MDNR Managed Shared Use Paths/Trails



Trail Towns in the Grand Region

There are a number of “trail towns” within the Grand Region as illustrated here. Middleville, Lowell, and White Cloud have worked with the North Country Trail (NCT) Association to become official NCT Certified Trail Towns. NCT Trail Towns are places the North Country Trail passes that supports hikers with services, promotes the Trail, and embraces the Trail as a resource to be protected and celebrated. Official NCT Trail Towns are partners with the local chapters and the National Park Service to jointly promote the Trail, town, and resources within the community.

In addition to the NCT Trail Towns, several agencies in the Grand Region have developed **Trail Town Plans (in conjunction with the Land Information Access Association (LIAA))** including Ludington, Ottawa County, Park Township, Holland, and South

Certified North Country Trail Towns



Haven. The Trail Town concept is to ensure communities near a trail are better able to maximize the economic potential of trail-based tourism. These communities have participated in a process to find ways they can improve their offerings for trail users.

Fixed Route Transit + First Mile/Last Mile

Fixed Route Transit corridors are where vehicles such as trains and buses run along an established path at preset times and include designated stops. These are typically in high population areas and areas with frequently used origins and destinations that are concentrated along main arteries. While this document is not a Transit Plan for the Grand Region, **it is important for the Region and the communities with public transit systems to plan for and prioritize nonmotorized initiatives, policies and/or infrastructure improvements. These serve to extend the reach, or the first-mile/last-mile legs of these transit networks** and create opportunities for multi-modal trips. One of the challenges for transit agencies can be how to get riders from their front doors to the nearest transit stop (the first-mile or last-mile of their trip). Missing sidewalk segments, poor crosswalks, no bike facilities, lack of signage, etc. can add to hurdles of potential multi-modal users. The same corridors that are attractive for public transit are typically corridors with numerous destinations attractive for bicyclists and pedestrians.

The four major fixed route transit systems (all of which allow for bikes aboard) in the Grand Region are:

- **The Rapid** (including the Silverline Bus Rapid Transit) in the Greater Grand Rapids Area
- **The Macatawa Area Express (MAX)** serving the Holland/Zeeland Area
- **The Muskegon Area Transit System (MATS)** serving the Greater Muskegon Area
- **The Pere Marquette Amtrak** passenger rail connects Chicago and Grand Rapids.

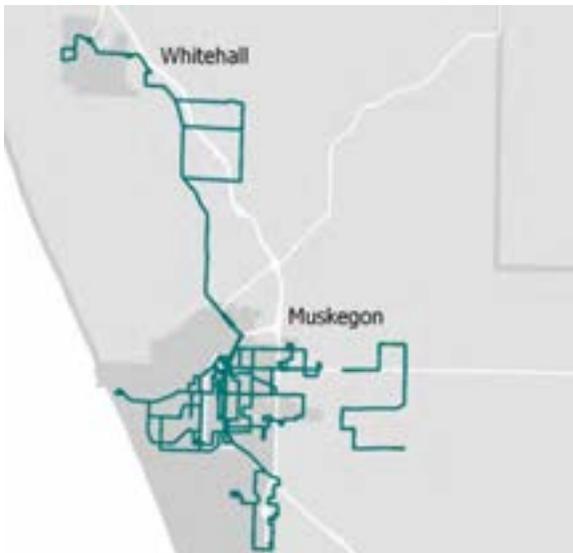
The Rapid System



The MAX System



The MATS



Amtrak Pere Marquette Rail



General recommendations include:

- provide appropriate pedestrian crossings where transit stops are located mid-block
- locate transit stops past crosswalks and on the far side of intersections
- address conflicts between pedestrians, bicyclists, and buses especially at boarding areas
- provide a parallel route for bicyclists if all modes cannot be accommodated within the corridor
- prioritize pedestrian/bicyclist infrastructure improvements within one mile of transit stops to enable riders to get safely to and from destinations
- coordinate with transit providers to provide bicycle racks on fixed route busses, upgrade bicycle rack capacity on high demand routes, and/or provide secure bicycle parking at select stops or transfer stations as appropriate.

Pedestrian and Bicycle Crashes

Over a five-year period (2011-2015), there were 120 fatal crashes involving a bicyclist or pedestrian in the Grand Region. While only 1.5% of all crashes in the Region involved a pedestrian or cyclist, 17% (120 people) of those crashes were fatal, illustrating their vulnerability. Kent (1.9%), Ottawa (1.77%), and Muskegon (1.72%) Counties had the largest percentage of total crashes that involved pedestrians or cyclists. In the same five-year period, Montcalm (23.1%), Ottawa (22.4%), and Kent (21.6%) Counties had the largest percentages of total fatalities that involved a pedestrian or cyclist (out of all fatal crash types).

Pedestrian and Bicycle Crashes in Grand Region (2011-2015)

	% of Total Crashes	% Total Fatal	% Total Incapacitating
Allegan	0.83%	9.1%	6.19%
Barry	0.69%	4.4%	4.17%
Ionia	0.85%	15.2%	7.33%
Kent	1.90%	21.6%	15.89%
Lake	0.58%	0.0%	4.17%
Mason	0.74%	10.0%	11.90%
Mecosta	0.83%	9.7%	8.27%
Montcalm	0.88%	23.1%	8.03%
Muskegon	1.72%	19.5%	10.02%
Newaygo	0.73%	10.5%	6.78%
Oceana	0.31%	10.0%	5.97%
Osceola	0.45%	15.0%	2.70%
Ottawa	1.77%	22.4%	12.05%
MDOT Grand Region	1.5%	17.0%	10.7%
State of Michigan	1.4%	20.2%	12.1%

Source: Michigan Crash Facts



Grand Region

Overarching Nonmotorized Strategies + Priorities

Population: 1,570,606 (15.8% of State)

These overarching strategies and priorities were identified and developed during the planning process. Their inclusion in the Plan does not suggest that MDOT will be the lead agency to implement them as they impact, involve, and are under the jurisdiction of a number of agencies and organizations.

Overarching Nonmotorized Strategies

- In support of the MDOT and Michigan State Police “Toward Zero Deaths” campaign, improve safety to **reduce injuries and fatalities** and to make walking and biking comfortable, inviting, and viable.
- **Promote and encourage** biking and walking as modes of transportation and recreation for people of all ages, abilities, and incomes.
- Foster an environment of **partnerships and collaboration** in order to connect our communities and regions to one another.
- Advance awareness of **Complete Streets Policies** (both within MDOT and at the local level) and various tools and solutions for implementation.

Each of the eight priorities detailed on the following pages work toward fulfilling these four overarching nonmotorized strategies.

In addition to these overarching and region-wide strategies and priorities, the following pages detail more specific priorities and desired connections within each county. An overall, region-wide composite map is included that graphically illustrates the emerging Nonmotorized Regional Corridors, Desired Connections, and Priorities.



Grand Region

Overarching Nonmotorized Strategies + Priorities

Population: 1,570,606 (15.8% of State)

These priorities are region-wide and involve and impact a number of agencies and organizations. They may or may not be MDOT specific priorities. The intent is to document priorities that impact and inform the region as a whole.

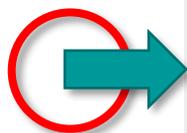


There are a number of priorities that have been identified and discussed that impact more than just one community, one county, or the geography of one regional planning agency. These region-wide priorities (in no particular order) are efforts that will require continued coordination and a focused and organized funding strategy to accomplish.

Maintenance and Completion of the Regional Network

The Grand Region is home to a significant number of regional shared use path/trail systems that are owned, operated, and maintained by a variety of agencies and organizations such as the White Pine Trail State Park, the Hart-Montague Trail, and the Clinton-Ionia-Shiawassee Rail Trail to name just a few. The region is also home to sections of major national and state significant trails and routes including US Bike Routes 35 and 20, the North Country Trail and Michigan's Iron Belle Trail. It is a priority to **maintain the existing system and complete the gaps in the existing and planned Regional Network**. This includes:

- a. Projects such as **surface improvements (limestone/asphalt) to sections of the unimproved** regional network such as the White Pine Trail State Park, Paul Henry-Thornapple Trail, and Flat River Valley Rail Trail.
- b. **Resurfacing and maintenance** of the regional network, including developing plans for rehabilitation and identifying resources. *(Note: routine maintenance is not TAP/Trust Fund grant eligible)*
- c. **Completion of proposed corridors and connections that will have regional significance** such as the proposed Blue Star Trail in Allegan County, the Interurban Trail in Allegan and Kent Counties, the North Bank Trail and Grand River Explorers Trail in Ottawa County, and the Oxford Trail to Plaster Creek Trail Connector in Grand Rapids (to name a few).
- d. Opportunities to connect nonmotorized facilities with other modes such as the **fixed route transit systems** in the Grand Region.
- e. **Further planning** (and subsequent implementation) **to identify corridors and routes that will have regional significance** and provide for improved connectivity including:
 1. planning efforts in the northwest portion of the region (Mason, Lake, Newaygo, and Oceana Counties)
 2. connectivity and routing of the network as the regional systems traverse through towns and cities
 3. connectivity between existing major networks and destinations. For example, planning for determining how to connect the White Pine Trail State Park to the Heartland Trail, how to connect the Hart-Montague Trail to Lake Michigan, and how to connect the Paul Henry - Thornapple Trail to the Interurban/River to River Trail (to name a few).



Coordinated Marketing of the Regional Network

With the extensive regional nonmotorized network that exists (and even more that is planned) in the Grand Region, there is a desire to work together to determine how to coordinate marketing efforts and **promote the network as a single regional asset**.

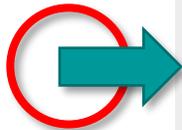


Grand Region

Overarching Nonmotorized Strategies + Priorities

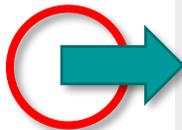
Population: 1,570,606 (15.8% of State)

These priorities are region-wide and involve and impact a number of agencies and organizations. They may or may not be MDOT specific priorities. The intent is to document priorities that impact and inform the region as a whole.



Coordinated + Consistent Wayfinding System for Regional Network

In coordination with a regional marketing effort, it is a priority in the region to work together to determine how to develop a coordinated and consistent wayfinding system for the regional network. This is particularly important where the regional networks traverse through cities and towns and where regional networks cross one another. This should include confidence markers to/from and between the regional network, coordinated emergency markers, and signage that encourages exploration of nearby amenities and destinations. *Signage packages should adhere to MUTCD standards.*



Expand “Driving Change” Education Program

The need for education of both cyclists and motorists was discussed by many stakeholders at all levels throughout the development of this Plan. It is a priority to work together to **determine how the Driving Change Program can be expanded throughout the Region**. In 2014, the City of Grand Rapids secured considerable Federal and local funding to embark on a multi-year project focused on reducing bicycle crashes. The focus of the project was to help people understand the “rules of the road” while fostering respect between motorists and bicycles and make everyone safer. Specific project tasks included research and analysis of bicycle related crashes, development of messaging, and broad community education and awareness through billboards, posters, tv and radio spots, a project website (grdrivingchange.org), training, and much more.



Communication + Support Regarding Nonmotorized Issues

Sharing effective practices (in an on-going manner), as well as encouraging and supporting **education, training, and planning** initiatives is essential to continuing to progress. This includes:

- a. Incorporating and disseminating new **research and best practices** for crash analysis, safety audits, and counter measures regularly into training programs, design manuals, and policies.
- b. Regularly communicate to various agency types and organizations what **types of funding** can be used for nonmotorized improvements as well as the expectations of funding agencies.
- c. Encouraging **local agencies to include nonmotorized planning** in their planning efforts and coordinate those plans with adjacent and impacted agencies.
- d. Encouraging **cities, MDOT and county road agencies** to improve network systems and safety for bicyclists, including both on- and off-road facilities.
- e. Working with local agencies and MDOT **to incorporate nonmotorized facilities** where feasible and **assist with designing** those nonmotorized projects where appropriate.

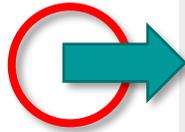


Grand Region

Overarching Nonmotorized Strategies + Priorities

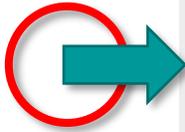
Population: 1,570,606 (15.8% of State)

These priorities are region-wide and involve and impact a number of agencies and organizations. They may or may not be MDOT specific priorities. The intent is to document priorities that impact and inform the region as a whole.



On-going and Long-Term Maintenance of GIS Database

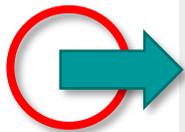
Considerable effort and resources went into development of the GIS database that accompanies this Plan document. The database brings together in a consistent format all of the existing nonmotorized systems as well as the plans of regional, county, and local agencies and organizations. The database is intended to be a tool for all to utilize in efforts to continue to plan, prioritize, fund and implement nonmotorized improvements. The database represents a snap shot in time. Facilities are being built and planned at a steady and continuous rate. It is an important priority that these **facilities and plans are incorporated into the database on a regular basis and that the database is available for use by all stakeholders** to assist with on-going planning, coordination, and measuring progress.



Measure Progress

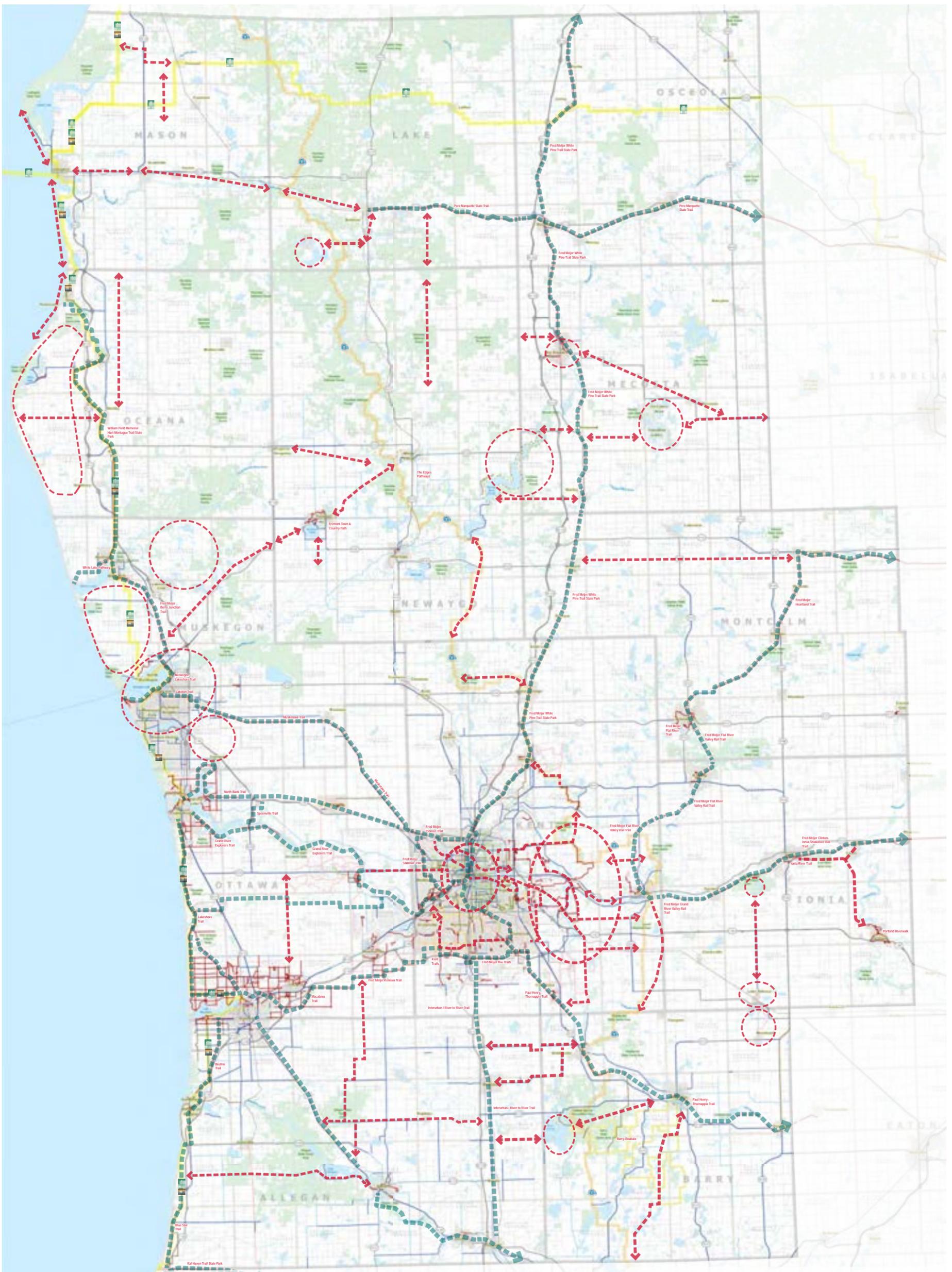
There are a number of methods the various agencies in the Grand Region will use to measure progress of this Plan over the coming years including:

- a. The number of miles of facility types that exist and are being planned. This Plan and GIS database serve as a **benchmark** of facilities in the Grand Region.
- b. Support the **MDOT Bicycle and Pedestrian Data Collection and Monitoring Program for Multi-Modal Planning** project (started in 2017) and coordinated efforts to **collect bike/pedestrian counts** to better understand trends, and adjust priorities and resources if needed. These data collection efforts could be used as a base in anticipation of future more specific performance measures.
- c. Supporting the **Performance Measures of the Driving Change Education Program and the Toward Zero Deaths Safety Campaign**.
- d. **Regular updates and discussion of Plan elements** and progress at MDOT Regional Ped/Bike Committee meetings.



Non-Freeway State Trunklines

- a. **Paved Shoulders**
When work is planned on Non-Freeway State Trunklines (those without curb and gutter), and where appropriate and feasible, shoulders should be at least 4' wide as a minimum.
- b. **Regional Corridor Crossings**
Where planned or significant nonmotorized facilities cross Non-Freeway State Trunklines, appropriate road crossing treatments should be a high priority where feasible. Nonmotorized crossings may include: existing bridge modifications, at grade highway crossings, and/or grade separated nonmotorized facilities such as bridges or tunnels. These modifications will require funding commitments and partnerships, and usually permits from State and Federal agencies.



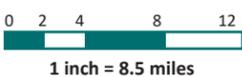
MDOT Grand Region - Regional Nonmotorized Plan

GRAND REGION

Nonmotorized Priorities + Desired Connections Map

August 2017

Refer to individual county maps and associated Plan text for more details about priorities and desired connections.



LEGEND

Existing	Planned	
		Improved Shared Use Path/Sidepath (>8' wide)
		Unimproved Shared Use Path/Sidepath (>8' wide)
		Bike Lane/Paved Shoulder (>4' wide)
		Shared Lane Marking
		Bike Route (Signed or Mapped)
		Undefined Bikeway (Details Unknown)

Statewide/National Routes

- U.S. Bike Route 35
- U.S. Bike Route 20
- North Lakes Bike Route
- North Country Trail
- Iron Belle Hiking Trail

Keys to Text Descriptions of Priorities in Master Plan

Proposed Regional Corridors

Desired Connections



Allegheny County

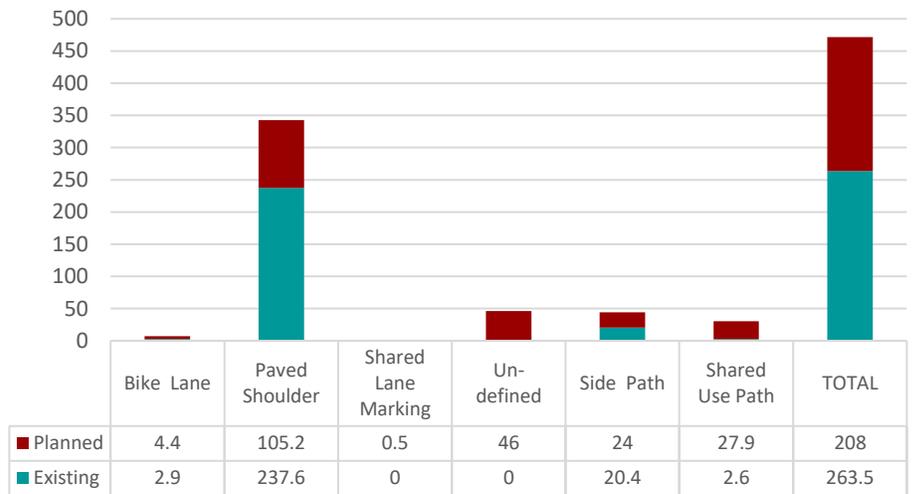
Existing + Planned Networks

Population: 114,625 (7.3% of Region)

Existing + Proposed Nonmotorized Regional Corridors

- US Bike Route 35
- Bee Line Trail
- Blue Star Trail
- Interurban Trail
- Plainwell – Otsego – Allegheny - Holland

Allegheny County Facilities by Type (miles)



'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.

Crash Facts 2011 – 2015

0.8% Percent of total crashes that involve peds/bikes in county

9.1% Percent of total fatalities that involve peds/bikes in county

6.2% Percent of incapacitating injuries that involve peds/bikes in county



Allegan County

Nonmotorized Priorities + Desired Connections

Population: 114,625 (7.3% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.

A

Completion of the **Blue Star Trail** is a high priority in Allegan County. The approximately 20-mile shared use path (primarily within the Blue Star Highway right-of-way) is proposed to traverse the western edge of Allegan County, between South Haven and Holland and connecting the existing Kal-Haven Trail to the Bee Line Trail. The Friends of the Blue Star Trail volunteer organization is active in preparing grant applications, communicating and coordinating with the various local, county, and state agencies involved, establishment of an endowment fund, and hosting the annual Lake Shore Harvest Ride Bike Tour.

B

The proposed **Interurban Trail** is an approximately 40-mile shared use path proposed to connect Kalamazoo to Grand Rapids in or around the route of the former Interurban rail line and passing through numerous towns and townships including Plainwell, Martin and Wayland. A planning/feasibility study – **The River to River Trail Plan** - is slated for completion in 2017.

C

Connecting **Plainwell, Otsego, and Allegan** together and into the Interurban Trail and from Allegan northwest to Holland is a high priority project in the county, although the route remains conceptual. The specific routes surrounding the Plainwell to Otsego connection are being planned by the local entities and includes potential MDNR land along the Kalamazoo River.

D

As the Interurban/River to River Trail develops, **east-west connections** to/from it and other nearby destinations will remain a priority including connecting the **Gun Lake area**, connecting to the **Paul Henry-Thornapple Trail** via Wayland and Middleville, and connecting **The Allegan State Game Area to the Interurban Trail via Hopkins**. Feasibility and further planning is needed.

E

An **east-west connection** between Allegan, Lake Allegan, the Blue Star Trail and US Bike Route 35 is desired via 118th Avenue and Monroe Road.

F

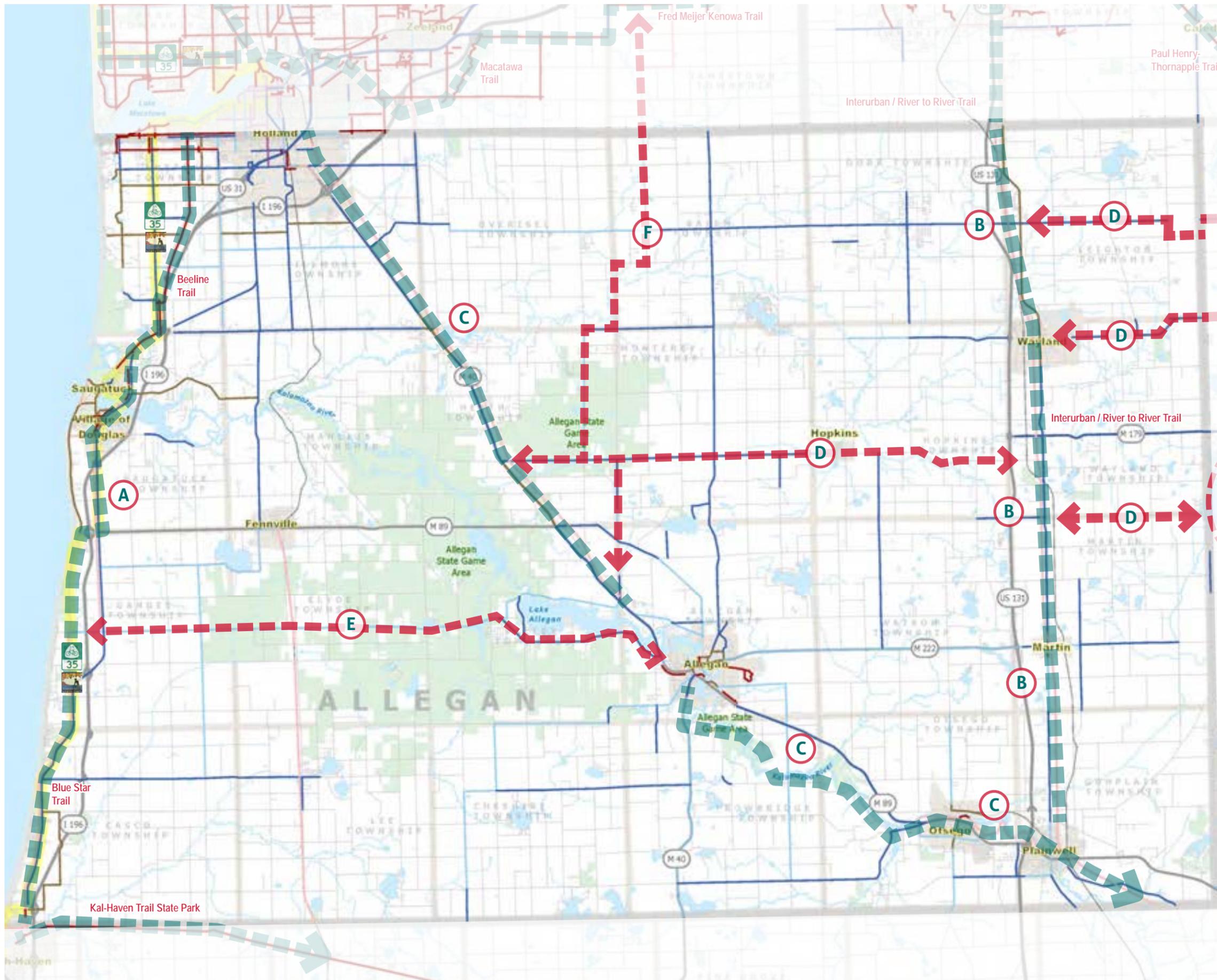
Salem Township is interested in feasibility of **wide paved shoulders** to create north-south connection between Allegan and the Fred Meijer Kenowa Trail along roads without heavy vehicular and truck traffic. Further planning is needed.

Also See:
Priorities for US Bike Routes

ALLEGAN COUNTY

Nonmotorized Priorities + Desired Connections Map

August 2017



LEGEND

- | | | |
|--|-------------------------------------|--|
| Existing | Planned | Improved Shared Use Path/Sidepath (>8' wide) |
| Unimproved Shared Use Path/Sidepath (>8' wide) | Bike Lane/Paved Shoulder (>4' wide) | Shared Lane Marking |
| Bike Route (Signed or Mapped) | Undefined Bikeway (Details Unknown) | |

Statewide/National Routes

- U.S. Bike Route 35
- U.S. Bike Route 20
- North Lakes Bike Route
- North Country Trail
- Iron Belle Hiking Trail

A Keys to Text Descriptions of Priorities in Master Plan

Proposed Regional Corridors

Desired Connections





Barry County

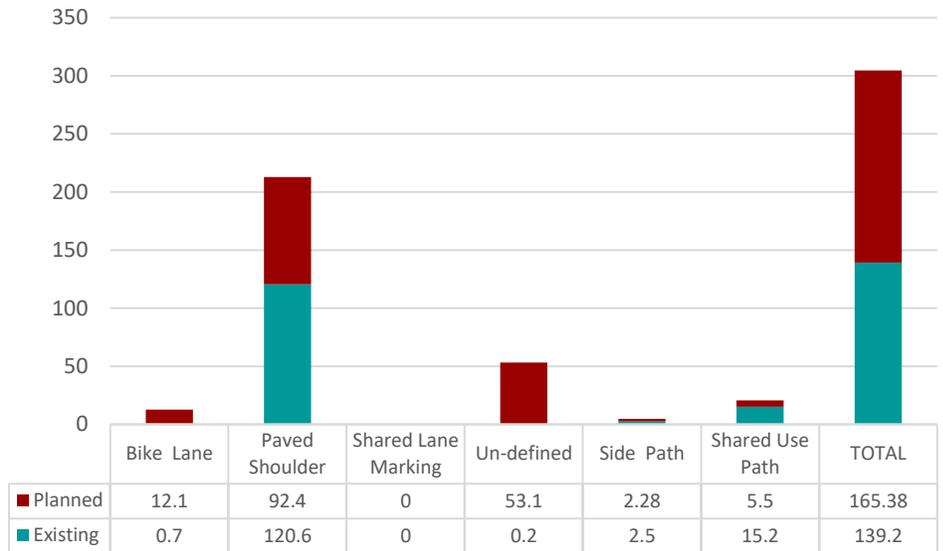
Existing + Planned Networks

Population: 59,314 (3.4% of Region)

Existing + Proposed Nonmotorized Regional Corridors

Paul Henry-Thornapple Trail
 North Country Trail
 Iron Belle Trail

Barry County Facilities by Type (miles)



'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.

Crash Facts 2011 – 2015

0.7% Percent of total crashes that involve peds/bikes in county

4.4% Percent of total fatalities that involve peds/bikes in county

4.2% Percent of incapacitating injuries that involve peds/bikes in county



Barry County

Nonmotorized Priorities + Desired Connections

Population: 59,314 (3.4% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.

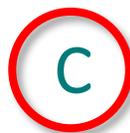


Completion of all **remaining sections of the Paul Henry-Thornapple Trail** between Nashville and Caledonia is a high priority in Barry County. The desire is to complete the remaining sections within the former rail corridor wherever possible and to improve the surface of the trail corridor to a walkable/rideable condition. The following segments are currently being focused on for completion:

- Two+ mile section between Middleville and the Barry County/Kent County line. Discussions and appraisals have been on-going with a private property owner.
- Completion of the gap that exists between Hastings and Middleville. The route for this connection needs to be determined as multiple private property owners exist.
- Wayfinding and confidence markers to/from the Paul Henry-Thornapple Trail to and from trail heads and amenities is a high priority.



Gun Lake Trail – the desire for a separate facility in and around Gun Lake has been discussed and envisioned for decades. Yankee Springs Township, the Yankee Springs Recreation Area and Gun Lake People Path advocacy group are primary stakeholders. An east-west connection between Gun Lake and the proposed Interurban Trail in Allegan County will also be desirable.



Off-road trail **connection between Hastings and Gun Lake** is desired in and around the M-179 corridor. Yankee Springs Township is leading these discussions.



North-south connections and routes are desired to connect Barry County to Kalamazoo and Calhoun County to the south. This was documented in the 2011 MDOT Southwest Nonmotorized Transportation Plan in greater detail. The particular routes, however, have not been fully vetted, particularly with the Road Commission. This should not diminish the fact that north-south connections are desired by users and advocates. Exact north-south routes have not been determined and need further planning.

Also See:
 Priorities for North Country Trail/Iron Belle Trail



Barry County

Nonmotorized Priorities + Desired Connections

Population: 59,314 (3.4% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



The **National 24-hour Challenge** bike ride begins/ends in Middleville and includes three loops that participants complete in a 24-hour period. A priority in the county is to permanently mark the route for year-round use and make road improvements to the route (wide shoulders, improved pavement conditions) over time. This should be coordinated with the Barry-Roubaix route as the Barry-Roubaix is a gravel road race.



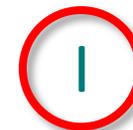
The **Barry-Roubaix** is the largest gravel road race in the world with more than 3,500 racers and takes place each spring (2017 is the 9th year) in Barry County. The race begins/ends in Hastings and includes a 22-mile, 36-mile, and 62-mile routes. It is a priority to maintain the permanent Barry-Roubaix signs (installed in 2016) for year-round use.



Considerable progress has been made, including a 2016 MDOT TAP Commitment, to build shared use paths in and around **the Jordan Lake area**. The Friends of the Jordan Lake Trail are continuing to work toward the completion of the planned network, as well as connectivity to Woodland.



An east-west **connection between Middleville and Wayland** via wide paved shoulders is desirable and will become even more so as the Paul Henry-Thornapple Trail and Interurban Trail/River to River Trail are completed.



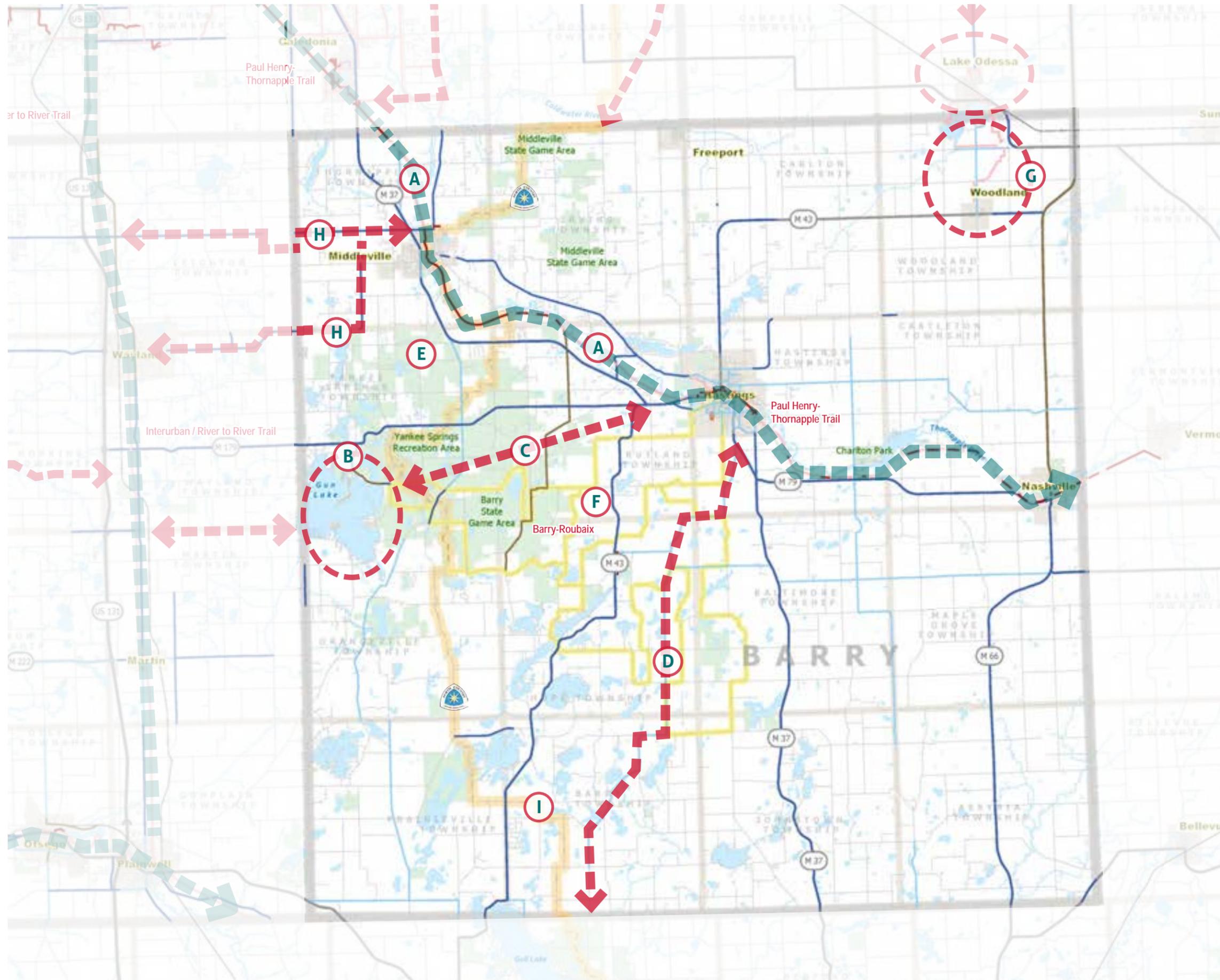
The **North Country Trail** is conducting optimal location review in the south west portion of Barry County to connect the Kellogg Biological Station on Gull Lake to Barry State Game area. The goal is to eliminate road walk where possible.

Also See:
 Priorities for North Country Trail/Iron Belle Trail

BARRY COUNTY

Nonmotorized Priorities + Desired Connections Map

August 2017



LEGEND

- | | | |
|--|-------------------------------------|--|
| Existing | Planned | Improved Shared Use Path/Sidepath (>8' wide) |
| Unimproved Shared Use Path/Sidepath (>8' wide) | Bike Lane/Paved Shoulder (>4' wide) | Shared Lane Marking |
| Bike Route (Signed or Mapped) | Undefined Bikeway (Details Unknown) | |

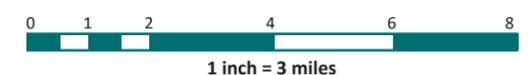
Statewide/National Routes

- U.S. Bike Route 35
- U.S. Bike Route 20
- North Lakes Bike Route
- North Country Trail
- Iron Belle Hiking Trail

A Keys to Text Descriptions of Priorities in Master Plan

Proposed Regional Corridors

Desired Connections





Ionia County

Existing + Planned Networks

Population: 64,223 (4.1% of Region)

Existing + Proposed Nonmotorized Regional Corridors

- FM CIS Trail
- FM Grand River Valley Trail
- FM Flat River Valley Trail

Crash Facts 2011 – 2015

0.9% Percent of total crashes that involve peds/bikes in county

15.2% Percent of total fatalities that involve peds/bikes in county

7.3% Percent of incapacitating injuries that involve peds/bikes in county

Ionia County Facilities by Type (miles)



'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.



Ionia County

Nonmotorized Priorities + Desired Connections

Population: 64,223 (4.1% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.

A

Completion of the **Fred Meijer Flat River Valley Rail Trail between Smyrna and Belding** within the rail corridor and along/near the Flat River is a high priority in Ionia County. It is also a priority to improve the unimproved/natural condition of the **Fred Meijer Grand River Valley Rail Trail east of Lowell** as well as unimproved natural sections of the **Fred Meijer Flat River Valley Rail Trail**.

B

Developing **coordinated and consistent emergency mile markers** along the Clinton-Ionia-Shiawassee and Grand River Valley Trails is a high priority in the county. This would greatly assist in response times to emergency calls from the trail and would also allow for more efficient dispatch of the appropriate responders (which jurisdiction should be dispatched to assist). This is of particular importance through the long stretches of trail within State Parks and State Game Areas where no landmarks or road crossings exist to help narrow down location of calls.

C

It is a high priority for advocates to establish a trail **connection between the Fred Meijer Grand River Valley Rail Trail and the facilities in the Ionia Recreation Area/Sessions Lake area**.

D

A conceptual plan to **link Ionia, Muir, Lyons, and Portland** has been envisioned, although alignment and property ownership has not been vetted. Additional planning is needed.

E

Connecting **Ionia Recreation Area and Lake Odessa and Jordan Lake** is a high priority for advocates. Existing wide paved shoulders exist along Jordan Lake Road from Lake Odessa north to Grand River Avenue. Extending the wide paved shoulders north an additional three miles would connect into Ionia State Recreation Area.

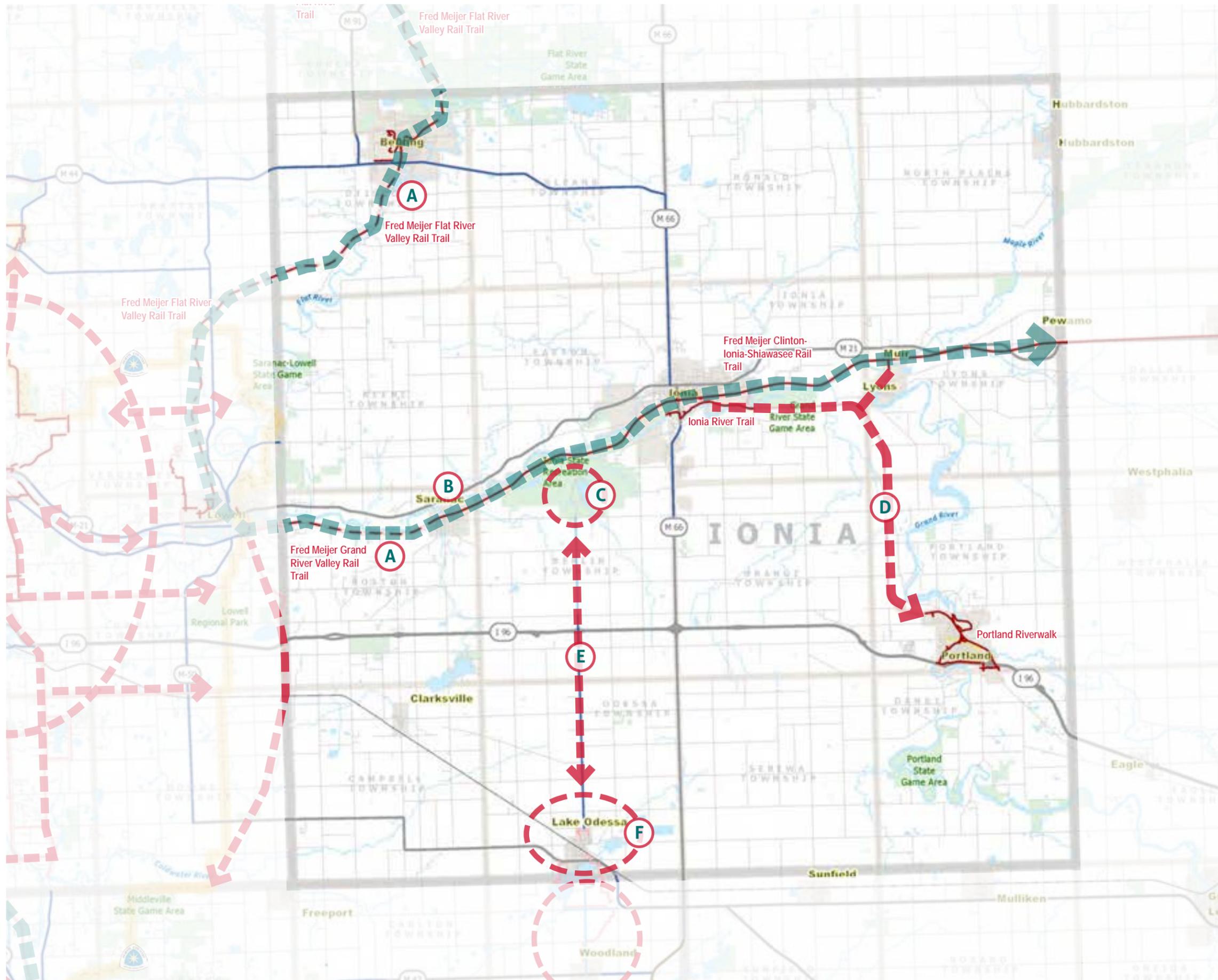
F

Considerable progress has been made, including a recent MDOT TAP commitment, to build shared use paths in and around the Jordan Lake area. The **Friends of the Jordan Lake Trail** are continuing to work toward the completion of the planned network, as well as connectivity to Woodland to the south and advocating for connectivity to the north to Ionia Recreation Area and Ionia.

IONIA COUNTY

Nonmotorized Priorities + Desired Connections Map

August 2017



LEGEND

- | | | |
|--|-------------------------------------|--|
| Existing | Planned | Improved Shared Use Path/Sidepath (>8' wide) |
| Unimproved Shared Use Path/Sidepath (>8' wide) | Bike Lane/Paved Shoulder (>4' wide) | Shared Lane Marking |
| Bike Route (Signed or Mapped) | Undefined Bikeway (Details Unknown) | |

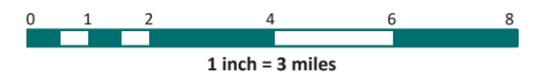
Statewide/National Routes

- U.S. Bike Route 35
- U.S. Bike Route 20
- North Lakes Bike Route
- North Country Trail
- Iron Belle Hiking Trail

A Keys to Text Descriptions of Priorities in Master Plan

Proposed Regional Corridors

Desired Connections





Kent County

Existing + Planned Networks

Population: 636,369 (40.5% of Region)

Existing + Proposed Nonmotorized Regional Corridors

- North Country Trail
- Iron Belle Trail
- FM White Pine Trail
- FM Pioneer Trail
- FM Flat River Valley Rail Trail
- FM Standale Trail
- Grand River Edges Trail
- Kent Trails
- FM Millenium Park Trails
- FM M-6 Trails
- Paul Henry-Thornapple Trail
- Interurban Trail

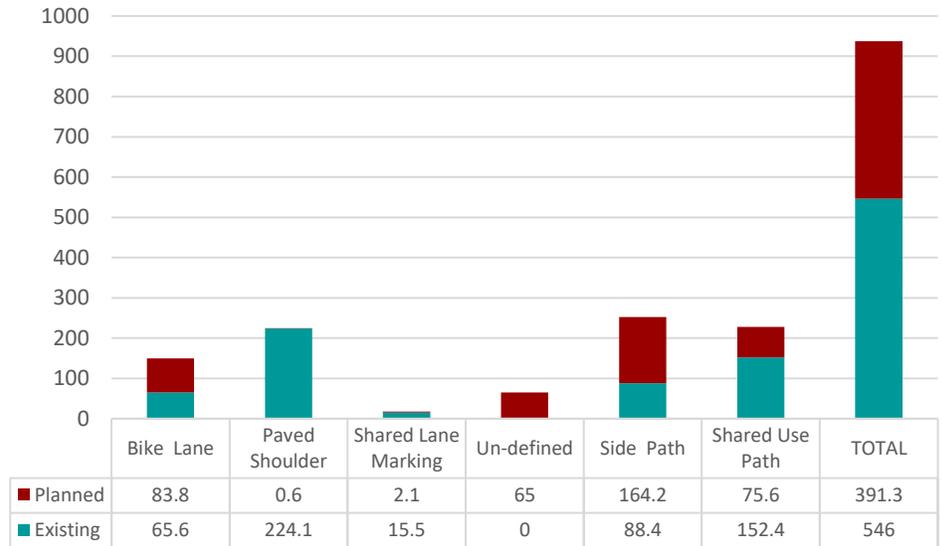
Crash Facts 2011 – 2015

1.9% Percent of total crashes that involve peds/bikes in county

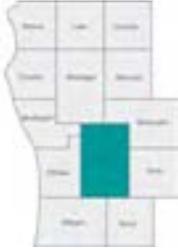
21.6% Percent of total fatalities that involve peds/bikes in county

15.9% Percent of incapacitating injuries that involve peds/bikes in county

Kent County Facilities by Type (miles)



'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.



Kent County

Nonmotorized Priorities + Desired Connections

Population: 636,369 (40.5% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



Priorities in/around the **City of Grand Rapids** include:

- a. The City of Grand Rapids approved the [Vital Streets Plan](#) in December 2016. The Plan will be the guide for public investment to deliver quality streets and a logical transportation system that works for all types of travelers. The Plan defines a system of seven street types with each having a set of priority users to be supported.
- b. Completion and extension of a connected network of trails and riverwalk along both sides of the Grand River as noted in the GIS database.
- c. Feasibility of a cross-town trail within/along the Grand Rapids Eastern Railroad corridor that runs south of I-196 from East Beltline (M-37) northwest across the Grand River and to the existing Pioneer and Musketawa Trails. (active/private owned)
- d. Establishing an east-west route across the city via various facility types including a shared use sidepath on the north side of Lake Michigan Drive, to Covell Avenue, to O'Brien Road and into the Oxford Trails, along Wealthy to Cherry Street and Lake Drive to East Grand Rapids, Reeds Lake, and E. Beltline.
- e. Connect Plaster Creek Trail to Walnut Hills Trail in SE portion of the city.
- f. Connect the Oxford Trails to Plaster Creek Trail.
- g. Connect Lookout Park to Newberry Street (down bluff).
- h. Feasibility of two-way cycle track on Lyon Street and Bridge Street.
- i. Feasibility of creating trail connection within utility corridor near Ball Perkins Park including a spur extension of Spencer Street east of Ball Avenue.
- j. Complete the gap in the nonmotorized network along Knapp Street between Dean Lake Avenue and East Beltline.
- k. Improvements and connectivity for ped/bike users on Ionia, Walker/Stocking Avenue north to 3 Mile Road and the Musketawa Trail.
- l. Feasibility of a north-south trail extension/connection along/near the CSX railroad corridor and the Seward Avenue Bikeway.
- m. Conversion of the railroad bridge over the Grand River at Jackson Island is a long-term priority.



Construction of the **Interurban Trail** (an approximately 40-mile shared use trail planned to connect Grand Rapids to Kalamazoo within/along the former rail corridor) within Kent County to connect into the M-6 Trail and south into Allegan County. A planning/feasibility study – **The River to River Trail Plan** is slated for completion in 2017.

Also See:
Priorities for North Country Trail/Iron Belle Trail



Kent County

Nonmotorized Priorities + Desired Connections

Population: 636,369 (40.5% of Region)

See corresponding *Proposed Regional Corridors + Priorities Map*. Lettering does not signify order of priority but keys to Map.

Also refer to *Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.*

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.

C

Connect the **Fred Meijer Kenowa Trail** to the **Fred Meijer M-6 and Kent Trails**.

D

Improve surface condition of the **Fred Meijer Flat River Valley Rail Trail** north of Lowell.

E

Improve **connectivity of Fred Meijer Grand River Valley Rail Trail to downtown Lowell** and the **Fred Meijer Flat River Valley Rail Trail**.

F

Provision of a shared use **trail and bridge across the Grand River** in the southwest corner of Lowell to **connect Lowell to Lowell Township** and with the Grand River Riverfront Park and Grand River Drive. Construction is planned for 2018.

G

Ada Township and the Ada Downtown Development Authority have plans to construct a shared use **trail and bridge over the Thornapple River** to connect Fulton Street to the Grand River Nature Preserve and Michael McGraw Park.

H

Plainfield Township passed a trail millage in 2016 with the goal of 30+ miles of nonmotorized facilities connecting the Fred Meijer White Pine State Trail to various parks, to downtown areas, schools, and to improve access to water.

*Also See:
Priorities for North Country Trail/Iron Belle Trail*



Kent County

Nonmotorized Priorities + Desired Connections

Population: 636,369 (40.5% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



Connecting the **Fred Meijer Standale Trail to the Fred Meijer Pioneer Trail in Walker** – possibly along the 3 Mile Road corridor and Fruit Ridge Avenue (including improvements to the Fruit Ridge bridge over I-96).



Connecting the **Fred Meijer Pioneer Trail to the Fred Meijer White Pine Trail in Walker**.



The **North Country Trail** has several priorities to modify the route in Kent County in order to increase the amount of trail that is off-road. This includes, among other desired connections, working with the City of Cedar Springs and the Rogue River State Game Area to eliminate current road walk between the two areas and improve overall hiker’s experience and safety. Refer to overall North Country Trail Priorities on Page 38 of this document.



A nonmotorized bridge and/or ped/bike facilities on the **Forest Hill Avenue bridge over I-96 in Kentwood**. Shared use sidepaths lead up to I-96 on both sides.

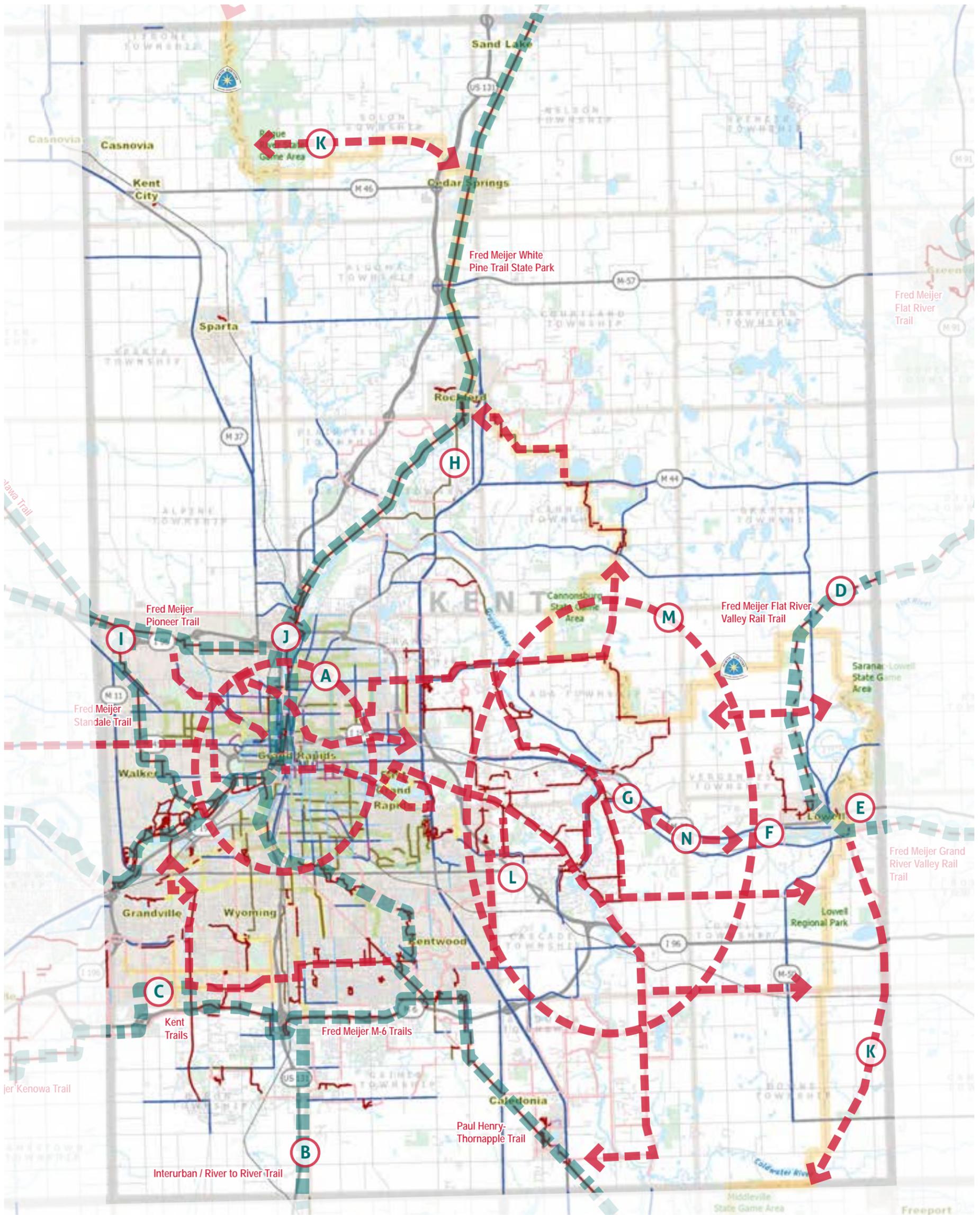


There are multiple east-west routes emerging and being planned between Grand Rapids and Lowell. It is a priority for the various stakeholders and agencies to work toward **determining which of these (1 or more) should be/will become the primary regional corridors** for the eastern portion of Kent County.



Lowell and Ada Townships are working together to determine the feasibility of providing a shared use path/trail between the Grand River Riverfront Park and Ada Park.

Also See:
Priorities for North Country Trail/Iron Belle Trail



MDOT Grand Region - Regional Nonmotorized Plan

KENT COUNTY

Nonmotorized Priorities + Desired Connections Map

August 2017



LEGEND

Existing	Planned	Description
		Improved Shared Use Path/Sidepath (>8' wide)
		Unimproved Shared Use Path/Sidepath (>8' wide)
		Bike Lane/Paved Shoulder (>4' wide)
		Shared Lane Marking
		Bike Route (Signed or Mapped)
		Undefined Bikeway (Details Unknown)

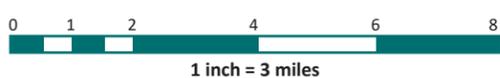
Statewide/National Routes

- U.S. Bike Route 35
- U.S. Bike Route 20
- North Lakes Bike Route
- North Country Trail
- Iron Belle Hiking Trail

Keys to Text Descriptions of Priorities in Master Plan

Proposed Regional Corridors

Desired Connections





Lake County

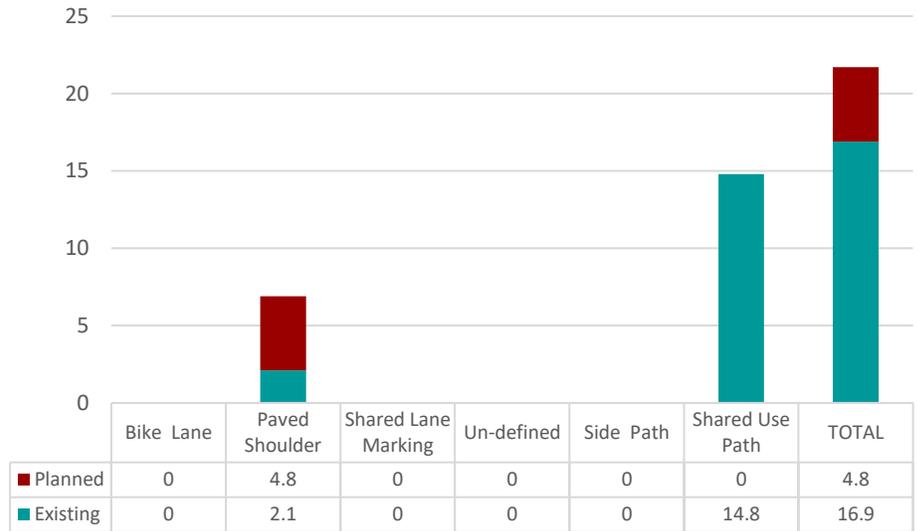
Existing + Planned Networks

Population: 11,424 (0.7% of Region)

Existing + Proposed Nonmotorized Regional Corridors

- Pere Marquette State Trail
- North Country Trail
- Iron Belle Trail
- US Bike Route 20

Lake County Facilities by Type (miles)



'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.

Crash Facts 2011 – 2015

0.6% Percent of total crashes that involve peds/bikes in county

0.0% Percent of total fatalities that involve peds/bikes in county

4.2% Percent of incapacitating injuries that involve peds/bikes in county



Lake County

Nonmotorized Priorities + Desired Connections

Population: 11,424 (0.7% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



It is a high priority in the county (and surrounding counties) to do further planning and coordination in order to identify regional connections. The **Leaders in Economic Alliance Development (LEAD)** which includes participants from Mason, Lake, Oceana, and Newaygo, are working in 2017 to develop a plan for nonmotorized connections. A focus is extending/connecting more areas into the North Country Trail, Iron Belle Trail, Pere Marquette State Trail, William Field Memorial Hart-Montague Trail, and the Fred Meijer White Pine Trail.



It is a priority in the county to improve **connectivity between W 76th Street and the Pere Marquette State Trail Trailhead in Baldwin**. The Lake County Road Commission is planning this connection in the next several years.



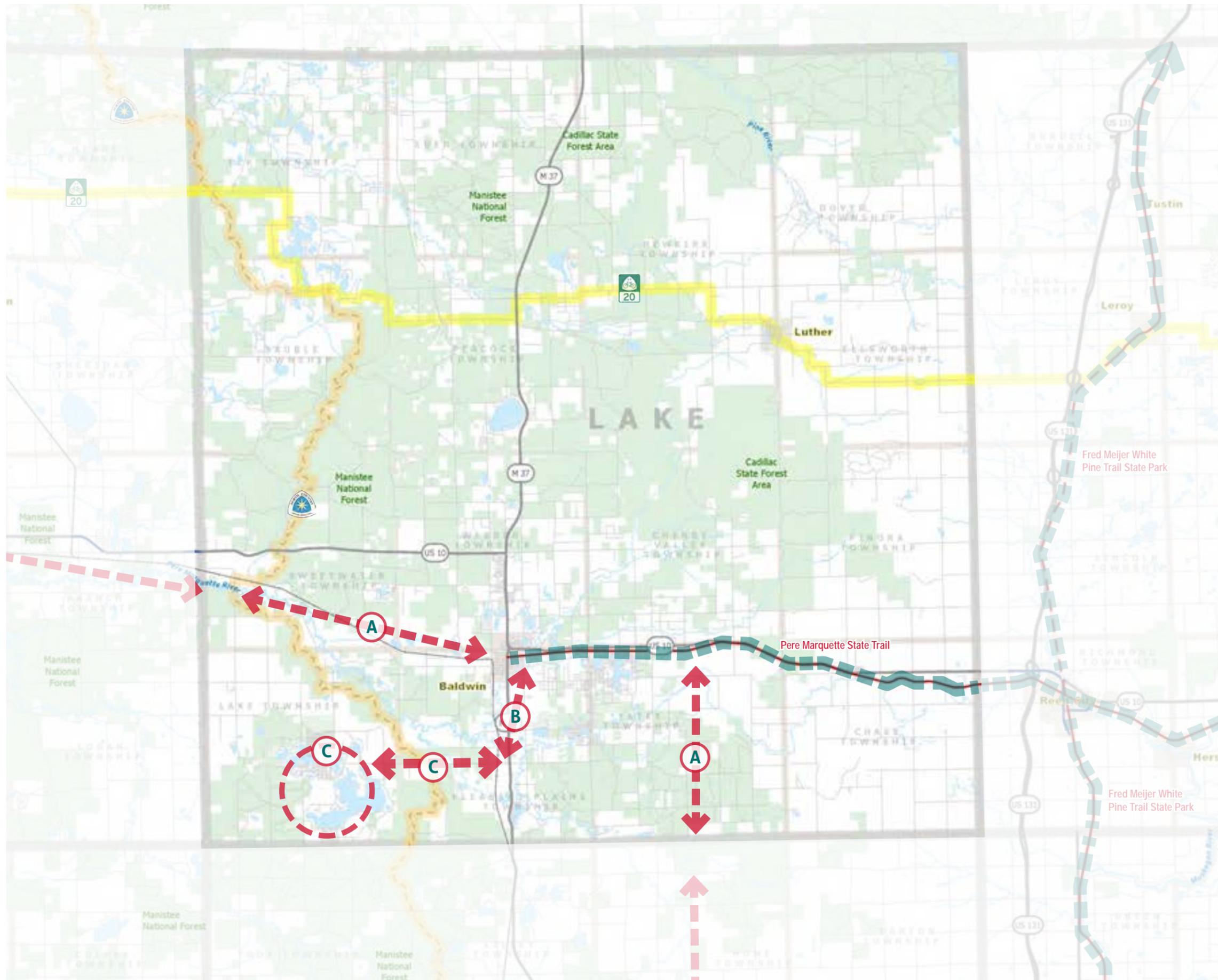
Wide paved shoulders are desired around **the Big Star Lake area and W 76th Street** to improve connectivity to and from Big Star Lake, Baldwin, the North Country Trail, and Iron Belle Trail.

Also See:
Priorities for North Country Trail/Iron Belle Trail and US Bike Routes

LAKE COUNTY

Nonmotorized Priorities + Desired Connections Map

August 2017



LEGEND

- | | | | |
|--|--|--|--|
| | Existing | | Planned |
| | Improved Shared Use Path/Sidepath (>8' wide) | | Unimproved Shared Use Path/Sidepath (>8' wide) |
| | Bike Lane/Paved Shoulder (>4' wide) | | Shared Lane Marking |
| | Bike Route (Signed or Mapped) | | Undefined Bikeway (Details Unknown) |

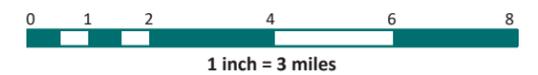
Statewide/National Routes

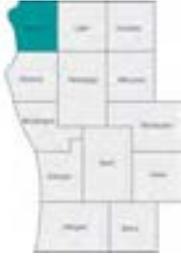
- U.S. Bike Route 35
- U.S. Bike Route 20
- North Lakes Bike Route
- North Country Trail
- Iron Belle Hiking Trail

Keys to Text Descriptions of Priorities in Master Plan

Proposed Regional Corridors

Desired Connections





Mason County

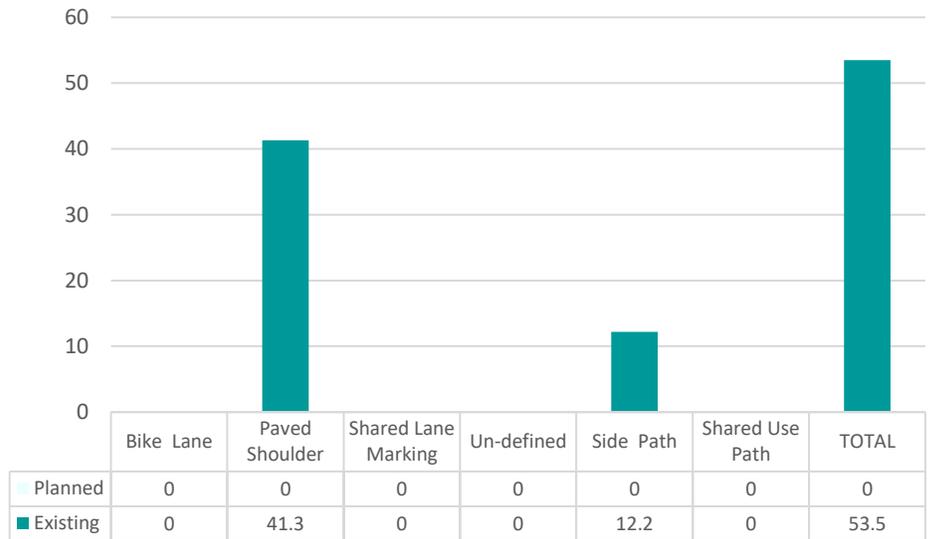
Existing + Planned Networks

Population: 28,783 (1.8% of Region)

Existing + Proposed Nonmotorized Regional Corridors

- North Country Trail
- Iron Belle Trail
- US Bike Route 20
- US Bike Route 35

Mason County Facilities by Type (miles)



'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.

Crash Facts 2011 – 2015

0.7% Percent of total crashes that involve peds/bikes in county

10.0% Percent of total fatalities that involve peds/bikes in county

11.9% Percent of incapacitating injuries that involve peds/bikes in county



Mason County

Nonmotorized Priorities + Desired Connections

Population: 28,783 (1.8% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.

A

Improved connectivity **between Scottville and Ludington** is a high priority in Mason County including improvements to the US-10 corridor for all user types. Mason County, the City of Ludington, Pere Marquette Charter Township, and Hamlin Township participated in a *Resilient Ludington* process in 2014. That process included a focus on the US-10/US-31 corridor and recommendations including sidewalks, shared use side paths, crosswalks, wide paved shoulders, access management, lighting, landscaping, etc.

B

The MDNR completed a Management Plan for Ludington State Park in 2016. The plan includes a high priority goal to improve **connectivity between the State Park and downtown Ludington** along the M-116 corridor.

C

It is a high priority in the county (and surrounding counties) to do further planning and coordination in order to identify regional connections. The **Leaders in Economic Alliance Development (LEAD)** which includes participants from Mason, Lake, Oceana, and Newaygo, are working in 2017 to develop a plan for nonmotorized connections. A focus is extending/connecting to the North Country Trail, Iron Belle Trail, and Pere Marquette State Trail to the east and the William Field Memorial Hart-Montague Trail to the south. It is also a priority to connect Ludington and Manistee to the north.

D

A number of bike route users make a **connection between US Bike Route 20 and US Bike Route 35 in Freesoil and Grant Townships** via Free Soil Road, US-31, and West Forest Trail Road. Improvements to this route are desired including particular focus of providing wide paved shoulders on both sides of this section of US -31.

E

As improvements are planned in the future on existing **bridge crossings of the Pere Marquette River**, they should consider the need for pedestrian and bicycle users. The number of north-south connections and routes in the southern portion of Mason County are limited.

F

There is a desire to **sign/use pavement markings to delineate regularly used routes** so they can be more easily used by more people throughout the year (as done by the Barry-Roubaix in Barry County) – i.e. the Make A Difference 100 Mile Ride.

Also See:
Priorities for North Country Trail/Iron Belle Trail and US Bike Routes



Mason County

Nonmotorized Priorities + Desired Connections

Population: 28,783 (1.8% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



Pere Marquette Township is working to acquire a significant amount of property (+300 acres) on the **southern side of Pere Marquette Lake** to provide over 900 continuous acres of public land. The public property would stretch from Lake Michigan at Buttersville Park, east to Pere Marquette Highway. Long-term plans include nonmotorized trails as well as possibly moving US Bike Route 35 to avoid Pere Marquette Highway.



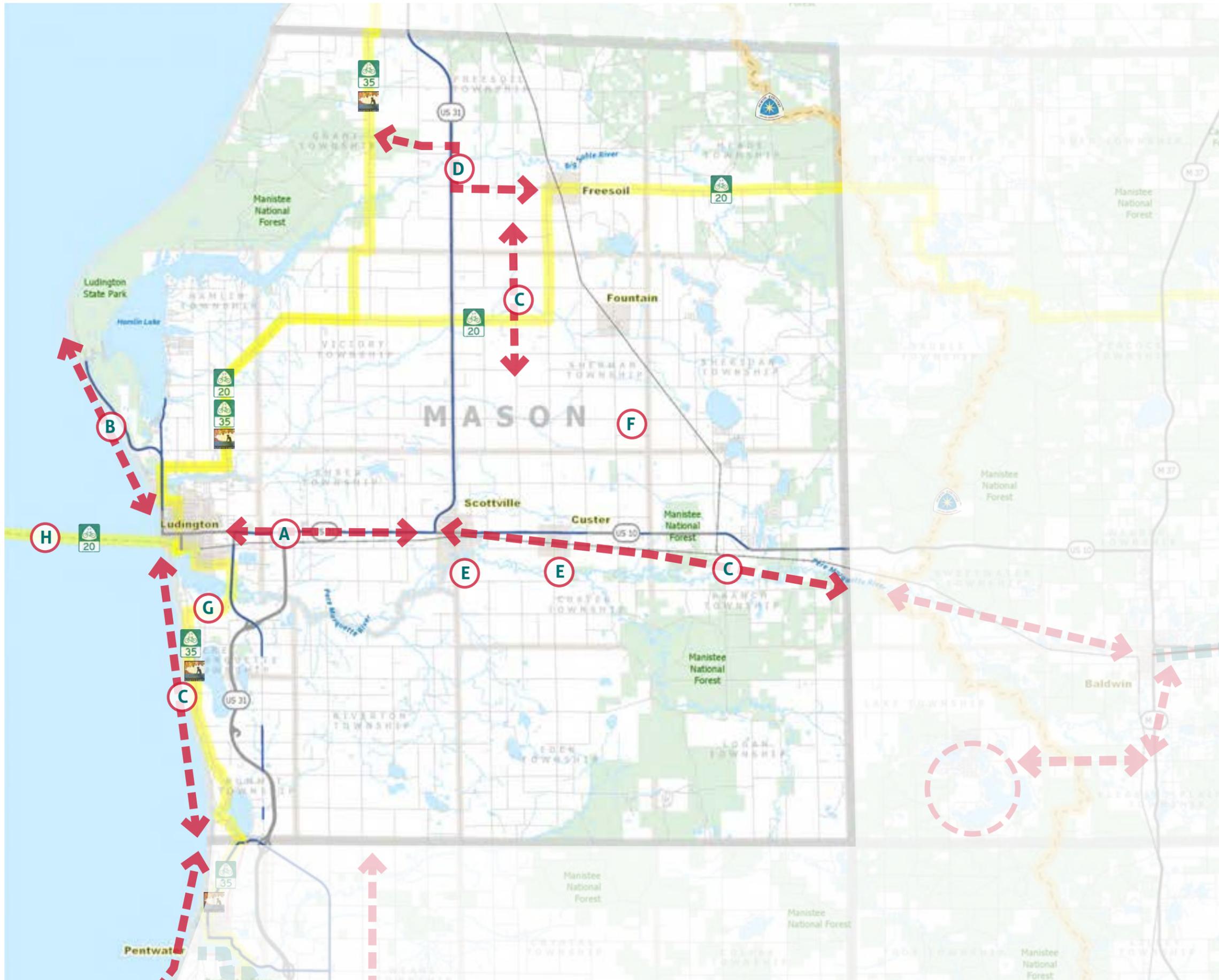
Coordinate with stakeholders in Muskegon County including the Convention and Visitors Bureau to discuss potential marketing of “**loop ride/trip**” for cyclists that would include riding the **Lake Express Ferry** between Muskegon and Milwaukee and the **SS Badger** between Ludington and Manitowoc.

Also See:
Priorities for North Country Trail/Iron Belle Trail and US Bike Routes

MASON COUNTY

Nonmotorized Priorities + Desired Connections Map

August 2017



LEGEND

- | Existing | Planned | |
|----------|---------|--|
| | | Improved Shared Use Path/Sidepath (>8' wide) |
| | | Unimproved Shared Use Path/Sidepath (>8' wide) |
| | | Bike Lane/Paved Shoulder (>4' wide) |
| | | Shared Lane Marking |
| | | Bike Route (Signed or Mapped) |
| | | Undefined Bikeway (Details Unknown) |

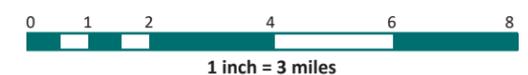
Statewide/National Routes

- U.S. Bike Route 35
- U.S. Bike Route 20
- North Lakes Bike Route
- North Country Trail
- Iron Belle Hiking Trail

Keys to Text Descriptions of Priorities in Master Plan

Proposed Regional Corridors

Desired Connections





Mecosta County

Existing + Planned Networks

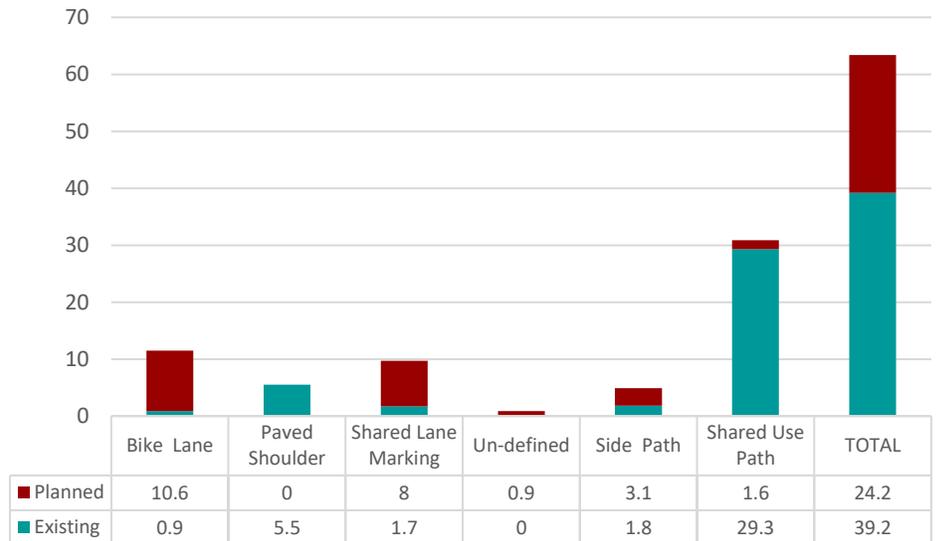
Population: 43,067 (2.7% of Region)

Existing + Proposed Nonmotorized Regional Corridors

FM White Pine Trail

(additional regional corridors are emerging as efforts to provide east-west connectivity move forward)

Mecosta County Facilities by Type (miles)



'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.

Crash Facts 2011 – 2015

0.8% Percent of total crashes that involve peds/bikes in county

9.7% Percent of total fatalities that involve peds/bikes in county

8.3% Percent of incapacitating injuries that involve peds/bikes in county



Mecosta County

Nonmotorized Priorities + Desired Connections

Population: 43,067 (2.7% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



Priorities in the **Big Rapids Area** include:

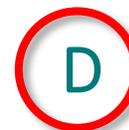
- The Fred Meijer White Pine Trail is on the east side of the Muskegon River while downtown Big Rapids, Ferris State University, and the majority of the population are on the west side of the river. With only two road crossings (M-20/Maple + Baldwin) and one dedicated pedestrian crossing over the Muskegon River, ensuring **nonmotorized connectivity across the river** is essential.
- Establish a **visible, accessible trailhead(s) in Big Rapids for the White Pine State Trail** – possibly in the Northside Riverwalk Park.
- Improved **connectivity and wayfinding** between Ferris State University, the FSU Campus Art Walk, the scenic 4.5-mile Big Rapids Riverwalk, the White Pine State Trail, Muskegon River, and significant public land along the river.
- Renovation of the former train station** – the White Pine State Trail trailhead along M-20/Maple. Owned by the MDNR.
- Improve **bike storage** at Ferris State University.



The **42-mile Dragon Trail** is proposed to loop around Hardy Pond Dam just southwest of Big Rapids in Newaygo and Mecosta County. It is anticipated to be a significant destination in the region and will be managed by the Newaygo and Mecosta County Parks. Construction is planned for 2018-2020. Providing connections between the Dragon Trail, White Pine State Trail, Big Rapids, Standale, and Morley is a high priority which will include crossing US-131.



Exploration of formalized nonmotorized links around the Canadian Lakes Area as well as connecting the **Canadian Lakes area to/from the White Pine Trail and Stanwood**, possibly along the Pierce Road corridor. Morton Township, Canadian Lakes, and Tri-Lakes Area are in planning stages.



There is a desire to further discussions with various stakeholders and agencies to connect the **White Pine State Trail to Mt. Pleasant and the Mid-West Michigan Trail Network** via the Canadian Lakes area, Stanwood, Mecosta, and Rodney. The Mid-West Michigan Trail Network is a proposed north-south trail that will connect the Fred Meijer Heartland Trail and the Pere Marquette Trail. No route has been determined. Additional planning is needed to further exploration. Morton Township is in planning stages and investigating the feasibility of utilizing a former rail corridor that ran between Big Rapids, Rodney, Mecosta, Remus, and beyond.



Mecosta County

Nonmotorized Priorities + Desired Connections

Population: 43,067 (2.7% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



There is a desire to provide **east-west connectivity between Big Rapids and the Hungerford Lake** mountain bike trails area.



Osceola, Mecosta, and Montcalm Counties have a number of **Amish** communities. Wide paved shoulders along primary routes and corridors can provide a number of benefits including improved conditions for pedestrians, cyclists, and buggies. In areas with heavy buggy use, 6-8' wide paved shoulders should be considered. Buggy use has been noted on the Fred Meijer White Pine State Trail, particularly in the Stanwood/Morley area.

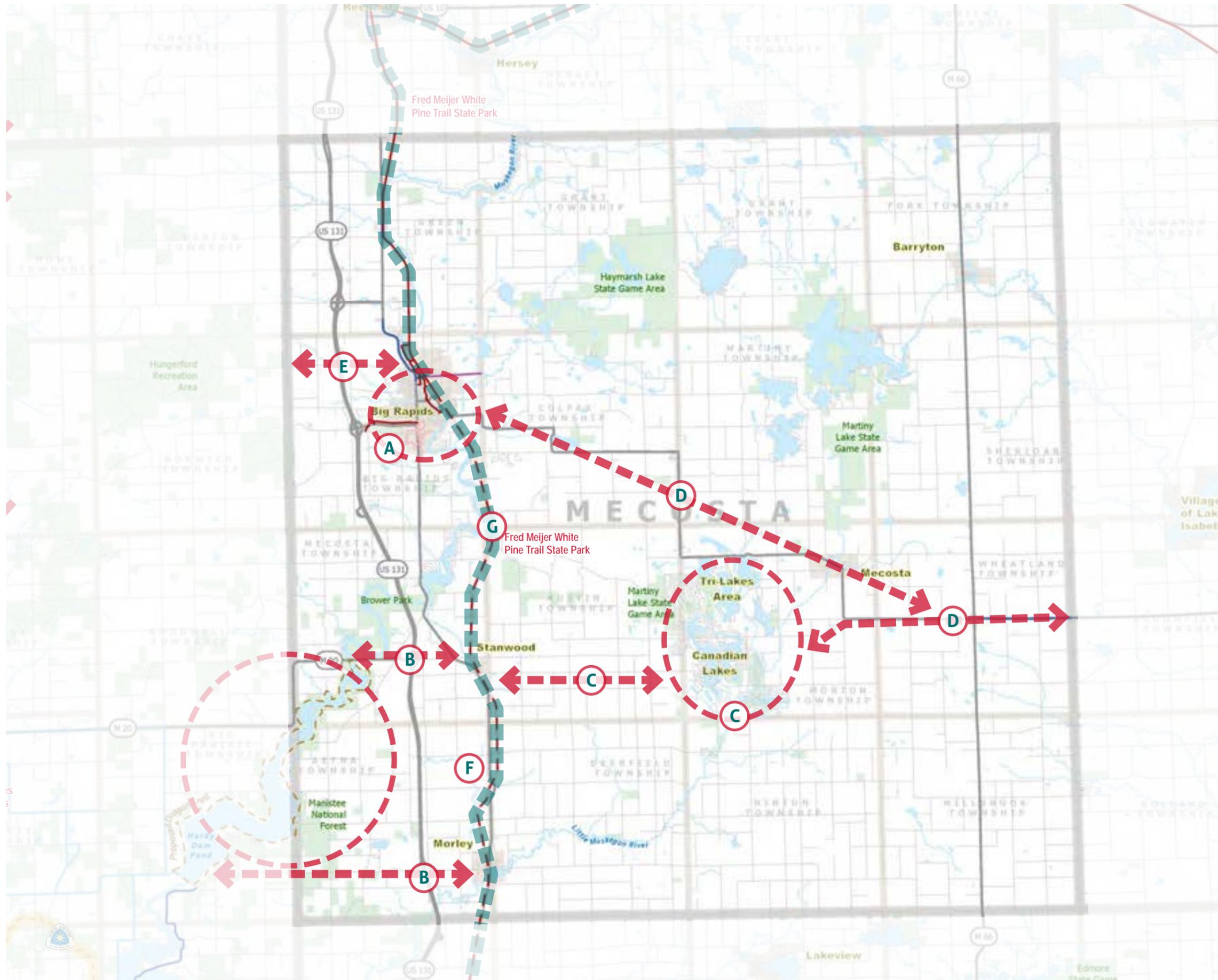


It is a priority to improve the 29.2-mile, unimproved/natural condition of the **Fred Meijer White Pine Trail State Park** south of Big Rapids. (16.8 miles are within Mecosta County)

MECOSTA COUNTY

Nonmotorized Priorities + Desired Connections Map

August 2017



LEGEND

- | Existing | Planned | |
|----------|---------|--|
| | | Improved Shared Use Path/Sidepath (>8' wide) |
| | | Unimproved Shared Use Path/Sidepath (>8' wide) |
| | | Bike Lane/Paved Shoulder (>4' wide) |
| | | Shared Lane Marking |
| | | Bike Route (Signed or Mapped) |
| | | Undefined Bikeway (Details Unknown) |

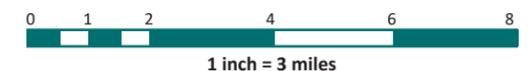
Statewide/National Routes

- U.S. Bike Route 35
- U.S. Bike Route 20
- North Lakes Bike Route
- North Country Trail
- Iron Belle Hiking Trail

Keys to Text Descriptions of Priorities in Master Plan

Proposed Regional Corridors

Desired Connections





Montcalm County

Existing + Planned Networks

Population: 62,945 (4.0% of Region)

Existing + Proposed Nonmotorized Regional Corridors

- FM White Pine Trail
- FM Heartland Trail
- FM Flat River Valley Rail Trail

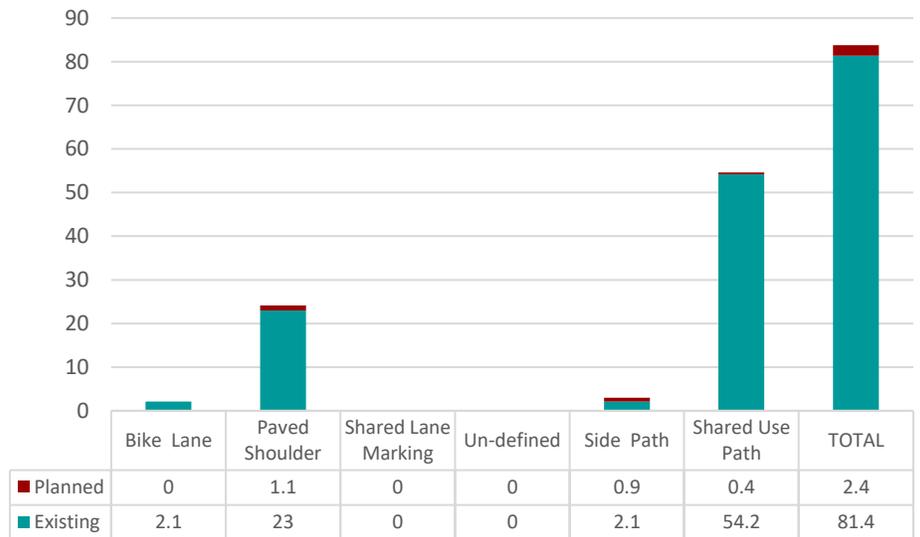
Crash Facts 2011 – 2015

0.9% Percent of total crashes that involve peds/bikes in county

23.1% Percent of total fatalities that involve peds/bikes in county

8.0% Percent of incapacitating injuries that involve peds/bikes in county

Montcalm County Facilities by Type (miles)



'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.



Montcalm County

Nonmotorized Priorities + Desired Connections

Population: 62,945 (4.0% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



Improve the unimproved/natural condition of the **Fred Meijer Flat River Valley Rail Trail** between Belding and Greenville (approximately 5.6 miles).



Improve the unimproved/natural condition of the **Fred Meijer White Pine Trail** between Sand Lake and Big Rapids (approximately 29.2- miles in total; 12.4 miles of which is in Montcalm County).



Planning is needed to determine desire/feasibility to **connect east to west** in Montcalm County to connect the Fred Meijer White Pine State Trail to the Fred Meijer Heartland Trail.

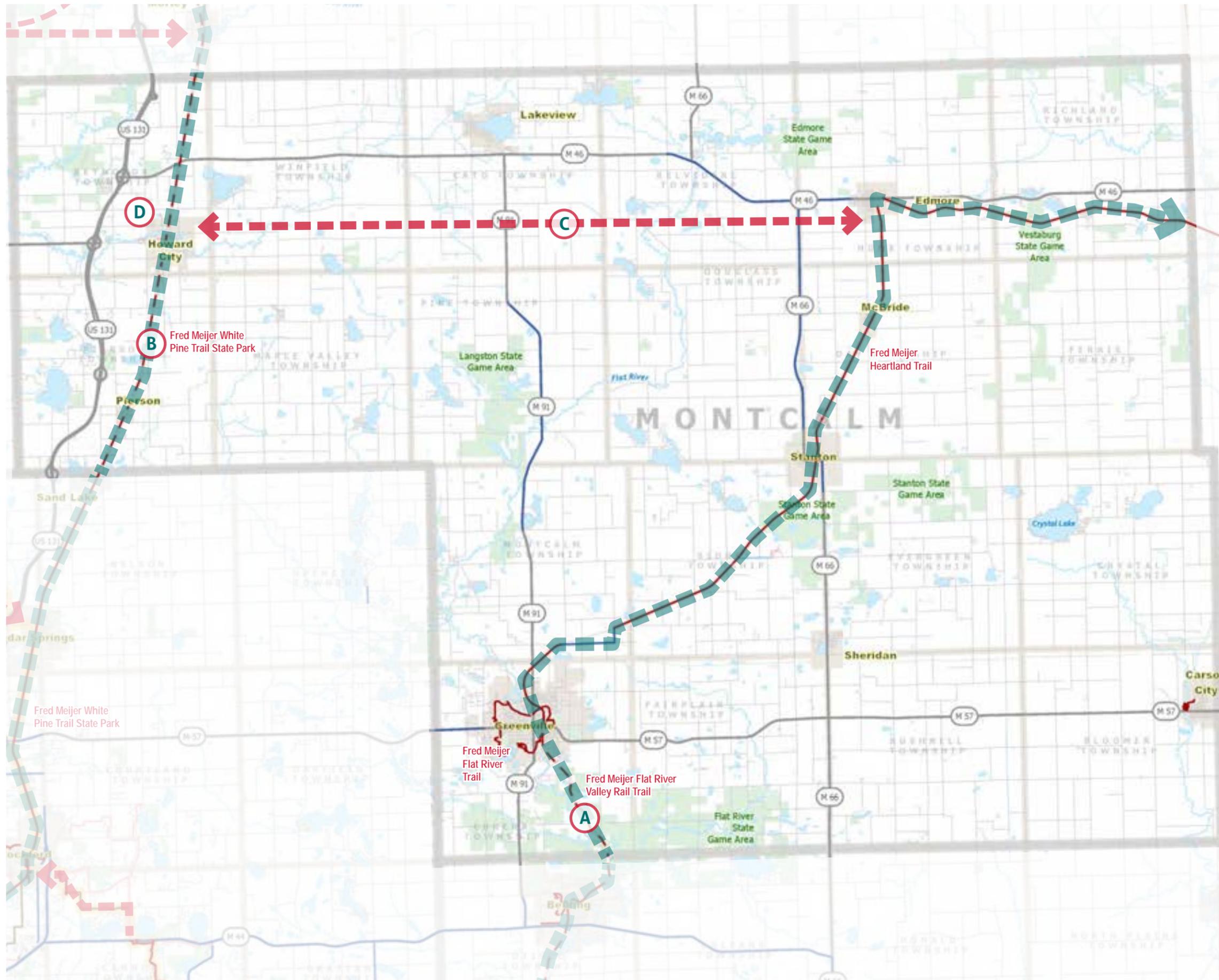


Osceola, Mecosta, and Montcalm Counties have a number of **Amish** communities. Wide paved shoulders along primary routes and corridors can provide a number of benefits including improved conditions for pedestrians, cyclists, and buggies. In areas with heavy buggy use, 6-8' wide paved shoulders should be considered. Buggy use has been noted on the Fred Meijer White Pine State Trail.

MONTCALM COUNTY

Nonmotorized Priorities + Desired Connections Map

August 2017



LEGEND

- | | | |
|--|-------------------------------------|--|
| Existing | Planned | Improved Shared Use Path/Sidepath (>8' wide) |
| Unimproved Shared Use Path/Sidepath (>8' wide) | Bike Lane/Paved Shoulder (>4' wide) | Shared Lane Marking |
| Bike Route (Signed or Mapped) | Undefined Bikeway (Details Unknown) | |

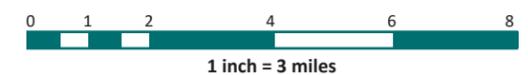
Statewide/National Routes

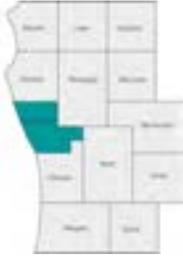
- U.S. Bike Route 35
- U.S. Bike Route 20
- North Lakes Bike Route
- North Country Trail
- Iron Belle Hiking Trail

A Keys to Text Descriptions of Priorities in Master Plan

Proposed Regional Corridors

Desired Connections





Muskegon County

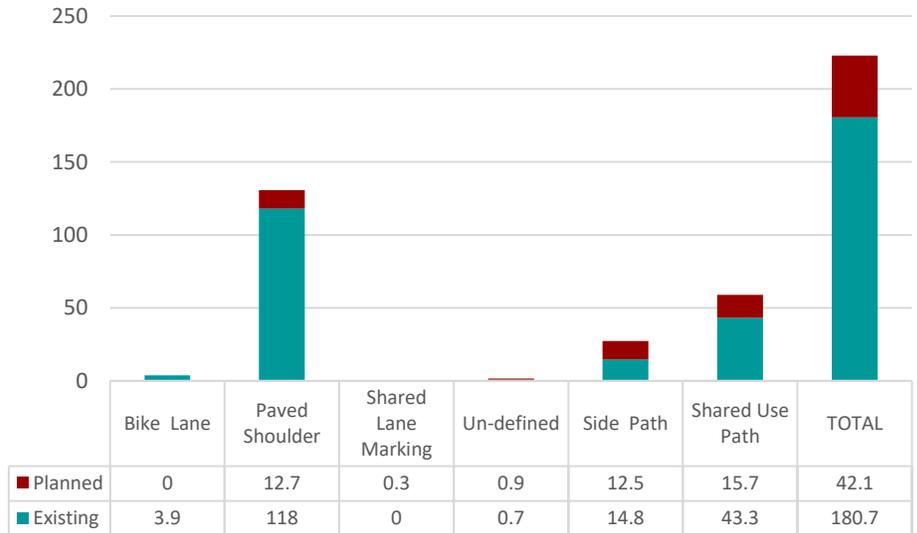
Existing + Planned Networks

Population: 172,790 (11.0% of Region)

Existing + Proposed Nonmotorized Regional Corridors

- US Bike Route 35
- WF Hart-Montague Trail
- FM Berry Junction Trail
- White Lake Pathway
- Muskegon Lakeshore Trail
- Laketon Trail
- Musketawa Trail

Muskegon County Facilities by Type (miles)



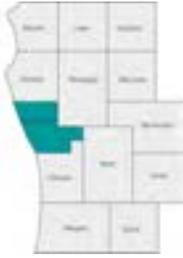
'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.

Crash Facts 2011 – 2015

1.7% Percent of total crashes that involve peds/bikes in county

19.5% Percent of total fatalities that involve peds/bikes in county

10.0% Percent of incapacitating injuries that involve peds/bikes in county



Muskegon County

Nonmotorized Priorities + Desired Connections

Population: 172,790 (11.0% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



Priorities in/around the **Muskegon and North Muskegon Area** include:

- a. Provide a connection between the **Musketawa Trail and Lake Michigan** and the **Muskegon Lakeshore Trail and Laketon Trail**. Short but challenging gap remains in area of Shoreline Drive and Seaway Drive. Also determine feasibility of providing improvements along Sherman Boulevard (on- and off-road improvements).
- b. Capitalize on the numerous **bicyclists that ride the Lake Express Ferry** between Milwaukee and Muskegon. Also, coordinate with stakeholders in Mason County/Ludington to discuss potential marketing of “**loop ride/trip**” for cyclists that would include riding the **Lake Express Ferry** between Muskegon and Milwaukee and the **SS Badger** between Ludington and Manitowoc.
- c. Provide a north-south **connection between Mona Lake and the Laketon Trail**, via Roberts St, Vulcan St, E Broadway Ave, S Getty, Summit Ave, Hoyt, and Seaway Drive.
- d. Pedestrian and bicycle **improvements along M-120/Holton Road** to connect a number of destinations including the High School and new youth sports park. Extension of the side path along M-120 that crosses beneath US-31.



The **Musketawa Trail** is in need of repairs, with particular condition issues noted by participants in the development of this document in the sections just east of Muskegon.



Fruitport Township desires connections to and from the Musketawa Trail to the north and Spring Lake Trails to the south. Planning is needed to further this effort.



Shared use paths are desired to provide **connections to Lake Michigan and PJ Hoffmaster State Park** in Norton Shores.

Also See:
Priorities for US Bike Routes



Muskegon County

Nonmotorized Priorities + Desired Connections

Population: 172,790 (11.0% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



Blue Lake Township is developing a Recreation Plan in 2017 that will include proposed nonmotorized routes and wide paved shoulders to improve connections to the William Field Memorial Hart-Montague Trail, Montague, Whitehall, and the Muskegon Area.



A priority in the Montague and White River area is to extend a shared use path to connect Montague and the **William Field Memorial Hart-Montague Trail to Medbery Park** and Lake Michigan.



In the **Laketon and Fruitland Township** areas, there is a desire to provide connections to and from the Fred Meijer Berry Junction Trail to Duck Lake State Park, Pioneer County Park, Muskegon State Park, and the Lake Michigan shoreline. Planning is needed to further this effort and determine feasibility.



There is conceptual discussion regarding the feasibility of providing a “rail with trail” connection **between Fremont and the Muskegon Area** via the rail corridor.



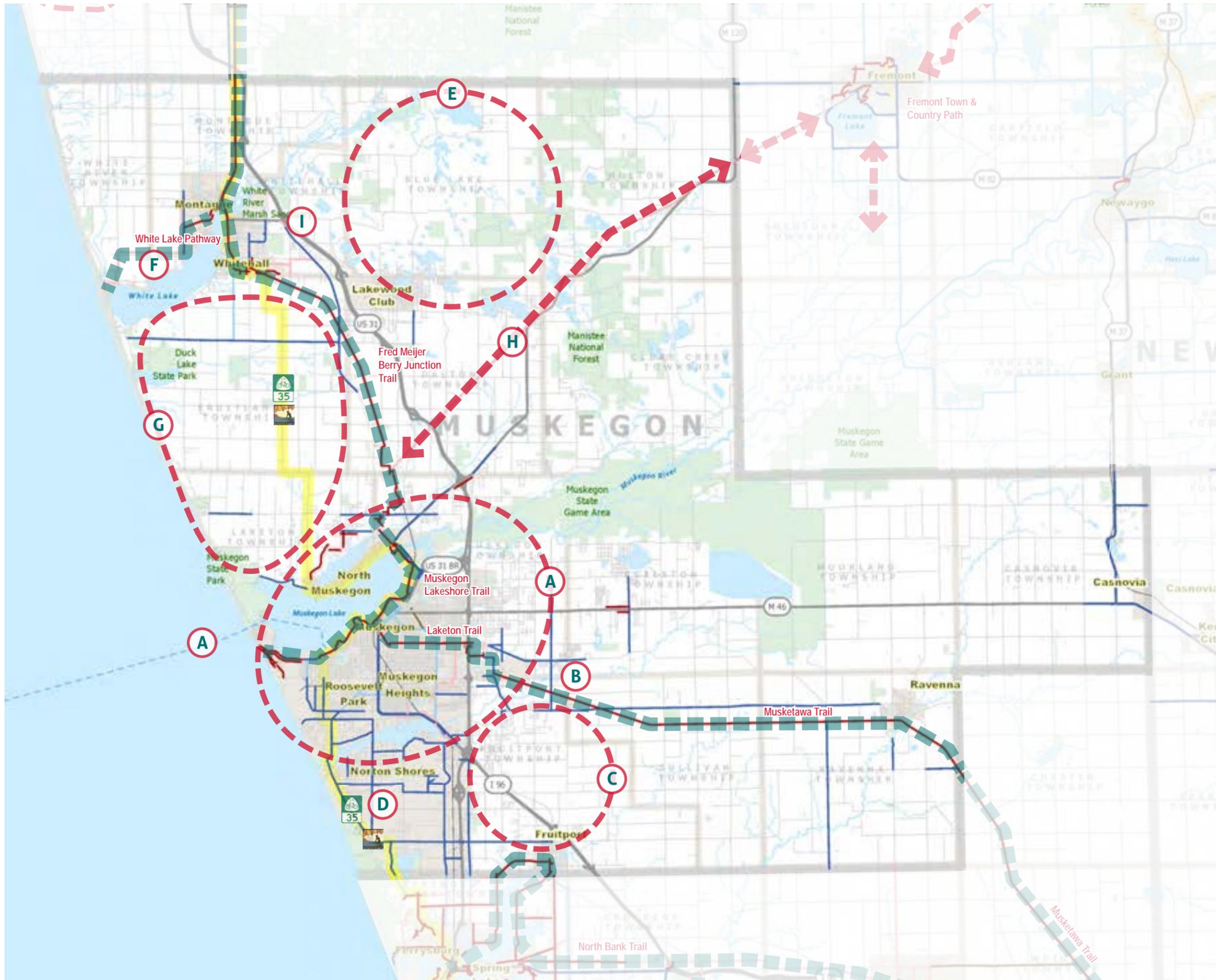
Safe and improved **east-west connection across US-31** at/near Holton Whitehall Road is desired.

Also See:
Priorities for US Bike Routes

MDOT Grand Region - Regional Nonmotorized Plan
MUSKEGON COUNTY

Nonmotorized Priorities + Desired
 Connections Map

August 2017



LEGEND

- | | | |
|----------|---------|--|
| Existing | Planned | |
| | | Improved Shared Use Path/Sidepath (>8' wide) |
| | | Unimproved Shared Use Path/Sidepath (>8' wide) |
| | | Bike Lane/Paved Shoulder (>4' wide) |
| | | Shared Lane Marking |
| | | Bike Route (Signed or Mapped) |
| | | Undefined Bikeway (Details Unknown) |
-
- | | | |
|---------------------------|-------------------------|--|
| Statewide/National Routes | | Keys to Text Descriptions of Priorities in Master Plan
Proposed Regional Corridors
Desired Connections |
| | U.S. Bike Route 35 | |
| | U.S. Bike Route 20 | |
| | North Lakes Bike Route | |
| | North Country Trail | |
| | Iron Belle Hiking Trail | |





Newaygo County

Existing + Planned Networks

Population: 47,948 (3.1% of Region)

Existing + Proposed Nonmotorized Regional Corridors

North Country Trail
Iron Belle Trail

(additional regional corridors are emerging as The Edge Pathways and Leaders in Economic Alliance Development efforts move forward)

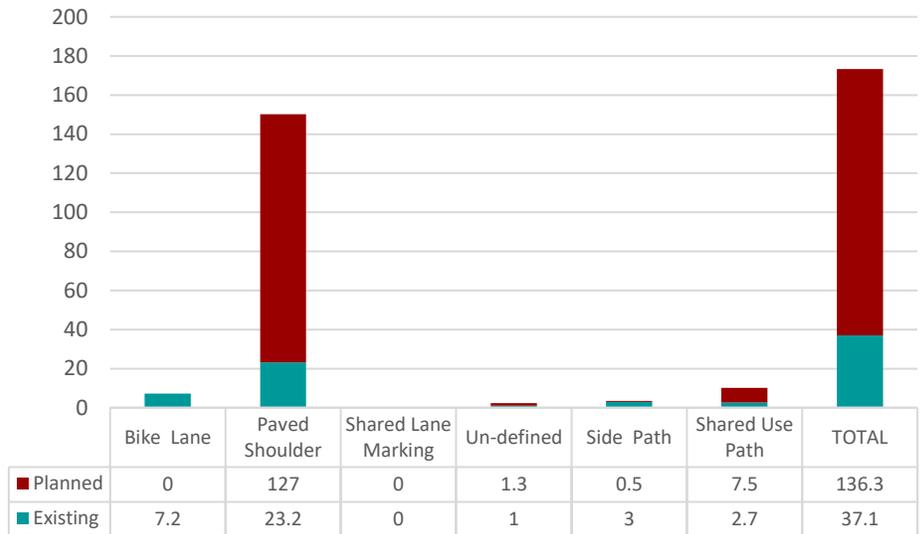
Crash Facts 2011 – 2015

0.7% Percent of total crashes that involve peds/bikes in county

10.5% Percent of total fatalities that involve peds/bikes in county

6.8% Percent of incapacitating injuries that involve peds/bikes in county

Newaygo County Facilities by Type (miles)



'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.



Newaygo County

Nonmotorized Priorities + Desired Connections

Population: 47,948 (3.1% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.

A

The **42-mile Dragon Trail** is proposed to loop around Hardy Pond Dam just southwest of Big Rapids in Newaygo and Mecosta County. It is anticipated to be a significant destination in the region and will be managed by the Newaygo and Mecosta County Parks. Construction is planned for 2018-2020. Providing connections between the Dragon Trail, White Pine State Trail, White Cloud, the Croton to Hardy Dam Trail, Newaygo, Fremont, and the North Country Trail/Iron Belle Trail is also a high priority.

B

Fremont and White Cloud are interested in further exploring the feasibility of connecting **Fremont and White Cloud** via a former railroad corridor and into the Fremont Town & Country Path network. **White Cloud** is working with LIAA, North Country Trail Association, and the Huron-Manistee National Forest to complete their NCT Trail Town handbook.

C

The Edge – Newaygo County Pathways is working on implementing a nonmotorized vision to connect various destinations in Fremont, Grant, Hesperia, Newaygo, White Cloud, and the surrounding townships together with a combination of wide paved shoulders, shared use trails, side paths, and bike lanes. (The Edge Plan is illustrated as proposed paved shoulders in Newaygo County.) As planning and discussions continue, routing may change although the overall goal of connectivity remains.

D

It is a high priority in the county (and surrounding counties) to do further planning and coordination in order to identify regional connections. The **Leaders in Economic Alliance Development (LEAD)** which includes participants from Mason, Lake, Oceana and Newaygo, are working in 2017 to develop a plan for nonmotorized connections in the four-county area. A focus is extending/connecting more areas into the North Country Trail, Iron Belle Trail, Pere Marquette State Trail, William Field Memorial Hart Montague Trail and the Fred Meijer White Pine State Trail.

E

There is conceptual discussion regarding the feasibility of providing a “rail with trail” connection between **Fremont and the Muskegon Area** via the rail corridor. This input was documented at the Outreach Meeting held in Muskegon.

F

There is a desire to connect **Fremont with a proposed Refuge Skills Course** in Sheridan Township.

Also See:
Priorities for North Country Trail/Iron Belle Trail



Newaygo County

Nonmotorized Priorities + Desired Connections

Population: 47,948 (3.1% of Region)

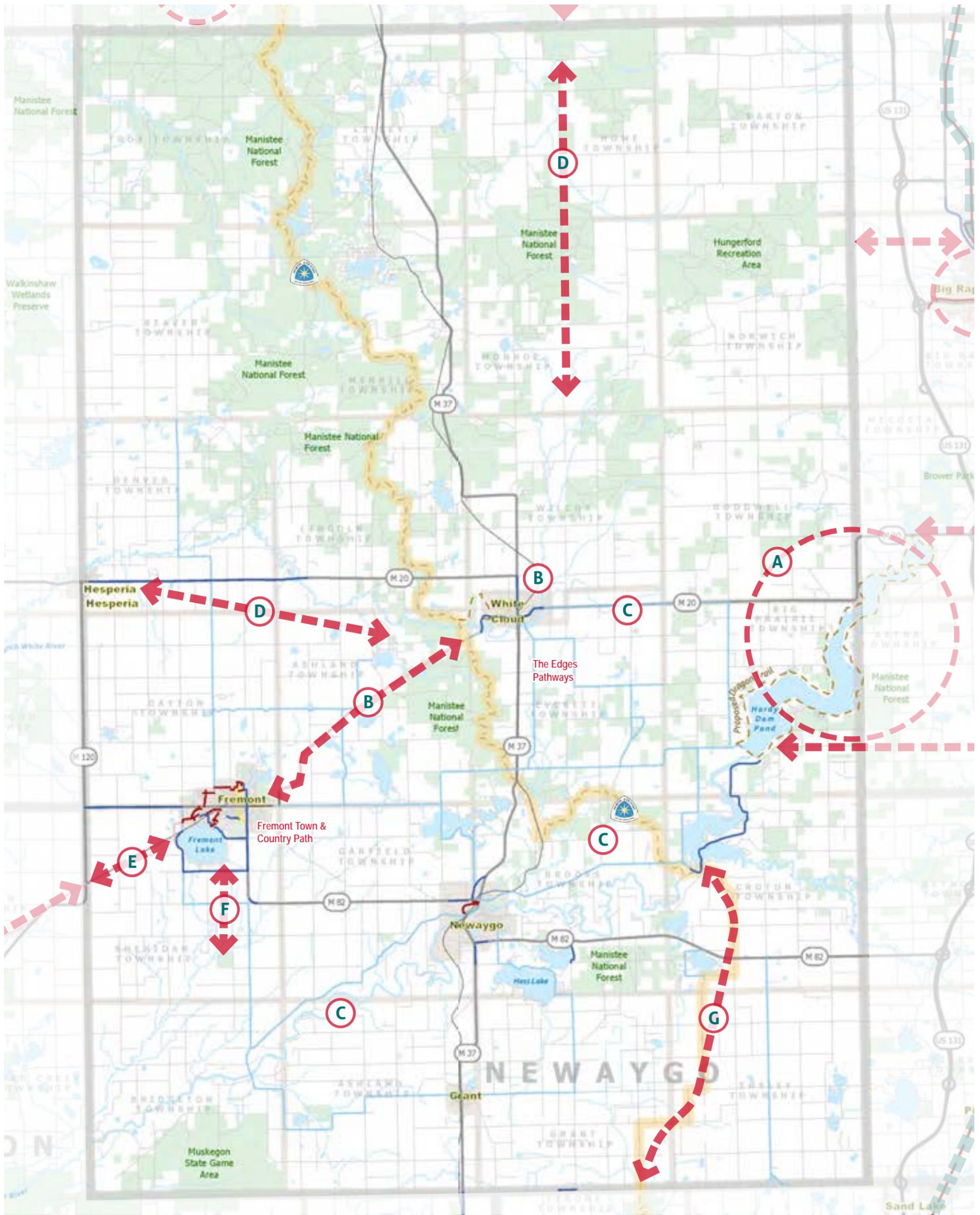
See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



A priority for the North Country Trail Association is to establish off-road trails and improve current road walk for the North Country Trail between the Rogue River State Game Area and Croton Dam.



MDOT Grand Region - Regional Nonmotorized Plan
NEWAYGO COUNTY

Nonmotorized Priorities + Desired Connections Map

August 2017

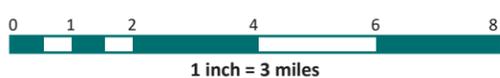


LEGEND

- | | | |
|---------------------------|---------|--|
| Existing | Planned | |
| | | Improved Shared Use Path/Sidepath (>8' wide) |
| | | Unimproved Shared Use Path/Sidepath (>8' wide) |
| | | Bike Lane/Paved Shoulder (>4' wide) |
| | | Shared Lane Marking |
| | | Bike Route (Signed or Mapped) |
| | | Undefined Bikeway (Details Unknown) |
| Statewide/National Routes | | |
| | | U.S. Bike Route 35 |
| | | U.S. Bike Route 20 |
| | | North Lakes Bike Route |
| | | North Country Trail |
| | | Iron Belle Hiking Trail |
- Keys to Text Descriptions of Priorities in Master Plan

Proposed Regional Corridors

Desired Connections





Oceana County

Existing + Planned Networks

Population: 26,105 (1.7% of Region)

Existing + Proposed Nonmotorized Regional Corridors

US Bike Route 35
WF Hart-Montague Trail

(additional regional corridors are emerging as the Leaders in Economic Alliance Development efforts and efforts to improve connectivity to Lake Michigan move forward)

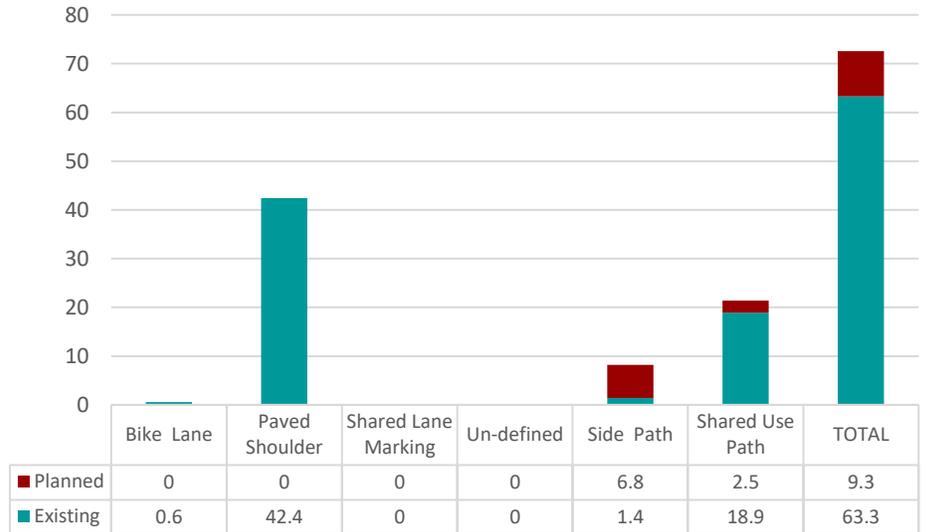
Crash Facts 2011 – 2015

0.3% Percent of total crashes that involve peds/bikes in county

10.0% Percent of total fatalities that involve peds/bikes in county

6.0% Percent of incapacitating injuries that involve peds/bikes in county

Oceana County Facilities by Type (miles)



'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.



Oceana County

Nonmotorized Priorities + Desired Connections

Population: 26,105 (1.7% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



Providing a 5+ mile, shared use path **connection between Pentwater and Hart** is a priority in Oceana County. The proposed Pentwater-Hart Trail route is along Wayne Road, 72nd Avenue, and Tyler Road would connect the two business districts and also provide a connection to the William Field Memorial Hart-Montague Trail. Planning and coordination is in progress.



There is a desire to provide connections between the **William Field Memorial Hart-Montague Trail and Lake Michigan**. Additional planning is needed to discuss, determine support and feasibility. Provide connections to Scenic Drive (B15), Webster, connecting to Cedar Point County Park, Silver Lake State Park, Stony Lake, as well as Muskegon County to the south and Mason County to the north.



There is a desire to provide connectivity between Shelby and the **William Field Memorial Hart-Montague Trail west to Scenic Drive** (possibly via the Shelby Road corridor). US 31 provides a significant barrier for pedestrian and bicycle movement.



It is a high priority in the county (and surrounding counties) to do further planning and coordination in order to identify regional connections. The **Leaders in Economic Alliance Development (LEAD)** which includes participants from Mason, Lake, Oceana, and Newaygo, are working in 2017 to develop a plan for nonmotorized connections. A focus is extending/connecting more areas into the North Country Trail, Iron Belle Trail, Pere Marquette State Trail, William Field Memorial Hart-Montague Trail and the Fred Meijer White Pine State Trail.

Also See:
Priorities for US Bike Routes

OCEANA COUNTY

Nonmotorized Priorities + Desired Connections Map

August 2017



LEGEND

- | | | |
|--|-------------------------------------|--|
| Existing | Planned | Improved Shared Use Path/Sidepath (>8' wide) |
| Unimproved Shared Use Path/Sidepath (>8' wide) | Bike Lane/Paved Shoulder (>4' wide) | Shared Lane Marking |
| Bike Route (Signed or Mapped) | Undefined Bikeway (Details Unknown) | |

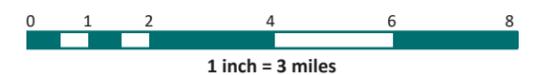
Statewide/National Routes

- U.S. Bike Route 35
- U.S. Bike Route 20
- North Lakes Bike Route
- North Country Trail
- Iron Belle Hiking Trail

A Keys to Text Descriptions of Priorities in Master Plan

Proposed Regional Corridors

Desired Connections





Osceola County

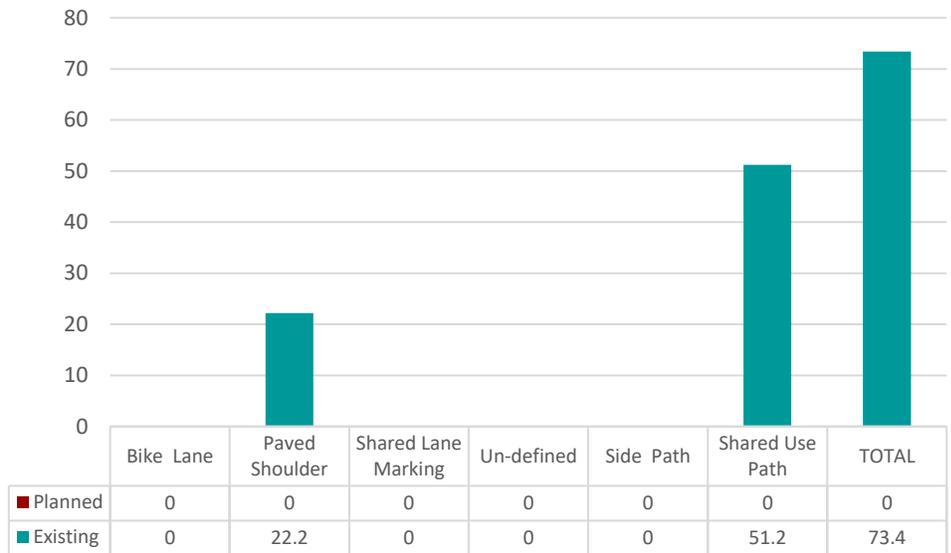
Existing + Planned Networks

Population: 23,058 (1.5% of Region)

Existing + Proposed Nonmotorized Regional Corridors

US Bike Route 20
 FM White Pine Trail
 Pere Marquette State Trail

Osceola County Facilities by Type (miles)



'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.

Crash Facts 2011 – 2015

0.5% Percent of total crashes that involve peds/bikes in county

15.0% Percent of total fatalities that involve peds/bikes in county

2.7% Percent of incapacitating injuries that involve peds/bikes in county



Osceola County

Nonmotorized Priorities + Desired Connections

Population: 23,058 (1.5% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

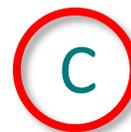
Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.



It is a priority and planned project in Osceola County to **pave the approximately 10.4-mile section of Fred Meijer White Pine Trail** between Reed City and LeRoy. Significant infrastructure improvements are needed as well including bridge and culvert replacements/repairs.



As is a regional priority for the entire Grand Region, coordinated **wayfinding improvements and confidence markers** are a high priority in Osceola County, particularly where **US Bike Route 20 and the White Pine State Trail intersect** in and around LeRoy and where **the White Pine State Trail and Pere Marquette Trail intersect** in Reed City. The desire is to provide signage and markers to direct users to and from these various systems as well as to the various destinations and amenities in the area.



Osceola and Mecosta County have a number of **Amish** communities. Wide paved shoulders along primary routes and corridors can provide a number of benefits including improved conditions for pedestrians, cyclists, and buggies. In areas with heavy buggy use, 6-8' wide paved shoulders should be considered.



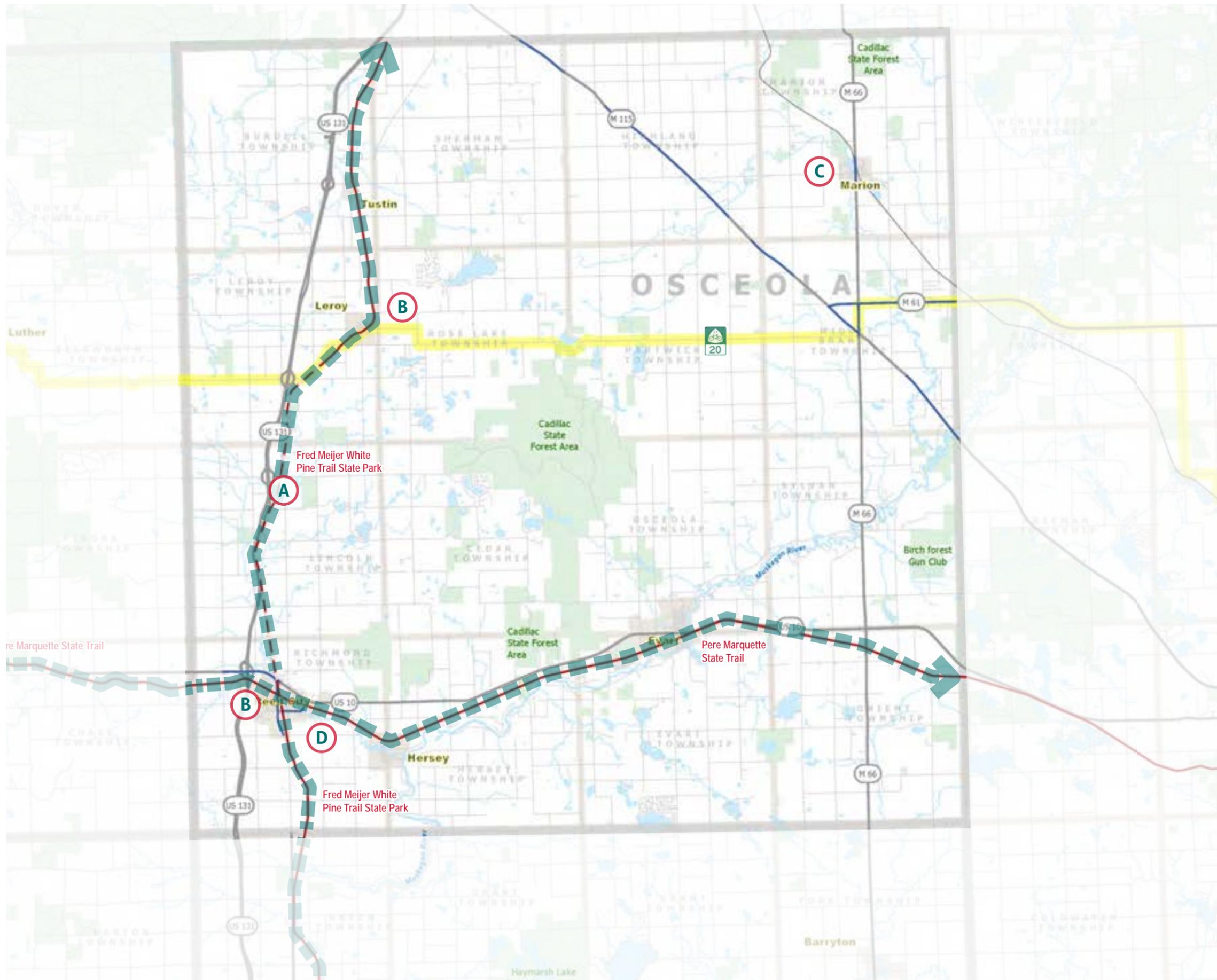
Road crossing improvements along the Pere Marquette Trail and the White Pine State Trail are a high priority, particularly in and around the Reed City area where the trails cross higher speed and higher volume roads such as **BR 10, Old 131, and US 10**.

Also See:
Priorities for US Bike Routes

OSCEOLA COUNTY

Nonmotorized Priorities + Desired Connections Map

August 2017



LEGEND

- | | |
|----------|---------|
| Existing | Planned |
| | |
| | |
| | |
| | |
- Improved Shared Use Path/Sidepath (>8' wide)
 - Unimproved Shared Use Path/Sidepath (>8' wide)
 - Bike Lane/Paved Shoulder (>4' wide)
 - Shared Lane Marking
 - Bike Route (Signed or Mapped)
 - Undefined Bikeway (Details Unknown)

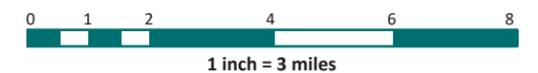
Statewide/National Routes

- U.S. Bike Route 35
- U.S. Bike Route 20
- North Lakes Bike Route
- North Country Trail
- Iron Belle Hiking Trail

Keys to Text Descriptions of Priorities in Master Plan

Proposed Regional Corridors

Desired Connections





Ottawa County

Existing + Planned Networks

Population: 279,955 (17.8% of Region)

Existing + Proposed Nonmotorized Regional Corridors

- US Bike Route 35
- North Bank Trail
- Grand River Explorers Trail
- Spoonville Trail
- Musketawa Trail
- Lakeshore Trail
- FM Kenowa Trail
- Macatawa Trail
- Macatawa River Greenway

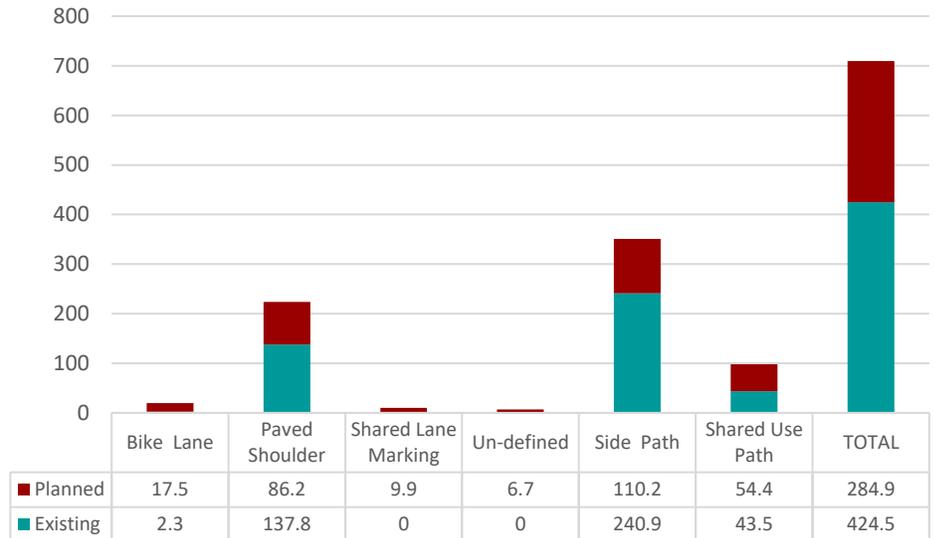
Crash Facts 2011 – 2015

1.8% Percent of total crashes that involve peds/bikes in county

22.4% Percent of total fatalities that involve peds/bikes in county

12.1% Percent of incapacitating injuries that involve peds/bikes in county

Ottawa County Facilities by Type (miles)



'undefined' indicates the source plan was not clear as to what type of facility is being proposed and/or what side of the roadway it is being proposed.



Ottawa County

Nonmotorized Priorities + Desired Connections

Population: 279,955 (17.8% of Region)

See corresponding Proposed Regional Corridors + Priorities Map. Lettering does not signify order of priority but keys to Map.

Also refer to Grand Region Overarching Nonmotorized Strategies + Priorities for details on the region-wide focus.

Additional project development opportunities may present themselves over time. As appropriate, these opportunities should be considered and/or pursued in addition to the priorities listed here.

A

The completion of the **Spoonville Trail** which will connect the proposed North Bank Trail to the proposed Grand River Explorers Trail across the Grand River via the new M231 bridge is nearing completion. It is a priority to complete the final segment near Leonard and 112th Streets. This section was awarded MDNR Trust Fund dollars in late 2016.

B

Ottawa County is leading the planning for the 30-mile **Grand River Explorers Trail** which is planned to traverse along the south side of the Grand River, across Ottawa County from Grand Haven to Grand Rapids. The County Parks Department has set a goal to have the trail substantially finished by 2021 and connecting major resources and destinations such as Millennium Park, Grand Valley State University, Grand Ravines Park, Eastmanville Bayou, Bass River Recreation Area, and the Grand Haven lighthouse.

C

The **North Bank Trail** is proposed to cross Ottawa County and connect Spring Lake to Grand Rapids and the Fred Meijer Pioneer Trail. The North Bank Trail would traverse Crockery Township, Polkton Township, Coopersville, and Wright Township. The portion from Coopersville to Grand Rapids is proposed within a rail corridor that has a dinner train and occasional freight use.

D

It is a priority to improve east-west nonmotorized **access across US-31**. One such location is **Croswell Street** in Port Sheldon Township. An improved crossing condition would allow for connectivity to the side path along Croswell that connects into the Lakeshore Trail.

E

The **intersection of Lakewood Boulevard and N River Avenue as well as Douglas Avenue and River Avenue** (just north of Holland and the Macatawa River) is a high priority intersection for improvements for all users. They are important connections, high crash areas, and challenging for walking and biking.

F

The **I-196/Byron Road interchange**, east of Zeeland, has been noted as a significant barrier for connectivity and nonmotorized accessibility to/from the Fred Meijer Kenowa Trail.

Also See:
Priorities for US Bike Routes



Ottawa County

Nonmotorized Priorities + Desired Connections

Population: 279,955 (17.8% of Region)

See corresponding Proposed Regional
See corresponding Proposed Regional
Corridors + Priorities Map. Lettering
does not signify order of priority but
keys to Map.

Also refer to Grand Region Overarching
Nonmotorized Strategies + Priorities for
details on the region-wide focus.

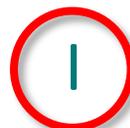
Additional project
development
opportunities may
present themselves
over time. As
appropriate, these
opportunities should
be considered
and/or pursued in
addition to the
priorities listed here.



It is a priority in Ottawa County to implement 4' wide paved shoulders along **Lakeshore Drive from New Holland to 168th Street** (2018-2021). In addition, Ottawa County plans to evaluate opportunities to include 4' wide **paved shoulders** along **Leonard Road** from 148th Ave. to 24th Ave (2018-2023), although topographical challenges exist.



There is considerable momentum and support in Ottawa County for planning and implementing nonmotorized facilities, as well as advocacy and education related to pedestrians and bicyclists. This is illustrated with the completion of the **Macatawa Area Coordinating Council Nonmotorized Plan (2014)** which highlights a number of proposed "regional" routes in the **MACC Area**, the efforts being led by **Ottawa County**, including the updating of their Plan in 2017, the **City of Holland's work on updating their Bike/Ped Transportation Plan** with a focus on completing an east-west route/facility, the recent formations of advocacy groups including **Pedal Holland and the Lakeshore Cycling Coalition**, and the **passing of trail/nonmotorized millages** in several Ottawa County communities in 2016 including Crockery Township and Grand Haven Township.



The completion of the planned **Macatawa River Greenway** (a 10-mile corridor) is a priority in Ottawa County to connect Holland Township and the City of Holland, with Zeeland Township and into the Fred Meijer Kenowa Trail. Improving facilities along **Chicago Drive and 8th Street corridor** are important connections to the Macatawa River Greenway as well as the Holland Energy Park.

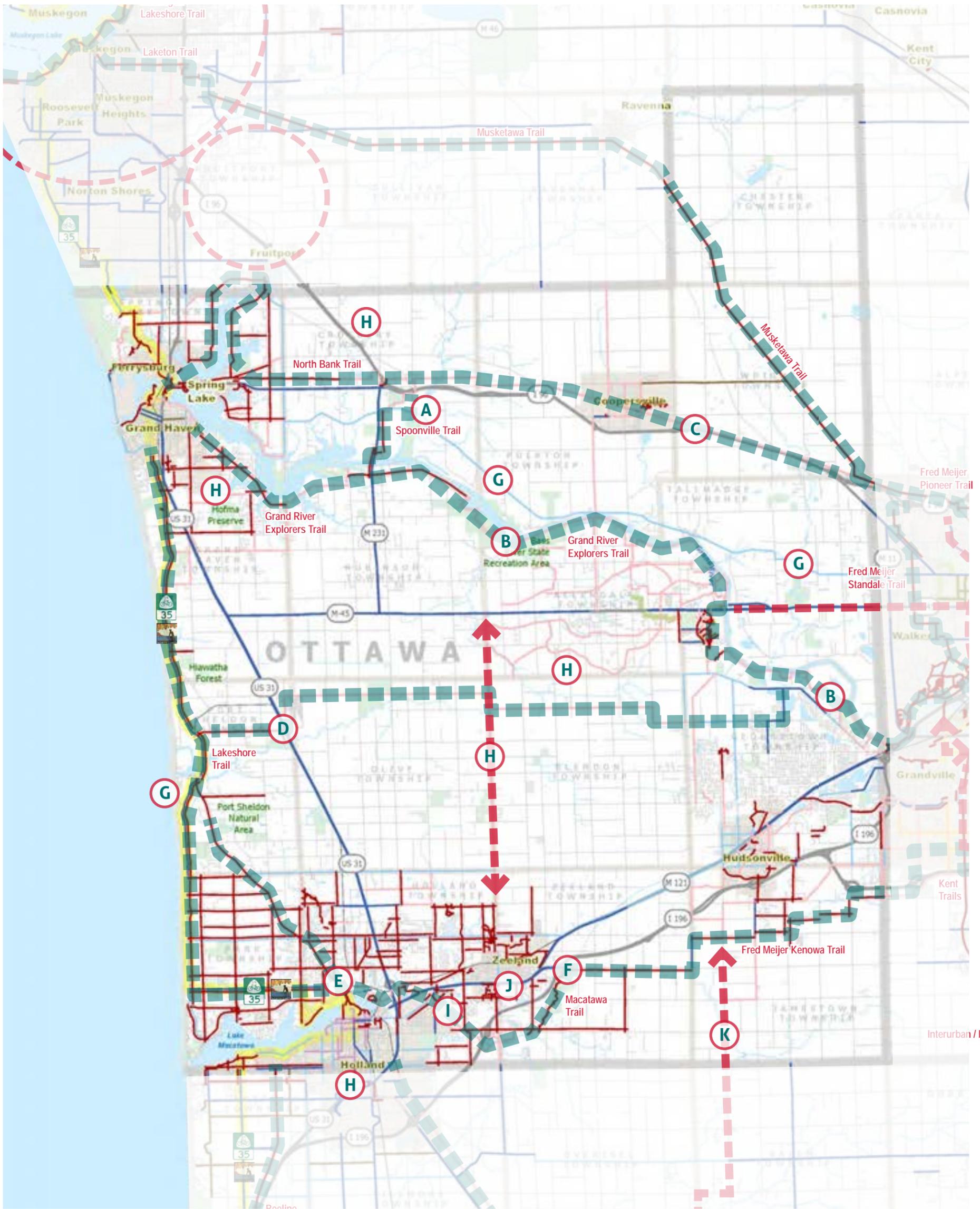


A priority in **Zeeland** is for a nonmotorized **overpass or underpass** at Chicago Drive and State 96th.



Salem Township (in Allegan County) is interested in feasibility of **wide paved shoulders** to create north-south connection between Allegan and the Fred Meijer Kenowa Trail along roads without heavy vehicular and truck traffic. Further planning is needed.

Also See:
Priorities for US Bike Routes



MDOT Grand Region - Regional Nonmotorized Plan

OTTAWA COUNTY

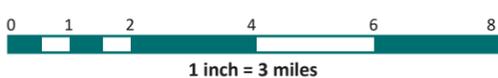
Nonmotorized Priorities + Desired Connections Map

August 2017



LEGEND

- | | | | |
|--|----------|--|--|
| | Existing | | Planned |
| | | | Improved Shared Use Path/Sidepath (>8' wide) |
| | | | Unimproved Shared Use Path/Sidepath (>8' wide) |
| | | | Bike Lane/Paved Shoulder (>4' wide) |
| | | | Shared Lane Marking |
| | | | Bike Route (Signed or Mapped) |
| | | | Undefined Bikeway (Details Unknown) |
-
- | | |
|--|---------------------------|
| | Statewide/National Routes |
| | U.S. Bike Route 35 |
| | U.S. Bike Route 20 |
| | North Lakes Bike Route |
| | North Country Trail |
| | Iron Belle Hiking Trail |
-
- | | |
|--|--|
| | Keys to Text Descriptions of Priorities in Master Plan |
| | Proposed Regional Corridors |
| | Desired Connections |





APPENDIX: Highlighted MDOT Guidance



MDOT has developed additional guidance and considerations for staff and partnering agencies to reference when planning and designing nonmotorized projects within MDOT right-of-way.

Considerations for projects located within MDOT right-of-way

As a nonmotorized project that is within or crosses MDOT right-of-way moves forward, there are a number of considerations that must be addressed prior to a permit being issued including the following:

- Identification of affected MDOT slopes, grades, retaining wall, and other structures
- Nonmotorized routing options
- Wetland, floodplains, and streams impacted by the proposed crossings, and related permit issues
- Tree removals
- Impacts to threatened or endangered species
- Impacts to built and natural environment
- Required clearances over, under, and adjacent to MDOT facilities
- ADA issues for the nonmotorized user
- Safety and security issues for nonmotorized users
- Utility impacts
- Drainage impacts
- Traffic safety issues for both nonmotorized and highway traffic
- Maintenance plans and associated funding commitments from agencies responsible for maintenance and future rehabilitation activities
- Impact on future plans for the highway corridor

Guidelines for Nonmotorized Facilities Along State Trunkline Highways

Constructing nonmotorized facilities for pedestrians and bicyclists along a state trunkline highway will need to consider a number of variables and impacts, depending on the facility type, location (urban or rural), traffic volumes, and other contextual elements. In most cases, construction of nonmotorized facilities will require a permit from MDOT, prior to construction; and the permit conditions will be identified on a case by case basis.

In general, most nonmotorized facilities will be constructed by a local agency and will require a commitment to on-going maintenance and rehabilitation. Funding will be provided by the local agency with jurisdiction over the nonmotorized facility; however, there may be opportunities to partner with MDOT with nonmotorized facility construction on a new or replaced roadway or bridge. The nonmotorized facility route will also need to be included in a community or regional nonmotorized plan. The safety of all system users is the primary consideration before allowing a nonmotorized facility on or near a state trunkline.

A. **TRUNKLINE BRIDGES**

Widths of nonmotorized facilities are typically based off AASHTO's Guide for the Development of Bicycle Facilities. Any additional width for nonmotorized facilities on bridges, beyond the current standards or guidelines, will need funding identified.

Bridge Design Guides & Shoulder Width for New or Replaced Bridges

- Nonmotorized facilities are not allowed on limited access freeway bridges.
- Shoulders on Non-Freeway corridors and bridges will be constructed based on current design guidelines.

Nonmotorized/Pedestrian Facility Requirements

- A raised sidewalk may be allowed on bridges with speeds below design guidelines.
- Nonmotorized facilities shall be separated from traffic using a concrete barrier, or other approved comparable technique, for speeds greater than 40mph.

Bridge Length & Clear Zone Distance

- Nonmotorized facilities can be located behind bridge piers, with filler walls between piers, appropriate slope treatments or retaining walls.
- When replacing a bridge spanning a roadway, generally the face of MDOT's new bridge abutments will be placed outside the clear zone. The clear zone is measured from the edge of the outside traveled lane. All min/max distances are based on roadway side slopes, number of lanes, ADT and related factors.

Grade Separated Nonmotorized Facilities:

- Separate nonmotorized facilities may be constructed over or under a state trunkline, either as a bridge or a tunnel, following MDOT and AASHTO guidelines, and with MDOT design approvals. Permits from other regulatory agencies will be the responsibility of the nonmotorized facility owner.
- Widths of nonmotorized facilities are typically based off AASHTO's Guide for the Development of Bicycle Facilities.
- A permit from MDOT is required, prior to construction; and the permit conditions will be identified on a case by case basis; MDOT shall review all structural and environmental impacts, in coordination with other regulatory agencies, prior to issuing a permit.
- All construction and on-going rehabilitation and maintenance costs will be the responsibility of the agency with jurisdiction over the nonmotorized facility; an approved maintenance agreement with MDOT will also be required.

B. TRUNKLINE ROADWAYS

- A permit from MDOT is required for all proposed nonmotorized facilities, prior to construction; and the permit conditions will be identified on a case by case basis; MDOT shall review all structural and environmental impacts, in coordination with other regulatory agencies, prior to issuing a permit
- Permits from other regulatory agencies will be the responsibility of the nonmotorized facility owner
- Nonmotorized facilities are not allowed on limited access freeways. With limited

exceptions, nonmotorized facilities may be allowed as close as practicable to the Limited Access Right-of-Way (LA-ROW) fence or property line, within LAROW or adjacent to LAROW, if no reasonable alternative is available.

- Thorough review and evaluation of nonmotorized facility proposals, adjacent to MDOT LA-ROW or within MDOT LA-ROW, will be performed and considered on a case by case basis, and will require MDOT and FHWA approvals.
- Shoulders along rural trunklines may be used for nonmotorized travel, but generally will not be signed.
- Signed nonmotorized shoulders along trunklines will require local participation, designation in a nonmotorized plan and will be constructed to the appropriate and current AASHTO guidelines
- Road Diets or 4 to 3 lane conversions with nonmotorized facilities added may be allowed on surface trunklines, generally limited to urban areas, consistent with MDOT policies, practices and guidelines; this will include consideration of the efficient and safe operation of all traffic on the roadway.
- This concept usually includes a pilot program period with changes to pavement markings, and no permanent physical modifications to the roadway.

Requesting Shared Use Paths within Limited Access Right-of-Way

MDOT manages the operation and use of Limited Access Right-of-Way (LAROW). A LAROW is highway with access limited to intersections – driveways are generally not allowed. Approval and location of a shared use path/trail within LAROW is subject to the approval of not just MDOT, but also the FHWA. **A key first step is to contact your local MDOT TSC to begin discussing the idea and process early in the planning phase.**

MDOT developed a three-page document in January 2017 to provide guidance to MDOT staff and

stakeholders that describes a variety of considerations including items such as:

- A two-step application process to allow the applicant to receive a preliminary response from MDOT and FHWA without having to invest significant resources in developing plans that would not be permitted.
- Demonstrate no feasible alternative.
- Designed per MDOT, AASHTO specifications.
- Agree to assume all financial and operational responsibility and all associated improvements.
- Have an approved master plan identifying the proposed path/trail and preliminary access points.
- Show connectivity to/between other paths.
- Have adopted resolutions from all impacted local and county governments in support of the shared use path/trail.
- Draft Operation and Maintenance Plan agreement between MDOT and applicant.

There are a number of other considerations if planning a shared use path within LAROW and early consultation with the local MDOT TSC staff is critical.

APPENDIX: Resources List

This Plan references and provides links to a number of resources. These resources have been listed here to serve as a quick reference for Plan users/readers.

RESOURCE LINKS

Grand Region Nonmotorized Plan Project Website www.walkbike.info/grand-region

Grand Region Existing Nonmotorized Plans and Resources <http://walkbike.info/grand-region/doc-map/>

Federal or National Studies, Research, Policies + Resources

[FHWA Bicycle and Pedestrian Program Resources, Research and Encouragement](#)

[USDOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations \(2010\)](#)

[AASHTO: Guide for the Development of Bicycle Facilities 2012](#)

[\(NACTO\) Urban Bikeway Design Guide](#)

[FHWA 2013 Guidance Memo](#)

Institute of Transportation Engineers (ITE) [Designing Urban Walkable Thoroughfares](#)

[FHWA Separated Bike Lane Planning and Design Guide \(2015\)](#)

[FHWA Small Town and Rural Multimodal Networks \(2016\)](#)

[FHWA Guidance on Optimizing Rumble Strip Design](#)

Michigan and MDOT Laws, Studies, Research + Projects

[MDOT's Bicycling in Michigan website](#)

[Michigan's Iron Belle Trail](#)

[Michigan Public Act 135 of 2010 \(Complete Streets\)](#)

[Michigan Complete Streets Website](#)

[MDOT Context Sensitive Solutions \(CSS\)](#)

[2014 Community and Economic Benefits of Bicycling in Michigan](#)

[Best Design Practices for Walking and Bicycling in Michigan](#)

[MDOT Guidance for Trunkline Main Streets \(2016\)](#)

[Michigan Manual on Uniform Traffic Control Devices \(MMUTCD\)](#)

Regional Resources

[Grand Rapids Driving Change Education Campaign](#)

[West Michigan Regional Prosperity Alliance](#)

Funding Resources

[Federal Highway Administration's Bicycle and Pedestrian Funding](#)

[Safe Routes to School Program](#)

[Congestion Mitigation and Air Quality \(CMAQ\)](#)

[Michigan Transportation Alternatives Program](#)

[USDA Rural Development Community Facilities Program](#)

[Michigan Natural Resources Trust Fund \(MNRTF\)](#)

[Land and Water Conservation Fund \(LWCF\)](#)

[Recreation Passport Grants](#)