

MDOT BAY REGION REGION NONMOTORIZED PLAN



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Flushing Riverview Trail - Courtesy of Genesee County



ACKNOWLEDGEMENTS

We would like to thank our partners in the development of the MDOT Bay Region Nonmotorized Transportation Plan for their participation, ideas, and collaborative efforts.

Deb Alfonso,
 Intermodal Services Manager, MDOT
 Cynthia Krupp, Project Manager, MDOT
 Jay Reithel, Region Planner, MDOT
 Josh DeBruyn,
 Bicycle and Pedestrian Coordinator, MDOT
 Arenac County Heritage Route Authority
 Bay City Area Transportation Study
 Bay City Riverwalk Rail Trail
 MDOT Bay Region
 Pedestrian and Bicycle Committee
 MDOT Mapping and Media Services
 Friends of Flint River Trail
 Friends of Pere Marquette Rail Trail
 Friends of Rails and Trails
 Genesee County Metropolitan
 Planning Commission

Great Lakes Bay Regional Trail
 League of Michigan Bicyclists
 Midland Area Transportation Study
 Mid-Michigan Community Pathway Group
 M-15 Heritage Route Committee
 M-25 Heritage Route Committee
 Participating County
 Parks and Recreation Staffs
 Participating County Road Commissions
 Saginaw Area GIS Authority
 Saginaw Metropolitan Area Transportation Study
 Saginaw Transit Authority Regional Services
 St. Clair County
 Metropolitan Planning Commission
 Southern Links Trailway Management Council
 Tri-City Cyclists
 US-23 Heritage Route Group

Additional thanks to all those who participated in the outreach sessions and provided review and comments during the plan's development.



BayZil Rail Trail Trailhead, Bay City - Photo by EMCOG Staff

EXECUTIVE SUMMARY

In 2010, the Michigan Department of Transportation (MDOT) Bay Region completed the first nonmotorized plan for the region. Since that time, numerous nonmotorized facilities have been planned, started, and completed, promoting the need to update the MDOT Bay Region Nonmotorized Plan.

The 2019 MDOT Bay Region Nonmotorized Plan Update is a region-wide plan that can be consulted by local communities and transportation agencies to help guide nonmotorized investment throughout the region. The plan provides a vision that emphasizes the continual development of transportation facilities to accommodate bicyclists and pedestrians, to identify regional and local corridors, identify gaps in trail development, and identify potential funding sources for future development, as well as any new policies/guidance, procedures and/or programs. The update is also intended to serve as an informational document that will enhance ongoing efforts at the state and local level.

Since 2010, the MDOT Bay Region has been increased in area, adding two additional counties - Shiawassee and St. Clair - to the region. The MDOT Bay Region now encompasses the eastern central portion of lower Michigan and includes 15 counties: Arenac, Bay, Clare, Genesee,

Gladwin, Gratiot, Huron, Isabella, Lapeer, Midland, Saginaw, St. Clair, Sanilac, Shiawassee, and Tuscola. (See map on next page.)

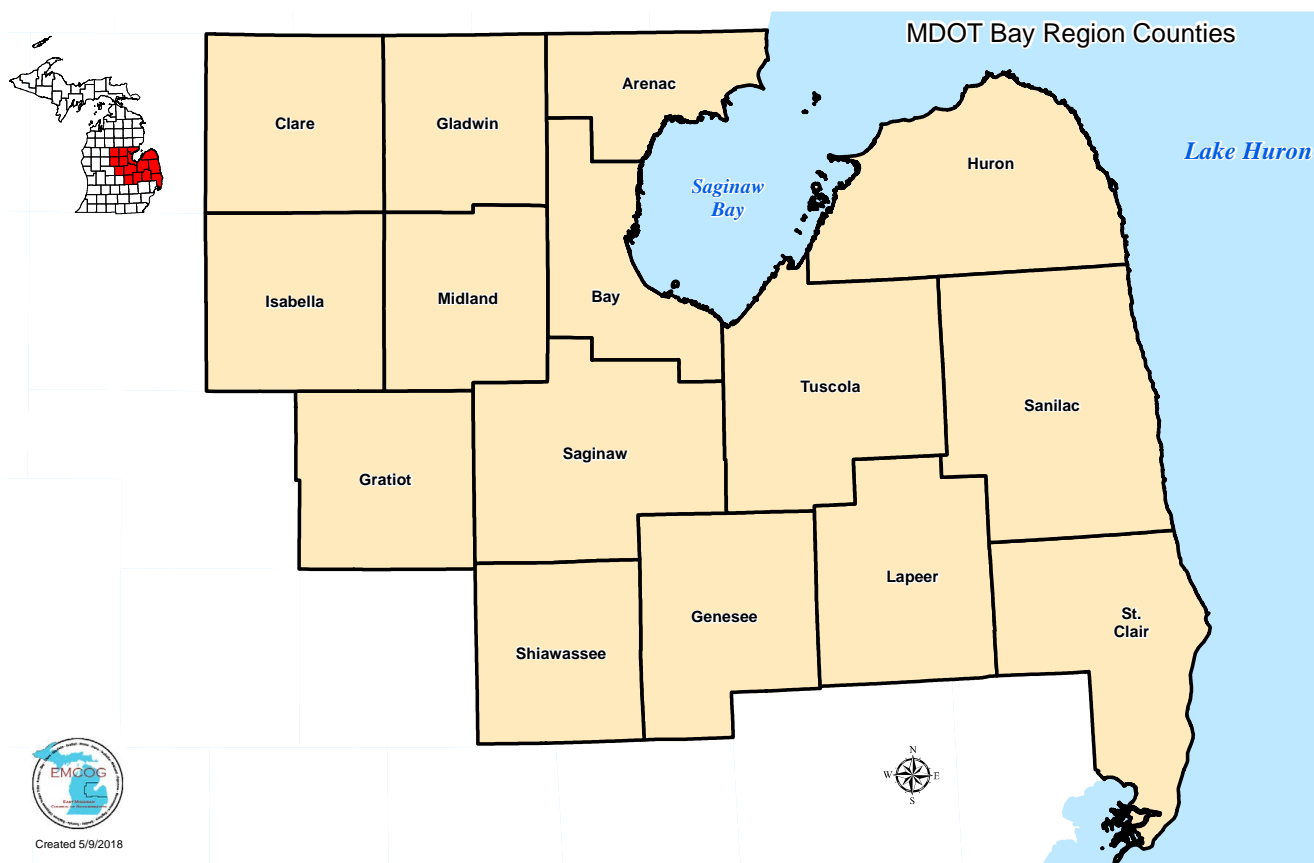
The 2019 MDOT Bay Region Regional Nonmotorized Plan was developed over a 27-month period from July 2017 to September 2019.

The goal of the 2019 plan is: Identify a safe, comfortable, convenient, and interconnected nonmotorized transportation network for pedestrians and bicyclists to travel throughout the MDOT Bay Region.

To achieve this goal, the following objectives have been identified:

- Document existing, and proposed networks;
- Identify existing gaps in the region to enhance nonmotorized transportation;
- Help identify funding sources for future nonmotorized investment;
- Foster cooperative planning efforts across municipal/county boundaries; and
- Leverage opportunities for infrastructure expansion and filling gaps of nonmotorized facilities.

MAP 1 MDOT BAY REGION



The plan focuses on the MDOT Bay Region and its nonmotorized amenities with the intent to identify gaps in the current network. While there are many types of infrastructure to address the mobility needs of bicyclists and pedestrians, this plan focuses on shared use paths, bike lanes, and paved shoulders greater than 4 feet in width. These types of infrastructure have been identified in the region and will be used for existing and proposed facilities, and gap analysis. Along with the completion of the gap analysis was the identification of resources that could be utilized in funding the facilities and filling in the gaps.

The MDOT Bay Region Pedestrian and Bike Committee (“Committee”) was utilized as the advisory committee throughout the nonmotorized plan update process. The Committee is comprised of representatives of local municipalities, metropolitan planning organizations (MPOs), bicycle organizations, bicycle shop owners, road commissions, park and recreation commissions, and state agencies.

These members were contacted at the beginning of the update process and throughout to provide updates on local projects that would enhance facilities in their immediate region. With the information provided, the most current data on shared use paths, and road shoulders in excess of 4 feet or greater in width, is included as part of the plan.

Based on the information received as of May 1, 2019, the MDOT Bay Region includes 898 miles of nonmotorized facilities, including 369 miles of shared use paths and 498 miles of paved shoulders 4 feet or greater. In addition, the MDOT Bay Region is proposing another 246 miles of nonmotorized facilities.

MDOT Bay Region Setting and Profile

The MDOT Bay Region encompasses the east central portion of lower Michigan and includes 15 counties: Arenac, Bay, Clare, Genesee, Gladwin, Gratiot, Huron, Isabella, Lapeer, Midland, Saginaw, St. Clair, Sanilac, Shiawassee, and Tuscola. The region is fairly well-connected in terms of major highways and roads, including I-69, I-75, I-94, US-10, US-23, and US-127. The region has a main Amtrak passenger rail line between Port Huron and Chicago, the Blue Water, which supports roll-on bicycle transport by reservation.

The MDOT Bay Region includes a number of destinations and metropolitan/micropolitan statistical areas, including Flint, Bay City, Saginaw, Midland, Port Huron, Mt. Pleasant, Owosso, and Alma, and is home to the Saginaw Chippewa Indian Tribe of Michigan. The region is also home to a number of four-year universities/colleges, including Alma College, Central Michigan University, Davenport University, Kettering University, Northwood University, Saginaw

Chippewa Tribal College, Saginaw Valley State University, and the University of Michigan-Flint. Additionally, several community colleges are also located in the region, including Delta Community College, Mid-Michigan Community College, Mott Community College, and St. Clair Community College. Some of the public lands in the region include the Shiawassee National Wildlife Refuge, Bay City State Park, Lapeer State Game Area, and the Albert E. Sleeper State Park.

Population Change

The 2010 census shows a population in the MDOT Bay Region of 1,456,291. This represents a 1.7 percent decrease from 2000. 2010 county populations ranged from 17,269 in Arenac County to 436,148 in Genesee County. While the state of Michigan had an overall decrease in population during this time period, four counties in the region had an increase in population - Gratiot, Isabella, Lapeer, and Midland, with Isabella County experiencing the largest growth over the 10-year period at 11 percent.

TABLE 1
POPULATION CHANGE

County	2000	2010	Percent Change
Arenac	17,269	15,899	-7.9%
Bay	110,157	107,771	-2.2%
Clare	31,252	30,926	-1.0%
Genesee	436,148	425,790	-2.4%
Gladwin	26,023	25,692	-1.3%
Gratiot	42,285	42,476	0.5%
Huron	36,079	33,118	-8.2%
Isabella	63,351	70,311	11.0%
Lapeer	87,904	88,319	0.5%
Midland	82,874	83,629	0.9%
Saginaw	210,042	200,169	-4.7%
St. Clair	164,235	163,040	-0.7%
Sanilac	44,547	43,114	-3.2%
Shiawassee	71,687	70,648	-1.5%
Tuscola	58,266	55,729	-4.4%
Bay Region	1,482,119	1,456,291	-1.7%
Michigan	9,938,480	9,883,640	-0.6%

Source: U.S. Census Bureau

Median Age

The median age in the MDOT Bay Region has been increasing over the past several decades, as is the case statewide and nationally. The following table illustrates the median age in each of the 15 counties and the state of Michigan. The median age in Michigan is 38.9 years old. Of the 15 counties in the region, only three - Genesee, Gratiot, and Isabella - have a lower median age. Isabella County's median age is skewed to a lower median age due to the large college population. Gladwin (47.7), Huron (46.8), and Arenac (46.7) have the highest median age.

TABLE 2
MEDIAN AGE

County	2000	2010	Percent Change
Arenac	40.1	46.7	14.1%
Bay	38.4	41.7	7.9%
Clare	40.5	45.3	11.9%
Genesee	35.0	38.5	10.0%
Gladwin	42.3	47.7	12.8%
Gratiot	35.6	38.7	8.7%
Huron	41.2	46.8	13.6%
Isabella	25.1	25.1	0.0%
Lapeer	35.9	41.6	15.9%
Midland	36.3	40.4	11.3%
Saginaw	36.3	39.5	8.8%
St. Clair	36.4	41.3	13.5%
Sanilac	37.8	42.8	13.2%
Shiawassee	36.4	40.3	10.7%
Tuscola	37.0	41.7	12.7%
Michigan	35.5	38.9	9.6%

Source: U.S. Census Bureau

Population Density

As illustrated in the following table and on the Population Density Map, the greatest density of people in the region are in and around the major cities, including Flint, Saginaw, Bay City, and Port Huron. Genesee County has the greatest number of people per square mile (669), while Huron County has the lowest density, with 40 people per square mile (2010). Due to the lower population densities within the Bay Region, many of the rural roads have limited daily average traffic levels and are ideal for nonmotorized travel. This travel is further enhanced by the relatively level terrain throughout the Bay Region.

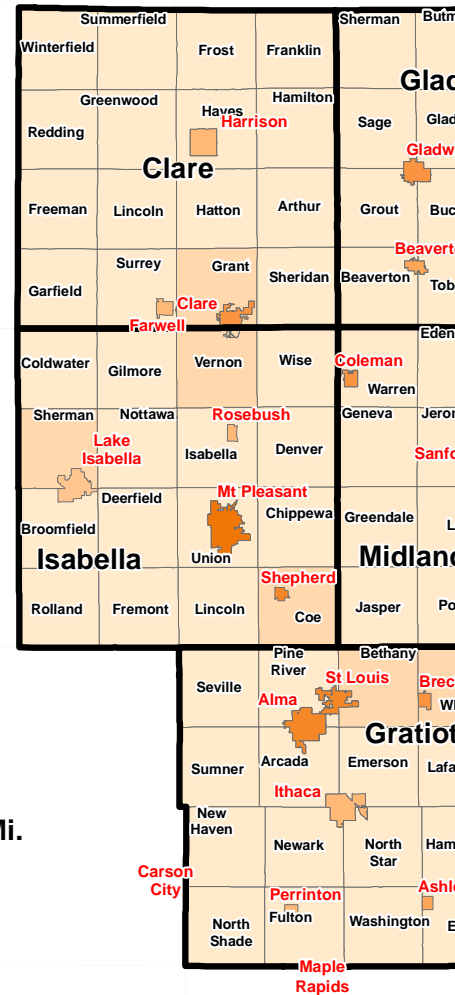
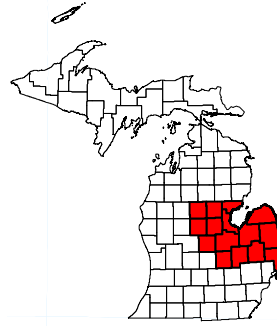
TABLE 3
PERSONS PER SQUARE MILE (2010)

County	2010
Arenac	43.8
Bay	243.7
Clare	54.8
Genesee	668.5
Gladwin	51.2
Gratiot	74.7
Huron	39.6
Isabella	122.8
Lapeer	137.4
Midland	162.0
Saginaw	250.2
St. Clair	226.1
Sanilac	44.8
Shiawassee	133.1
Tuscola	69.4
Michigan	174.8

Source: U.S. Census Bureau

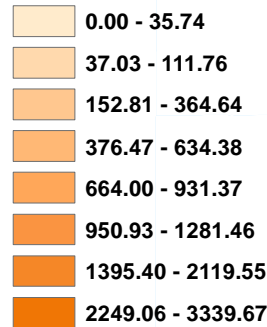
MAP 2

MDOT BAY REGION POPULATION DENSITY



Legend

Population per Sq. Mi.

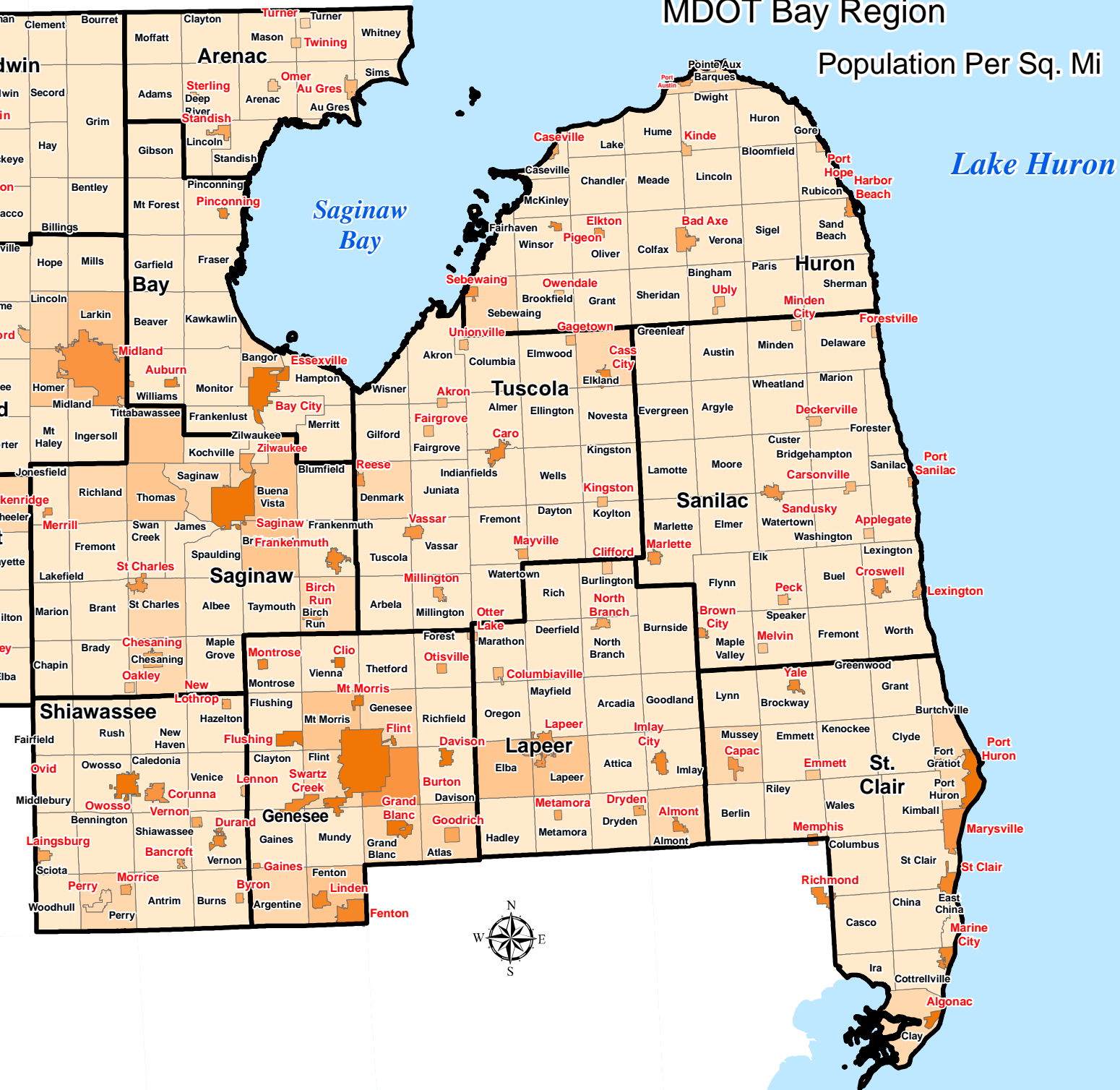


Created 10/30/2018

Source: 2010 Census

MDOT Bay Region

Population Per Sq. Mi





Bay-Hampton Railtrail Sign - Photo by EMCOG Staff

INTRODUCTION

Bicycling and walking are healthy alternatives to the automobile for many types of trips. They can also play an important role in helping the region reduce congestion, improve air and water quality, and provide significant individual health benefits, improved recreational opportunities and more livable communities. The desired result will be a safer, more balanced and sustainable transportation system by providing additional modal choices to more people.

The 2019 MDOT Bay Region Nonmotorized Plan (“Plan”) has been updated to provide a regional overview of pedestrian and bicycle facilities with respect to shared use paths, paved shoulders 4 feet or greater in width, and bike lanes. (“Shared use paths” shall include side paths as well as shared use paths.)

Bikeways and walkways are identified throughout the plan as nonmotorized facilities. These facilities have been identified as either regional or local corridors. Regional corridors are those facilities that are primary arteries for nonmotorized travel. Regional corridors can be located entirely within the MDOT Bay Region (Mid-Michigan Community Pathway or Southern Links Trailway), or they can extend into other regions (Pere Marquette, Fred Meijer Heartland Trail). Local corridors are secondary arteries for nonmotorized travel and are located entirely within the MDOT Bay Region.

The 2019 MDOT Bay Region Nonmotorized Plan replaces the plan developed and published by the East Central Michigan Planning and Development Regional Commission (ECMPDRC) in 2010.

PLAN OVERVIEW

Why Create a Nonmotorized Transportation Plan?

In 2010, the counties that comprised the MDOT Bay Region created the MDOT Bay Region Nonmotorized Plan to identify existing and future nonmotorized facilities. The 2019 update includes St. Clair and Shiawassee counties as a result of a realignment of the MDOT Bay Region's boundaries in 2017.

The document includes four components:

1. Identification of the benefits of nonmotorized transportation;
2. Identification of the existing nonmotorized facilities within the 15-county MDOT Bay Region;
3. Identification of proposed nonmotorized facilities; and
4. Completion of an analysis identifying gaps in the regional nonmotorized network.

SWOT Analysis:

As part of the identification of benefits of nonmotorized transportation, on May 16, 2018, the Bike and Pedestrian Committee completed a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis (see table 4). The Bike and Pedestrian Committee is the advisory committee to the team for the plan. This analysis not only assisted in identifying the benefits and insights for future actions to strengthen the MDOT Bay Region nonmotorized network, but also identified threats and weaknesses that can be addressed to further enhance the nonmotorized transportation network in the Bay Region. Below is the SWOT analysis.

TABLE 4
STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS (SWOT) ANALYSIS

Strengths	Weaknesses
<ul style="list-style-type: none"> • Regional coordination/cooperation • Strong existing system in place • Health benefits to nonmotorized travel • Economic benefits resulting from the network • Plenty of local support (foundations active in funding activities) • High level of public awareness and support 	<ul style="list-style-type: none"> • (Lack of) funding • Lack of data on use of facilities (user counts are not in place) • Timing of funding sources not consistent • (Lack of) rating system to determine condition of paths
Opportunities	Threats
<ul style="list-style-type: none"> • Connect network • Education outreach • Use of bicycle/pedestrian counters • Creation of software to rate condition of paths 	<ul style="list-style-type: none"> • (Lack of) funding • Maintenance costs • Local opposition • Design guidelines at MDOT need to be updated to include all types of construction • Continual funding criteria changes

Strengths: Regional coordination and cooperation, a strong existing system is in place, health benefits to nonmotorized travel, economic benefits resulting from the network, strong local support, and a high level of public awareness of the nonmotorized transportation system in the MDOT Bay Region. The cooperation and collaboration of the local municipalities and recreational groups have enhanced the expansion of local facilities within the region. By working together and creating more regional groups, such as the Great Lakes Bay Regional Trail group and the Mid-Michigan Communities Pathway group, the expansion

of local facilities such as the BayZil Rail Trail have not only occurred but are flourishing within the MDOT Bay Region. Health benefits to the users of the facilities are another strength of nonmotorized transportation. Economic benefit derived from nonmotorized transportation is not only the result of direct sales revenues but also includes indirect revenues from restaurants and hotels. Local support through local foundations provides funding as match for larger-scaled projects, which also promotes the use of the local facilities, increasing the public awareness and use of the facilities.

Opportunities: Connecting the network, education outreach, use of bicycle counters for the facilities, and creation of software to rate trail/path conditions. Connecting the network and education outreach within the region are much more easily attainable utilizing the region's strengths. Because of the number of organizations currently located within the region and their base, additional opportunities have been addressed. These include but are not limited to utilization of bicycle/pedestrian counters and creation of software to rate the condition of paths. These are just now beginning to emerge but are believed to be of significant benefit in terms of future facilities maintenance. St. Clair and Genesee counties are two communities using these tools.

Weaknesses: A lack of funding, a lack of data on the use of the facilities, inconsistent timing of funding sources, and a lack of a path maintenance rating system. Sustainable funding and the timing for receiving funds is an issue that is not restricted to the MDOT Bay Region and is expected to continue in the future. Without a means to identify the facilities that have the highest use, funding may not be earmarked to the most-used facilities. As the sources are not often synced with the availability of funds, planning for future facilities may become an issue in the future. Prioritization of projects and securitization of local funding will ensure future projects are completed. The final weakness is the lack of a rating system for the facilities. Without a system in place, facilities cannot be evaluated regionally or throughout the state.

Threats: Lack of funding for new construction, maintenance costs, changing of funding criteria, restrictive MDOT design guidelines, and local opposition. Funding will be ever-changing, both in source and availability, and will always be a threat. However, education of the general public may be a means to reduce the local opposition within the MDOT Bay Region.

Michigan Crash Facts

The most important benefit of the plan is to raise awareness for pedestrian and bicycle safety. With society changing and increases in the number of residents turning to active forms of transportation to travel to work or school, run errands, or for recreation, it is imperative to have a safe means to travel. Michigan Traffic Crash Facts from the University of Michigan for 2013-2017 were obtained for crashes within the MDOT Bay Region. The regional averages for percentage of crashes, percentage of fatalities, and percentage of incapacitating injuries were all below the state percentages. (See accompanying table.)

There were more than 200,000 crashes in the region from 2013 to 2017, with only 1 percent of the crashes involving a bicyclist or pedestrian. Bay, Genesee, Isabella, St. Clair, and Shiawassee counties were all above the average, while Arenac, Huron, and Tuscola counties had the lowest (0.4 percent). During this same period, there were 689 fatal crashes, with 16.8 percent (116 people) of the fatal crashes involving a bicyclist or pedestrian. Genesee County had the highest percentage of fatalities (29.1 percent) while Clare County had the lowest, with no fatalities. The number of incapacitating injuries were nearly double that of the fatal crashes but had a much smaller percentage of the total incapacitating crashes. Isabella County had the highest percentage of incapacitating crashes, at 10.9 percent, while Huron County had the lowest percentage, at 1.4 percent.

Following the table is a bar graph that compares the number of crashes by county within the MDOT Bay Region. A similar graph identifying the number of fatalities and injuries can be found in the overview for each county beginning on page 29.

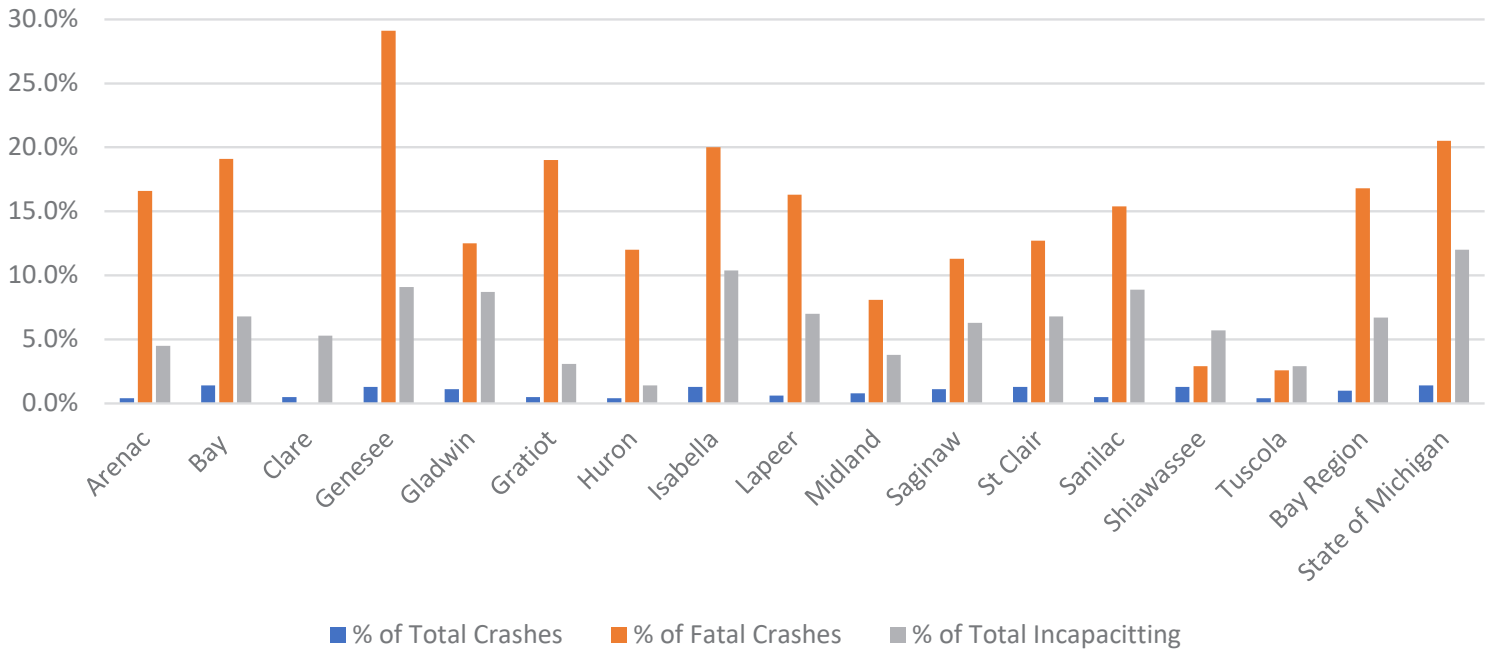
TABLE 5
BICYCLE/PEDESTRIAN CRASHES
IN MDOT BAY REGION (2013-2017)

County	Percent Total	Percent Fatal	Percent Incapacitating
Arenac	0.4%	16.6%	4.5%
Bay	1.4%	19.1%	6.8%
Clare	0.5%	0.0%	5.3%
Genesee	1.3%	29.1%	9.1%
Gladwin	1.1%	12.5%	8.7%
Gratiot	0.5%	19.0%	3.1%
Huron	0.4%	12.0%	1.4%
Isabella	1.3%	20%	10.4%
Lapeer	0.6%	16.3%	7.0%
Midland	0.8%	8.1%	3.8%
Saginaw	1.1%	11.3%	6.3%
St. Clair	1.3%	12.7%	6.8%
Sanilac	0.5%	15.4%	8.9%
Shiawassee	1.3%	2.9%	5.7%
Tuscola	0.4%	2.6%	2.9%
Bay Region	1.0%	16.8%	6.7%
Michigan	1.4%	20.5%	12.0%

Source: Michigan Crash Facts

GRAPH 1

MDOT BAY REGION BICYCLE/PEDESTRIAN CRASH TOTALS 2013-2017



■ % of Total Crashes ■ % of Fatal Crashes ■ % of Total Incapacitating

Bicycling in MICHIGAN

Population: 9,897,264

Total annual economic impact of bicycling
\$668 million

Bicycle FriendlySM
State Rank
#14

Bicycling retail revenue
\$63 million

Total annual spending associated with bicycling events and vacations in Michigan
\$38 million

People employed by bicycling industry: 796

44% Residents who place an annual value of at least \$100 on the ability to use bicycle infrastructure

39% Households that reported that someone in their home used a bike for transportation in the last year

28% Bicyclists who commute by bicycle at least twice a week

4% Residents who participated in a bicycling event or bicycle-oriented vacation in Michigan in the past year

Key barriers to bicycling

Safety	48%
Weather	52%
Lack of infrastructure	52%

Top primary bicycle types

Road bike	39%
Mountain bike	31%
Commuter bike	12%
Other	18%

Study funded by **MDOT**

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

Health Benefits of Bicycling

As previously stated, significant health and economic benefits are found with the use of the nonmotorized network within the MDOT Bay Region. According to MDOT’s 2014 Community and Economic Benefits of Bicycling Study, health benefits not only include having a healthier population, but an improved business environment with less absenteeism and healthier work staff with resulting lower health care costs.

The 2014 Community and Economic Benefits of Bicycling Study also found that bicycling provides an estimated \$668 million per year in economic benefits to Michigan’s economy. The following excerpted page is a summary of facts from that MDOT report. Included in the benefits are not only those monies spent directly associated with bicycling, but monies also spent indirectly on items such as food, tourism, and hotels.

How Does This Plan Fit Into The Bigger MDOT Picture?¹

There are a significant number of pedestrian/ bike research projects, initiatives, and programs within MDOT that are cumulatively working toward safety, achieving greater connectivity, educating, documenting, and collaborating.

They are contributing to the understanding, growing, and implementing context sensitive solution and complete streets throughout the state. The diagram below illustrates many of these programs and initiatives.



Regional Pedestrian/Bike Committees

Each of the seven MDOT regions (including the MDOT Bay Region) hosts a regional Pedestrian/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 Jay Reithel, MDOT Bay Region planner, at ReithelJ@Michigan.gov for more information or to join the e-mail list.

¹ livingLAB,LLC

Studies and Research

In recent years, MDOT has received federal and state funding and contributed to funding a variety of nonmotorized initiatives, studies and research projects. Three recent studies are found below:

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 nonmotorized 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.



Side Path Applications for Bicycle Use

The MDOT Intermodal Division completed a research project 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-road crashes.
2. Investigate land use characteristics and general context of the crash locations.
3. Develop an understanding of the different reasons why 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.



Safe Routes to School

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 includes the development of an 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 students and facilities that serve K-8 schools. Learn more at <http://saferoutesmichigan.org>.

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. A more complete explanation is found in the Funding Options and Design Considerations chapter on page 54.

Regional Bike Maps

Regional bike maps can be found in the Existing and Proposed Facilities chapter beginning on page 18.

Walkability Reviews/Training Wheels

Since 2006, MDOT has conducted a series of walkability and/or bikeability reviews (called Training Wheels) on an annual basis for various communities in the state as funding is available. The sessions are designed to teach the basic principles of walkability from a nontechnical perspective as well as details about the American Association of State Highway and Transportation Officials (AASHTO) guide and design of on-road bicycle facilities. Beginning in 2018, MDOT updated the Training Wheels curriculum to include content found in the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide to meet the growing demand for instruction on designs found in this guide. 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

Michigan Public Act (PA) 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. In 2012, the STC approved the Complete

Streets Policy and, as of January 2019, more than 100 communities have passed their own local complete streets policies. More information is available at <https://michigancompletestreets.wordpress.com>.

Nonmotorized Investment Plans and Strategies

Each of the seven MDOT regions are responsible for completing a nonmotorized plan for their region. In these plans will be strategies for the region to identify to improve nonmotorized facilities as well as funding options to assist in the development of these facilities. In this plan for the MDOT Bay Region, the strategies are identified in the Gap Analysis section beginning on page 44; Funding Options and Design Considerations are found beginning on page 54.

Multi-Modal Development and Delivery (M2D2)

M2D2 is a project to support Michigan's economic recovery by partnering with Smart Growth America to work through an extensive process 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.

Michigan Heritage Route Program²

The Michigan Heritage Route Program, created by PA 69 of 1993, is designed to identify, inventory, protect, enhance, and, in some cases, promote state trunklines and adjacent land with distinctive or unique scenic, cultural, or historic qualities. The normal process for Heritage Route nomination within the Michigan Heritage Route Program follows a standard eight-step procedure: formation of a nominating team, identification of potential routes, evaluation of the highway using a roadside inventory, selection of the route to be nominated, preparation of a management plan, evidence of local support, preparation of nomination/application, and submission of application.

There are three categories of Heritage Routes, each linked below with detailed listings for each route, including the limits of the route, its length, notes and related links:

- Scenic Heritage Routes - A state highway having outstanding natural beauty;
- Historic Heritage Routes - A state highway having outstanding historic buildings and resources along its length; and
- Recreational Heritage Routes - Maintained not only to serve the recreational driver but also to capture that recreational setting of the facility or area itself and set the mood for the recreational experience.

² Michigan Department of Transportation

On Dec. 17, 2014, the Michigan State Senate passed House Bill 5072 to change the name from Heritage Route to Pure Michigan Byway. Gov. Rick Snyder signed the bill into law on Dec. 30, 2014.

U.S. Department of Transportation Policy Statement

The United States Department of Transportation (USDOT) developed the Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations (2010) to reflect the department's support of the development of the fully integrated active transportation networks (found below).

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 nonmotorized 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 nonmotorized 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.

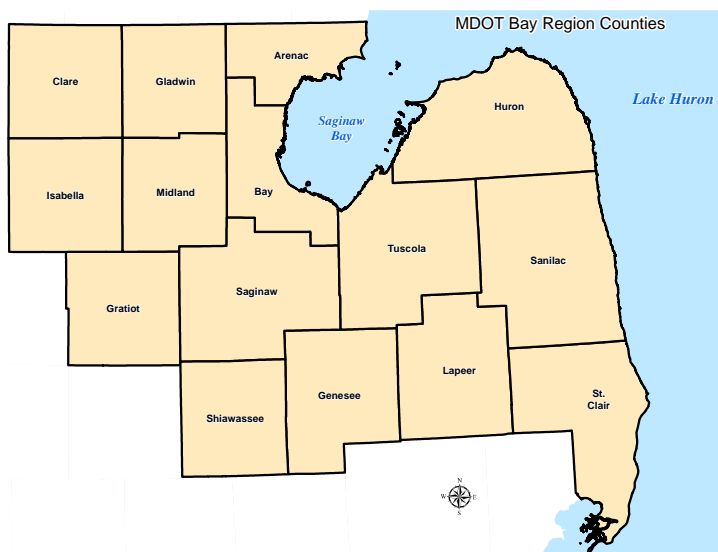
Many transportation agencies spend most of their transportation funding on maintenance rather than on constructing new facilities. Transportation agencies should find ways to make facility improvements for pedestrians and bicyclists during resurfacing and other maintenance projects.



Southern Links Trailway, Millington Trailhead - Photo by EMCOG Staff

PROCESS

MAP 3
MDOT BAY REGION COUNTY MAP



The MDOT Bay Region encompasses the east-central portion of lower Michigan and includes 15 counties: Arenac, Bay, Clare, Genesee, Gladwin, Gratiot, Huron, Isabella, Lapeer, Midland, Saginaw, St. Clair, Sanilac, Shiawassee, and Tuscola.

The MDOT Bay Region and Lansing staff facilitated the development of this Regional Nonmotorized Plan over a 27-month period from July 2017 to September 2019. The plan development was also guided by a Nonmotorized Plan Team and included multiple outreach efforts to gather input and feedback. The primary tasks associated with the development of the plan included:

- Inventory and Data Gathering;
- Outreach and Engagement; and
- Gap Analysis.

Nonmotorized Plan Team

The Nonmotorized Plan Team (“Team”) for this document consisted of MDOT, East Michigan Council of Governments (EMCOG) staff, and several GIS professionals. The purpose of the Team was to ensure the plan would be a useful tool for stakeholders in the region and state. The Team met periodically throughout the development of the plan to:

- Discuss the existing and proposed nonmotorized facilities;
- Identify goals and objectives and assisted in reviews;
- Complete a gap analysis in the proposed facilities;
- Identify a means to eliminate gaps in the final network of facilities; and
- Identify potential resources to assist in the funding of projects to eliminate those gaps.

Nonmotorized Plan Team members included Jay Reithel, Cynthia Krupp, and Debra Alfonso of MDOT; Sue Fortune, Dave Engelhardt, and Bill Ernat of EMCOG; Dan Hoffman of the Saginaw Area GIS Authority (SAGA); and Carolyn Prudhomme and Norm Cox of the Greenway Collaborative. SAGA and the Greenway Collaborative provided GIS services to complete the maps that are included with the plan. As previously stated, the MDOT Bay Region Pedestrian and Bicycle Committee served as an advisory committee throughout the duration of the plan.

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

In November 2017, a website was developed in conjunction with the plan development at www.emcog.org. 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 team member contact information.

The Team received positive information from the public on getting the information out to the public. In addition, multiple comments were received during the final draft of the maps after they were posted online.

E-mail Distribution

An e-mail list was created in conjunction with the development of the plan that grew to approximately 90 people, including a large cross-section of municipal partners, agencies, advocacy groups, trail organizations, bike clubs, residents, etc. The distribution list includes all invitees of the outreach meetings. E-mails were sent throughout the project to gather input, announce meetings, and ask for review of draft documents.

Local Meetings

To kick off the process of getting public involvement, four outreach meetings were held in November and December 2017 throughout the region. The goals for these outreach meetings were:

- To provide information about the project;
- View and confirm data that had been collected;
- Provide updates on the status of the trail system in each geographic sub-area of the region; and
- Provide input related to major connections, gaps, priorities, and concerns.

Approximately 40 people attended this initial series of outreach meetings.

Outreach Meetings Location and Attendance

Location	Date	Attendees
Caro, Tuscola Technology Center	Oct. 26, 2017	7
Bay City, MDOT Regional Office	Oct. 30, 2017	14
Mt. Pleasant, City Hall	Nov. 1, 2017	12
Imlay City, City Hall	Nov. 9, 2017	7

Observations regarding the first series of outreach meetings included:

- An excellent cross-section of groups, communities and organizations attended;
- Attendees were supportive of the effort to update the plan;
- Newly constructed and proposed facilities were shared and added to the maps; and
- Local plans were offered for input.

Questions and concerns were also raised and answered at the meetings, which included the following topics:

- Clarifications on shoulder widths (minimum of 4 feet in width);
- Proposed paths and their status (updates were provided for the Mid-Michigan Community Pathway, Iron Belle Trail, BayZil Rail Trail, and Polly Ann Trail); and
- Clarification on the status of funding for proposed projects was requested (the TAP, the Iron Belle Trail Grants, and the Department of Natural Resources grant programs were identified and available funds were defined).

Additionally, the Team attended multiple meetings of local organizations, including but not limited to the MDOT Bay Region Bike and Pedestrian Group, the Great Lakes Bay Region Trail (GLBRT) Board meetings, and the Mid-Michigan Community Pathways.

Advisory Committee

In addition to the outreach meetings for the MDOT Bay Region Nonmotorized Plan update, the MDOT Bay Region Pedestrian and Bicycle Committee was utilized as an advisory committee. Their input was critical in the verification of existing and proposed facilities throughout the region. Additionally, their input was utilized for the SWOT analysis (see Overview Section), as well as providing comments to the draft plan and maps, and providing input on the gap analysis.

Additional Outreach Activities

On Oct. 17, 2018, e-mails were set for input on the existing and proposed shared use paths and paved road shoulders 4 feet or greater in width. Recipients of the e-mail included: road commission staffs; county, township, city, and village staffs; park and recreation staffs; and trail groups affiliated with trails within the region. A total of 60 e-mails were sent.

Results from the first mailing in October was minimal with only four agencies responding. The four agencies include two cities, one county, and one park and recreation commission.

On Nov. 6, a second e-mail was sent out to 64 individuals, asking for shared use path, shoulder information, and bike lane information. They were asked to respond by the end of November with any new information. A total of 11 responses were received, with only one response being a duplicate from the first mailing.

On Dec. 18, a third letter went out to local officials. This letter went to the 15 county road commissions seeking information on proposed road projects that would include the widening of road shoulders to a minimum width of 4 feet. A total of three responses were received in the three-week response period, with no additional information being provided. As a result of these three mailings, updates were provided on both the existing and proposed facilities in nine of the 15 counties.

New information that was received was then included on the maps and presented to the MDOT Bay Region Pedestrian and Bicycle Committee for the gap analysis. As a result of this input, the Committee was able to identify additional corridors for the regional corridor system as well as identify gaps of existing facilities in the regional corridor system.

The team met following the Committee meeting to identify the difficulties that would be found to fill in the gaps that were identified.



City of Vassar Rail Trail - Photo by EMCOG Staff

GOAL AND OBJECTIVES

As cited in the previous section, the goal for the MDOT Bay Region Nonmotorized Transportation Plan is: Identify a safe, comfortable, convenient, and interconnected nonmotorized transportation network for pedestrians and bicyclists to travel throughout the MDOT Bay Region.

To achieve this goal, the following objectives have been identified:

- Document existing and proposed facilities;
- Identify existing nonmotorized gaps in the region;
- Help identify funding sources for future nonmotorized investment;
- Foster cooperative planning efforts across municipal/county boundaries; and
- Leverage opportunities for infrastructure expansion and fill nonmotorized facilities' gaps, as identified.



Genesee Valley Trail - Courtesy of Genesee County³

EXISTING AND PROPOSED FACILITIES

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 in capturing the existing nonmotorized conditions as communities, agencies, and organizations plan for facilities in the future. Many communities and organizations 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:

- Completed facilities since the 2010 plan.
- Proposed facilities.
- Regional significant corridors.
- Local significant corridors.
- Alphabetically by county - text and map summary of findings related to existing and proposed facilities.

³ *The regional trails include bollards that prohibit access of the trails by motorized vehicles. However, it should be noted that bollards do not meet AASHTO standards.*

Typical Characteristics of a Regional Corridor:

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

The maps and text for each county reflect the emerging regional network of nonmotorized facilities that connect communities to one another, to major destinations, and to adjacent counties, regions, and states. They also reflect results of the work sessions held with the Nonmotorized Plan Team, the MDOT Bay Region Pedestrian and Bicycle Committee, and the various outreach efforts and input sessions.

For the purposes of this plan, the Nonmotorized Plan Team has identified two types of corridors in the region. They are regional corridors and local corridors.

Shared Use Paths Completed Since 2010

Since the completion of the 2010 MDOT Bay Region Nonmotorized Plan, multiple shared use paths have been either completed or expanded upon. Below are some of the projects, along with the added miles of trails:

- Fred Meijer Heartland Trail - 21.8 miles
- Fred Meijer Clinton-Ionia-Shiawassee Rail Trail - 7.6 miles
- Harger Line Rail Trail - 9.6 miles
- BayZil Rail Trail - 7.1 miles
- Thomas Township Trail extension - 3.1 miles
- Mid-Michigan Community Pathways Phases I and II - 14.7 miles
- Flint River Trail at Stepping Stone, and from Genesee Road to Vassar Road - 1.4 miles
- Genesee Valley Trail - 7.8 miles
- Gale Road Atlas Pathway - 2.4 miles
- Chevy Commons Pathway - 0.8 miles
- Creekview Trail - 0.5 miles
- Gladwin to Beaverton Rail Trail - 4.0 miles

Regional Corridors

These corridors are the primary arteries for nonmotorized travel from the MDOT Bay Region area. They include regional facilities, overlay facilities and local facilities often connecting communities. They may extend beyond county lines and may even extend beyond the MDOT Bay Region. The regional corridors are identified as green highlighted facilities found on pages 20-21.

Regional Facilities

There are multiple nonmotorized trails that are considered to be regional facilities. Some of the more notable regional facilities include: the Pere Marquette Trail, the Fred Meijer Heartland Trail, the Midland to Mackinac Trail, the Mid-Michigan Community Pathway, and the Fred Meijer Clinton-Ionia-Shiawassee Trail.



Pere Marquette Trail, Tunnel Under US-127 - Courtesy of Isabella County Parks and Recreation Commission

At times, the regional facilities 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 facilities also serve as routes for state and national interests, such as the U.S. Bicycle Route System or the Iron Belle Trail. However, it should be noted that U.S. Bicycle Routes as well as the Iron Belle Trail also use existing roadways as part of their designated routes, and for the purposes of this plan are considered as overlay facilities.

The following pages identify several regional facilities within the MDOT Bay Region. Maps are also available for download at www.Michigan.gov/MDOT-Biking. Requests for GIS data will be reviewed by MDOT staff. All requests should identify how the data is intended to be used. This data is for local government planning, personal, and non-commercial use only. It may not be modified, copied, distributed, displayed, reproduced, published licensed, have derivative works created from, sold, or transferred. Information, products, or services obtained from Michigan.gov are copyrighted and not for reproduction unless the law otherwise provides, or if the State of Michigan gives prior written permission.

Files are large and requests, if granted, may need a site made available to upload data. Send request to Cindy Krupp at MDOT for GIS data files (KruppC@Michigan.gov).

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 proposed 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 while others have been fully vetted with detailed feasibility studies and cost estimates completed.

Further planning by a variety of agencies and stakeholders will 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.

Following are maps and information on several of the region's regional facilities.

MAP 4 MDOT BAY REGION NONMOTORIZED EXISTING AND PROPOSED FACILITIES



Legend

- Paved Shared Use Path
- Unpaved Shared Use Path
- Bicycle Lanes
- Paved Shoulder Width 4ft=>
- Blue Water Amtrak Line
- Proposed Bicycle Facilities
- US Bicycle Route 20
- Regional Nonmotorized Corridors: Existing & Proposed

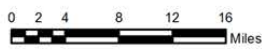


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www.ecmpdr.org

Click the map to view online



Created 4/11/2019



MAP 5 PERE MARQUETTE TRAIL



Pere Marquette Rail-Trail

Racing from Clare to Midland, the Pere Marquette Rail-Trail is one of Michigan's most widely used and nicely maintained nonmotorized multi-use trails. So highly regarded, it was inducted into "The Rail-Trail Hall of Fame" by the national Rails-to-Trails Conservancy.

The 30-mile asphalt trail crosses several bridges and travels through a series of small towns with plenty of stores and restaurants to stop for lunch or a cool drink along the way. A separate path for horseback riding runs parallel to the trail for 5 miles between Coleman and North Bradley. The entire trail is closed to snowmobiling, but is plowed during the winter months to allow year-round use. Sections of the Pere Marquette Rail-Trail receive a fresh coat of sealer each year and is in great condition. This is a flat, exceptionally smooth trail, making it an easy ride for people of all abilities.

For a day trip, we recommend starting your journey at the downtown Midland Staging Area where you can check out "The Tridge," a unique three-span bridge crossing the confluence of the Tittabawassee and Chippewa rivers. As you head west, the trail passes by the Northwood University campus and the entrance to the Dow Historical Museum. You will also pass by several small parks, memorials, historic sites and natural areas along the trail as you travel through Sanford and Coleman on your way to Clare.

Chippewa Trail

Like to add a few more scenic miles to your trail adventure? In Midland, you can cross "The Tridge" to ride along the 3.7-mile Chippewa Trail, a nonmotorized, paved pathway that meanders through the Chippewa Nature Center. Interpretive signs along the way tell the story of this unique landscape.

Pere Marquette Rail-Trail Access			
Access Site	Parking	Restrooms	Water
Loomis Staging Area	Yes	Yes	Yes
Coleman Staging Area	Yes	Yes	Yes
North Bradley Staging Area	Yes	Yes	No
Sanford Staging Area	Yes	Yes	Yes
Averill Rollaway Park	Yes	No	No
Duck Hunters Memorial	Yes	No	No
Emerson Park	Yes	Yes	Yes
Midland Staging Area	Yes	Yes	Yes

Chippewa Trail Access			
Access Site	Parking	Restrooms	Water
Chippewa Nature Center	Yes	Yes	Yes

Click the map to view online

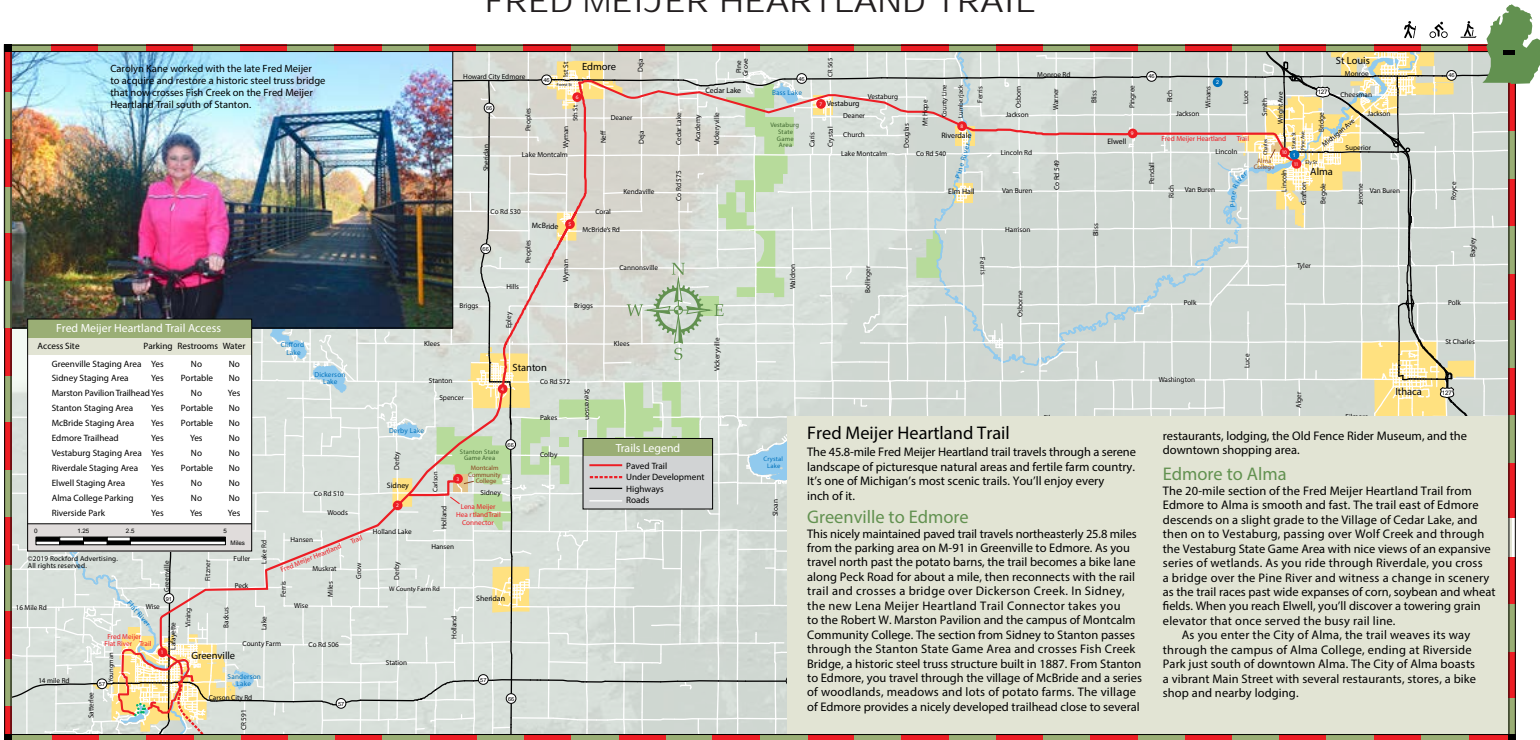
Source: Michigan Trails Magazine

Pere Marquette Trail⁴

Stretching from Clare to Midland, the Pere Marquette Rail-Trail is one of Michigan's most widely used and nicely maintained multi-use trails. So highly regarded, it was inducted into The Rail-Trail Hall of Fame by the national Rails-to-Trails. The 30-mile asphalt trail crosses several bridges and travels through a series of small towns with plenty of stores and restaurants to stop for lunch or a cool drink along the way. A separate path for horseback riding runs parallel to the trail for 5 miles between Coleman and North Bradley. The entire trail is closed to snowmobiling but is plowed during the winter to allow year-round use. Sections of the Pere Marquette Rail-Trail receive a fresh

coat of sealer each year and is in great condition. This is a flat, fast, exceptionally smooth trail, making it an easy ride for people of all abilities. For a day trip, we recommend starting your journey at the downtown Midland Staging Area where you can check out "The Tridge," a unique three-span bridge crossing the confluence of the Tittabawassee and Chippewa rivers. As you head west, the trail passes by the Northwood University campus and the entrance to the Dow Historical Museum. You will also pass by several small parks, memorials, historic sites and natural areas along the trail as you travel through Sanford and Coleman on your way to Clare.

MAP 6 FRED MEIJER HEARTLAND TRAIL



[Click the map to view online](#)

Source: Michigan Trails Magazine

Fred Meijer Heartland Trail⁵

The Fred Meijer Heartland Trail is now part of a much larger trail network that will someday connect Alma to Owosso, creating a 125-mile trail that will be the fifth-largest continuous rail trail in the nation. In 2010, the entire length of abandoned railroad right of way from Greenville to Owosso was acquired through a coalition of local governments, the Michigan departments of Natural Resources and Transportation, and the Meijer Foundation. This 125-mile corridor has been named the Fred Meijer Mid-West Michigan Trail Network in his honor.

As of 2015, much of the new rail trail network has been developed and ready for public use, while other sections of the trail are currently under development or seeking

funding. The Fred Meijer Grand River Valley Rail Trail, from Saranac to Ionia, was completed in 2013. The Fred Meijer Clinton-Ionia-Shiawassee Rail Trail, from Ionia to Owosso, was completed in fall 2014. A 2.3-mile section of the Fred Meijer Flat River Valley Rail Trail, through the city of Belding, was completed in summer 2014. Trail developers hope to begin construction on the trail between Belding and Greenville as early as this fall.

To assure a healthy future for this important recreational resource, the Meijer Foundation has established an endowment to fund ongoing maintenance for the entire 125-mile trail network into perpetuity.

MAP 7 FRED MEIJER CLINTON-IONIA-SHIAWASSEE TRAIL

LEGEND

- P** PARKING
- PAVED TRAIL**
- FMCIS TRAIL (CRUSHED LIMESTONE)**
- PAVED RD & TRAIL (OWOSSO)**
- GRAVEL RD**
- FM GRAND RIVER VALLEY TRAIL**

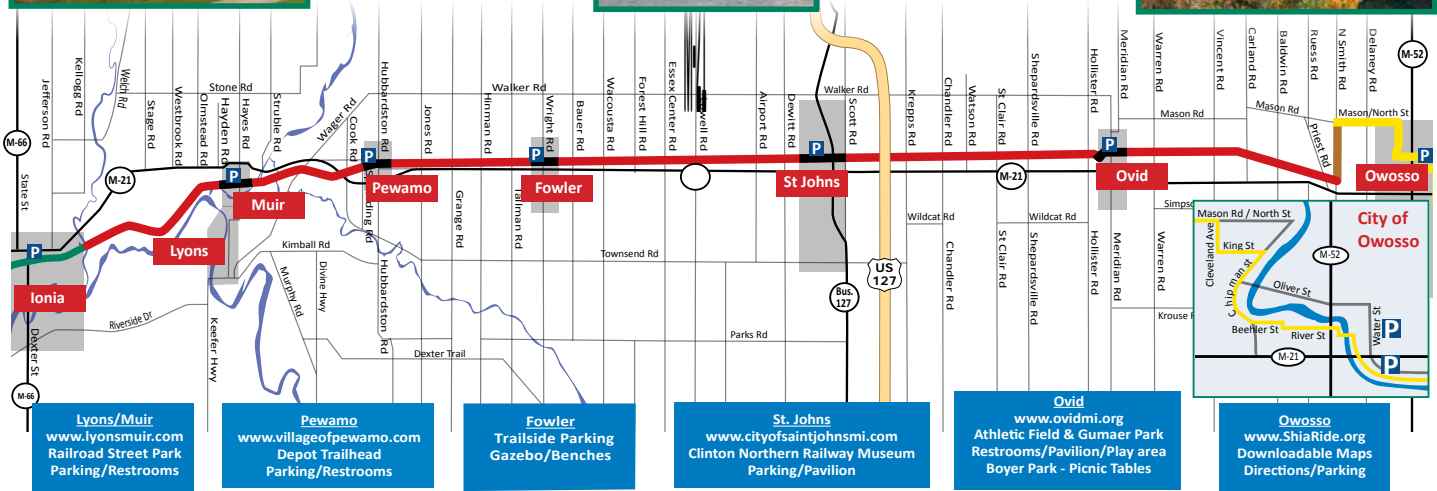
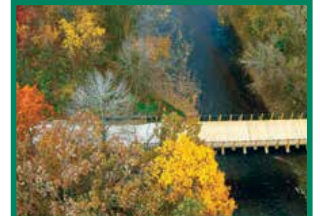
CAMPING

Island Park (Lyons-Muir) www.lyonsmuir.com
 Sleepy Hollow State Park (Ovid) www.michigan.gov/sleepyhollow
 Ionia State Recreation Area (Ionia) www.michigan.gov/dnr
 Bertha Brock Park (Ionia) www.berthabrockpark.INF
 Additional State Trail Information: www.michigantrails.org



MILEAGE CHART

	Ionia	Muir	Pewamo	Fowler	St. Johns	Ovid	Smith Rd.
Ionia		6.7	11.6	17	26.2	35.5	43.3
Muir	6.7		4.9	10.3	19.5	28.8	36.6
Pewamo	11.6	4.9		5.4	14.6	23.9	31.7
Fowler	17	10.3	5.4		9.2	18.5	26.3
St. Johns	26.2	19.5	14.6	9.2		9.3	17.1
Ovid	35.5	28.8	23.9	18.5	9.3		7.8
Smith Rd.	43.3	36.6	31.7	26.3	17.1	7.8	



Source: Fred Meijer Clinton-Ionia-Shiawassee Trail Website

Fred Meijer Clinton-Ionia-Shiawassee Trail⁶

The Fred Meijer Clinton-Ionia-Shiawassee (“C-I-S”) Trail is a 41.3-mile, 12-foot-wide crushed limestone trail, with a 10-foot-wide asphalt surface in towns. It is a nonmotorized, non-equestrian trail located in the counties of Clinton, Ionia and Shiawassee. The trail connects the communities of Owosso, Ovid, St. Johns, Fowler, Pewamo and Muir/Lyons using the former railroad corridor.

The trail parallels M-21 traveling through mostly rural areas and farming communities of the three counties. Portions also run near the Stoney Creek, Maple River, and Grand River watersheds in Ionia County.

The trail is owned by MDOT, is managed by the Michigan Department of Natural Resources (MDNR) with the Mid-West Michigan Trail Authority, and is maintained by volunteers of the Friends of the Fred Meijer Clinton-Ionia-Shiawassee Trail.

The trail is part of the Midwest Regional Rail-Trail Network, joining on the western end with the Fred Meijer Grand River Valley Trail (Ionia to Lowell), the Fred Meijer Flat River Valley Trail (Lowell to Greenville), and the Fred Meijer Heartland Trail (Greenville to Edmore to Alma) for a total of 125 miles.

⁶ Fred Meijer Clinton-Ionia Shiawassee Trail Website, www.cistrail.org

Midland to Mackinac Trail⁷

The trail is part of a trail system used by Native Americans for many centuries. The hiking trail is approximately 210 miles long, starting off at Shearer Road in Midland County and proceeding north through Gladwin, Roscommon, Crawford, Otsego, and Cheboygan counties, ending in Mackinaw City in Emmet County. The trail is primitive in nature and is only suitable for foot traffic, as it is not paved. Approximately 90 percent of the trail is located on public

land. The trail is currently being maintained by the Boy Scouts of America. It is marked with painted light blue tree paint in the form of blazes 2 inches wide by 6 inches tall. The markings are mostly on trees, but also found on cedar posts, utility poles, and other objects. (Anyone interested in getting a copy of the Midland to Mackinac Trail map are encouraged to refer to the Trail Atlas of Michigan authored by Dennis Hansen.)

Overlay Facilities

Overlay facilities are larger facilities that include the utilization of existing trails and roads as well as creating trails specific for that facility. There are three such facilities found in the Bay Region: Michigan's Iron Belle Trail, the Great Lake-to-Lake Trail, and U.S. Bicycle Route 20.

MAP 8
MICHIGAN'S IRON BELLE TRAIL



Click the map to view online

Source: Michigan Department of Natural Resources

Michigan's Iron Belle Trail⁸

The Iron Belle Trail is one trail with two routes, a bicycle route of approximately 827 miles and a hiking route that is approximately 1,203 miles long. Both routes start at Belle Isle in Detroit and end in Ironwood at the western point of the Upper Peninsula. The bicycle route traverses up the eastern portion of the Lower Peninsula, while the hiking route traverses along the southern border of Michigan and then north along the western portion of the state. The bicycle route passes through the MDOT Bay Region in Genesee, Lapeer, Tuscola, Saginaw, Bay, and Arenac counties. The trail utilizes existing routes like the Southern Links Trailway, located in Tuscola, Genesee, and Lapeer counties, the Flint River Trail in Genesee County, the BayZil Rail Trail in Saginaw and Bay counties, and the Bay City Riverwalk Railtrail Network in Bay County.



The 1,203-mile hiking route (74 percent complete) incorporates a large portion of the existing North Country National Scenic Trail. The 827-mile bicycle route (64 percent complete) utilizes existing multi-use trails and follows U.S. Bicycle Route 10, a designated national bicycling route in the U.P. As neither portion of the trail are fully finished, the final routes for the walking and bicycling routes could change before they are completed.

⁷ Trail Atlas of Michigan by Dennis Hansen

⁸ Michigan Trails and Greenway Alliance

MAP 9 GREAT LAKE-TO-LAKE TRAIL



Source: Michigan Trails and Greenways Alliance

Great Lake-to-Lake Trail⁹

The Great Lake-to-Lake Trail is a collection of existing and proposed trails that stretch 250 miles between South Haven to Port Huron.

Spearheaded by the Michigan Trails and Greenways Alliance, the Great Lake-to-Lake Trail passes through the MDOT Bay Region in St. Clair County using the Bridge to Bay Trail.

MAP 10 U.S. BICYCLE ROUTE 20



U.S. Bicycle Route 20¹⁰

The U.S. Bicycle Route System is a national network of regionally and nationally significant bicycling routes spanning multiple states. The purpose of the U.S. Bicycle Route system is to facilitate travel between states on routes identified as suitable for long-distance cycling and for those comfortable riding with traffic. U.S. Bicycle Routes can include a variety of conditions and traverse various facility types, including shared use trails, roads

with paved shoulders, and roads with no shoulders, etc. U.S. Bicycle Route 20 is an east-west route of more than 300 miles and connects Marine City on the east with Ludington on the west. While some portions of U.S. Bicycle Route 20 are signed, users should not rely solely on signs for navigating the route.



⁹ Michigan Trails Magazine

¹⁰ Michigan Department of Transportation

Local Corridors

These corridors are secondary arteries for nonmotorized travel that allow travel to areas within the MDOT Bay Region. They often include existing and proposed systems such as the Southern Links Trailways, Saginaw Valley Rail Trail, Flint River Trail, and Wadhams to Avoca Trail. The following pages identify these local corridors within the MDOT Bay Region. This is not intended to be an inclusive listing but is meant to provide a better understanding of the local corridors in the region. All of the listed local corridors can be found on the county maps that follow.

Southern Links Trailway

Southern Links Trailway is located in Lapeer, Genesee, and Tuscola counties and is a 10-mile shared use trail that runs from Columbiaville north to Millington. It is a paved, 10-foot-wide trail that is used by pedestrians and bicyclists. Equestrian use is allowed from Millington to Otter Lake, with an adjacent trail for equestrian use from Otter Lake to Columbiaville.

Saginaw Valley Rail Trail

The Saginaw Valley Rail Trail is located in Saginaw County and is a paved shared use trail. The trail is approximately 10 miles long, starting in St. Charles and ending just south of Saginaw. An equestrian trail runs parallel to the shared use path and is located between River Road to Wolf Creek.

Flint River Trail

The Flint River Trail is located in Flint in Genesee County and is a shared use trail that is approximately 13 miles long. The trail begins in downtown Flint and runs north to Bluebell Beach in the Genesee County Recreation Area. The trail is primarily paved, but there are several areas of on-road connections.

Wadhams to Avoca Trail

The Wadhams to Avoca Trail, located in St. Clair County, is a shared use trail that is more than 12 miles long. The southeast half of the trail is paved while the northwest half is crushed limestone. The trail begins in Kimball Township and ends in Brockway Township.

Proposed Facilities

There are ongoing projects that will extend the existing facilities as well as develop new facilities throughout the region in the near future. Below are some of the proposed projects.

Mid-Michigan Community Pathways

The first two phases have been completed, one between Ithaca to Alma and one between Shepherd to Mt. Pleasant. The pathways will eventually go from Ithaca in Gratiot County north through Isabella County to Clare in Clare County, more than doubling the current length of the existing trails.

Southern Links Trailway

The trailway is currently located between Otter Lake in Lapeer County and Millington in Tuscola County. In conjunction with the Iron Belle Trail, there are plans to extend the trailway north to Vassar along the Huron and Eastern Railroad. This expansion will nearly double the length of the trailway.

Great Lakes Bay Regional Trail

The Great Lakes Bay Regional Trail is a network of multiple trails that, when completed, will be more than 100 miles long. The trail will connect the cities of Bay City, Midland, and Saginaw. The BayZil Rail Trail is a part of this trail network.

Flint River Trail

As part of the Iron Belle Trail, the Flint River Trail begins in downtown Flint and continues north to Bluebell Beach. In 2019/2020, plans are to extend the trail 2.1 miles east toward the Southern Links Trailway. Plans also include extending the trail west to Flushing.

MDOT Bay Region

The maps and graphics shown in this plan are based on a specific date and will continue to evolve or change in response to funding opportunities and other conditions. This section of the plan identifies the facilities, both existing and proposed, within the MDOT Bay Region, as well as by each county.

On the following page is a table identifying facilities, in miles, by status of the facility: existing and proposed. The MDOT Bay Region is primarily rural, with the seven cities having a population more than 25,000 and comprising more than 20 percent (21.7 percent) of the total population. As a result of the rural nature of the region, several facility types, bike paths and marked shared lanes have not been documented in multiple counties. Thus, while some of these facilities are identified on the following table, they were not identified throughout the region.

Since 2010, newer types of on-road bicycle lanes have been developed and approved for use. These include, but are not limited to, buffered and protected lanes. Currently, there are few recorded miles of these types of bike lanes in the Bay Region since the data collection for the 2019 plan. Early in the planning process, the nonmotorized team determined that if there were any newer type of on-road bike lanes, they would be added to the general category of bike lanes instead of separating them in the data collection. In addition, side paths and shared use facilities were combined under “shared use” in the data collection. Bicyclists are allowed on all non-interstate roadways unless marked otherwise. Marked shared lanes should be used rarely and typically for short distances. Therefore, these facilities were not separated in the data.

As previously identified, the MDOT Bay Region has nearly 900 miles of nonmotorized facilities. The table below began with the information from the 2010 MDOT Bay Region Plan and was updated with information from the local municipalities and organizations. The information was then provided to the Saginaw Area GIS Authority, the mapping consultant for the plan, which was then mapped and tabulated. There is approximately 369 miles of shared use paths, 39 miles of bike lanes, and 490 miles of paved shoulders. Saginaw County has the most facilities, with more than 155 miles. Genesee County has the second-most overall number of miles, with 115, and the most miles of shared use paths (77.4). The table below summarized the miles of existing and proposed facilities. Huron County has the most miles of paved road shoulders, at nearly 88 miles, while Genesee County has the most miles of bike lanes, at nearly 21 miles.

TABLE 6
MDOT BAY REGION TOTAL FACILITIES BY MILE (EXISTING AND PROPOSED)

County	Existing Facilities (miles)				Proposed Facilities (miles)			
	Shared Use Paths (miles)	Paved Shoulders (miles)	Bike Lanes (miles)	Total Existing Facilities (miles)	Shared Use Paths (miles)	Paved Shoulders (miles)	Bike Lanes (miles)	Total Planned Facilities (miles)
Arenac	0.0	29.4	NA	29.4	31.0	NA	NA	31.0
Bay	27.5	48.0	NA	75.5	31.7	NA	NA	31.7
Clare	17.5	47.1	NA	58.6	2.5	NA	NA	2.5
Genesee	77.4	17.7	20.7	115.8	35.3	NA	NA	35.3
Gladwin	38.4	0.0	NA	38.4	4.0	NA	NA	4.0
Gratiot	18.5	7.8	NA	26.3	19.9	NA	NA	19.9
Huron	0.0	87.8	NA	87.8	NA	NA	NA	NA
Isabella	11.4	11.4	2.6	25.4	24.2	NA	NA	24.2
Lapeer	24.3	19.3	NA	43.6	5.5	NA	NA	5.5
Midland	34.5	13.1	9.4	57.0	5.8	NA	NA	5.8
Saginaw	45.1	63.9	6.5	155.5	42.0	NA	NA	42.0
St. Clair	51.5	52.5	NA	104.0	23.7	NA	NA	23.7
Sanilac	0.0	38.1	NA	38.1	NA	NA	NA	NA
Shiawassee	13.7	8.5	NA	22.2	1.8	NA	NA	1.8
Tuscola	5.1	45.3	NA	50.4	19.9	NA	NA	19.9
Total	364.9	489.9	39.2	928.0	247.3	NA	NA	247.3

Sources: County Road Commissions and Saginaw Area GIS Authority
 NA: Not Available

Agencies within the region should be encouraged to track various bicycle facility types separately and document them to monitor and improve multimodal facilities. Any and all types of nonmotorized facilities should be monitored for future reference.

Arenac County

Existing and Proposed Facilities

Arenac County has 29 miles of existing nonmotorized facilities (not including sidewalks), all of which are paved shoulders (4 feet in width or greater). Approximately 31 miles of proposed facilities have been identified, all of them associated with the Iron Belle Trail. Of the 31 miles of proposed facilities, every mile is anticipated to be shared use paths.

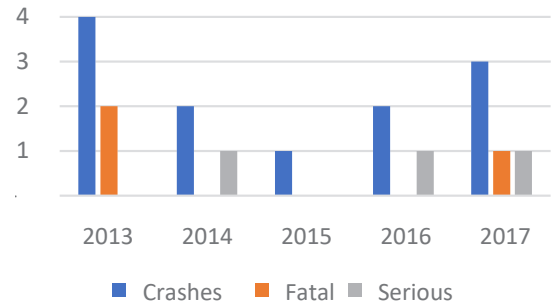


US-23 shoulder north of Standish - Photo by EMCOG Staff

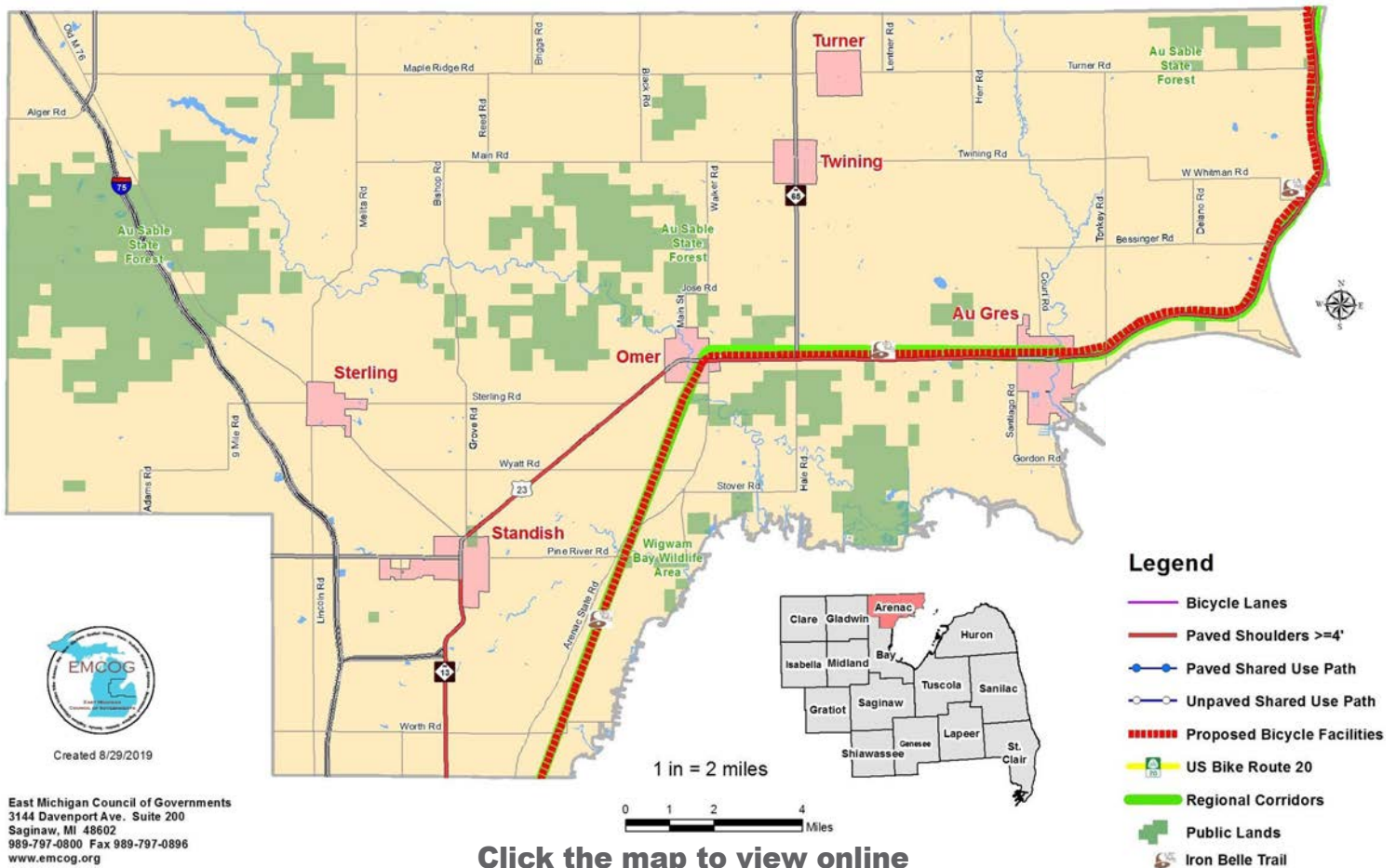
Current nonmotorized facilities in Arenac County consist of road shoulders along US-23. Proposed facilities include the Iron Belle Trail, which is in the design stage.

With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 2, information on the region can be found on pages 7-9.

GRAPH 2
ARENAC COUNTY
NONMOTORIZED CRASHES 2013-2017



MAP 11
ARENAC COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP



Bay County

Existing and Proposed Facilities

Bay County has more than 75 miles of existing nonmotorized facilities (not including sidewalks), including 48 miles of paved shoulders (4 feet in width or greater) and more than 27 miles of shared use paths. Approximately 32 miles of proposed facilities have been identified, with 16 miles identified as shared use paths for the Iron Belle Trail and the remaining 16 miles as shared use trails for the Great Lakes Bay Region Trail network.

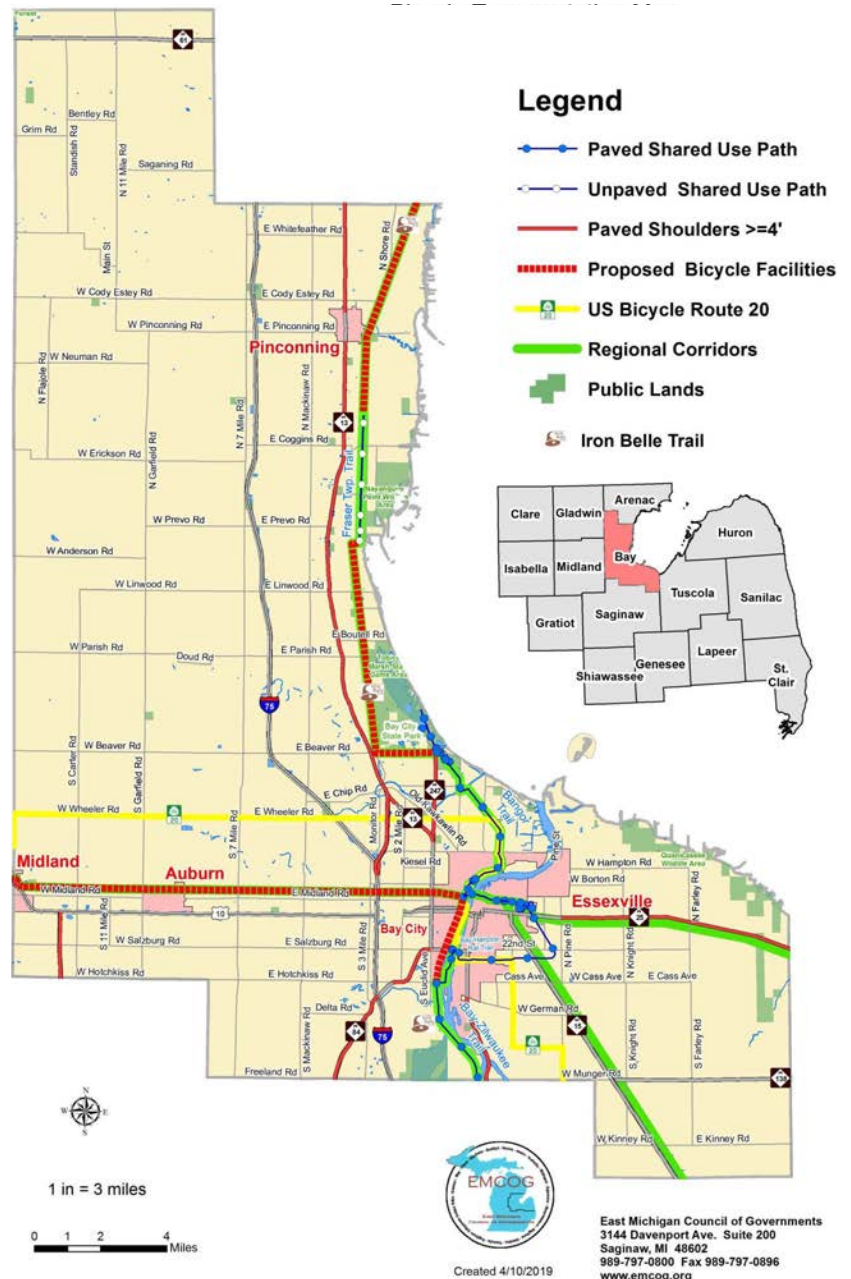
Current nonmotorized facilities in Bay County include Bangor Trail, BayZil Rail Trail, Bay County Riverwalk/Railtrail, Bay Hampton Rail Trail, Fraser Township Trail, Portsmouth Township Rail Trail, and U.S. Bicycle Route 20, which uses existing roads. The Iron Belle Trail is also located in Bay County using existing and proposed facilities.

With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 3, information on the region can be found on pages 7-9.

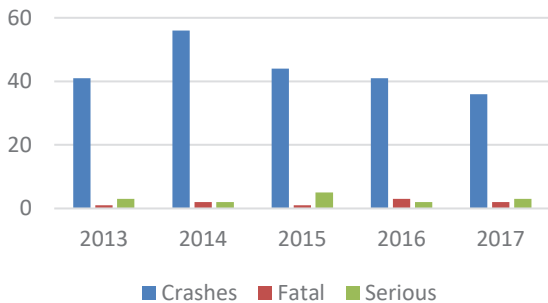


Bay City Area Riverwalk/Railtrail - Photo by EMCOG Staff

MAP 12
BAY COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP



GRAPH 3
BAY COUNTY NONMOTORIZED CRASHES 2013-2017



Click the map to view online

Clare County

Existing and Proposed Facilities

Clare County has more than 58 miles of existing nonmotorized facilities (not including sidewalks), including 47 miles of paved shoulders (4 feet in width or greater) and more than 17 miles of shared use paths. Approximately 2.5 miles of proposed facilities have been identified as part of the Pere Marquette Trail, and will be a shared use path.

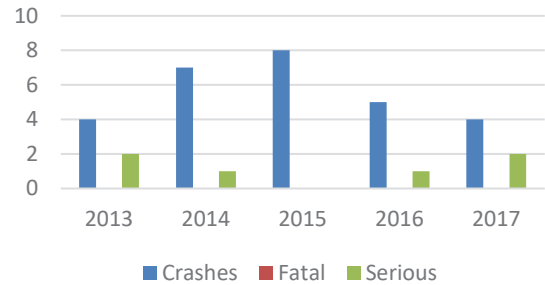
Current nonmotorized facilities in Clare County include the Pere Marquette Trail and road shoulders along M-115, M-61, and U.S. Bicycle Route 20, which utilizes existing roads.

With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 4, information on the region can be found on pages 7-9.

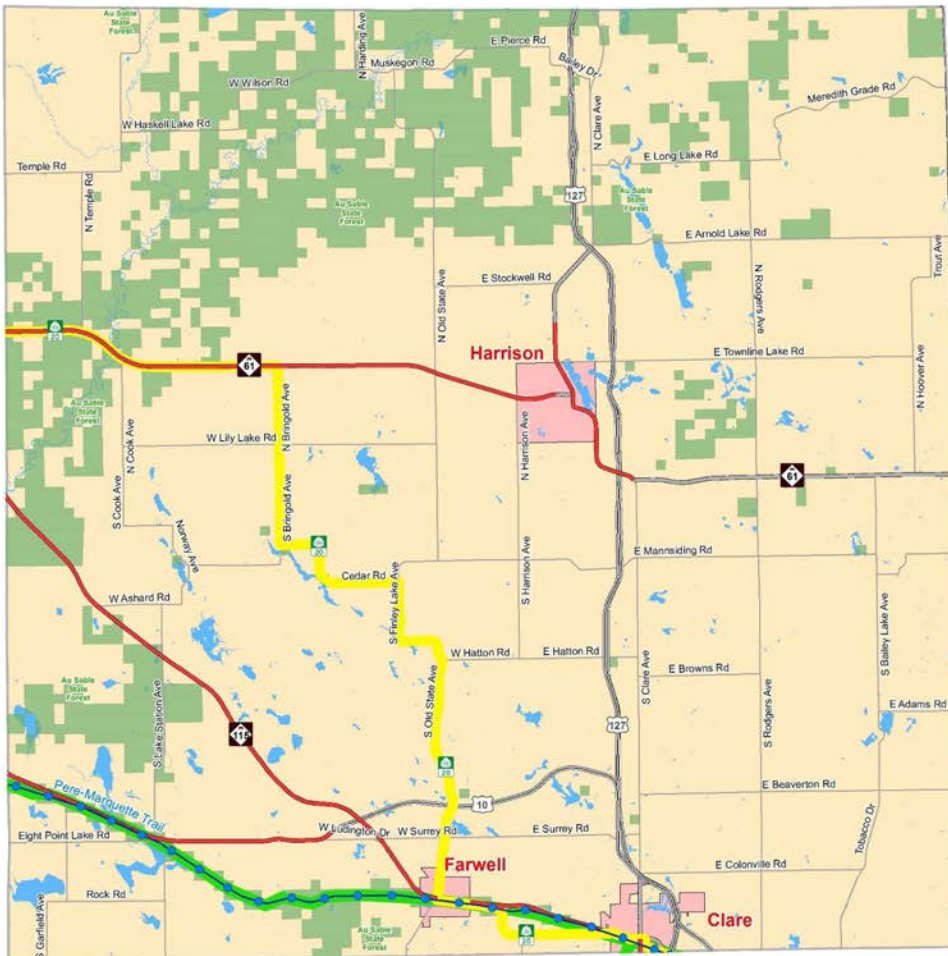


Pere Marquette Trail in Clare - Photo by EMCOG Staff

GRAPH 4
CLARE COUNTY
NONMOTORIZED CRASHES 2013-2017



MAP 13
CLARE COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP



Click the map to view online

Legend

- Paved Shared Use Path
- Unpaved Shared Use Path
- Paved Shoulders >=4'
- US Bicycle Route 20
- Proposed Bicycle Facilities
- Regional Corridors
- Public Lands



1 in = 2 miles



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Genesee County

Existing and Proposed Facilities

Genesee County has approximately 116 miles of existing nonmotorized facilities (not including sidewalks), with nearly 18 miles of paved shoulders (4 feet in width or greater), more than 77 miles of shared use paths, and 21 miles of bike lanes. Approximately 35 miles of planned/proposed facilities have been identified, many of them identified with the Iron Belle Trail. All 35 miles of future facilities are anticipated to be shared use paths.

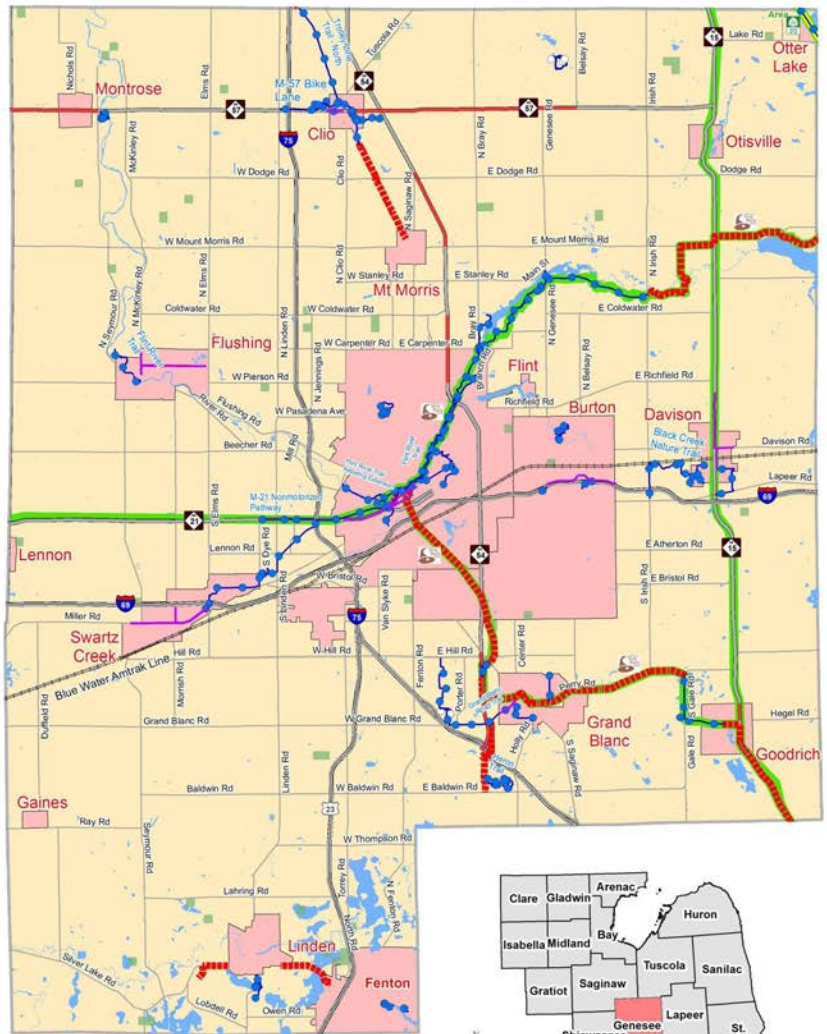
Current nonmotorized trails in Genesee County include Black Creek Nature Trail, Court Street Trail, Flint River Trail, Genesee Valley Trail, McKinley Road Trail, M-57 Bike Trail, Southern Links Trailway, and Trolley Lane Trail-North. The Iron Belle Trail also is located in Genesee County using existing and proposed facilities.

With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 5, information on the region can be found on pages 7-9.

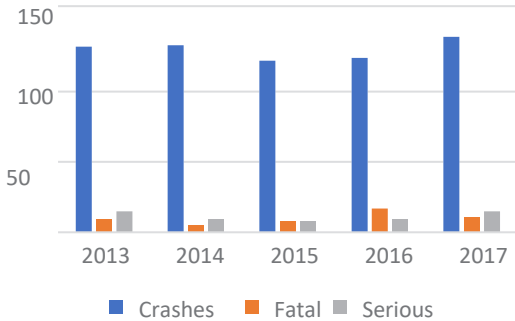


Flint River Trail - Courtesy of Genesee County

MAP 14
GENESEE COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP



GRAPH 5
GENESEE COUNTY NONMOTORIZED CRASHES 2013-2017



Click the map to view online

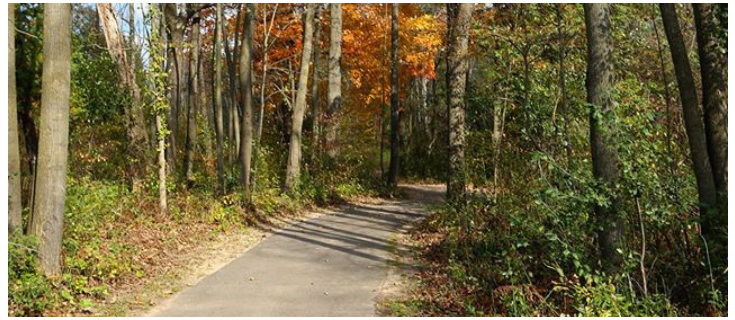
Gladwin County

Existing and Proposed Facilities

Gladwin County has more than 38 miles of existing nonmotorized facilities (not including sidewalks), with all of the facilities being shared use paths. Approximately 4 miles of shared use paths are proposed.

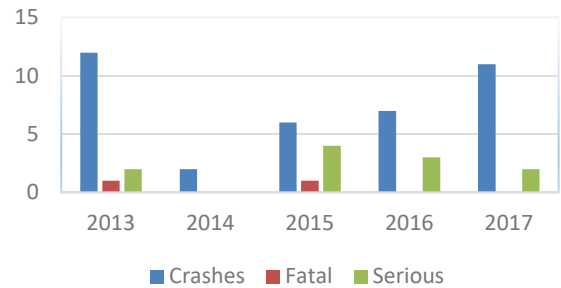
Current nonmotorized facilities in Gladwin County include the Midland to Mackinac Trail and the Gladwin to Beaverton Rail Trail, which is partially complete.

With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 6, information on the region can be found on pages 7-9.



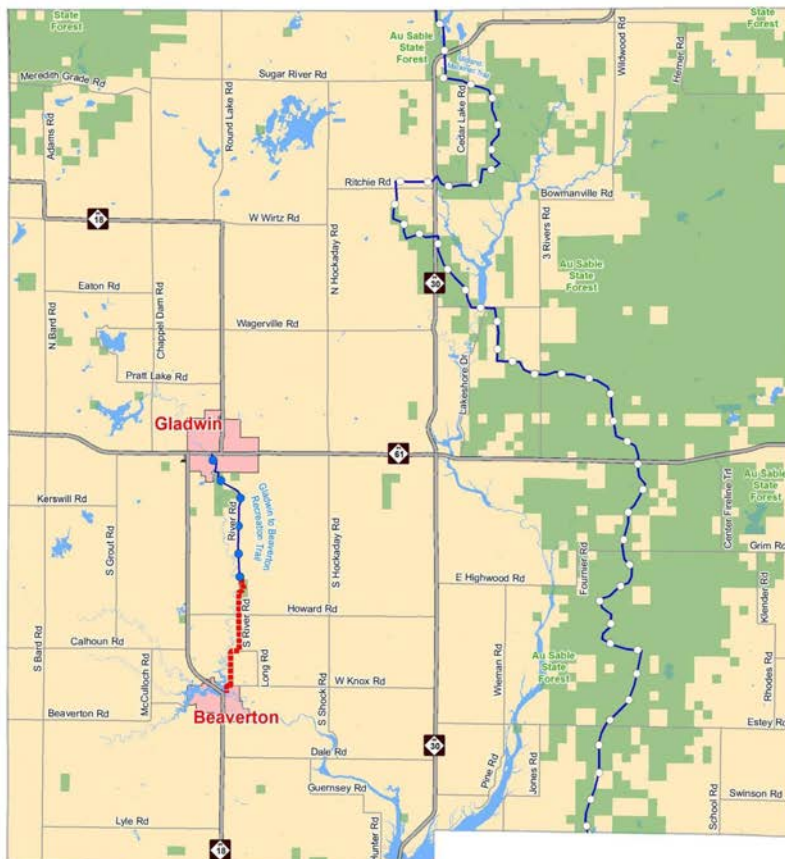
*Gladwin to Beaverton Rail Trail
Courtesy of the City of Gladwin*

**GRAPH 6
GLADWIN COUNTY
NONMOTORIZED CRASHES 2013-2017**



MAP 15

GLADWIN COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP



Click the map to view online

Legend

- Paved Shared Use Path
- Unpaved Shared Use Path
- Bicycle Lanes
- Paved Shoulders >=4'
- Proposed Bicycle Facilities
- US Bicycle Route 20
- Regional Corridors
- Public Lands



1 in = 3 miles



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Gratiot County

Existing and Proposed Facilities

Gratiot County has 26 miles of existing nonmotorized facilities (not including sidewalks), including nearly 8 miles of paved shoulders (4 feet in width or greater) and more than 18 miles of shared use paths. Approximately 20 miles of proposed facilities have been identified. Of the proposed facilities, all 20 miles are anticipated to be shared use paths and part of the Mid-Michigan Community Pathway.

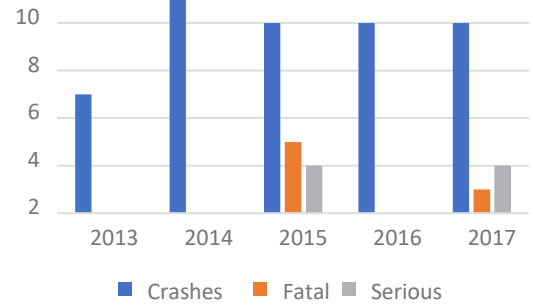


Alma River Walk - Photo by EMCOG Staff

Current nonmotorized facilities in Gratiot County include the Fred Meier Heartland Trail and Mid-Michigan Community Pathway, plus bike lanes in Alma.

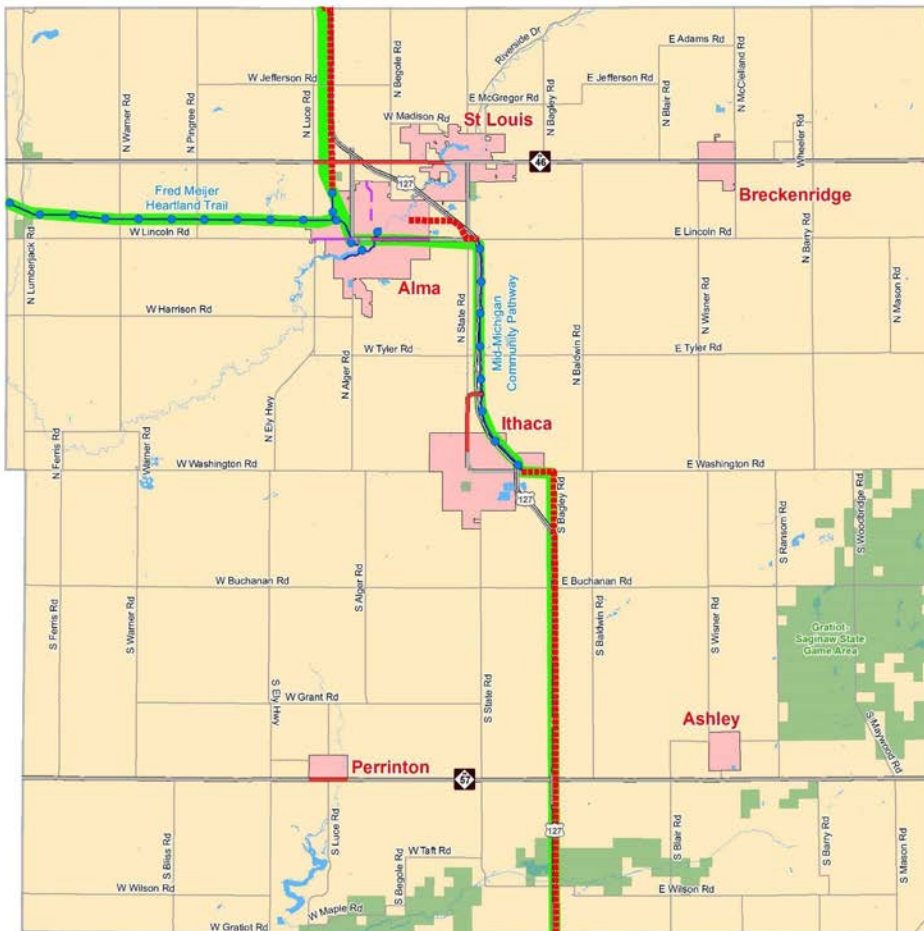
With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 7, information on the region can be found on pages 7-9.

GRAPH 7
GRATIOT COUNTY
NONMOTORIZED CRASHES 2013-2017



MAP 16
GRATIOT COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP

Click the map to view online



Legend

- Paved Shared Use Path
- Unpaved Shared Use Path
- Bicycle Lanes
- Paved Shoulders >=4'
- Proposed Bicycle Facilities
- US Bicycle Route 20
- Regional Corridors
- Public Lands

1 in = 2 miles

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Huron County

Existing and Proposed Facilities

Huron County has nearly 88 miles of existing nonmotorized facilities (not including sidewalks), with every mile being paved shoulders (4 feet in width or greater). No future projects have been identified in Huron County.

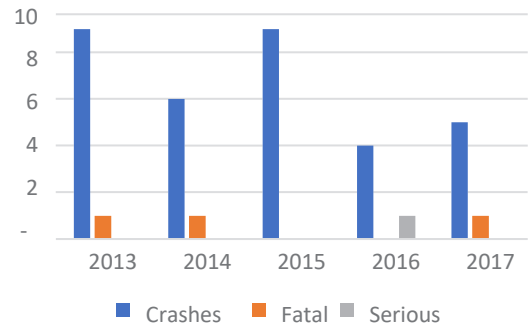
Current nonmotorized facilities in Huron County consist of road shoulders along M-25, the Lake Huron Circle Tour Route.

With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in the Graph 8, information on the region can be found on pages 7-9.



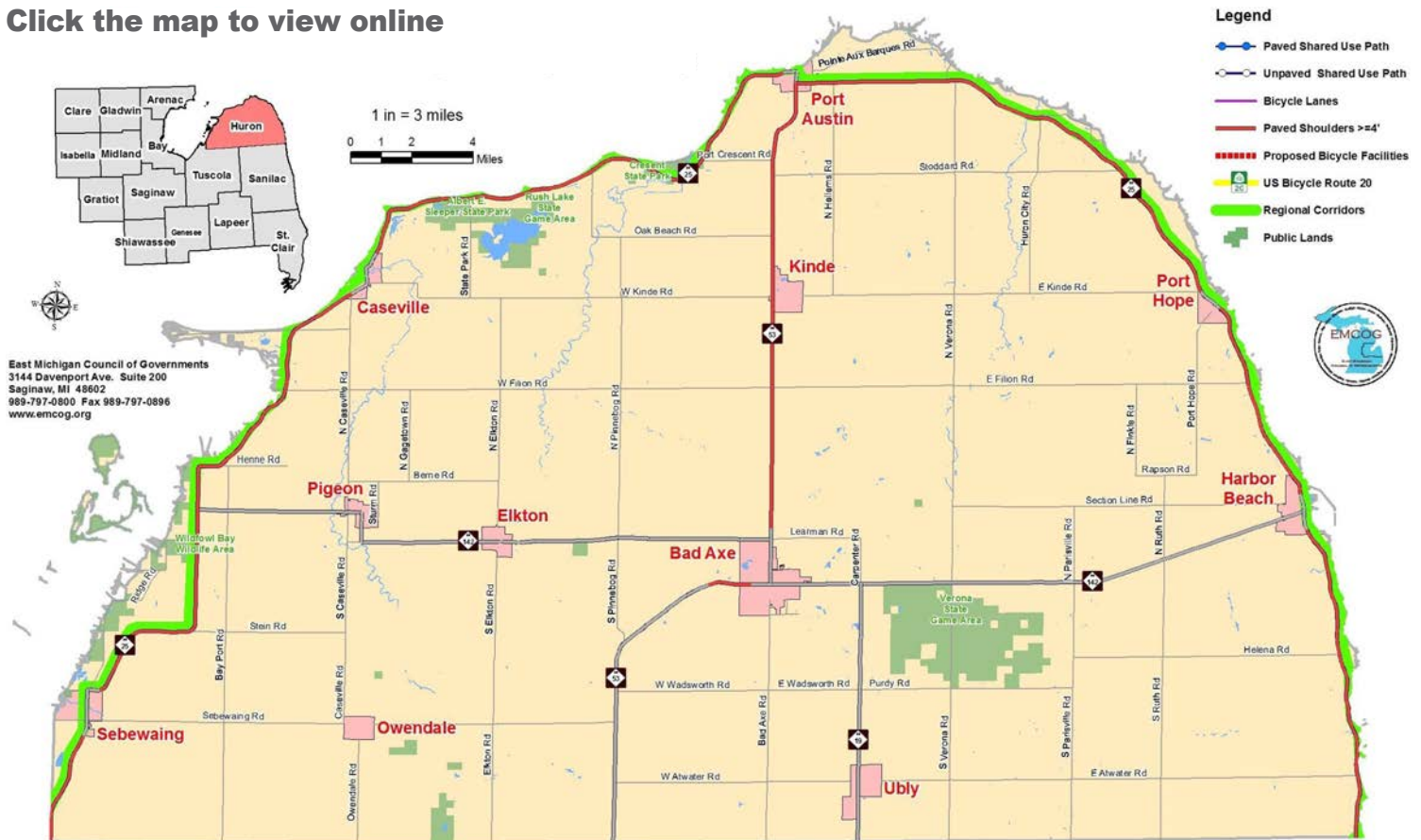
M-25, Lake Huron Circle Tour Route, Sherman Township
Photo by EMCOG Staff

GRAPH 8
HURON COUNTY
NONMOTORIZED CRASHES 2013-2017



MAP 17
HURON COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP

Click the map to view online



Created 8/29/2019

Isabella County

Existing and Proposed Facilities

Isabella County has approximately 25 miles of existing nonmotorized facilities (not including sidewalks), including 11 miles of paved shoulders (4 feet in width or greater), 11 miles of shared use paths, and more than 2 miles of bike lanes. Approximately 24 miles of proposed facilities have been identified, with most of them identified as part of the Mid-Michigan Community Pathways. All 24 miles are anticipated to be shared use paths.

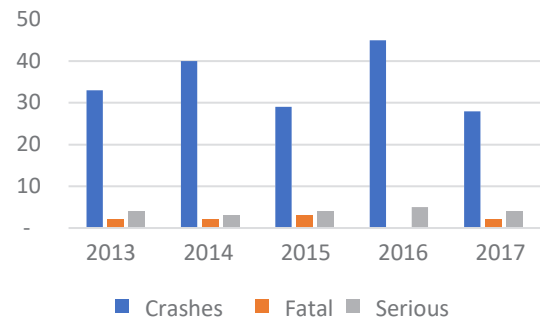


Mid-Michigan Community Pathways, Shepherd - Courtesy of Isabella County Parks and Recreation Commission

Current nonmotorized facilities in Isabella County include the Mid-Michigan Community Pathway, Pere Marquette Trail, road shoulders along M-20 east of Mt. Pleasant, and bike lanes in Mt. Pleasant. Proposed facilities include an extension of the Mid-Michigan Community Pathway north of Mt. Pleasant and south of Shepherd, and additional bike lanes within Mt. Pleasant.

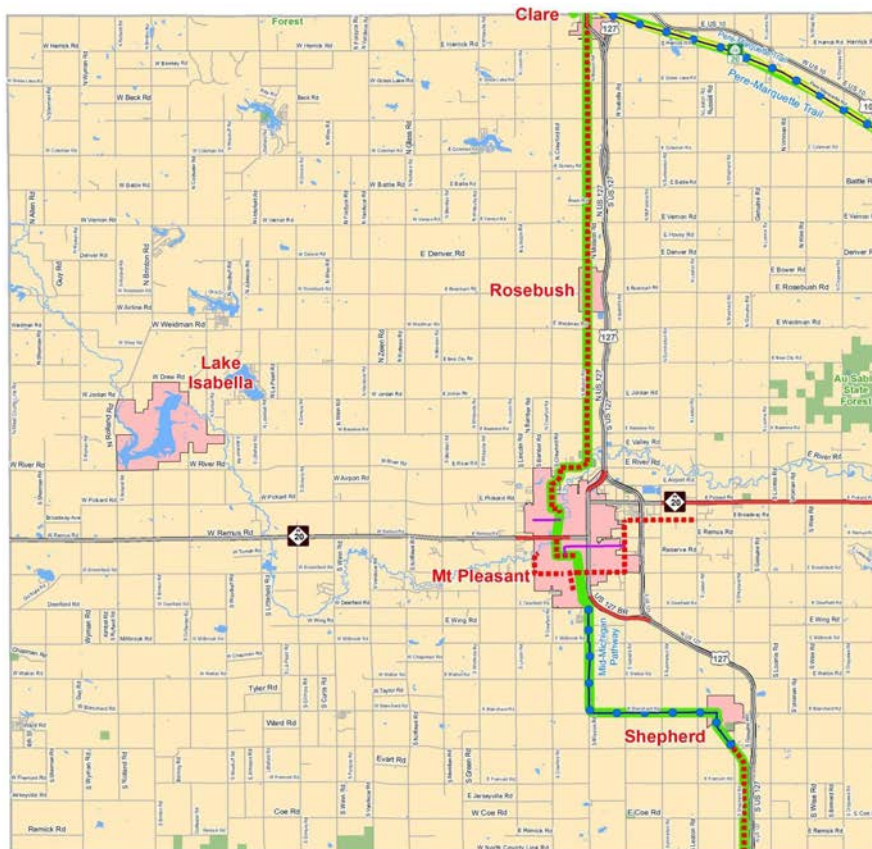
With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 9, information on the region can be found on pages 7-9.

GRAPH 9
ISABELLA COUNTY
NONMOTORIZED CRASHES 2013-2017



MAP 18

ISABELLA COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP



Click the map to view online

- Legend**
- Paved Shared Use Path
 - Unpaved Shared Use Path
 - Bicycle Lane
 - Paved Shoulders >=4'
 - Proposed Bicycle Facilities
 - US Bicycle Route 20
 - Regional Corridors
 - Public Lands



1 in = 3 miles



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Lapeer County

Existing and Proposed Facilities

Lapeer County has more than 43 miles of existing nonmotorized facilities (not including sidewalks), including 19 miles of paved shoulders (4 feet in width or greater) and 24 miles of shared use paths. Future projects include more than 5 miles of shared use paths that have been identified in Lapeer County.

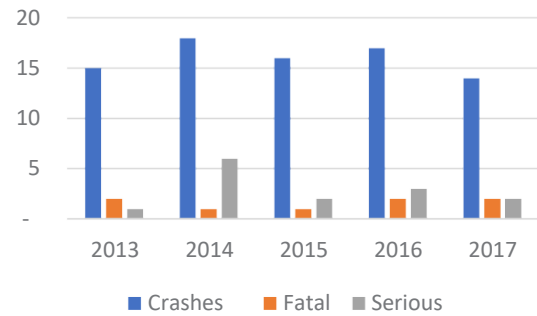


Polly Ann Trail, Imlay City - Photo by EMCOG Staff

Current nonmotorized facilities in Lapeer County include Polly Ann Trail, Southern Links Trailway, road shoulders on M-53 and M-24, and U.S. Bicycle Route 20, which uses existing roads. The Iron Belle Trail is also located in Lapeer County using existing and proposed facilities.

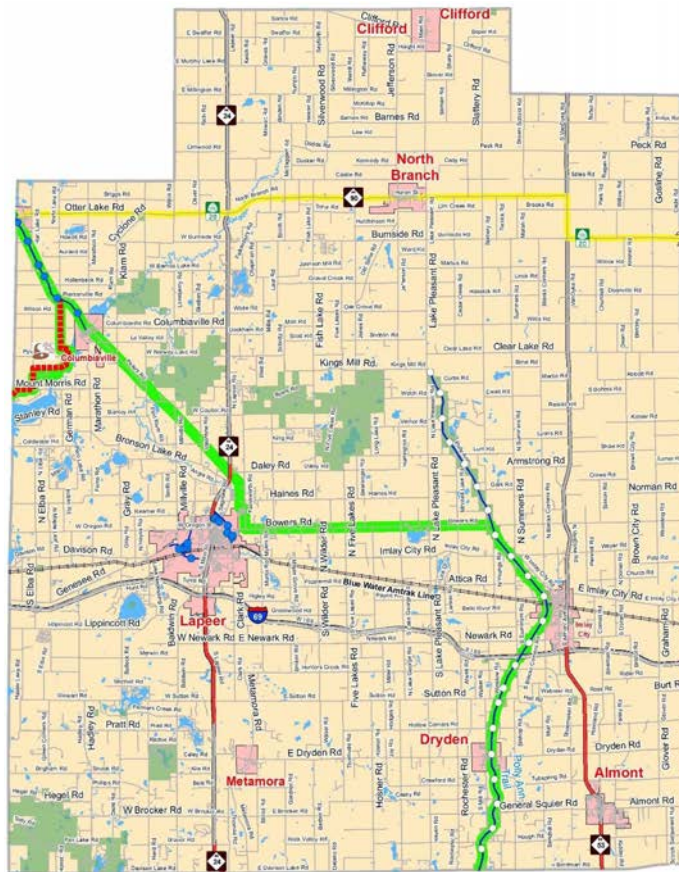
With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 10, information on the region can be found on pages 7-9.

**GRAPH 10
LAPEER COUNTY
NONMOTORIZED CRASHES 2013-2017**



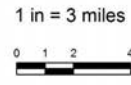
**MAP 19
LAPEER COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP**

Click the map to view online



Legend

- Paved Shared Use Path
- Unpaved Shared Use Path
- Bicycle Lanes
- Paved Shoulders >=4'
- Blue Water Amtrak Line
- Proposed Bicycle Facilities
- US Bicycle Route 20
- Regional Corridors
- Public Lands
- Iron Belle Trail



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Midland County

Existing and Proposed Facilities

Midland County has 57 miles of existing nonmotorized facilities (not including sidewalks), including 13 miles of paved shoulders (4 feet in width or greater), more than 34 miles of shared use paths, and 9 miles of bike lanes. Future projects of nearly 6 miles have been identified in Midland County. All of the proposed projects are anticipated to be shared use paths and are associated with the Great Lakes Bay Region Trail network.

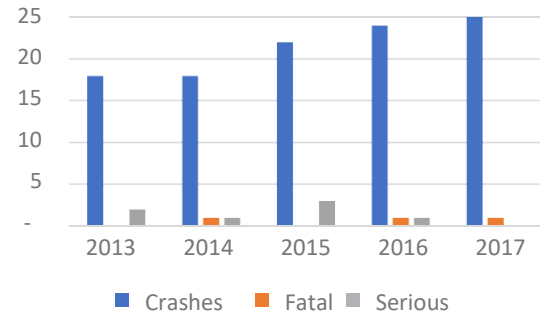
Nonmotorized trails found in Midland County include Chippewa Trail, Midland City Loop Trail, Midland to Mackinaw Trail, Pere Marquette Trail, and U.S. Bicycle Route 20, which uses existing roads. Proposed facilities include the Great Lakes Bay Region Trail network that will be a loop connecting Midland, Saginaw, and Bay City.

With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 11, information on the region can be found on pages 7-9.



*Pere Marquette Rail Trail, Sanford Trailhead
Photo by EMCOG Staff*

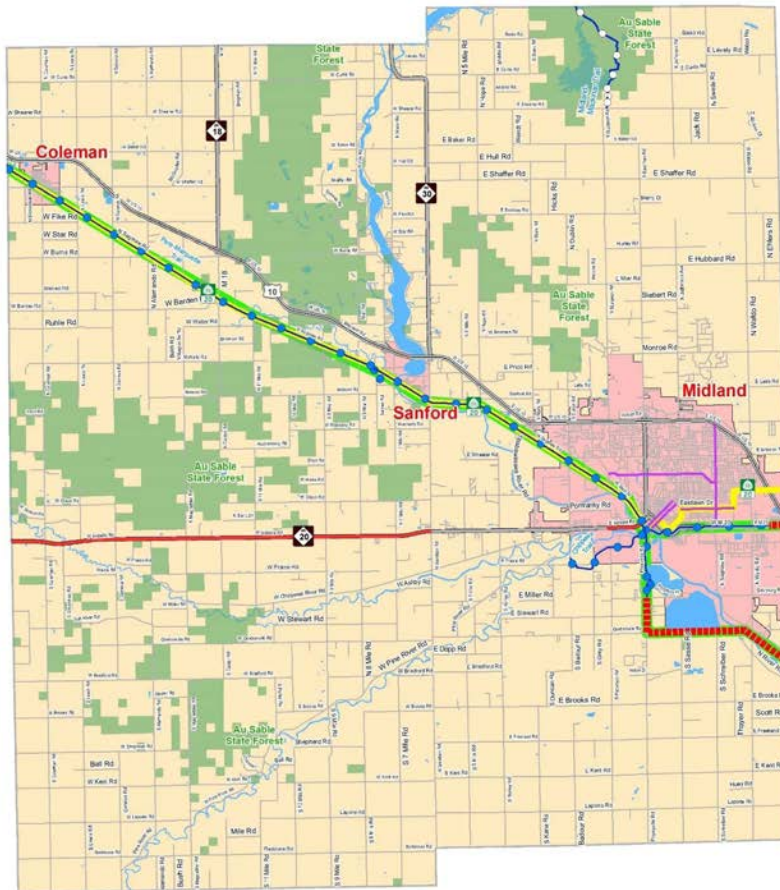
**GRAPH 11
MIDLAND COUNTY
NONMOTORIZED CRASHES 2013-2017**



MAP 20

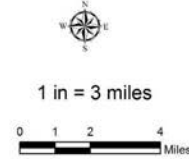
MIDLAND COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP

Click the map to view online



Legend

- Paved Shared Use Path
- Unpaved Shared Use Path
- Bicycle Lanes
- Paved Shoulders >=4'
- Proposed Bicycle Facilities
- US Bicycle Route 20
- Regional Corridors
- Public Lands



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Saginaw County

Existing and Proposed Facilities

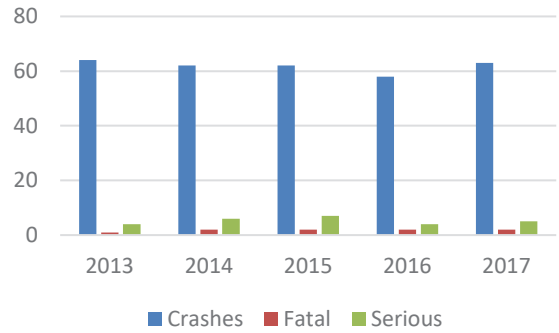
Saginaw County has 155 miles of nonmotorized facilities (not including sidewalks), including 64 miles of paved shoulders (4 feet in width or greater), 45 miles of shared use paths, and nearly 7 miles of bike lanes. Approximately 42 miles of proposed facilities have been identified, with many of them identified with the Iron Belle Trail. Of the 42 miles of proposed facilities, all are anticipated to be shared use paths. Nonmotorized trails found in Saginaw County include BayZil Rail Trail, City of Saginaw Riverwalk, Freeland Pathway, George Olson Pathway, Harger Line Trail, Kotchville Pathway, Saginaw Valley Rail Trail, Thomas Township Trail, U.S. Bicycle Route 20, which uses existing roads, and Zilwaukee Pathway. The Iron Belle Trail also is located in Saginaw County using existing and proposed facilities.

With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 12, information on the region can be found on pages 7-9.



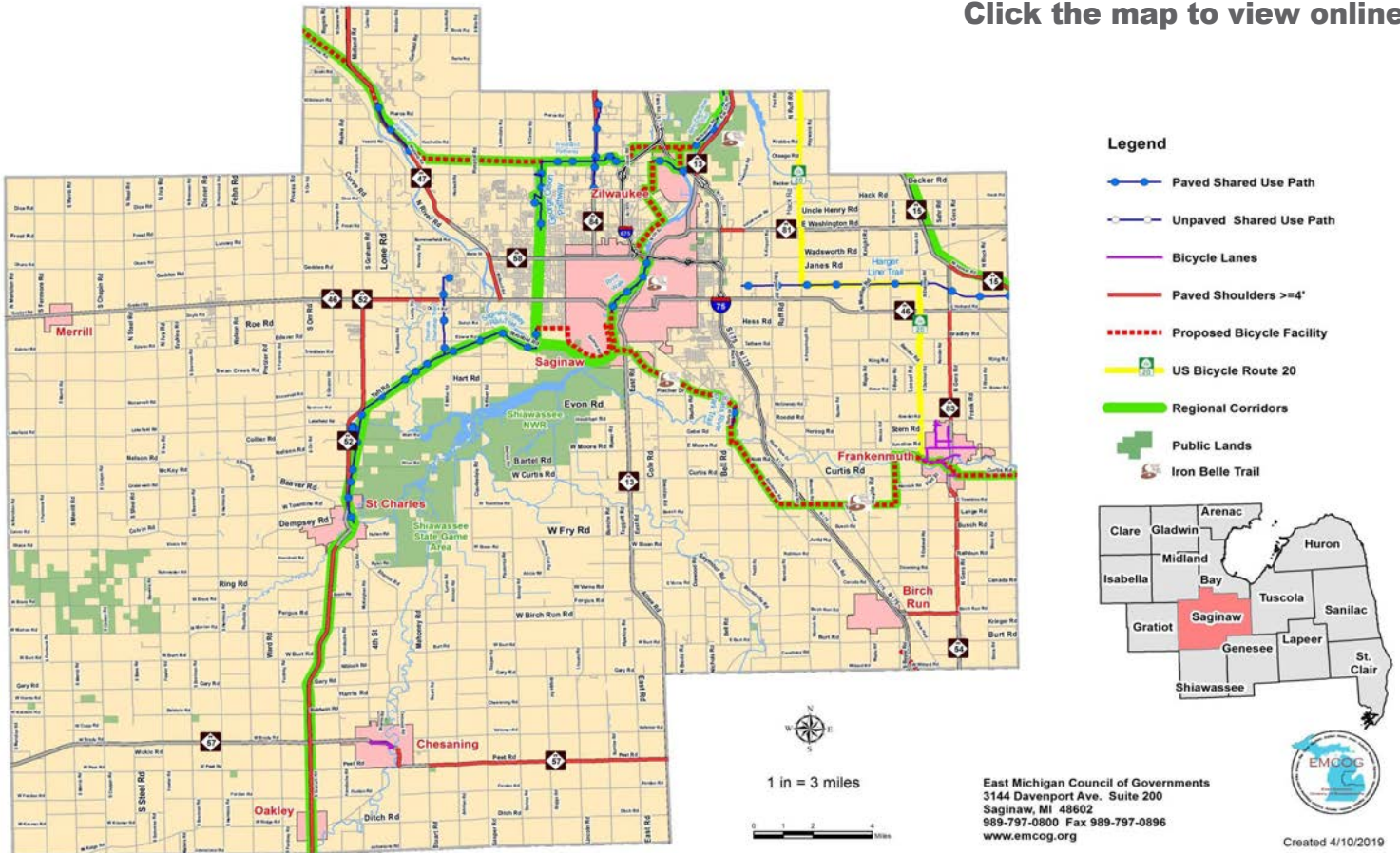
Frankenmuth Covered Bridge - Photo by EMCOG Staff

GRAPH 12
SAGINAW COUNTY
NONMOTORIZED CRASHES 2013-2017



MAP 21
SAGINAW COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP

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St. Clair County

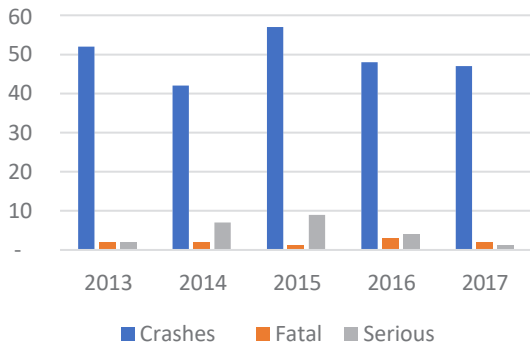
Existing and Proposed Facilities

St. Clair County has 104 miles of existing nonmotorized facilities (not including sidewalks), including 52 miles of paved shoulders (4 feet in width or greater) and 52 miles of shared use paths. In addition, proposed shared use paths of nearly 24 miles have been identified.

Nonmotorized facilities in St. Clair County include the Bridge to Bay Trail, Wadhams to Avoca Trail, U.S. Bicycle Route 20, which uses existing roads, and the Great Lake-to-Lake Trail, which uses existing and proposed facilities.

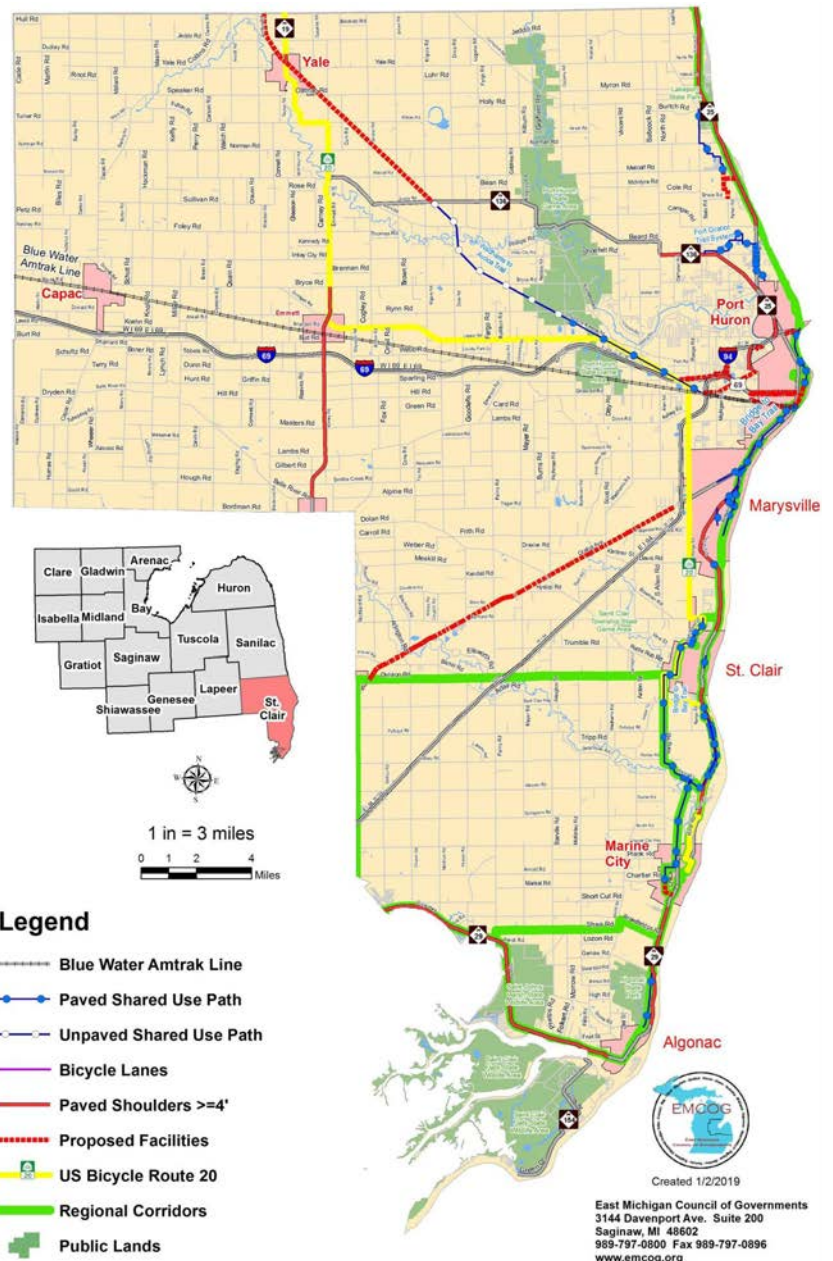
With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 13, information on the region can be found on pages 7-9.

GRAPH 13
ST. CLAIR COUNTY NONMOTORIZED CRASHES 2013-2017



Mill Creek Trestle, Avoca
Courtesy of St. Clair County Parks and Recreation

MAP 22
ST. CLAIR COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP



[Click the map to view online](#)

Sanilac County

Existing and Proposed Facilities

Sanilac County has 38 miles of existing nonmotorized facilities (not including sidewalks), including 38 miles of paved shoulders (4 feet in width or greater). No proposed facilities have been identified in Sanilac County.

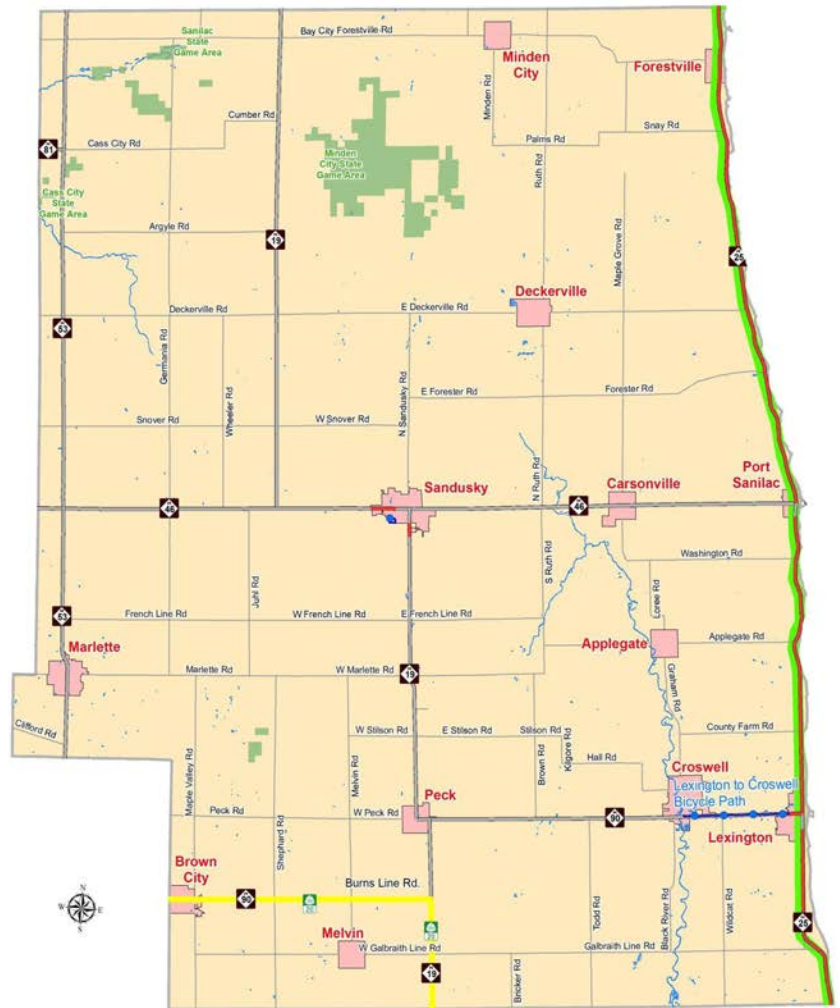
Nonmotorized facilities found in Sanilac County include the Lexington to Croswell Bicycle Path and wide paved road shoulders along M-25, the Lake Huron Circle Tour Route.

With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 14, information on the region can be found on pages 7-9.

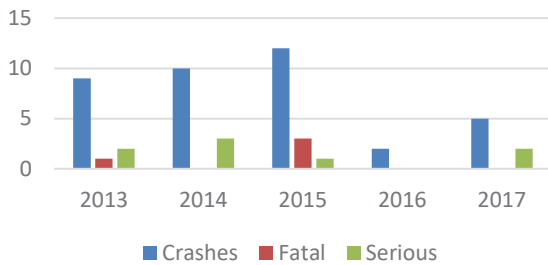


M-25, Lake Huron Circle Tour Route, Delaware Township
Photo by EMCOG Staff

MAP 23 SANILAC COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP

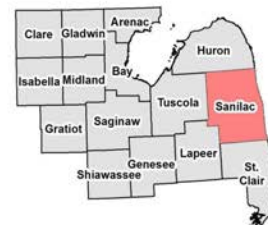


GRAPH 14
SANILAC COUNTY NONMOTORIZED
CRASHES 2013-2017



Legend

- Paved Shared Use Path
- Unpaved Shared Use Path
- Bicycle Lanes
- Paved Shoulders >=4'
- Proposed Facilities
- US Bike Route 20
- Regional Corridors
- Public Lands



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Shiawassee County

Existing and Proposed Facilities

Shiawassee County has 22 miles of existing nonmotorized facilities (not including sidewalks), including 8 miles of paved shoulders (4 feet in width or greater) and 14 miles of shared use paths. At this time, there is one project proposed in the city of Owosso that consists of 1.8 miles.

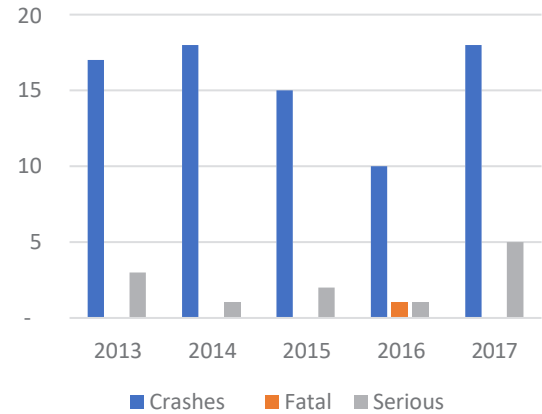
Nonmotorized facilities in Shiawassee County include the Fred Meijer Clinton-Ionia-Shiawassee Trail, the James Minor River Trail, bike lanes in Perry, and road shoulders along M-52.

With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 15, information on the region can be found on pages 7-9.



Fred Meijer Clinton-Ionia-Shiawassee Trail, west of Owosso
Photo by EMCOG Staff

GRAPH 15
SHIAWASSEE COUNTY
NONMOTORIZED CRASHES 2013-2017



MAP 24

SHIAWASSEE COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP

Click the map to view online



Legend

- Paved Shared Use Path
- Unpaved Shared Use Path
- Bicycle Lanes
- Paved Shoulders >=4'
- Blue Water Amtrak Line
- US Bicycle Route 20
- Proposed Bicycle Facilities
- Regional Corridors
- Public Lands



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Tuscola County

Existing and Proposed Facilities

Tuscola County has more than 50 miles of existing nonmotorized facilities (not including sidewalks), including 45 miles of paved shoulders (4 feet in width or greater) and 5 miles of shared use paths. Approximately 20 miles of proposed facilities have been identified, all of them associated with the Iron Belle Trail.

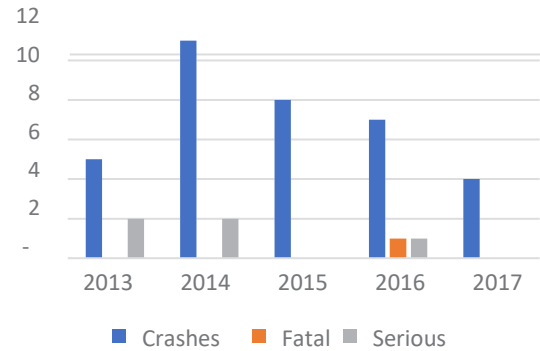


*Southern Links Trailway, Millington
Photo by EMCOG Staff*

Nonmotorized facilities found in Tuscola County include the Southern Links Trailway and U.S. Bicycle Route 20, which uses existing roads. The Iron Belle Trail also is located in Tuscola County, using existing and proposed facilities.

With safety a major concern, crash data for the years 2013-2017 was accessed for each county from the Michigan Traffic Crash Facts website, a site maintained by the University of Michigan. In addition to the information found in Graph 16, information on the region can be found on pages 7-9.

**GRAPH 16
TUSCOLA COUNTY
NONMOTORIZED CRASHES 2013-2017**



**MAP 25
TUSCOLA COUNTY EXISTING AND PROPOSED BICYCLE TRANSPORTATION MAP**



Click the map to view online

- Legend**
- Paved Shared Use Path
 - Unpaved Shared Use Path
 - Bicycle Lanes
 - Paved Shoulders >=4'
 - Proposed Bicycle Facilities
 - US Bicycle Route 20
 - Regional Corridors
 - Public Lands
 - Iron Belle Trail



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Pere Marquette Trail, Sanford - Photo by EMCOG Staff

GAP ANALYSIS

Utilizing the 2010 MDOT Bay Region Nonmotorized Plan map as the nonmotorized base map, the team set out to update the regional map and begin the gap analysis. Through the contacts at the outreach meetings, subsequent phone calls, and multiple mailings to key stakeholders throughout the region, an updated nonmotorized base map was presented to the MDOT Bay Region Pedestrian and Bicycle Committee (“Committee”).

On Feb. 26, 2019, the Committee met to discuss the base map with the intent to confirm that all existing and proposed facilities were included on the regional base map. Once

the facilities were identified, they were asked to confirm the location of the regional corridor and to identify gaps of existing facilities within the regional corridors.

The regional map was presented and discussed, and all existing and proposed facilities were identified on the map. Next, several trails/corridors were recommended to be added as part of the regional corridor system.

Additionally, a trail/corridor system was recommended to be eliminated from the regional corridor system. It was agreed that all recommendations were to be included on the map.

Regional Trail/Corridor Additions

Five trails/corridors were identified to be added as part of the regional trail system. They are identified below, along with the justifications:

- Midland to Mackinac Trail: This is a separate trail from the regional corridor connected throughout the region. However, this trail is approximately 210 miles long and extends north through several MDOT regions.
- M-21 corridor from Owosso east to Flint: This corridor is along M-21 and provides an east-west connection to Flint from the US-127 corridor (Mid-Michigan Community Pathway).
- Connecting Saginaw Valley Rail Trail to the Iron Belle Trail in the southern section of Saginaw: The inclusion of this connection provides a connection from the Saginaw Valley Rail Trail in western Saginaw County to the Iron Belle Trail. The actual location of the proposed trail has not been identified.
- Include the Kochville Pathway (east-west).
- Include the M-58/M47 connection from Saginaw to Midland.

Regional Trail/Corridor Deletions

The Wadhams to Avoca Trail/M-19 trail/corridor system was identified to be deleted from the regional corridor system as it does not connect to another trail/corridor nor is it complete at this time (less than 50 percent).

Gap Analysis

Upon completing the identification of the regional nonmotorized system, the Committee then began the process of identifying gaps of existing facilities within the existing system.

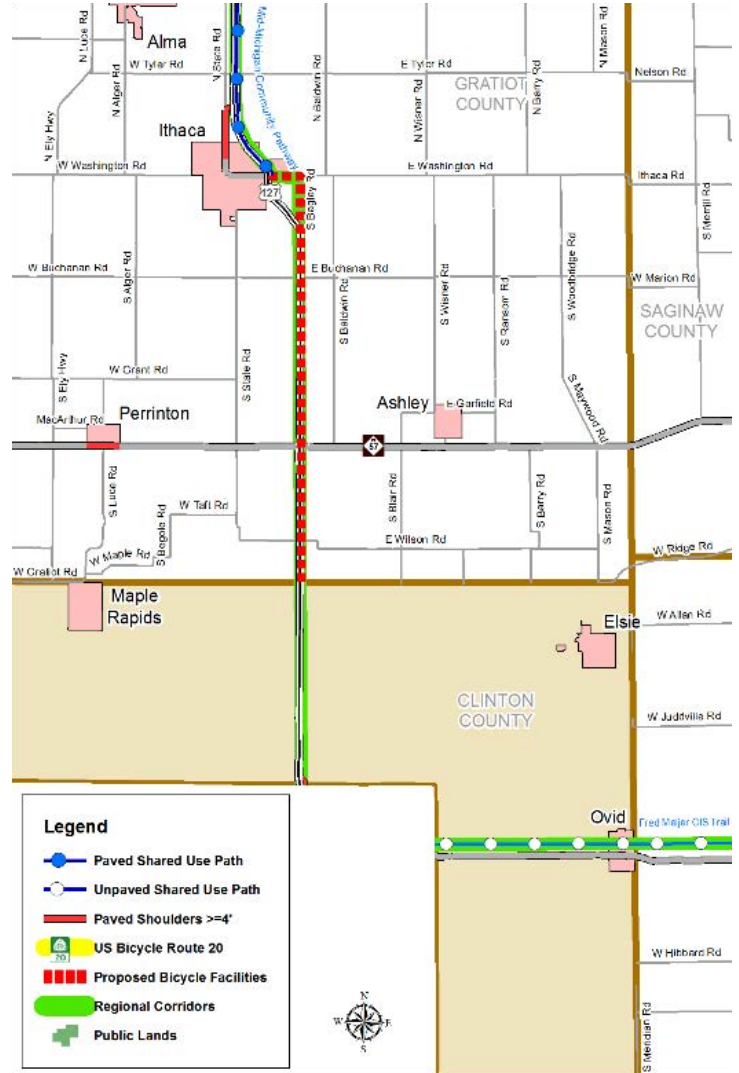
On March 11, the team members met to determine if the list of gaps that was previously identified by the Committee was complete and to then identify challenges to “fill in” those gaps. Below are the gaps that were identified as well as the challenges:

Gap: Mid-Michigan Community Pathway (US-127), Ithaca south to the Fred Meijer Clinton-Ionia-Shiawassee Trail (C-I-S). The proposed location of the pathway extension is in the US-127 right of way.

Status: Mid-Michigan Community Pathway extends from Ithaca north to Alma and from Shepherd north to Mt. Pleasant.

Challenge: Locating within the right of way south of Ithaca may not be an option due to right of way issues as well as wetland concerns. Alternative routes should be identified and researched prior to considering the US-127 right of way.

Map 26 Mid-Michigan Community Pathway Gap: Ithaca South to Fred Meijer C-I-S Trail

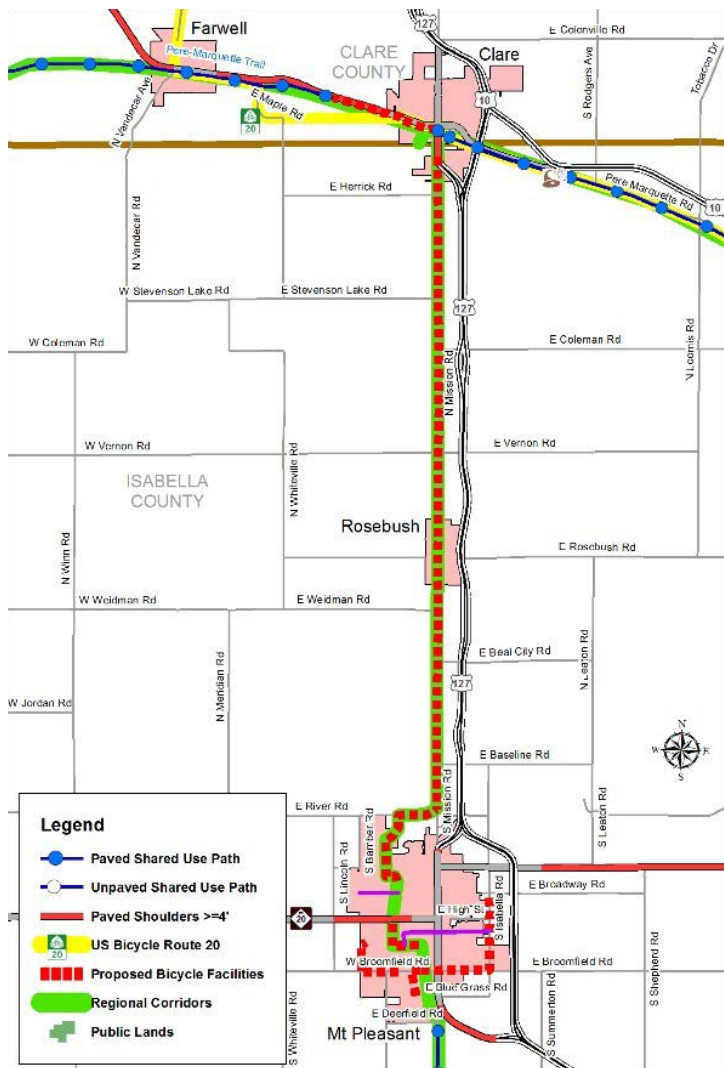


Gap: Mid-Michigan Community Pathway (US-127), Mt. Pleasant north to Clare. The proposed location of the pathway extension is in the US-127 right of way.

Status: Mid-Michigan Community Pathway extends from Ithaca north to Alma and from Shepherd north to Mt. Pleasant.

Challenge: Locating within the right of way south of Clare may not be an option due to right of way issues as well as wetland concerns. The old US-127 corridor does not have the same issues or concerns and may be a more appealing alternative route.

Map 27
**Mid-Michigan Community Pathway Gap:
 Mt. Pleasant to Clare**



Gap: Pere Marquette, Clare - 1 mile within the city of Clare.

Status: Grant applications have been submitted for TAP funds as well as MDNR Trust Funds. All design work is complete.

Challenge: Secure funding to complete the project.

Map 28
Pere Marquette Trail Gap: City of Clare



Gap: M-52 corridor, St. Charles south to Owosso.

Status: In the planning stage.

Challenges: This route is being evaluated for possible facility locations. There are environmental concerns should any facility be a shared use path or similar facility. There are right of way concerns should the facility be either a bike lane or road shoulder on the existing roadway. Costs for the two options will play an important role in the final decision of the route.

Map 29

M-52 Corridor Gap: St. Charles to Owosso



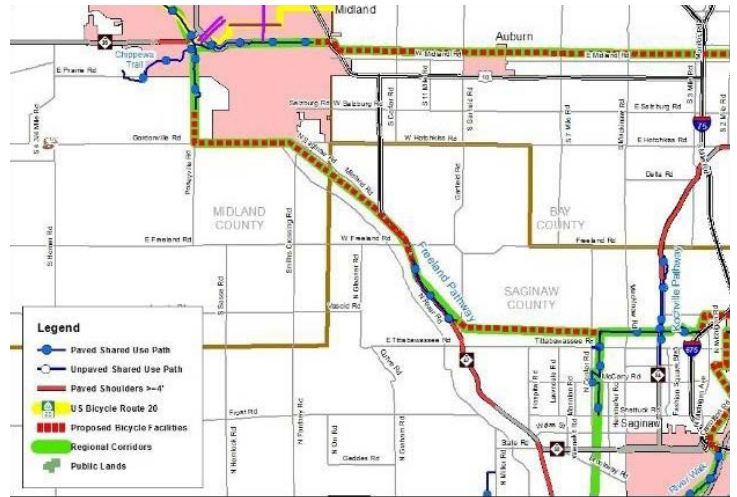
Gap: Great Lakes Bay Regional Trail (GLBRT), Saginaw northeast to Midland.

Status: In the planning stage.

Challenges: Due to the numerous challenges of this portion of the GLBRT network, this portion of the GLBRT has been divided into several sections to progress in a more timely manner. Factors in deciding to section out this portion of the GLBRT include the easements required in a number of locations, a historic preservation element in one of the sections, costs to renovate an historic bridge, and crossing Bullock Creek.

Map 30

Great Lakes Bay Regional Trail Gap: Saginaw to Midland



Gap: GLBRT, Saginaw Valley Rail Trail north to George Olson Trail.

Status: In the planning stage.

Challenges: There are multiple agencies working on this trail. With many options for the proposed trail, the agencies are seeking the best and easiest route for users.

Map 31

Great Lakes Bay Regional Trail Gap: Saginaw Valley Rail Trail to George Olson Trail



Gap: Iron Belle Trail, Bay City Recreation Area north to the Fraser Trail.

Status: MDNR is working with local property owners and supporters of nonmotorized facilities in an attempt to seek out the best possible location for the Iron Belle Trail.

Challenges: Efforts to reach general consensus with the stakeholders on route details has delayed progress with the development of this section of the trail.

Map 32

Iron Belle Trail Gap: Bay City Recreation Area to Fraser Trail

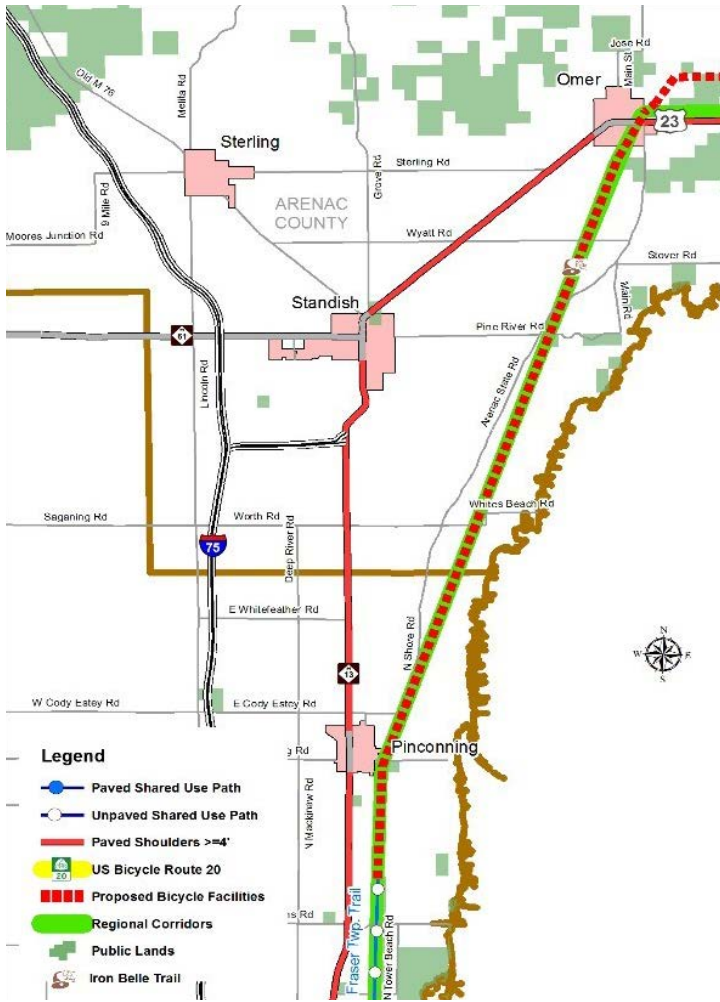


Gap: Iron Belle Trail, Fraser Trail north to the city of Omer.

Status: DNR staff has secured a Trust Fund Grant to negotiate an agreement with Lake State Railroad to allow the trail to be located within the railroad right of way.

Challenge: The Saginaw Midland Municipal Water Supply Corporation (SMMWSC) is also located within the railroad right of way, which limits right of way access.

Map 33
Iron Belle Trail Gap: Fraser Trail to Omer



Gap: Iron Belle Trail, Omer to AuGres.

Status: Preliminary engineering is complete. Arenac County Economic Development Corp. (EDC) and the Arenac Heritage Route Authority are working in unison to get the trail in the county and are working with SMMWSC on securing an easement for the location of the trail.

Challenges: There is currently a concern regarding the allowance of a non-utility use locating on the SMMWC property. Until this matter can be worked out, the project is at a standstill. The EDC is working with the MDNR to get this matter resolved.

Map 34
Iron Belle Trail Gap: Omer to AuGres

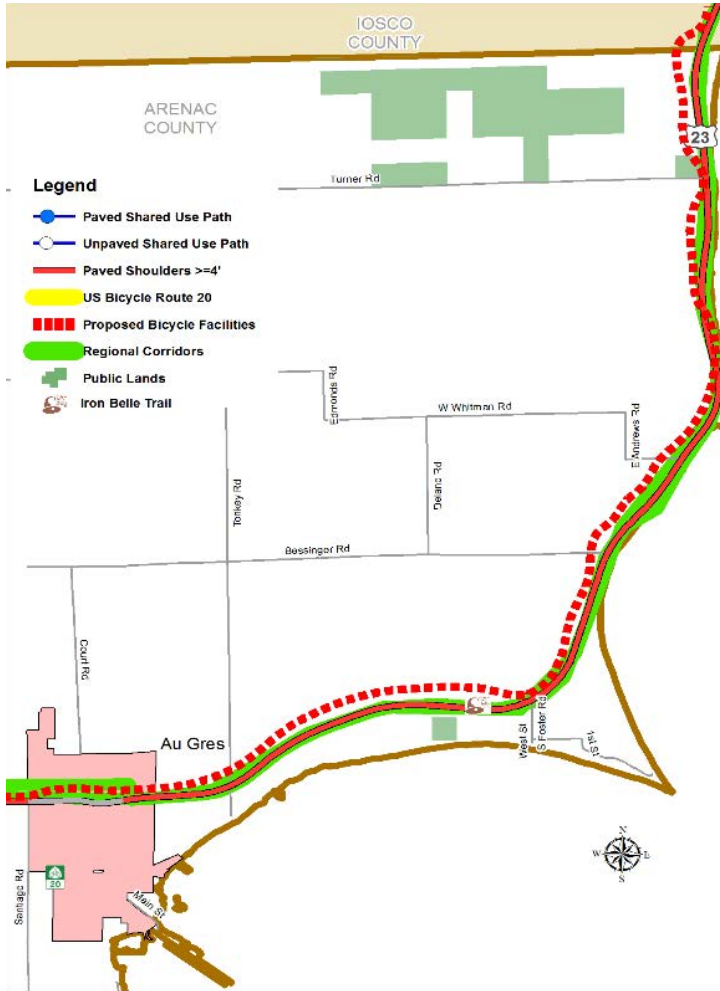


Gap: Iron Belle Trail, AuGres to the Iosco County line.

Status: The EDC is currently working with a consultant to identify a possible location for the trail within the US-23 right of way.

Challenges: Concept approval has been given by MDOT for the trail to be located within the right of way; however, any final proposal must also go through the Michigan Department of Environment, Great Lakes, and Energy (EGLE), as well MDOT.

Map 35
**Iron Belle Trail Gap:
 AuGres to Iosco County Line**

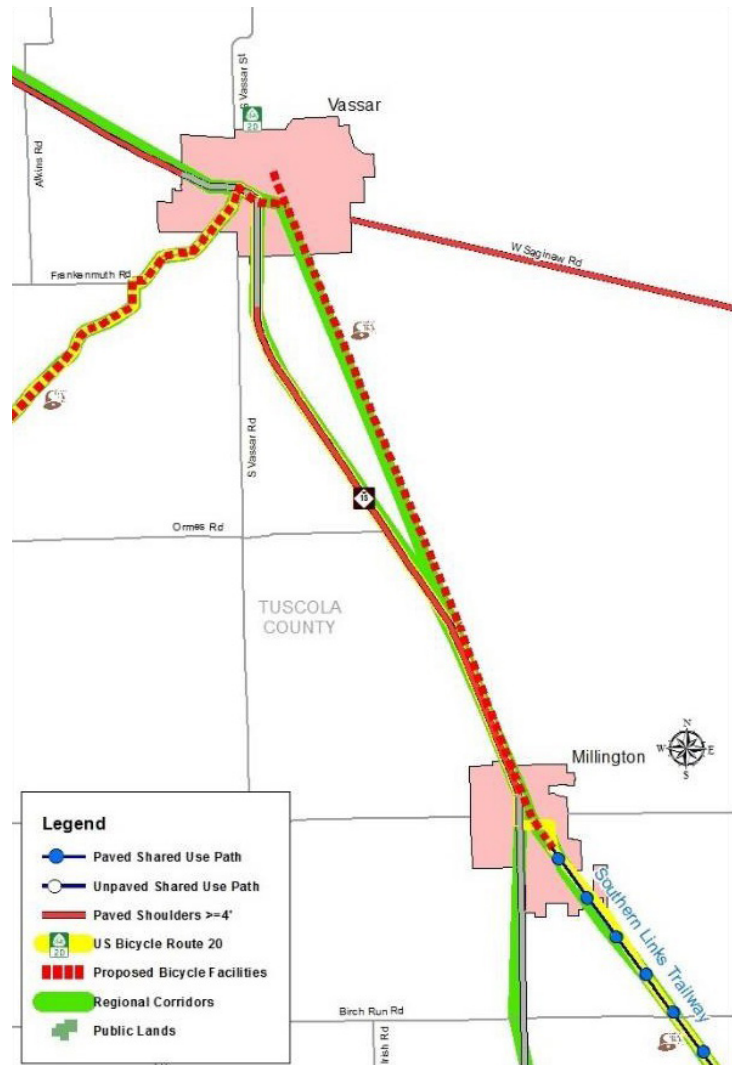


Gap: Iron Belle Trail, Vassar south to Millington.

Status: Preliminary engineering has been initiated. The EDC has secured a grant to complete a planning study for the trail within the Huron and Eastern Railroad right of way, which is currently owned by MDOT.

Challenges: There is a multi-step process by MDOT for the approval of any facility located within the right of way. In addition, the proposed route is heavily wooded and may include wetlands, which would require EGLE approval. Any approval from EGLE could impact the clearing of the land for the trail and ultimately the cost of any facilities located along the railroad right of way.

Map 36
Iron Belle Trail Gap: Vassar to Millington



Gap: Polly Ann Trail, Columbiaville south to Polly Ann Trail.

Status: In the planning stage.

Challenges: The proposed route from Columbiaville to M-24 includes land that is privately owned. There is no preferred route identified from M-24 to the existing Polly Ann Trail due to grade issues and land of usable existing paved roads. Roads in that area are all gravel.

Map 37
**Polly Ann Trail Gap:
 Columbiaville to Existing Polly Ann Trail**



Gap: M-15 corridor, Millington south to Otisville.

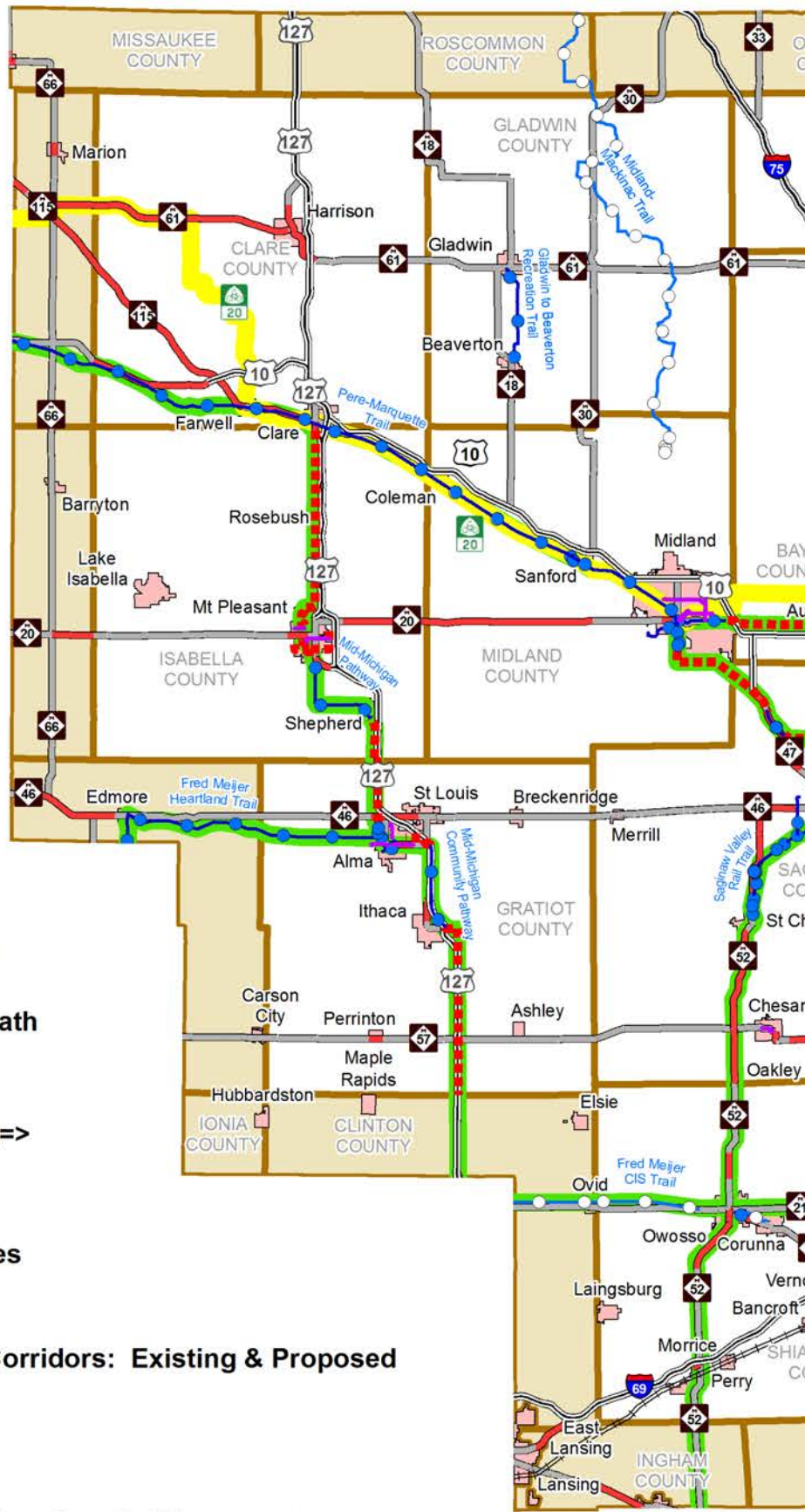
Status: In the planning stages.

Challenges: The identification of a preferred route has been difficult as bicycle enthusiasts in the region prefer an off-road trail rather than shoulders along M-15 due to safety concerns. Off-road facilities such as a shared use trail may be cost prohibitive due to environmental issues, which could increase initial construction costs as well as maintenance costs.

Map 38
M-15 Corridor Gap: Millington to Otisville



MAP 39
MDOT BAY REGION
NONMOTORIZED EXISTING
AND PROPOSED FACILITIES



Legend

- Paved Shared Use Path
- Unpaved Shared Use Path
- Bicycle Lanes
- Paved Shoulder Width 4ft=>
- Blue Water Amtrak Line
- Proposed Bicycle Facilities
- US Bicycle Route 20
- Regional Nonmotorized Corridors: Existing & Proposed



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Created 4/11/2019



Fred Meijer Heartland Trail, Alma - Photo by EMCOG Staff

FUNDING OPTIONS AND DESIGN CONSIDERATIONS

Financing the development of nonmotorized facilities can be broken down into three phases: acquisition, development, and maintenance. Acquisition of the property can be accomplished through several means: the purchase of the property outright, leasing the property, or obtaining an easement for the property. The second phase is the development of the facility. The third phase is the maintenance of the facility. The last two phases are critically tied together as the maintenance costs will vary depending on the construction design and materials used. Thus, the availability of funding for future maintenance may help frame the construction design of the facility.

Municipalities seeking funding options for any of the three phases have multiple tools they can utilize. They can be private dollars, local sources and state/federal sources. The lists below are just some of the options available and is not intended to be a complete list.

Private Dollars

Private dollars are monies that have been donated or provided from citizens, businesses, private philanthropic organizations, or citizen groups.

Local Sources

Property Millage: Counties, townships, and cities are enabled to establish millages for funding transportation.

Special Assessment: Counties, townships, and cities can use special assessments when the improvements benefit a defined area.

Tax Increment Finance Authority (TIFA): Cities have this option to utilize property tax revenues from increases in taxable value for transportation improvements.

Downtown Development Authority (DDA): DDAs are designed to encourage development in a downtown district. They have many of the same tools as a city to utilize, such as TIFAs, special assessments, millages, and private dollars.

State/Federal Sources

Cities, townships, and counties have a variety of options that can be utilized to secure funding for nonmotorized facilities. Following is not an exhaustive list and includes several sources that can be utilized.

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/pedestrian 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., within a larger road improvement project, resulting in significant benefits to pedestrians and bicyclists and cost savings.

ACT 51

Created by Public Act 51 of 1951, the Michigan Transportation Fund (MTF) 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. State transportation law (MCLA 247.660k) requires a minimum of 1 percent of state transportation funds be spent for nonmotorized transportation. Act 51 funds can be spent on pedestrian/bike items such as:

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

Local agency work being funded with MTF dollars must have a clear transportation purpose. This work typically takes place within the road rights of way or is reasonably tied to the roadway. (Table 7 - identifying work creditable against the Section 10K 1 Percent Expenditure Requirement can be found on the following page.)



Bluewater River Walk, Wetlands Boardwalk - Photo courtesy of St. Clair County Parks and Recreation

TABLE 7
WORK CREDITABLE AGAINST THE SECTION 10K
1 PERCENT EXPENDITURE REQUIREMENT

PA 51 of 1951 as amended by PA 82 of 2006
Updated April 2019

Description of Work	Work Creditable Against Section 10K 1 Percent Requirement	Eligible Cost	
		Engineering	Construction
NON-ROAD FACILITIES			
Shared Use Path as a project	All engineering/construction/reconstruction.	100%	100%
Shared Use Path as part of a road project	1) All path-related construction/reconstruction. 2) Non-path work in the road project necessitated by the path component (e.g., extra fill, culvert extension, etc.).	Prorated*	100% of 1 and 2
Shared Use Path 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/Bicycle Signals	All work specifically associated with the signs, markings, signals specifically intended for nonmotorized users.	100%	100%
Crack and Surface Treatments, Non-structural Overlays, Resurfacing, Restoration or Rehabilitation	All engineering/construction on shared use pathways, sidepaths or sidewalks.	100%	100%
SERVICES			
Nonmotorized Planning and Education	Costs associated with the development of nonmotorized planning documents or educational materials intended to promote the development, benefits, safety, and use of nonmotorized transportation.	Not Applicable	Not Applicable
ROAD FACILITIES (see notes below)			
Signs, Pavement Markings, Pedestrian/Bicycle Signals	All work specifically associated with the signs, markings and signals specifically intended for nonmotorized users.	100%	100%
Bike Lanes - Pavement, Markings, and Signs as a project	All engineering/construction.	100%	100%
Bike Lanes - Pavement, Markings, and Signs as part of a road or bridge construction	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 part of a road or bridge construction	That portion of the engineering and construction that can be attributed to the paved portion of the shoulders.	Prorated	Prorated**
Road or Bridge Construction	That portion of the road or bridge project intended for nonmotorized travel.	Prorated	Prorated
Crack and Surface Treatments, Non-structural Overlays, Reconstruction, Resurfacing, Restoration, or Rehabilitation	All engineering/construction for that portion of the roadway meeting the dimensional requirements set forth in the relevant AASHTO guidelines for the on-roadway nonmotorized facility (shoulders or bike lanes).	Prorated	Prorated
<p>* 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. <i>Note only road/bridge project pay items that include the nonmotorized width in the width proration.</i></p>			

Table 7 represents work items creditable against the Section 10k 1 percent expenditures. If your community identifies potential work items that do not appear on the list below, please contact the MDOT bicycle and pedestrian coordinator for eligibility verification.

Questions regarding cost eligibility for items not discussed in this guidance, or for assistance in calculation of expenditures, may be directed to Josh DeBruyn, MDOT pedestrian and bicycle specialist, 517-335-2918 or DeBruynJ@Michigan.gov.

Non-road facilities are accommodations that occur outside of the edge of the road and may or may not be within the road right of way but still have a transportation purpose. Shared use paths and structures on those paths are off-roadway facilities intended for nonmotorized travel. Ramps and curb cuts where paths or sidewalks cross roadways are eligible; bicycle parking facilities also qualify. Signs, pavement markings, and signals associated with road or non-road facilities intended for the safety and mobility of bicyclists or pedestrian are also eligible expenditures.

Road facilities are nonmotorized accommodations built within a roadway. Marked bicycle lanes and paved shoulders qualify as a bicycle accommodation if they meet national design standards and guidelines for nonmotorized facilities. Portions of/prorated road or bridge construction, reconstruction, resurfacing, widening, rehabilitation, and certain heavy and light capital preservation maintenance (CPM) costs may be eligible if the work supports or takes place on accommodations for nonmotorized users and meet national design standards and guidelines for nonmotorized transport. In the case of resurfacing, rehabilitation and light or heavy CPM, work is eligible only if it is done on existing nonmotorized accommodations; work in motor vehicle travel lanes and turn lanes does not qualify as a nonmotorized expenditure. "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 marked bicycle lanes) within the existing curb alignment can also be considered an eligible expenditure.

As of March 29, 2006, changing from gravel to hard surface roads, including paving of gravel roads, no longer qualifies as an eligible expenditure toward Section 10(k). See Public Act 82 of 2006.

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

Proration of costs is necessary for nonmotorized accommodations constructed as part of roadway construction work. The formulas for proration are provided in the table.

Congestion Mitigation and Air Quality (CMAQ)

The primary goal of the 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. Funds are for transportation-related projects. The standard local match is 20 percent. Applicants are required to work with MPOs 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 are available at www.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 MDOT Bay Region and has a considerable amount of information and frequently asked questions on their website for reference (www.Michigan.gov/TAP).

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 coordination with other infrastructure work, economic development, or community improvement initiative,
- strong, detailed maintenance plan, including sources of funding,
- high match (40 percent and higher, ability to pay is considered), and
- 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.

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 TAP and administered by The Michigan Fitness Foundation and MDOT. Developing an 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 opportunities to receive federal funding for an SRTS program in the form of major grants 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.

United States Department of Agriculture (USDA) Rural Development

The Community Facilities (CF) program offers primarily loan dollars to municipalities, nonprofit 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 MDNR (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.

Applications are due April 1 and applicants must have an MDNR-approved Recreation Plan. Development grant maximum is \$300,000 with a 25 percent local match.

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 1, the maximum grant request is \$150,000, and there is a 50 percent local match. Pedestrian paths, trailheads, and support amenities have been funded in the past. Additional LWCF details are available online.

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 1. The maximum grant request in 2018 was \$75,000. Renovations of trails and trail heads, accessible pathways, restrooms, and related amenities have been funded in the past.

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, business development districts (BDD) funds, and state and local philanthropic organizations. Often these funds are used as matching funds, in conjunction with the previously identified programs.



*Wadhams to Avoca Trail
Photo courtesy of St. Clair County Parks and Recreation*

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.

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.

Below is a list of reference materials used by MDOT. The State of Michigan follows and recognizes the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, 4th Edition, as well as the National Association of City Transportation Officials (NACTO) Guide.

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)
- NACTO Urban Bikeway Design Guide (only portions compliant with AASHTO and MMUTCD are accepted by FHWA) FHWA's Guide for Maintaining Pedestrian Facilities for Enhanced Safety
- FHWA Separated Bike Lane Planning and Design Guide 2015
- FHWA Achieving Multimodal Networks 2016
- The Michigan Manual of Uniform Traffic Control Devices (MMUTCD)
- MDOT's Design Manual Standards and Guidelines

Trail Etiquette¹¹

- Stay to the right on the trail.
- Hikers, runners and bikers should always yield to horses.
- Bicyclists should yield to hikers and runners.
- When hiking with your dog, ensure they are on a leash that's 6 feet long or shorter.
- Snowmobiles and off-road vehicles (ORVs) should slow down and give the right of way to any skiers, hikers, persons on snowshoes or dogsleds.
- Downhill traffic should yield to uphill traffic.
- When approaching others from behind, let others know you are approaching. For example, runners and cyclists commonly say "on your left" when passing.
- Generally, only Class I e-bikes are permitted on shared use pathways.



Pedestrian Considerations

Walking trips are typically around 20 minutes long and less than 1 mile long. 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 3 miles per hour, also expose pedestrians to traffic for longer periods. 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. These improvements and others should be considered with every road project and do not need to be implemented solely with larger regional pedestrian and bicycle projects.

Based on an analysis of crash data for a five-year period from 2013 to 2017, 0.6 percent of the crashes that occurred in the MDOT Bay Region involved a pedestrian. While this is a small proportion of all crashes, 13.3 percent of all fatal crashes involved a pedestrian. Roadway improvements can often reduce the likelihood of a pedestrian crash. Physical improvements are most effective when tailored to an individual location and traffic problem.

¹¹ Michigan Trails and Greenways Alliance

Bicycling Considerations

People bike for many 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.

Based on an analysis of crash data for a five-year period from 2012 to 2016, 0.4 percent of the crashes that occurred in the MDOT Bay Region involved a bicyclist. While this is a small proportion of all crashes, 2.4 percent of all fatal crashes involved a bicyclist. Based on an analysis of crash data for a five-year period from 2013 to 2017, 0.6 percent of the crashes that occurred in the MDOT Bay Region involved a pedestrian. While this is a small proportion of all crashes, 13.3 percent of all fatal crashes involved a pedestrian. Roadway improvements can often reduce the likelihood of a bicycle crash. Physical improvements are most effective when tailored to an individual location and traffic problems. MDOT, along with multiple agencies and partners, is working to improve safety through the Governor's Traffic Safety Advisory Commission - Pedestrian and Bicycle Safety Action Team (www.Michigan.gov/OHSP). Roadway improvements can often reduce the likelihood of a pedestrian crash. Physical improvements are most effective when tailored to an individual location and traffic problem.

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

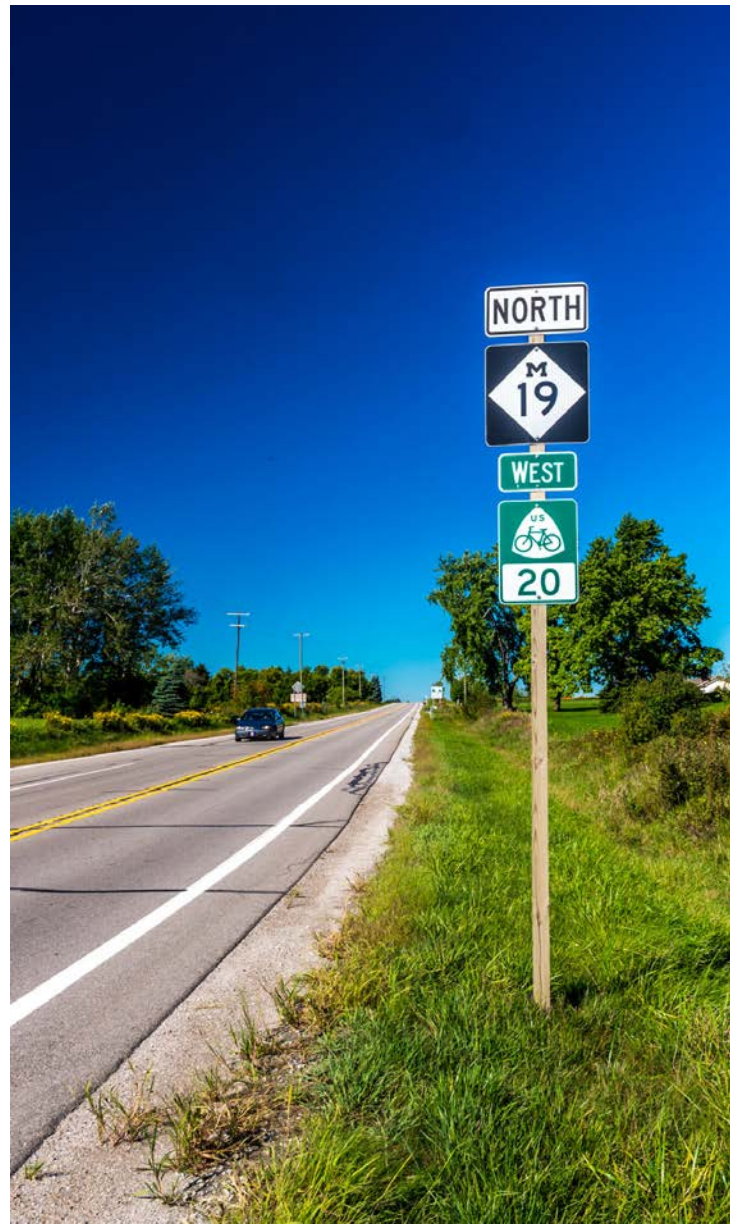
Wide shoulders on both sides of a road are a minimum accommodation for providing a possible place for people to walk.

Source: pedbikesafe.org

Road Crossings of Bicycle Facilities

Road agencies should note where there are crossings of existing or planned bicycle facilities. When road improvements are scheduled at these locations, crossing improvements should be considered as a high priority. It is also a good time to consider additional on-road improvements to access these regional existing or planned bicycle facilities.

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. As illustrated on the next page, most people can be categorized as one of four types of cyclists.¹²



US-20 along M-119 - Photo provided by MDOT

¹² R. Geller, Portland Office of Transportation

The Four Types of Riders



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

1%



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

6%



The majority of people fall into the **"Interested but Concerned"** category. They are curious about bicycling, like riding, and would ride more if they felt safer on the roadways.

60%



About one-third of the population falls into the **"No way, No how"** group that is currently not interested in bicycling at all, for reasons of topography, inability, etc.

33%

Source: Portland DOT

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.

Universal Design

Universal Design is the art of creating environments that are attractive and user-friendly for people of all ages and abilities. Everyone, even the most able-bodied person, passes through childhood, periods of temporary illness, injury and old age. By designing for this diversity, things and spaces can be easier for all people to use. Universal Design concepts and principals should be referenced when designing shared use paths, side paths, and sidewalks.



Bridge to Bay Trail, Port Huron - Photo courtesy of St. Clair County Parks and Recreation

7 Principals of Universal Design

The principals of Universal Design were developed in 1997 by a working group of architects, project designers, engineers, and environmental design researchers at North Carolina State University.

Principal 1: Equitable Use

The design is useful and marketable to people with diverse abilities.

Principal 2: Flexibility in Use

The design accommodates a wide range of individual preferences and abilities.

Principal 3: Simple and Intuitive Use

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Principal 4: Perceptible Information

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Principal 5: Tolerance for Error

The design minimized hazards and the adverse consequences of accidental or unintended actions.

Principal 6: Low Physical Effort

The design can be used efficiently and comfortably and with minimum fatigue.

Principal 7: Size and Space for Approach and Use

Appropriate size and space are provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

Source: Centre for Excellence in Universal Design

The following pages provide descriptions and illustrations of potential design solutions to accommodate nonmotorized users on a variety of types of roads. Appropriate solutions depend on a number of factors. These images are intended to illustrate ideas for consideration. These need

to be reviewed in context with average daily traffic (ADT) volumes, speed, environmental conditions, right of way width, land use, etc. There is a flexibility in selecting facility types depending on conditions.

Paved Shoulders

Paved shoulders are defined as “the paved portion of the roadway typically to the right (outside) of the motor vehicle travel lane used for the storage of disabled vehicles and often used for bicycling or walking in rural areas.”

Paved shoulders provide numerous safety benefits for pedestrians, cyclists, and motorists. They may or may not be marked as bike lanes. To accommodate pedestrian and bicycle travel, paved shoulders should be a minimum of 4 feet wide and, in more heavily traveled areas, may be increased up to 8 feet wide. Concerns have been raised by cyclists regarding ride quality after road agencies have used a modified binder seal coat (chip seal) application. Ride quality should be considered when specifying size and types of materials.

As documented by the FHWA Safety Program, providing or widening paved shoulders has the following benefits:

- Provides a stable surface off the roadway for pedestrians to use when sidewalks cannot be provided,
- Provides an increased level of comfort for bicyclists,
- Reduces numerous crash types, including head-on crashes, sideswipe crashes, fixed-object crashes, and pedestrian crashes,
- Improves roadway drainage,
- Increases effective turning radii at intersections,
- Reduces shoulder maintenance requirements,
- Provides emergency stopping space for broken down vehicles, and
- Provides space for maintenance operations and snow storage.

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 sign details, and
- Design details of facilities, such as pavement color/pattern.

Example of Paved Shoulders



*M-25, Lake Huron Circle Tour Route, Delaware Township
Photo by EMCOG Staff*

Side Path

Side paths are shared use paths that generally follow the roadway alignment.

Depending on land use patterns, side paths immediately adjacent to roadways may cross numerous intersecting roads and driveways that create hazards and other problems for path users. Creating safe and accessible intersections between paths and the road network is one of the most challenging and critical aspects of design. In 2018, MDOT completed a side path safety research project investigating the crash frequencies and crash types between bicyclists and motor vehicles. The research resulted in several reports and educational materials. Visit MDOT's Side Path Research webpage www.Michigan.gov/MDOT/0,4616,7-151-9622_11045_24249_76865_76876_85606---,00.html for more information on side path designs and users safety.

Examples of Side Paths



Bluewater River Walk - Courtesy of St. Clair County



Genesee Valley Trail - Courtesy of MDOT

Shared Use Paths

Shared use paths are defined as “a bikeway physically separated from motor vehicle traffic by an open space or barrier, either within the right of way or an independent right of way.” Shared use paths also may be used by pedestrians, skaters, wheelchair user, joggers, and other nonmotorized users. Most shared use paths are designed for two-way travel.

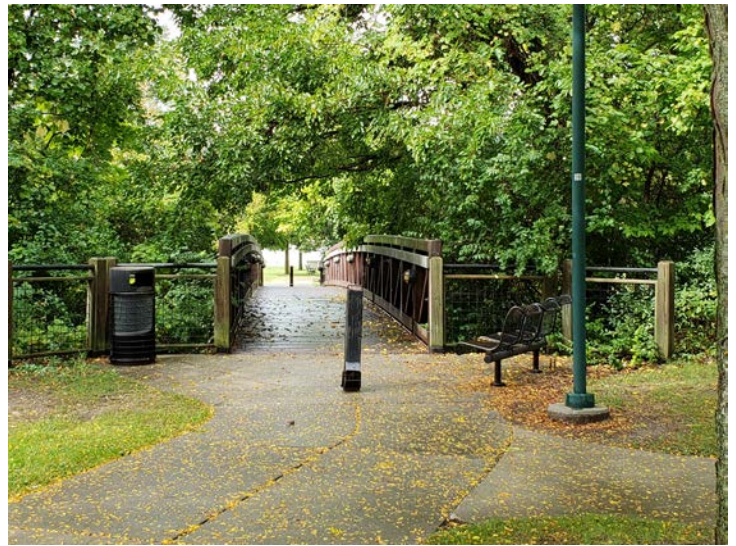
Shared use paths are generally set back from the roads and separated by a green area or trees with the minimal lateral separation of 5 feet. Many shared use paths are within former railroad corridors, along watercourses, or within utility corridors.

Shared use paths can be flexible in that they can deviate from the exact route of a road in order to provide more direct access for key destinations and/or natural resources. Shared use paths (per AASHTO) are 10 feet wide with 2 feet of clearance on either side.

Examples of Shared Use Paths



*Saginaw Valley Rail Trail, St. Charles
Photo by EMCOG staff*



Alma River Walk, Downtown Alma - Photo by EMCOG Staff

Bike Lanes

Bike lanes are defined as “a portion of roadway that has been designated for preferential or exclusive use by bicyclists with pavement markings and signs (optional). It is intended for one-way travel, usually in the same direction as the adjacent traffic lane, unless designated as a contra-flow lane.”

Marked bike lanes help to establish order in the roadway by providing a designated place for bicyclists and motorists. Conventional bike lanes are located adjacent to motor vehicle travel lanes and typically flow in the same direction as motor vehicle traffic. Bike lanes are typically on the right side of the street, between the adjacent travel lane and curb, road edge, or parking lane. Conventional bike lanes are between 4 to 6 feet wide.

Buffered Bike Lanes

Buffered bike lanes are defined as “conventional bicycle lanes accompanied by a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane.”

Buffered bike lanes:

- Provide greater shy distance between motor vehicles and bicyclists.
- Encourage bicyclists to ride outside of the door zone when buffer is between parked cars and bike lane.
- Appeals to a wider cross-section of bicycle users.
- Encourages bicycling by contributing to the perception of safety among users of the bicycle network.

Examples of Bike Lanes



M-57, Downtown Chesaning - Photo by EMCOG staff



Superior Street, Alma - Photo by EMCOG Staff

Separated Bike Lanes

Separated bike lanes include three primary items:

- Physical separation: Some sort of physical, stationary or vertical separation between moving motor vehicle traffic and the bike lane. Examples include plastic posts, bollards, curbs, planters, raised bumps or parked cars.
- Exclusively for people on bikes: Define and allocate space exclusively for people on bikes, not shared with pedestrians or motorized traffic except for brief mixing zones where necessary and at intersections.
- On or adjacent to the roadway: Part of the street grid and runs parallel and proximate to the roadway.

Single-Lane Separated Bike Lane Examples



*Painted buffer with flexposts and parking lane
(Jefferson Avenue, Detroit)
Photo by MDOT Staff*



*Painted buffer with flexposts
(Cass Avenue, Detroit)
Photo by MDOT Staff*



*Painted buffer with flexposts and bike box
(Livernois Street, Ferndale)
Photo by MDOT Staff*



*Painted buffer with flexposts and parking lane
(Jefferson Avenue, Detroit)
Photo by MDOT Staff*

This section was based on AASHTO: Guide for Development of Bicycle Facilities and FHWA Small Town and Rural Multimodal Networks, Modified from livingLAB, LLC in conjunction with the 2015 MDOT University Region Nonmotorized Plan.

Two-Way Separated Bike Lane Examples



The above images are courtesy of Toole Design

