City of Monroe
Bicycle and Pedestrian Plan

2023

CITY OF MONROE Michigan

ACKNOWLEDGEMENT

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Introduction

In communities across Michigan and the nation, there is a growing need and responsibility to provide options that give people the opportunity to walk and bike to more places and to feel safe while doing so. The benefits of walking and bicycling whether for utilitarian or recreational purposes can be framed in terms of improved environmental and individual health. A community that encourages walking and bicycling can experience reduced traffic congestion and improved quality of life. There are also economic benefits that are more difficult to measure, but are associated with the increased economic vitality of communities that promote pedestrian mobility.

In November 2020, City of Monroe voters approved a 15-year millage to support the development and upgrade the City's roads and trails. The two-mill levy will raise an estimated $1.9 million per year over the next 15 years. A Trails Advisory Committee was formed in 2021 to assist in the design, planning, and advocacy of a citywide bicycle and pedestrian system connected to the regional network as well as to make recommendations to City Council regarding pedestrian and bicycle improvement projects.

The purpose of the City of Monroe Bicycle and Pedestrian Plan is to articulate a citywide non-motorized transportation vision. The Plan provides a framework for a citywide network and a clear direction for the implementation of sidewalks and bikeways throughout the City. The plan is intended to guide bicycle and pedestrian facility planning, design, and development for the City. It is implementation-oriented and is also intended to serve as a basis for future grant applications and funding requests.

The City Trails Advisory Committee including citizens and community stakeholders helped guide the development of this Plan through numerous meetings which took place from January to December 2022.

The plan includes the following elements:

- A review of past and current non-motorized related planning initiatives,
- A review and analysis of existing conditions,
- An assessment of resident preferences,
- The determination of routes that present opportunities,
- The development of a plan providing recommendations and strategies for implementing the citywide vision and addressing routes, design, phasing, and funding, and
- The formulation of goals and objectives to guide the citywide non-motorized vision with emphasis on achieving a walking and bicycling transformation of the City of Monroe through encouragement, education, and enforcement.

Goals & Objectives

The City of Monroe's vision for non-motorized transportation is:

To make it safer and easier for more people to walk and bike in Monroe.

Five principal goals are identified to achieve this vision:

1. Network development and connectivity
2. "Complete Streets" or streets accommodating all users (e.g., pedestrians, bicyclists, motorists, and other users)
3. Regulations and enforcement
4. Education and encouragement
5. Funding and coordination

Goal 1. Network Development and Connectivity

Develop a citywide interconnected network of pedestrian and bicycle facilities in the City of Monroe.

- Provide safe travel to key destinations including residential areas, schools, parks, trails, community facilities, and Monroe's businessses and downtown core.
- Provide a well-defined separation of pedestrians, bicycles, and cars on major streets with the use of designated bicycle facilities including off-the-road and on-the-road bicycle accommodations.
- Advance the implementation of the regionally significant trail connections traversing the City including the River Raisin Heritage Trail, the Monroe Loop Trail, the Great Lakes Way, and the county-wide important connections to the region.
- Create rest areas or bike parks which could include amenities such as wayfinding maps, bike racks, benches, and bicycle repair stations along bikeways and pathways.
- Develop a uniform signage and way finding system for the non-motorized network to identify pedestrian and bicycle facilities as well as destinations and community facilities.
- Identify and designate pedestrian and bicycle routes and create a map for distribution.

Goal 2. Complete Streets

Recognize bicycling and walking as viable transportation modes and critical components of the City public infrastructure.

- Adopt a "Complete Streets" resolution (See proposed draft resolution in appendix to this report).
- Conduct a review of all streets and trunk lines including M-50, Telegraph Road, and Monroe Street to ensure bicycle and pedestrian improvement plans are coordinated.
- Coordinate the provision and improvements of pedestrian and bicycle facilities such as bike lane striping during road resurfacing or reconstruction work.
- Review and modify sidewalk and street standards to accommodate all users: pedestrian, bicycle, and vehicular users.
- Consult the Bicycle and Pedestrian Plan with all transportation projects.

Goal 3. Regulations and Enforcement

Incorporate the Bicycle and Pedestrian Plan recommendations into the City of Monroe's planning processes, ordinances, and plans.

- Incorporate the recommendations of the Bicycle and Pedestrian Plan into the City's Master Plan as well as other City plans including the Parks, Trails, and Recreation Master Plan, Telegraph Road Corridor Improvement Plan, Downtown Master Plan, and the River Raisin Heritage Corridor – East Master Plan.
- Engage the City of Monroe Citizens Planning Commission to offer direction on the development a "Complete Streets" ordinance.
- Prohibit vehicle right turns on red lights and texting while driving in the City of Monroe.
- Re-examine City policies and rules regarding the use of bicycles on sidewalks downtown or on the Riverwalk, the use of electric bicycles, scooters, or other self propelling devices on sidewalks or streets.
- Communicate the rules with clear signage to alleviate user conflicts.
- Incorporate bicycle parking requirements into zoning regulations for proposed development.

Goal 4. Education and Encouragement

Promote bicycling and walking in the City of Monroe by improving an awareness of bicycle and pedestrian facilities and opportunities.

- Encourage bicycling and walking to bolster personal health and promote healthy lifestyles.
- Develop a safety and education campaign targeting pedestrians, bicyclists, and motorists to raise awareness of the system and encourage its appropriate use.
- Coordinate with community organizations as well as civic and business partners (e.g., bicycle shops) to develop and/or strengthen pedestrian and bicycle education programs which would teach safety skills such as bike rodeos, safety town, and silver wheels programs.
- Promote bicycling and walking as transportation to and from schools and work.
- Encourage participation in the Safe Routes to School Program by Monroe Area Schools.
- Work with the Monroe Police Department to raise awareness of the Bicycle and Pedestrian Plan and encourage enforcement of pedestrian, bicycle, and vehicular laws.
- Work with area health agencies and support public health impact assessments to promote the development of bicycle and pedestrian infrastructure.
- Integrate the connection of health and nonmotorized travel through partnerships with other organizations such as health-care providers, the YMCA, and the area agency on aging.
- Make bicycling and walking resources available through the City of Monroe website.
- Apply to become a Bicycle Friendly Community through the League of American Bicyclists.

Goal 5. Funding and Coordination

Ensure implementation of this plan.

- Convene a permanent Advisory Committee to create a systematic method for ongoing citizen input, to focus on the City Bicycle and Pedestrian Plan advocacy and implementation, and to make recommendations for project funding.
- Coordinate non-motorized projects and efforts with adjacent community and county agencies.
- Ensure that the current dedicated City millage funds for trails is renewed.
- Seek grant funding or other funding sources.
- Monitor and evaluate the effectiveness of bicycle and pedestrian facilities.

CONNECTIVITY

The vision for a non-motorized system in the City of Monroe dates back to the 1980s when a bikeway plan was first envisioned to connect state, county, and city assets in the Monroe area. Today, walking, bicycling, running, canoeing, and kayaking are the top desired outdoor recreation activities for City residents. The City's 2019 Parks and Recreation Master Plan called for the development of an inter-connected network of pedestrian and bicycle facilities to provide safe and efficient travel for both commuting and recreation between key destinations within the City including parks, neighborhoods, schools, downtown Monroe, and neighboring communities.

Figure 1. 1980s Monroe Area Bikeway Plan

LOCAL CONNECTIVITY

At the local level, the City of Monroe is closely intertwined with Frenchtown Charter Township on the north and Monroe Charter Township on the south. All three communities have non-motorized concept plans within their jurisdictions.

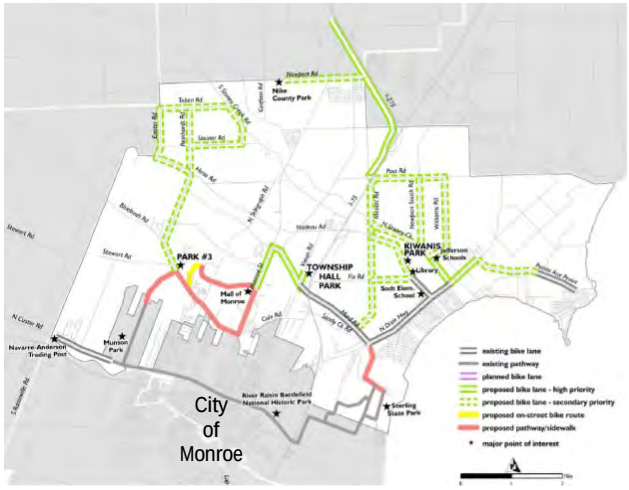
The City of Monroe most recent 2016 Master Plan includes a concept plan for both on-street and off-street pathways as shown on Figure 2. Proposed pathways are depicted for several streets connecting to the primary spine along Elm Avenue.

Figure 2. City of Monroe Non-Motorized Concept Plan

Source: Resilient Monroe 2016 Master Plan

Non-motorized corridors in Frenchtown Township are proposed to connect to the City at Munson Park, Stewart Road, Monroe Street, and at Sterling State Park. In Monroe Township, proposed non-motorized paths are depicted to connect to the City at West Seventh Street, Telegraph Road, Monroe Street, and LaPlaisance Road.

Figure 3. Frenchtown Township Concept



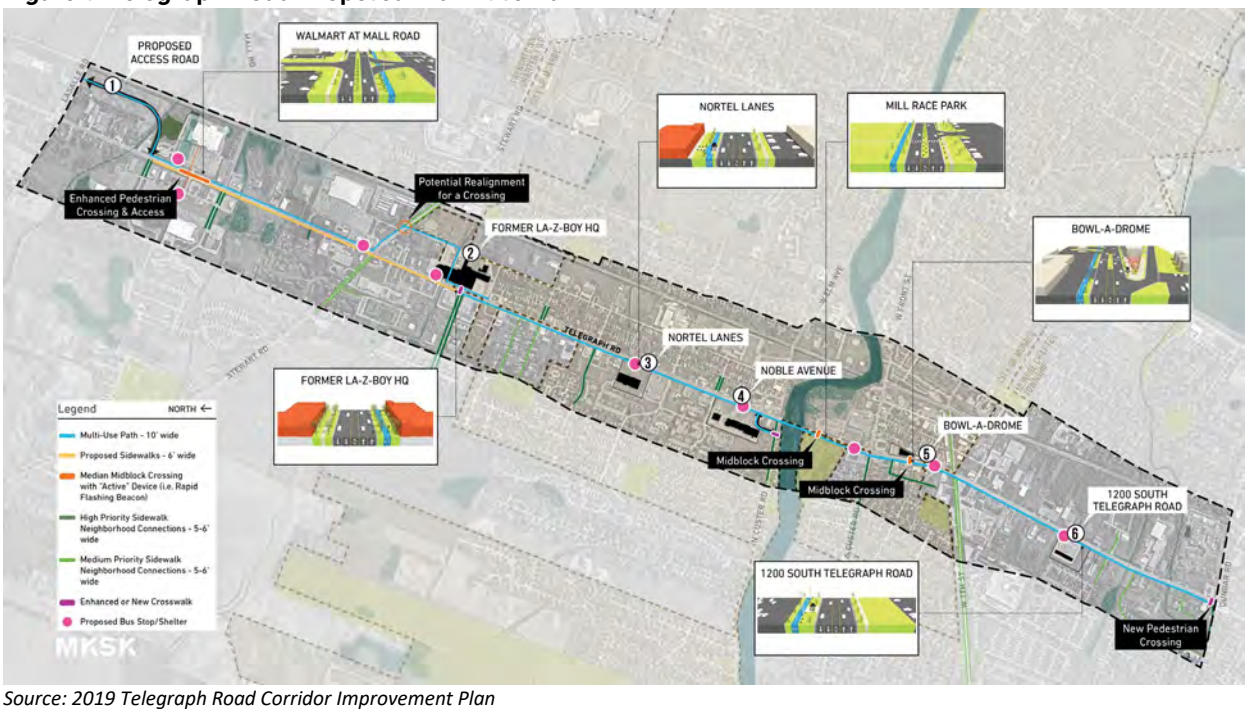
Source: 2017 Frenchtown Township Recreation Plan

Figure 4. Monroe Township Concept

Source: 2016 Monroe Township Master Plan

Several other planning initiatives in the City have relevance to the current work effort because they advance walking and bicycling improvements. The 2019 Telegraph Road Corridor Improvement Plan, a multi-community effort involving the City of Monroe, Frenchtown and Monroe Townships, outlined a series of strategies and concepts to revitalize the corridor, some of which involved improving safety and travel of all users, including pedestrian and bicyclists. As depicted on Figure 5, the Plan recommends the establishement of a 10-foot wide path for both pedestrians and bicyclists along the entire length of the corridor planned along the west side of the roadway from Dunbar Road north to Holiday Boulevard and along the east side of the roadway north from Holiday Boulevard to Walmart. Other supporting improvements recommended include enhanced crosswalks, mid-block crossings, and additional sidewalks.

Figure 5. Telegraph Road Proposed Multi-Use Path



Source: 2019 Telegraph Road Corridor Improvement Plan

The City 2018 Downtown Monroe Master Plan called for calming downtown streets and increasing pedestrian activity. The conversion of one-way streets to two-way along with reconfiguring Monroe Street are envisioned to improve connectivity and activity in Downtown Monroe. Various options were outlined to improve Monroe Street, one of which consisted of a road diet with bike lanes from Fifth Street north to Willow Street. This is the preferred option because it includes bicycle accommodations.

Figure 6. Monroe Street Reconfiguration

Source: 2018, Downtown Monroe Master Plan

The City of Monroe 2019 Riverwalk Conceptual Master Plan developed a vision for expanding the use of the riverfront and the Riverwalk. Recommendations include the extension of the Riverwalk eastward through Soldiers and Sailors Park, wayfinding improvements to and along the Riverwalk through basic signage or artistic wayfinding painted onto walls or other surfaces, and enhanced lighting or artwork.

Figure 7. Riverwalk Improvement and Extension

Source: Russell Design, Riverwalk Conceptual Master Plan

The River Raisin Heritage Corridor East Master Plan, a City of Monroe and Monroe County Historical Society work effort, updated in 2022, incorporates an updated concept for bicycle and pedestrian connections to the City. The main connection to the City center is envisioned through the River Raisin Heritage Trail along Elm and south of the River along the Riverwalk and East Front Street. Other non-motorized corridors are depicted along Monroe Street, Front Street, First Street, Kentucky Avenue, and LaPlaisance Road. Multi-use paths are suggested between the two rairoad corridor on the south side of the River, within Hellenberg Park, and within the National Battlefield Site north of the River. Wayfinding signs and guidance are also planned at several intersections along these corridors.

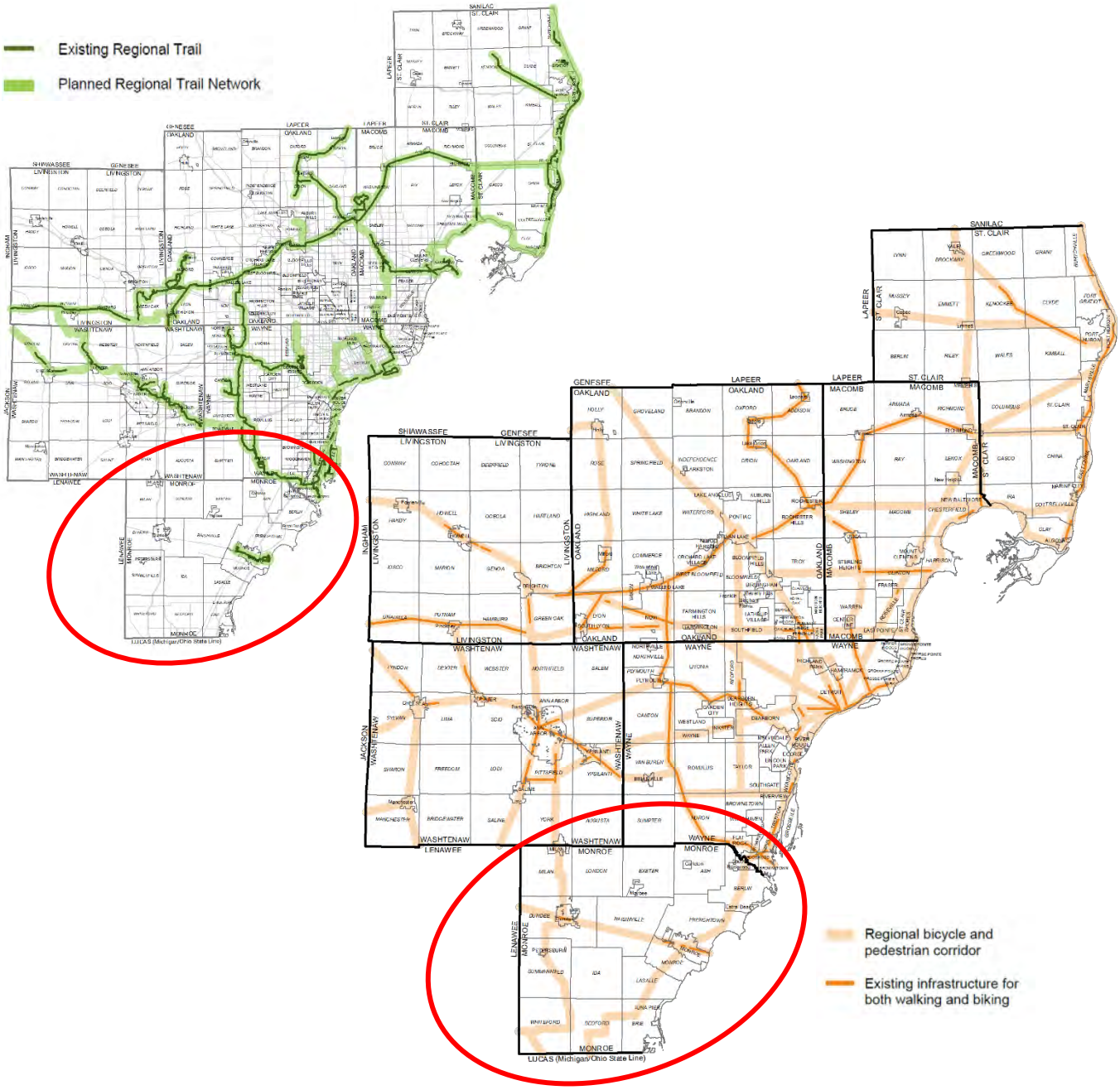
Figure 8. River Raisin Heritage Corridor Bicycle & Pedestrian Circulation

Source: 2022 Draft River Raisin Heritage Corridor-East Master Plan Update

REGIONAL CONNECTIVITY

The Southeast Michigan Council of Governments' (SEMCOG) 2020 Bicycle and Pedestrian Mobility Plan delineated the existing and planned regional trail network for the SEMCOG region which includes Monroe County. It recognized the River Raisin Heritage Trail as the only existing regional trail in the County, also located within City limits. Figure 9 illustrates the region's trail network as well as the planned corridors for further bicycle and pedestrian improvements. The network would connect south to Toledo and the State of Ohio's network, west along M-50 to Dundee, Tecumseh, and Lenawee County, and north along North Dixie Highway to Wayne County's Downriver Linked Greenways system and the existing network of trails in the Huron-Clinton Metroparks which also forms the statewide system known as the Iron Belle Trail.

Figure 9. SEMCOG 2020 Regional Trail Network and Potential Regional Bicycle and Pedestrian Corridors



Source: SEMCOG Bicycle and Pedestrian Mobility Plan for Southeast Michigan, 2020
https://semcog.org/bicycle-and-pedestrian-mobility

A number of significant region-wide trails and visions converge in the City of Monroe. They include the River Raisin Heritage Trail as mentioned previously, the Monroe Loop Trail, the Great Lakes Way Vision, and trails and routes associated with the River Raisin National Battlefield Park.

The River Raisin Heritage Trail System

The River Raisin Heritage Trail is the designation given to the Sterling State Park trail system and its connection to the River Raisin National Battlefield Park and points beyond. The system includes the City's Riverwalk, and the pathways, sidewalks and paved shoulders along Elm Avenue and North Custer, currently terminating at Territorial Park at the intersection of North Custer and Raisinville Road which encompasses the historic Navarre-Anderson Trading Post.

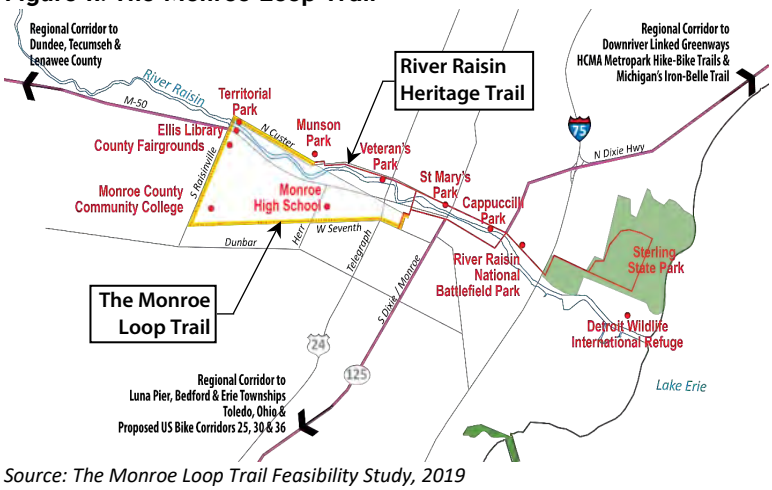
Figure 10. River Raisin Heritage Trail

Source: npshistory.com/brochures/rira/heritage-trail.pdf

The Monroe Loop Trail

The Monroe Loop Trail is a 6.5-mile trail planned for both pedestrian and bicycle use which extends the River Raisin Heritage Trail from Munson Park to Raisinville Road, heads south along Raisinville Road to the Monroe County Community College where it turns east through a former railroad bed back into the City of Monroe along Seventh Street and terminates at the intersection of Roessler Street and Fifth Street. Final plans for the trail are underway and the trail will be built in 2023. The trail is a multi-community project bringing together Monroe County, Frenchtown Township, Monroe Township, the City of Monroe and a number of community partners including the Monroe County Road Commission, the Monroe County Community College, the Community Foundation of Monroe County, and DTE.

Figure 11. The Monroe Loop Trail



Source: The Monroe Loop Trail Feasibility Study, 2019

The Great Lakes Way Vision

The Great Lakes Way, as shown on Figure 12, is an interconnected set of greenways and blueways stretching from Erie Marsh at the southeast corner of Monroe County to southern Lake Huron through Lake Erie, the Detroit River, Lake St. Clair, and the St. Clair River.

In the Monroe area, the Great Lakes Way supports both a green and a blue way from Lake Erie Marsh in Erie Township to Pointe Mouillee State Game Area in Berlin Township, connecting the landmarks of Sterling State Park and the River Raisin National Battlefield Park, as well as the water trail connections from Lake Erie inland along the River Raisin, Swan Creek, and the Huron River.

Figure 12. The Great Lakes Way Vision

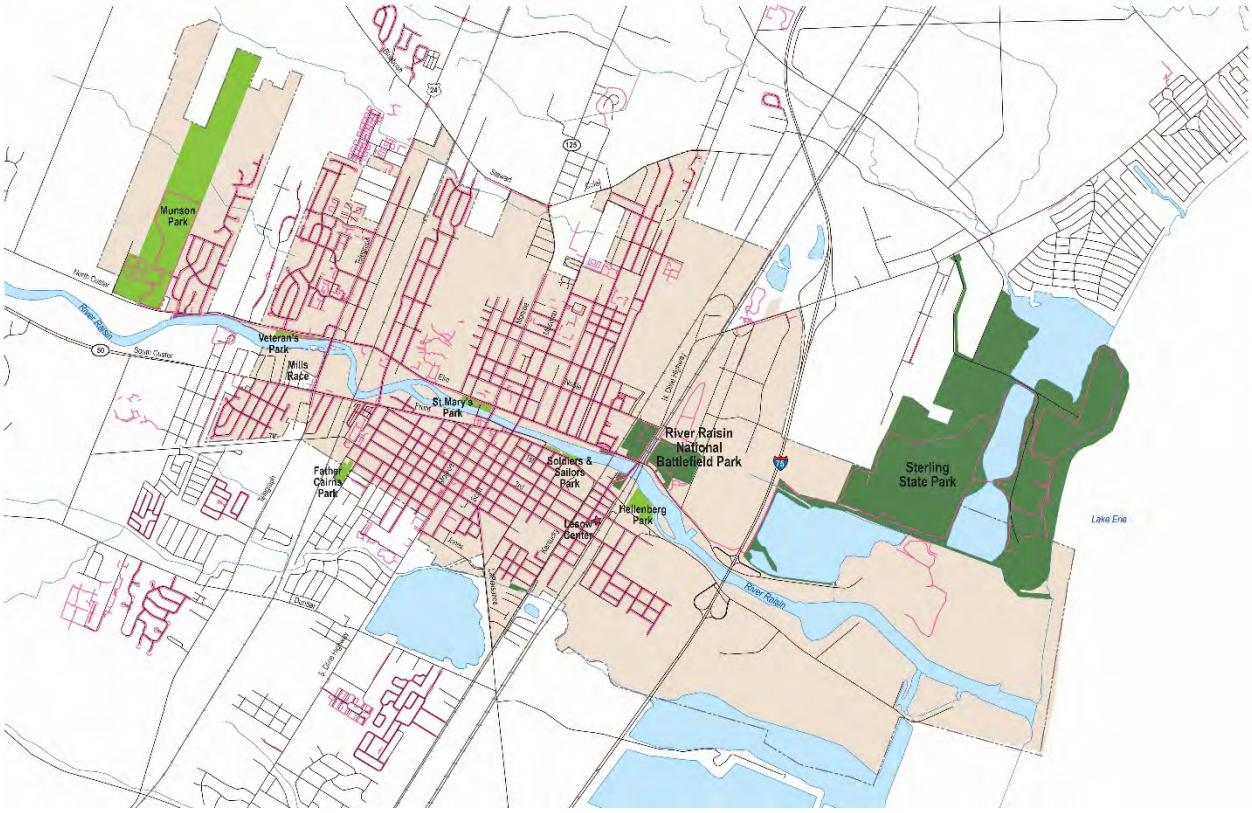
Source: Community Foundation for Southeast Michigan, 2021

Monroe is primarily a "sidewalk community" where most of the downtown and older neighborhood streets have sidewalks. There are some bicycle facilities including shared use paths and dedicated bicycle lanes. However, those are few and not interconnected into a larger system. While bicyclists are increasingly found on City streets, many residents perceive the major east-west and north-south arterials of Elm Avenue, Front Street, and Monroe Street as unsafe and challenging because of the high volume and fast traffic flow. Bicyclists commonly use the City's sidewalks to ride even though it is prohibited in certain areas such as the Downtown and the Riverwalk. Similarly, while the electric scooters now available to residents are only expected to use roadways, riders are found on sidewalks and non-motorized trails.

EXISTING SIDEWALKS & BIKEWAYS

In the City of Monroe, most residential neighborhoods have sidewalks on both sides of their streets with a few exceptions. Figure 13 highlights the existing sidewalk in the City. Most of the sidewalk gaps are observed where street rights-of-way abut the adjacent jurisdictions of Frenchtown and Monroe Townships. This is particularly notable along Telegraph Road, Monroe Street, Macomb Street, and Stewart/Cole Road.

Figure 13. Existing Sidewalks

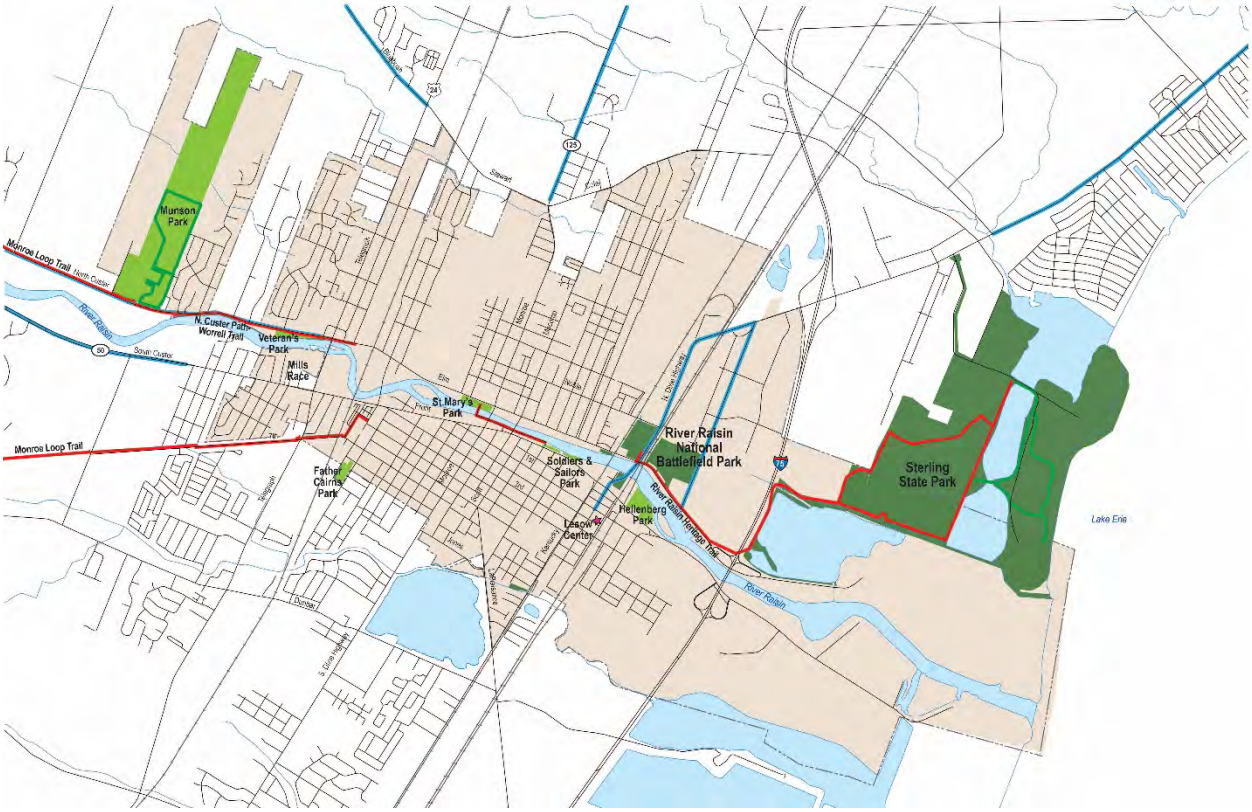


Source: Using Data from Southeast Michigan Council of Governments

Current bikeways in Monroe include the on-street bike lanes along North Custer Road, North Dixie Highway/Winchester Street, and Detroit Avenue. Off-the-road shared use pathways include the Mark Worrel Trail from the YMCA west to Munson Park along the Raisin River, the Downtown Riverwalk, as well as the Elm Avenue path/River Raisin Heritage Trail from the River Raisin National Battlefield Park Visitor Center located on Dixie Highway east to Sterling State Park.

In addition to the existing sidewalks and bikeways, there are marked paved shoulders along North Custer Road from City limits west to approximately Pinnacle Boulevard, along M-50 from City Limits west to Dundee, and along North Dixie Highway from Sandy Creek Road northeast to Enrico Fermi Drive. In addition, as depicted in Figure 14, the off-the-road shared use paths include the Monroe Loop Trail, the Riverwalk, and the River Raisin Heritage Trail from the River Raisin National Battlefield Park Visitor Center into Sterling State Park.

Figure 14. Existing Bikeways



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Street Network

Assessing the suitability of the road network for safe pedestrian or bicycle use involves the consideration of many factors including traffic volumes, car speeds, presence of on-street parking, traffic mix such as presence of trucks, sight distances, and number intersections and entrances.

While there are differences over the suitabiliy of dedicating on-street bicycle facilities such as bike lanes in a given set of circumstances, there is general agreement that traffic volumes and speeds are the top-most considerations that influence whether dedicated on-street bicycle facilities are suitable on a given roadway. In general, according to the Bikeway Selection Guide (FHWA, 2019), traffic volumes ranging anywhere from 3,000 to 10,000 or greater daily trips on streets with speed limits ranging between 25 and 35 mph would call for dedicated on-street bike lanes. Greater speed or traffic volumes would suggest development of separated on-street bike lanes or shared use paths separated from the roadway. Dedicated bike lanes and shared use paths offer greater safety because of the separation between bicyclists and motorists and may be the most suited bicycle improvements on roads that are busy.

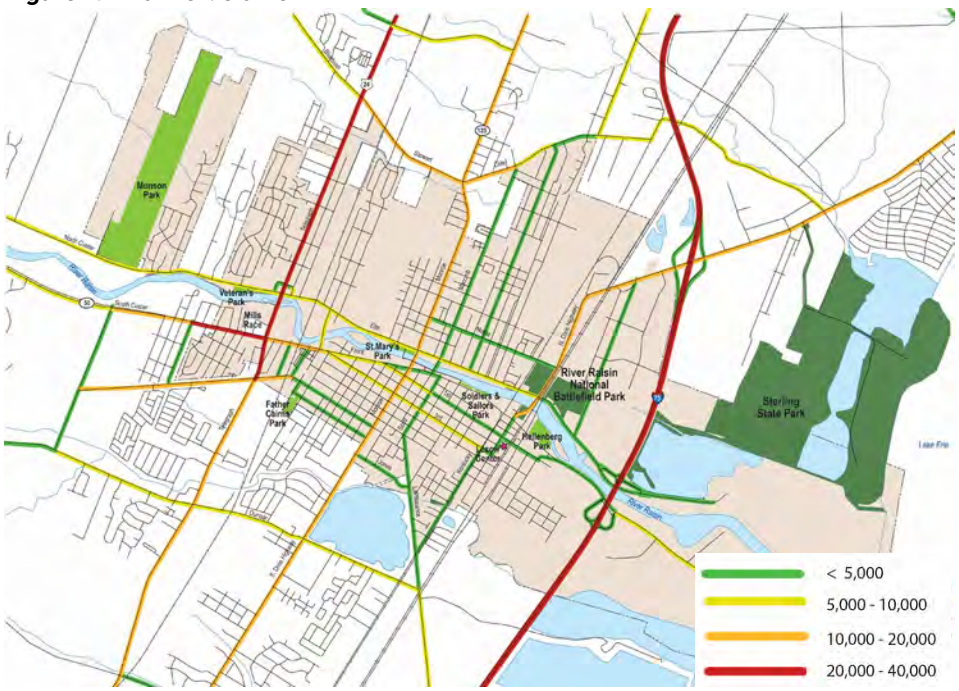
SEMCOG maintains a database of traffic counts and crash records for the southeast Michigan region. According to these records, the volumes of traffic in Monroe are found as follows.

- The greatest average volume of traffic is found on Telegraph Road with 20,000 to 34,000 vehicles per day north of Seventh Street.
- Stewart Road (between Telegraph and Monroe) and S. Custer Road (between Patterson Road and Telegraph Road) follow with average volumes at approximately 20,000 vehicles per day.
- Traffic counts between 10,000 and 20,000 vehicles per day can be found on Monroe Street, Front Street (between Telegraph Road and Third Street), and North Dixie Highway (between Front Street and the I-75 interchange).
- Traffic counts for all other roads depicted in green on Figure 15 amount to 5,000 daily trips or less.

Monroe's high-frequency car crash intersections between 2017 and 2021 included Telegraph Road at South Custer Road, Cole Road at Monroe Street, Elm Avenue at Monroe Street, and Telegraph Road at Fredericks Drive.

Based on Monroe's existing street network including traffic counts and crash data, it would seem appropriate to improve bicycle travel safety on Monroe's busy roads and problematic intersections.

Figure 15. Traffic Volume



Source: Southeast Michigan Council of Governments Traffic Volume

Complete Streets, Accessibility & Policies

In 2010, the State of Michigan legislature signed into law the Complete Streets amendments to the State Trunkline Highway System Act (Act 51 of 1951) and the Planning Enabling Act (Act 33 of 2008). The law provides an approach to transportation planning and design that considers ***all*** street users – pedestrians as well as motorists and bicyclists of all ages and abilities – during the various planning and design stages of a transportation project. It also requires that the Michigan Department of Transportation (MDOT) and local municipalities consider the community's goals and desires for road projects within their boundaries.

What are Complete Streets?
Complete Streets provide facilities that allow all users, irrespective of their age or abilities, to use the street as a mode of transportation.

A Complete Street allows pedestrians, bicyclists, transit users and those with disabilities to easily and safely use roads in their community.

Communities with Complete Streets policies help to ensure that roadways accommodate all users, not just motorists.

The Complete Streets law gives project planning responsibilities to city, county, and state transportation agencies. It also requires local municipalities to address the transportation needs of all legal users (including pedestrians and bicyclists) in their community master plans.

The Complete Streets legislation specifically requires that MDOT works with cities in all phases of the planning and design of roads and non-motorized facilities projects. The amendments to the State Trunkline Highway System Act (PA 51 of 1951):

- Requires counties, cities, villages, and MDOT to consult with one another when planning a non-motorized project affecting a transportation facility that belongs to another road agency;
- Identifies non-motorized facilities contributing to complete streets as eligible for funding;
- Requires state and local road agencies to consult with each other and agree on how to address Complete Streets for projects that affect a roadway under another road agency's jurisdiction;
- Requires MDOT to share expertise in non-motorized and multi-modal planning in the development of projects within municipal boundaries; and
- Allows agencies to enter into agreements with one another to provide maintenance for facilities constructed to implement a Complete Streets policy.

The law requires Complete Streets policies be sensitive to the local context, and consider the functional classification of roadways, cost, and the mobility needs of all legal users. The primary purpose of this new law is to encourage the development of Complete Street infrastructures or facilities as appropriate to the context and cost of a project. Examples of complete streets facilities include curb ramps, well-marked crosswalks, longer crossing times, smooth sidewalks, and bike lanes that are free of obstacles.

The Architectural and Transportation Barriers Compliance Board (Access Board) published new and revised accessibility standards for public right-of-way in the Federal Register in 2010. These new guidelines cover pedestrian access to sidewalks and streets, including crosswalks, curb ramps, street furnishings, pedestrian signals, parking, and other components of public rights-of-way. These standards have now been adopted by the U.S. Department of Justice and the U.S. Department of Transportation.

The City of Monroe Municipal Code contains provisions for sidewalk construction and repair. Sidewalks are to be built by property owners and located one foot inside the public road right-of-way line. Part II of the City of Monroe Code, Chapter 625 describes the procedures involved in sidewalk construction and repair. Chapter 199 includes provisions regarding the operation of bicycles in the City. The City's policy regarding sidewalk improvements is to coordinate sidewalk reconstruction with street improvement projects. Any new construction is designed to meet the most recent requirements of the American with Disabilities Act for newly constructed and reconstructed sidewalks and curb ramps. Existing facilities are being brought into compliance with improvement projects.

Demand for Non-motorized Connections

Planning for pedestrians and bicyclists has been recognized as a priority for the community. This is evident in Monroe's most recent Master Plan, Downtown Plan, and its Community Parks and Recreation Master Plan.

Online Survey

The planning process for the current work effort incorporated community outreach. Public input was received through an online survey, a workshop, and several meetings with the Trails Advisory Committee. During March and April 2022, residents were invited to provide ideas and suggestions for the City parks, trails and recreation system through an online survey. More than 874 responses were received and tabulated. Key findings from the survey are outlined below as it relates to bicycle and pedestrian use and imrovements.

- Top most (very+extremely) important park facilities/ activities out of a list including 14 suggested facilities/activities:
    1. Sidewalks/Paths for Walking (91%)
    2. Nature/Hiking Trails (81%)
    3. Bike Lanes/Paths for Bicycling (69%)
    4. Playground Structures (60%)
    5. Canoe/Kayaking (60%)
    6. Picnic Areas & Pavilions (51%)
    7. Fishing (50%)

- Top most used trails or walkways
    1. Sterling State Park trails (80%)
    2. Elm Ave/N Custer Path (76%)
    3. Riverwalk (63%)
    4. Sidewalks on Elm (63%)
    5. Munson Paths (62%)

- How do you get to the trails or walkways
    1. I walk, run or ride my bike from home (53%)
    2. I drive and park my car (67%)
       Top parking places:
        - St. Mary's Park – 88 responses
        - Sterling State Park – 72 responses (+17 responses at The Clamdigger or Marina)
        - Munson Park – 67 responses
        - Veteran's Park – 58 responses
        - RR National Battlefield Park - 22 responses
        - the YMCA – 14 responses
        - Downtown and other city lots – 28 responses

- Walk, run or ride a bike for
    1. Fitness, recreation & pleasure (92%)
    2. To get to a park (46%)
    3. To walk my dog (44%)

- Top barriers to bicycling on roadways
    1. Car traffic speed (457 responses)
    2. Lack for clearly marked designated bicycle routes (404 responses)
    3. Pavement condition (334 responses)
    4. Lighting and personal safety (304 responses)

- Respondents reside in:
    1. City of Monroe (50%)
    2. Monroe Township (18%)
    3. Frenchtown Township (16%)
    4. Raisinville Township (7%)
    5. Elsewhere (9%: LaSalle, Erie, Newport, Berlin, and other)

- 66% have lived there more than 15 years

- Ages:
    - <25 - 9%,
    - 25-34 - 25%
    - 35-44 - 24%
    - 45-54 - 19%
    - 55-64 - 14%
    - >65 - 9%

- Live with children:
    - 50% none
    - 19% one
    - 18% two
    - 8% three
    - 5% more than three

- 424 responses from Frenchtown or Monroe Townships, 426 from the City

- Top most (very+extremely) important park facilities/activities out of a list including 14 suggested facilities/ activities:

	City Respondents	Township Respondents
Sidewalk/Paths for Walking	384 responses – 90%	387 responses – 92%
Nature/Hiking Trail	342 responses – 80%	345 responses – 82%
Bike lanes Paths for bicycling	297 responses – 70%	294 responses – 70%
Playground Structures	252 responses – 59%	257 responses – 61%
Canoe/Kayaking	238 responses – 56%	266 responses – 63%
Picnic Areas & Pavilions	214 responses – 50%	215 responses – 51%
Fishing	199 responses – 47%	225 responses – 53%

- Top most used facilities:

	City Respondents	Township Respondents
Elm Ave/N Custer Path	328 responses - 79%	291 responses – 73%
Sterling State Park Trails	318 responses – 76%	334 responses – 84%
Sidewalks on Elm	302 responses – 73%	213 responses – 53%
Riverwalk	275 responses – 66%	241 responses – 60%
Munson Park Paths	235 responses – 56%	268 responses – 67%

- Would like to walk, run or ride bike:

Generally:

1. Bike lanes to/through Downtown
2. Everywhere
3. Along the river (through Battlefield)
4. On dedicated off-road path or protected bike lanes

North-South Corridors:

1. Telegraph (generally, sidewalks, bike path, north to Friendly Ford, south to Albain)
2. Monroe (generally, sidewalks, bike lanes, north to Circle K/Mall Rd, south to Albain)
3. North Dixie Highway
4. Macomb
5. Kentucky

East-West Corridors:

1. Sterling State Park to MCCC (Territorial Park, MCCC, Library, Fairgrounds)
2. Munson to Sterling State Park/North Custer bike lanes
3. Sterling State Park trail repairs
4. Riverwalk
5. Stewart/Cole
6. Front/South Custer

Other :

1. Bike Racks
2. Hiking/nature trails
3. Continue to allow bikes on sidewalks
4. Munson Park paths/trails
5. Connecting subdivisions such as Manor and French Bend
6. Frenchtown and Monroe Township connections to City pedestrian/bicycle facilities

Workshop

Community stakeholders were invited to attend a workshop held at City Hall on June 8, 2022. Invitations were made via phone followed by an email reminder. A public notice was also published in the Monroe News. More than 16 participants attended and provided valuable comments. Participants were divided into three smaller groups and provided with a sidewalk and bikeway base maps. Each group was asked to record their preferred connections and other improvements. The following is a summary of the comments received:

Group 1:

- Add paved paths for wheelchair and walker accessibility at Munson Park.
- Add a bike lane along Riverview Street (north of Maywood Street to Cole Road) on northbound lane to slow traffic by tightening the travel lanes and provide connection to school.
- Complete sidewalks connecting the Riverview/Hollywood neighborhoods to Danny's via Macomb Street.
- Complete sidewalk connectivity along Telegraph Road and Monroe Street to Stewart Road.
- Propose proper bike lanes along Elm Avenue.
- Add drinking fountains and bike racks at Heck Park and the River Raisin National Battlefield Park visitor center.
- Add drinking fountain, bike fix-it station, and dog waste dispenser at the entrance to Sterling State Park on Elm Avenue.
- Add non-motorized connections along Elm Avenue and Front Street west of I-75 and Winchester Street to Lake Erie.

Group 2:

- Complete sidewalks along Monroe Street, Macomb Street, and Stewart Road.
- Create a connection from Munson Park east to Telegraph Road through neighborhoods at the Lorain Street level and another further north along the Mason Drain.
- Consider limestone surfaces for trails rather than asphalt for portion of the Sterling State Park trails.
- Provide an off-road trail along the south side of the River Raisin in Mill Race connected to the residential neighborhood to the west. The trail would run east under Telegraph Road and reach Front Street at the railroad crossing.
- Extend the Loop Trail to the City's Downtown.
- Continue Riverwalk from Soldiers & Sailors Park down Front Street to Winchester and the Arthur Lesow Community Center.

Group 3:

Pedestrian connections

- Connect Munson Park to Telegraph Road at approximately the end of current subdivisions (end of St. Anne Lane to end of Ruff Drive, to Hendricks along existing Drain).
- Complete sidewalks along Telegraph Road (Priority 1).
- Complete sidewalks along Stewart Road including N. Monroe Street (Priority 2)
- Develop sidewalks along South Dixie Highway/M-125 and Dunbar to LaPlaisance Road (Priority 3).
- Develop sidewalks along North Dixie to connect all the businesses, hotels on both the east and west interchange areas (Priority 4).
- Complete sidewalks along Macomb Street to Cole Road.

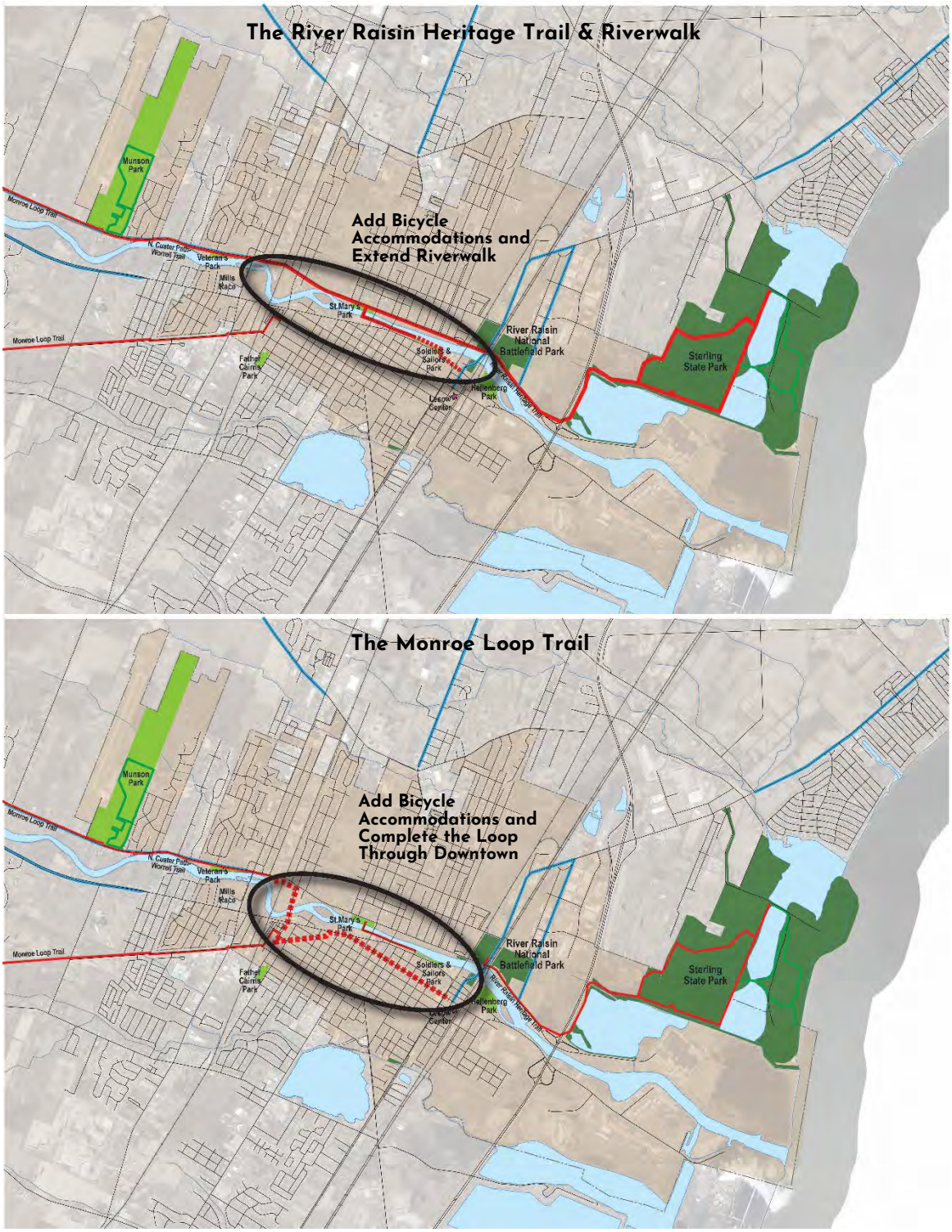
Bicycle connections:

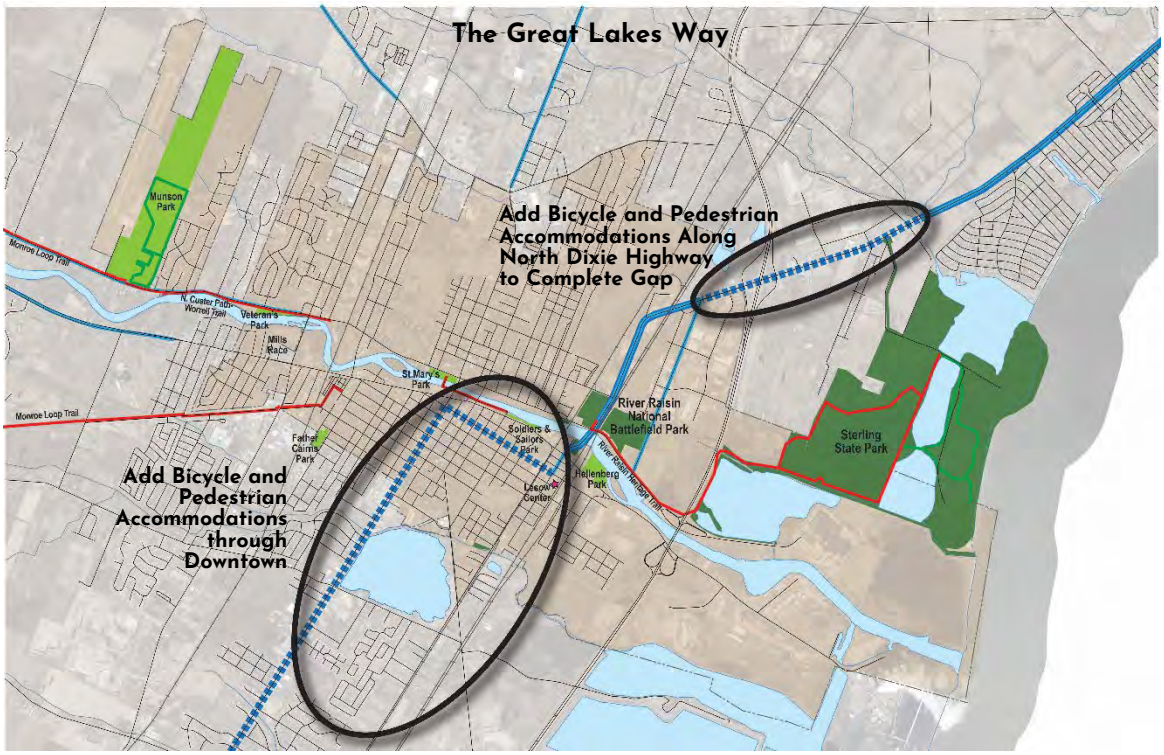
- Develop bike lanes and sidewalks along North Dixie Highway and South Dixie Highway via Winchester, First, and Monroe Street so that the route is connected to the downtown (Priority 1).
- Establish bike lanes along Monroe Street (Priority 2).
- Extend the Monroe Loop Trail downtown (Priority 3).
- Develop bike lanes or advisory bike lanes along Elm Avenue from Telegraph to Dixie Highway (Priority 4).
- Develop bike lanes along Front Street from Telegraph through downtown (Priority 5).
- Support a road diet of South Custer Road from Telegraph west to divided highway which would include sidewalks and bike lanes (Priority 5).
- Develop bike lanes and paved shoulders along LaPlaisance Road (Priority 6).

Opportunities for Bicycle & Pedestrian Improvements

The City of Monroe has many opportunities for improving bicycling and walking conditions in the City, but is also faced with a number of challenges. They are depicted on Figure 16 and summarized below.

Figure 16. Primary Regional Connection Opportunities in Monroe





- The River Raisin Heritage Trail, the Monroe Loop Trail, and the Great Lakes Way Vision converge in the City of Monroe and have regional and statewide significance for the community.
- Connecting these regional trails could bolster Monroe as a bicycling and walking hub for Southeastern Michigan.
- There are opportunities to link these regional pathways through the downtown which could also boost local businesses and economic vitality.
- Some of the wide arterial streets outside of the downtown area can relatively easily be retrofitted to accommodate bicycle facilities.
- The City of Monroe has a nearly complete sidewalk network in its downtown and older neighborhoods.
- The existing streets within the downtown have limited right-of-way space to accommodate bicyclists on separate pathways.
- Suburban-style residential developments in newer neighborhoods in the north and south part of the community located primarily in Frenchtown and Monroe Townships lack sidewalk and street connectivity.

Bicycle & Pedestrian Plan

The Bicycle and Pedestrian Plan for Monroe articulates strategies and actions that are based on existing conditions, resident needs, and input from the Trails Advisory Committee. The Plan identifies non-motorized routes and connections, considers current standards for the development of non-motorized facilities, and recommends facility design treatments that are appropriate to Monroe's circumstances.

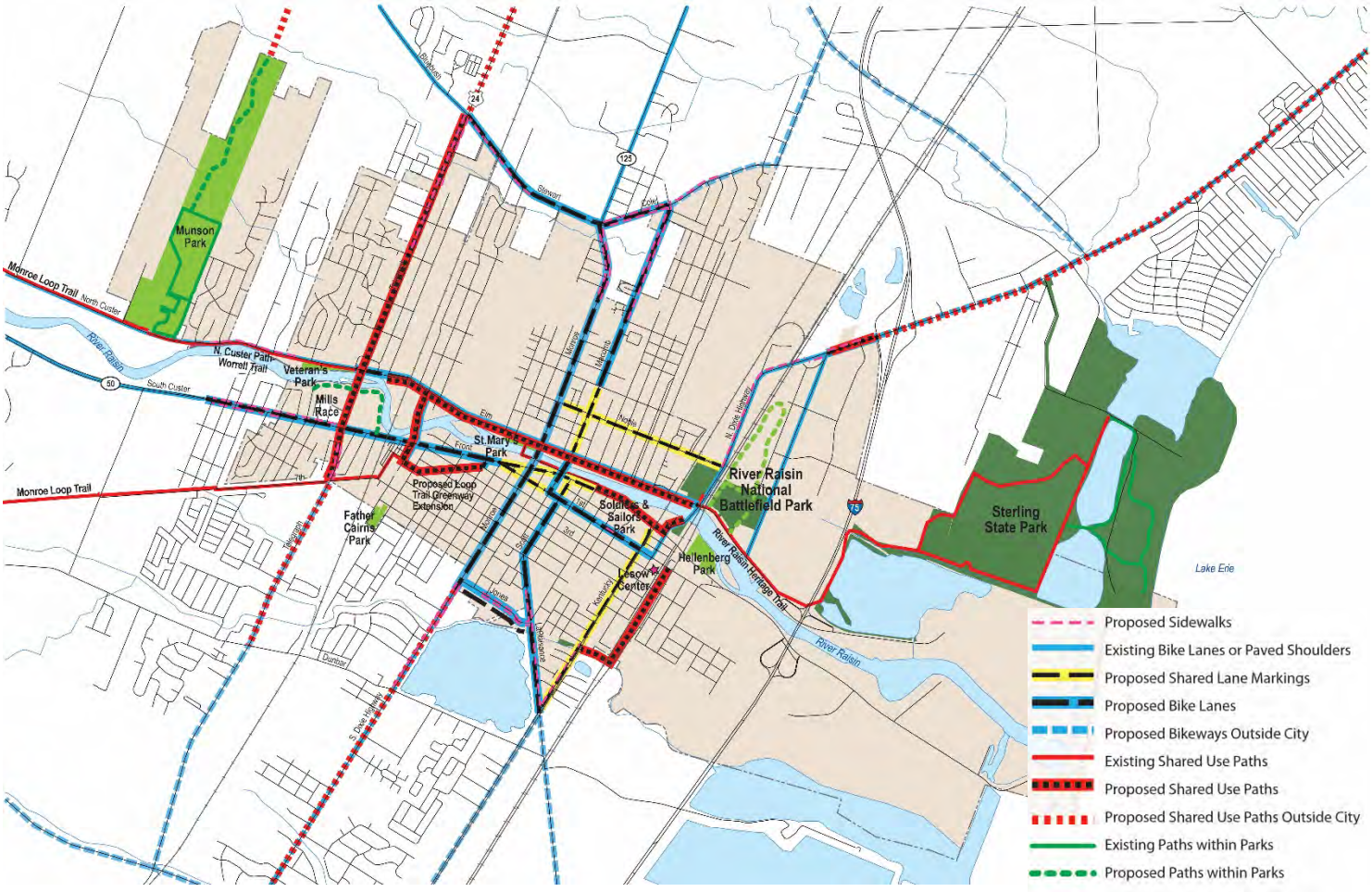
Bicycle & Pedestrian Corridors and Connections

Providing a network of pedestrian and bicycle facilities throughout Monroe is essential to the success of this Plan. The Bicycle and Pedestrian Plan, illustrated below on Figure 17, depicts the proposed non-motorized routes and connections for Monroe along with the recommended design treatments. Each layer, namely bikeways and shared use paths/sidewalks, is illustrated separately on Figures 29 and 30 for readability.

The plan represents a long-term vision and is intended to serve as a guide for future funding, design, and implementation. It proposes several routes for the establishment of non-motorized facilities. While priorities have been selected for short-term development, other routes are also proposed for mid- and long-range implementation to provide additional connections within the City and to connect to adjacent communities.

The proposed on-the-road and off-the-road facilities will require additional evaluation before implementation. Additional analysis including detailed measurements of available space and other considerations such as traffic and engineering will help determine the optimum design for each location.

Figure 17. Bicycle & Pedestrian Network Map



RECOMMENDATIONS

The Bicycle and Pedestrian Plan for Monroe recommends a variety of design treatments using and combining different types of bicycle and pedestrian facilities that are based on best professional practices. Best practice facility standards are defined and described in the appendix to this report (see pages 47-55). Recommended design treatments to fit the conditions found in Monroe include:

1. On-street bike lanes for bicycle use + sidewalks for pedestrian use,
2. On-street shared lane markings for bicycle use + sidewalks for pedestrian use,
3. On-street bike or shared lanes for bicycle use + shared use path for both bicycle and pedestrian use,
4. On-street paved shoulders for bicycle use + sidewalks for pedestrian use,
5. Off the Road shared use paths for both bicycle and pedestrian use, and
6. Other street corridors.

1. Bike Lanes + Sidewalks

Bike lanes combined with sidewalks are the preferred design treatment recommended for Monroe's major streets. Five-foot minimum bike lanes are proposed with additional width for a buffer and vertical delineaters whenever feasible within the existing roadway bed along the proposed bikeways. Bike lanes are for the exclusive use of bicyclists and are separated from car traffic with pavement markings, vertical signs, and vertical delineators to emphasize the separation where there are limited driveway crossing conflicts.

Bike lanes are typically combined with sidewalks, five feet in width minimum, for the use of pedestrians. The proposed sidewalks depicted on Figure 30 (page 35) are primarily located at the edge of the City. Because these gaps involve multiple agencies and jurisdictions, coordination will be necessary and may take time to implement. Priority for implementation should focus on the sidewalk gaps that are located entirely within the City's jurisdiction including:

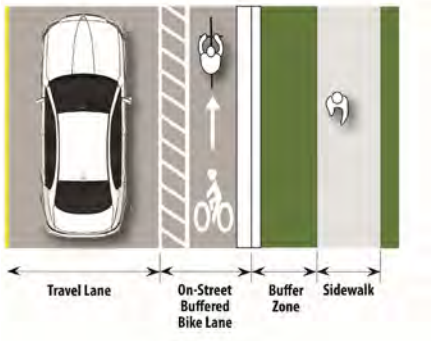
- North Dixie Highway,
- First Street,
- Jones Avenue,
- LaPlaisance Road,
- Kentucky Avenue, and
- North Custer Road.

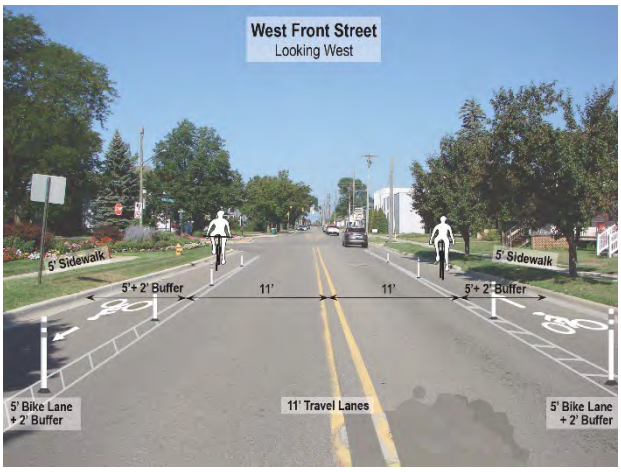
The multi-jurisdictional sidewalk gaps along Telegraph Road, Monroe Street, and Macomb Street are the gaps most needed according to the survey.

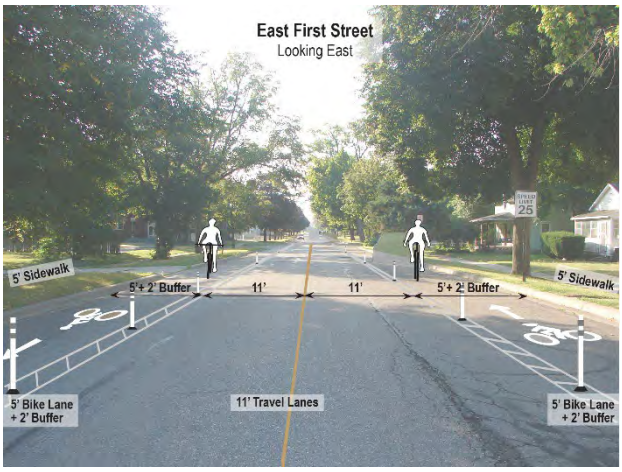
The use of buffered bike lanes combined with sidewalks is recommended along the following proposed streets:

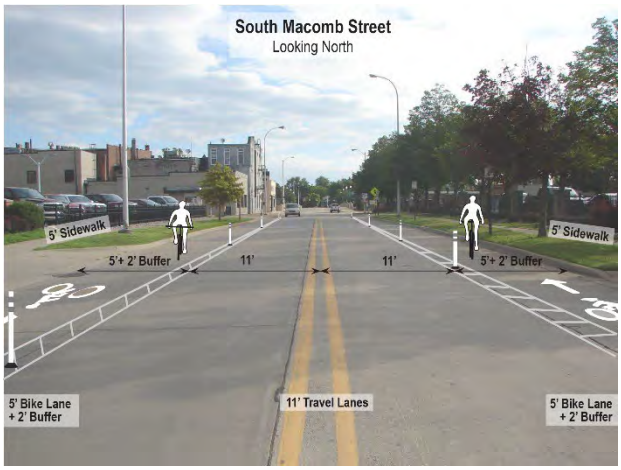
- West Front Street, from Telegraph Road to Harrison Street,
- East First Street, from Macomb Street to Winchester Street,
- South Macomb Street, from First Street to Elm Street,
- North Macomb Street, from Grove Street to Cole Road,
- LaPlaisance Road, from Kentucky Avenue to Sixth Street, and
- Scott Street from Sixth Street to First Street.

Figure 18. Bike Lanes + Sidewalk




West Front Street
Looking West
5' Sidewalk
5'+ 2' Buffer
11'
11'
5'+ 2' Buffer
5' Sidewalk
5' Bike Lane + 2' Buffer
11' Travel Lanes
5' Bike Lane + 2' Buffer


East First Street
Looking East
5' Sidewalk
5'+ 2' Buffer
11'
11'
5'+ 2' Buffer
5' Sidewalk
5' Bike Lane + 2' Buffer
11' Travel Lanes
5' Bike Lane + 2' Buffer


South Macomb Street
Looking North
5' Sidewalk
5'+ 2' Buffer
11'
11'
5'+ 2' Buffer
5' Sidewalk
5' Bike Lane + 2' Buffer
11' Travel Lanes
5' Bike Lane + 2' Buffer


North Macomb Street
Looking North
5'+2' Buffer
11'
11'
5'+2' Buffer
5' Bike Lane + 2' Buffer
11' Travel Lanes
5' Bike Lane + 2' Buffer


LaPlaisance Street
Looking West
5' Sidewalk
5'
10'
10'
5'
5' Sidewalk
5' Bike Lane
10' Travel Lanes
5' Bike Lane

2. Shared Lanes + Sidewalks

Where bike lanes are not feasible because of limited street widths, shared lanes in combination with sidewalks are recommended along the proposed corridors. Shared lanes may also be mixed with bike lanes at street intersections where there may be a center turning lane or other choke points restricting the width of the street.

Shared lane markings, or sharrows, are used to designate a travel lane shared by both cars and bicyclists to encourage bicyclists to ride in a specific zone and to alert motorists to expect the presence of bicyclists.

The use of shared lanes combined with sidewalks is recommended along the following streets:

- Front Street and First Street, in the Downtown from Harrison Street to Macomb Street. These roadways are one-way streets that are planned to be converted to 2-way traffic in the future. When these projects will be considered and designed, the proposed type of bicycle accommodation will need to be re-envisioned. For now, to ensure a continuous and interconnected network, shared lane markings are recommended while a better solution may be advanced once the roadways are converted.

Other streets include:

- North Macomb Street, from Elm Street to Grove Street.
- East Noble Street, from Monroe Street to North Dixie Highway, and
- Kentucky Avenue, from Front Street to LaPlaisance Road.

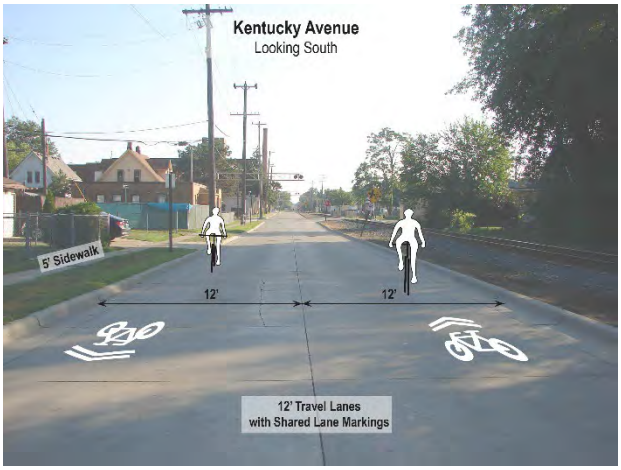
Figure 19. Shared Lanes + Sidewalks


First Street - Downtown
Looking East
11'
15'
11' & 15' Travel Lanes
with Shared Lane Markings on Wide Lane


Front Street - Downtown
Looking West
11'
11'
11' Travel Lanes
with Shared Lane Markings


East Noble Street
Looking West
5' Sidewalk
12'
12'
5' Sidewalk
12' Travel Lanes
with Shared Lane Markings


North Macomb Street
Elm to Lorain Streets Looking North
5' Sidewalk
5' Sidewalk
12.5'
12.5'
12.5' Travel Lanes
with Shared Lane Markings


Kentucky Avenue
Looking South
5' Sidewalk
12'
12'
12' Travel Lanes
with Shared Lane Markings

3. On-Street Bike Facilities + Shared Use Paths

On-street bicycle facilities combined with a shared use path along one side and a sidewalk along the other side of the roadway are the preferred design treatment for a number of streets in Monroe. Shared use paths, a minimum of 8 feet wide, are proposed in combination with on-street bicycle facilities for the following roadway corridors:

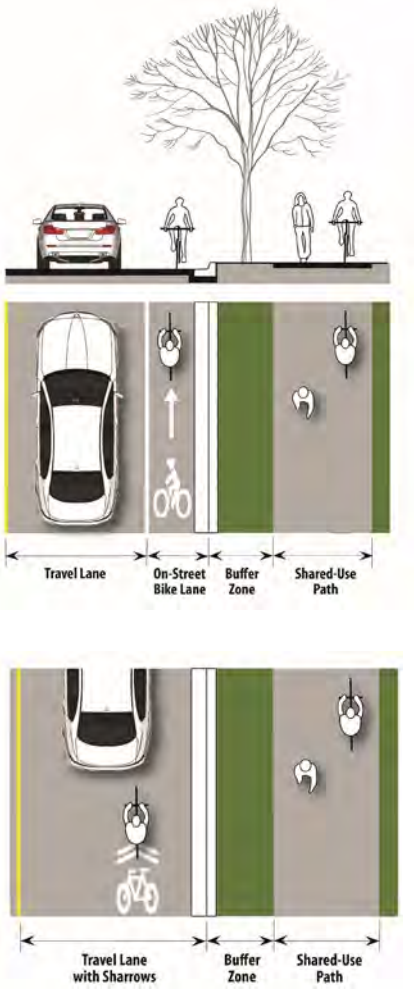
- Elm Avenue is just wide enough to incorporate bike lanes meeting minimum standards. Because many riders will be uncomfortable riding on the street and because the corridor is the River Raisin Heritage Trail corridor, a shared use path is recommended along the riverside of Elm Avenue.

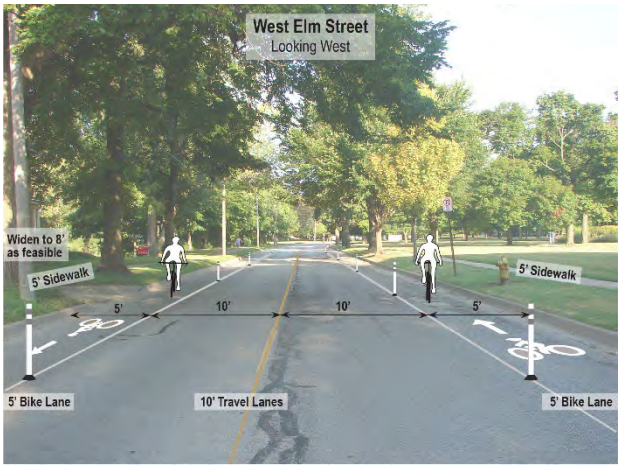
  While this is not seen as feasible to develop as one project, a piecemeal approach is envisioned which would focus on widening the existing sidewalk within the City Park and other institutional properties (e.g., St. Mary's, Cappuccilli, Monroe YMCA, Riverside School, the Sister Servant Immaculate Heart of Mary property), as well as any other properties that can readily incorporate a wider path.

- Roessler Street, both south and north to connect the Loop Trail to the River Raisin Heritage Trail. A shared use path is recommended along the west side of Roessler from Fifth Street to Elm Avenue.

- East Front Street, along the riverside from Murray Street to Winchester Street, in accordance with the River Raisin Heritage Corridor East Master Plan Update. This is the extension of the Riverwalk and is considered a segment of the River Raisin Heritage Trail.

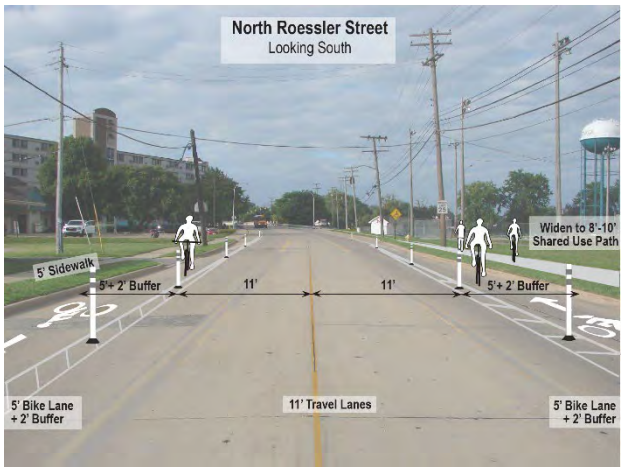
Figure 20. On-Street Bike Facilities + Shared Use Paths




West Elm Street
Looking West
Widen to 8' as feasible
5' Sidewalk
5' Sidewalk
5'
10'
10'
5'
5' Bike Lane
10' Travel Lanes
5' Bike Lane


East Elm Street
Looking East
Widen to 8' as feasible
5' Sidewalk
5' Sidewalk
5'
10'
10'
5'
5' Bike Lane
10' Travel Lanes
5' Bike Lane


South Roessler Street
Looking North
Widen to 8'-10' Shared Use Path
5' Sidewalk
5'
11'
11'
5'
5' Bike Lane
11' Travel Lanes
5' Bike Lane


North Roessler Street
Looking South
Widen to 8'-10' Shared Use Path
5' Sidewalk
5'+ 2' Buffer
11'
11'
5'+ 2' Buffer
5' Bike Lane + 2' Buffer
11' Travel Lanes
5' Bike Lane + 2' Buffer


East Front Street
Looking East
Widen to 8'-10' Shared Use Path
5' Sidewalk
5' Bike Lane + 2' Buffer down to Shared Lanes
11' Travel Lanes
5' Bike Lane + 2' Buffer down to Shared Lanes

4. Paved Shoulders + Sidewalks

Paved shoulders combined with sidewalks are the preferred design treatment for Jones Avenue where the street does not include curbs from LaPlaisance Road to the City Public Services Department. Beyond that point, from the City Public Services Department to Monroe Street, the paved shoulders are proposed to become bike lanes combined with the existing sidewalks.

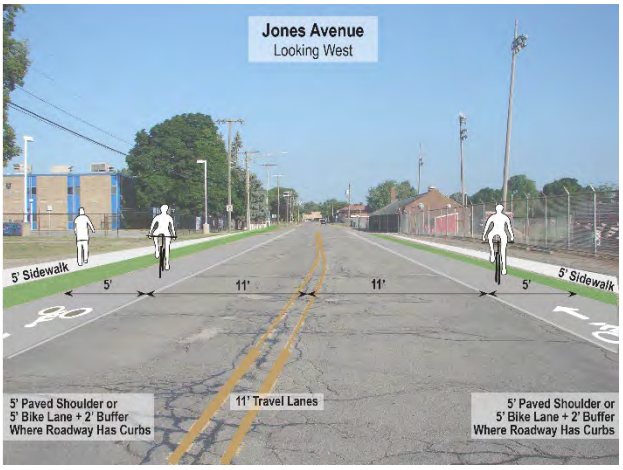


Figure 21. Paved Shoulders + Sidewalks

5. Off-the Road Shared Use Paths

An off-the-road, 10-foot wide shared use path is the preferred design treatment for several locations in Monroe where it is feasible.

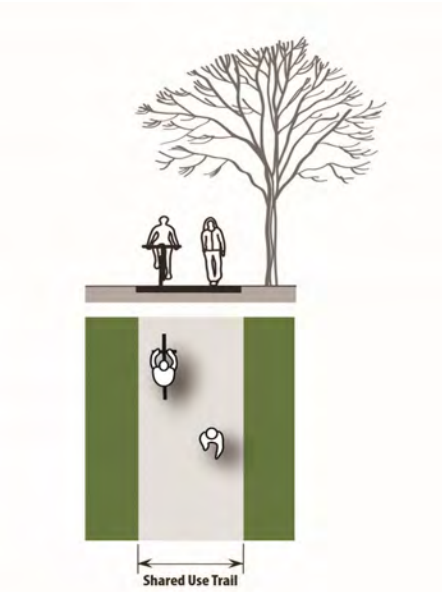
- The continuation of the Monroe Loop Trail from Fifth Street to Smith Street is recommended to be developed as a linear park or greenway. Because the former railroad right-of-way property is owned by the City and is fairly wide, it can accommodate a 10-foot wide path as well as other amenities such as shelters, bike stations, seating areas, and more. The project's regional nature, would make it competitive for funding from a number of agencies particularly the Michigan Department of Natural Resources recreation grants and private foundations.

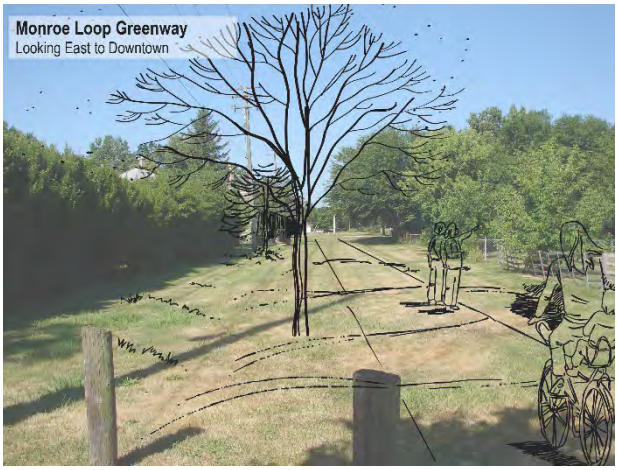
Other off-the-road shared use paths are recommended to be developed within parks. They include:

- A shared use path within Munson Park. The paved pathway could connect the North Custer path north to the northern park property boundary and could, eventually, connect further into Frenchtown Township to Stewart Road and to Bluebush Road by way of a few private properties where it could reach Frenchtown Township Park #3.

- A shared use path along the south side of the River Raisin from Mill Race Park along the River under Telegraph Road, then east to Front Street along private properties owned by the Monroe YMCA, Pro-Medica, and other entities.

Figure 22. Off-the-Road Shared Use Paths



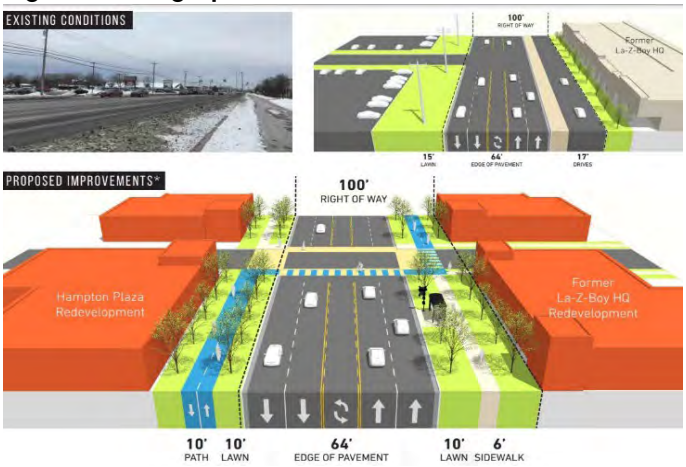


6. Other Street Corridors

While the development of bicycle and pedestrian improvements along the north-south corridors of Telegraph Road and Monroe Street is critical to the citywide network system, these corridors are challenging because they are under the jurisdiction of the Michigan Department of Transportation and span Monroe and Frenchtown Townships in addition to the City.

As mentioned previously, and as envisioned in the 2019 Telegraph Road Corridor Improvement Plan, a 10-foot wide shared use path is planned for Telegraph Road, from Seventh Street north to Walmart along the west side from Seventh Street north to Holiday Boulevard and along the east side of Telegraph Road from Holiday Boulevard north to Walmart.

Figure 23. Telegraph Road

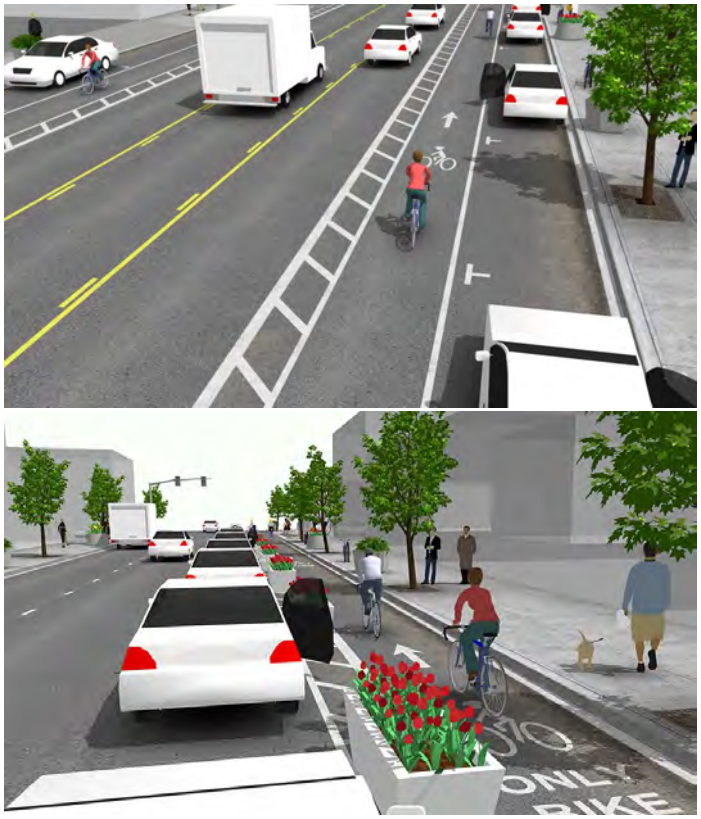


Source: 2019 Telegraph Road Corridor Improvement Plan

In accordance with the Monroe Downtown Master Plan (2018), Monroe Street could accommodate on-street protected bike lanes from Fifth Street north to Willow Street. While the bike lanes were proposed along the motorist side of the parking lane, this could be changed to have protected bike lanes, or bike lanes proposed on the other side of the parking lane as illustrated in the figure to the right. The proposed bike lanes could continue both north and south of the Downtown as conventional bike lanes and/ or paved shoulders without parking lanes.

The recommended treatment would reconfigure the existing roadway from 4 to 2 lanes with a center turning lane, on-street parking lanes, and bike lanes along both sides. The bike lanes could be designed as protected bike lanes or one-way cycle track as shown in the figure to the right.

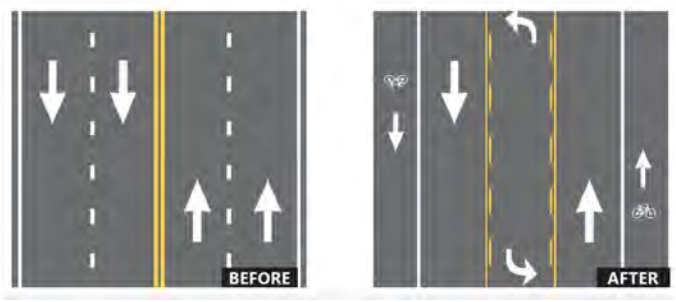
Figure 24. Monroe Street – Potential for Protected Bike Lanes



Source:Urban Bikeway Design Guide, National Association City Transportation Officials, 2014

South Custer/M-50 from where the divided highway ends at Westwood Drive east to Telegraph Road could easily be reconfigured to incorporate bike lanes and sidewalks. This is a typical road diet reconfiguration from a 4-lane roadway to two traffic lanes with a center turning lane and two bike lanes. It would improve safety, calm traffic, and provide better mobility and access for all road users.

Figure 25. South Custer Road



Source:U.S. Department of Transportation Federal Highway Administration

The recommended treatments are based on the desire to accommodate the non-motorized facilities on the existing roadway bed. Roadway widening should be kept to a minimum or reserved for intersection improvements. As proposed, strategies to modify existing roadways and accommodate the recommended improvements include:

- Narrowing the travel lanes through restriping from 12 feet to 10 or 11 feet and striping bike lanes or shared lane markings;
- Removing on-street parking lane where feasible with coordination with impacted property owners and striping bike lanes;
- Narrowing or removing the center turning lane where low left-turn movements exist and striping bike lanes; and
- Removing a travel lane and striping bike lanes; this is appropriate by converting four-lane roadways to roadways with two-travel lanes, one center turning lane, and two bike lanes.

The Plan also identifies a need for improving the safety of pedestrians and bicyclists crossing at roadway intersections, particularly at the high frequency crash intersections identified in the previous sections. The enhancements and features at each crossing will need to be determined based on various factors including: crossing width, traffic volume, pedestrian and bicycle traffic volumes, and sight lines. Proposed enhancements include colored pavement markings and pedestrian signals. The following intersections are recommended for improvements:

- Telegraph Road and Front Street,
- Elm Avenue/North Custer Road and Custer Drive,
- Roessler Street and Front Street,
- Roessler Street and Elm Avenue,
- Monroe Street and First Street,
- Monroe Street and Front Street,
- Monroe Street and Elm Avenue,
- Macomb Street and First Street
- Macomb Street and Front Street,
- Macomb Street and Elm Avenue,
- Winchester Street and First Street, and
- North Dixie Highway and Elm Avenue.

Other features should be considered with the implementation of non-motorized facilities throughout Monroe. A recommendation of this plan is to incorporate standards for providing bicycle parking within the City zoning ordinance so that future development is required to provide bicycle parking and bike racks. The Downtown Development Authority and the City should initiate the installation of bike racks at all public buildings and within the Downtown area.

Figure 26. Bike Rack Examples

Bike stations, as is currently available in certain locations within City parks, could be further developed along the main non-motorized corridors and become bike parks. Initially, a bicycle repair station and/or bike rack could be installed. Basic amenities which can be added in the future include bicycle racks, shade structures, benches, trash receptacles, and water drinking fountains. Additional amenities can include kiosks displaying a map of the City network, sheltered bicycle racks, restrooms, and other pedestrian amenities.

Figure 27. Bike Station/Bike Park

Source:HCMA Metropark Bike Stop, Photo by Bob Neeley

Signage located along designated non-motorized routes will also enhance the network.

Four types of signs are generally recommended:

- Route signs, which identify the non-motorized route;
- Warning signs, which advise bicyclists and motorists of facilities and crossings;
- Regulatory signs, which inform bicyclists of specific traffic laws and regulations such as *Bike Lane Ends*; and
- Directional and way finding signs, which direct bicyclists to desired places and destinations; they may be placed along the non-motorized routes and at key locations in the City.

Figure 28. Signage

Figure 29. Proposed Bikeways

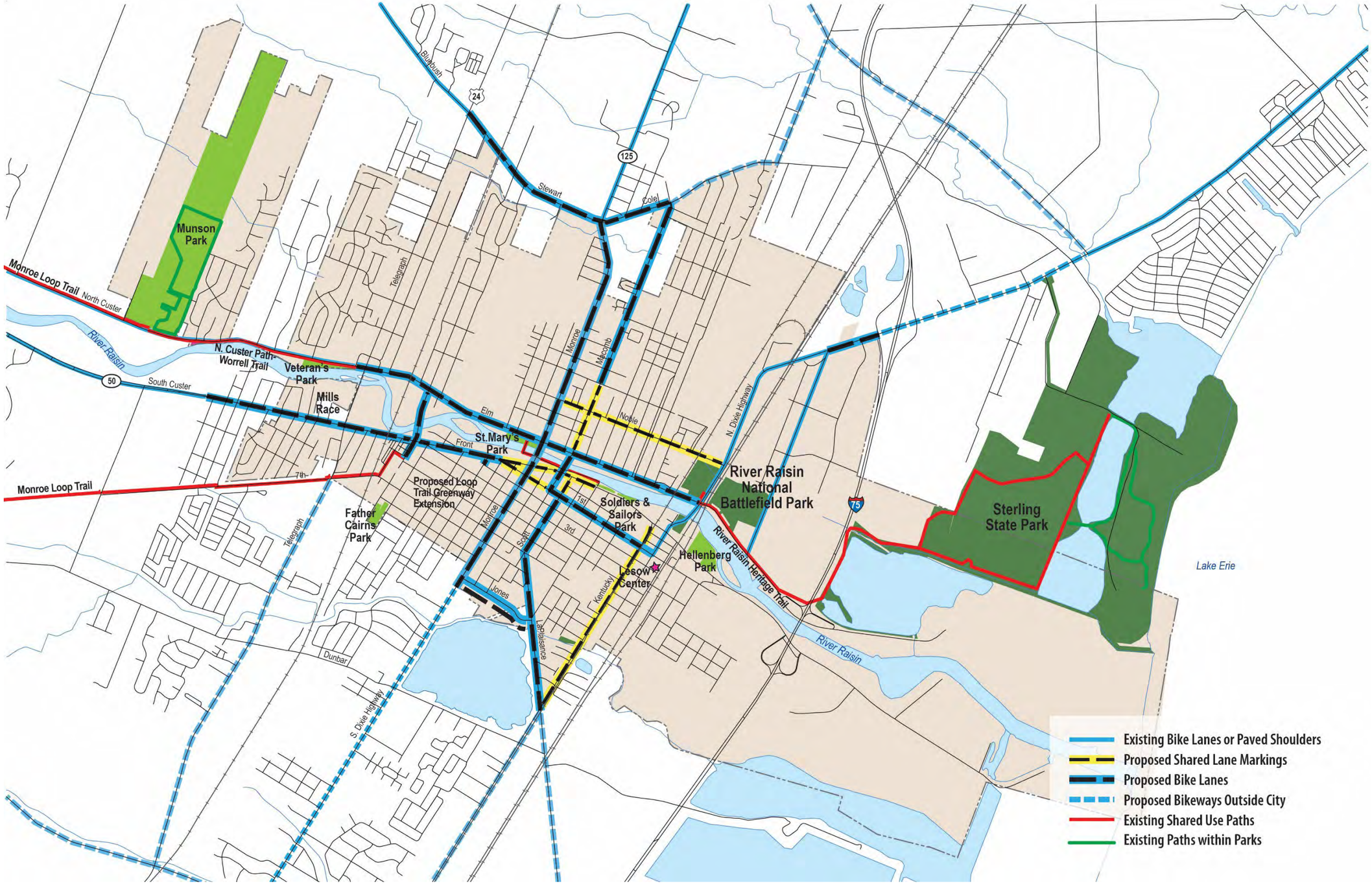
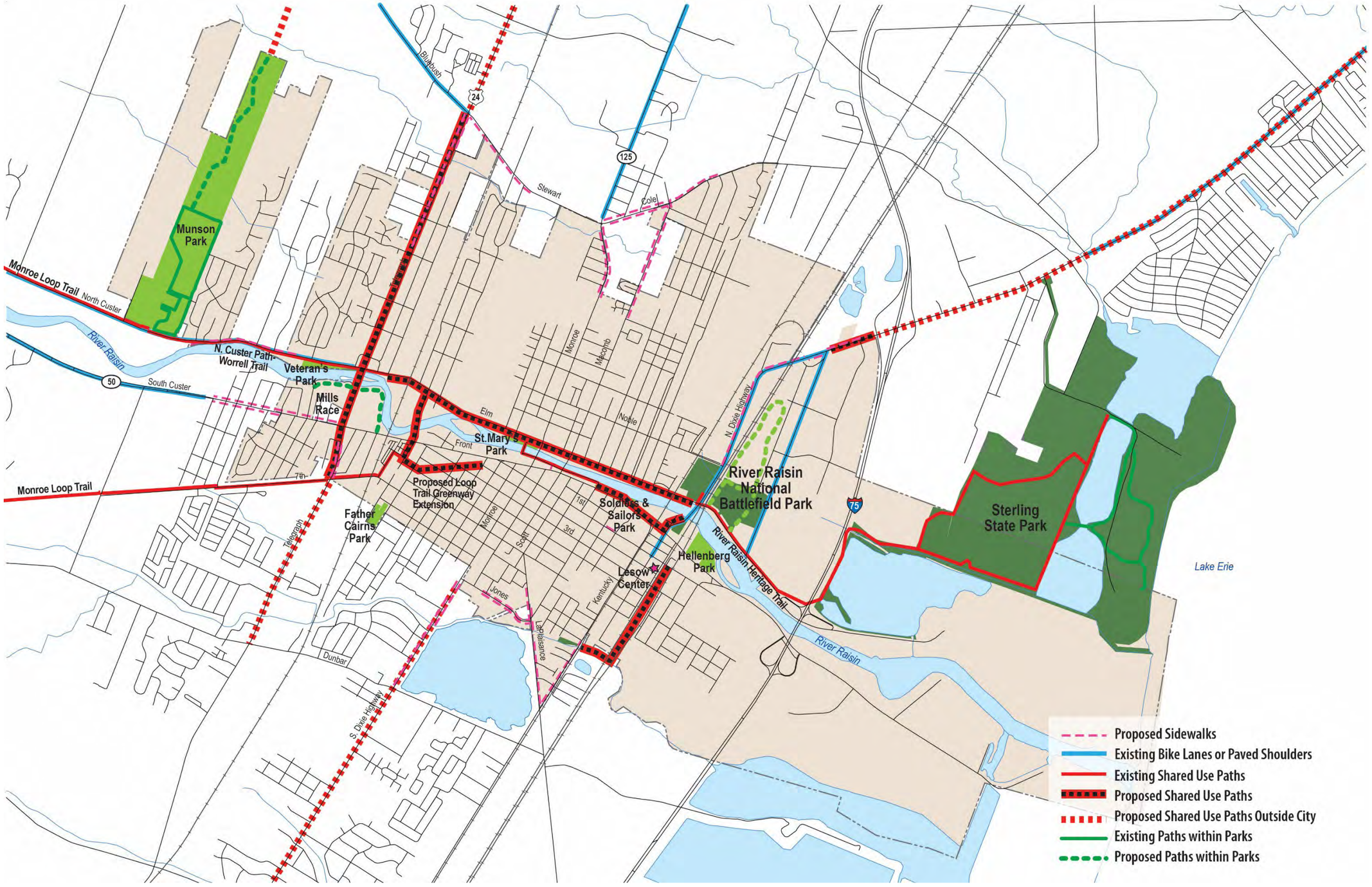


Figure 30. Proposed Shared Use Paths and Sidewalks



Project Schedule

This section of the plan details the cost and the manner in which the recommendations may be implemented. It includes a project schedule with the identification of short-, mid-, and long-term projects. Table 1 provides this information along with the estimated costs for implementing of the proposed improvement projects.

Implementation Schedule:
- *Short-Term - ST: 2 to 4 years*
- *Mid-Term - MT: 5 to 10 years*
- *Long-Term - LT: 10 years or longer*

Accommodating bicycles along City streets is generally recognized as a low cost expenditure that can be implemented easily as it involves a simple re-striping of the existing roadways while at the same time have a great impact on creating the City of Monroe network. This would meet the early goals of this Plan, particularly Goal 1, Network Development and Goal 2, Complete Streets.

Although implementation will be dependent on a variety of factors such as street project schedules, grant opportunities, and funding, priorities are based on goals, demand, costs, and construction feasibility.

Types of Project

- Marking on-street bicycle lanes is estimated from a low cost option to a more expensive option with the low cost focusing on a simple white line, bicycle symbol pavement markings, associated vertical signs, and enhanced green color pavement markings at road intersections including Roessler Street, Monroe Street, and Macomb Street. The higher cost includes protected or buffered bike lane markings where space is available and therefore includes two white lines with crosshatch, bicycle with arrow symbol pavement markings, flexible lane delineators, vertical bike lane signs, and enhanced green color pavement markings at road intersections including Custer Drive east and west, Roessler Street, Monroe Street, Macomb Street, and North Dixie Highway.

- Marking on-street sharrows which encompass a bicycle with special arrow pavement markings, along with associated vertical signs as recommended.

- Developing shared use paths along roadways involves the development of an 8 to 10-foot wide asphalt pathway within the road right-of-way or within City property or private property once proper easements are obtained (not included in cost estimates). Shared use paths within parks are designed to be a minimum of 10 feet wide.

- Extending the Monroe Loop Trail to Downtown is recommended as a of 10 feet wide pathway. However, developed as a linear park or greenway, additional width and recreation amenities should be considered and anticipated including, but not limited to, seating areas, shelters, benches, bike racks, bike repair stations, drinking fountains, kiosks with map, and landscaping.

- Installing sidewalks consists of the development of 5-foot wide concrete walkways, ADA ramps, and pedestrian crosswalk markings as appropriate at roadway intersections.

Table 1. Project Improvement Schedule

Street	From	To	Side	Needed Agency Coordination	Construction Cost Estimate	Time Frame	Priority
On-Street Bicycle Pavement Markings - Bike Lanes							
Elm Ave.	Custer Dr.	N. Dixie Hwy.			As One Project	ST	1
W. Front St.	Telegraph Rd.	First St.				ST	1
S. Macomb St.	First St.	Elm Ave.				ST	1
First St.	S. Macomb St.	Winchester St.				ST	1
Roessler St.	Fifth St.	Elm Ave.				ST	1
Subtotal					**$ 76,967 to $ 206,807**		1
Stewart Rd/ Cole Rd.	Telegraph Rd.	Macomb St.		FCT & MCRC	TBD	ST	
S. Custer Road Diet	Westwood Dr.	Telegraph Rd.		MDOT, MCRC & MCT	TBD	ST	
Monroe St. Road Diet	Jones Ave.	Stewart Rd.		MDOT, MCRC & FCT	TBD	ST	
N. Dixie Hwy.	Detroit Ave.	I-75 Ramp		MCRC & FCT	TBD	MT	
LaPlaisance Rd./Scott St.	Kentucky Ave.	First St.		MCRC & MCT	TBD	MT	
Jones Ave.	S. Monroe St.	LaPlaisance Rd.		MCRC & MCT	TBD	MT	
On-Street Bicycle Pavement Markings – Sharrows							
Front St.	Harrison St.	Wadsworth St.			As One Project	ST	1
Scott St.	First St.	Front St.				ST	1
First St.	Harrison St.	Macomb St.				ST	1
Subtotal					**$ 38,160**		1
N. Macomb St.	Elm Ave.	Lorain St.			As One Project	MT	
Noble St.	N. Monroe St.	N. Dixie Hwy.				MT	
Kentucky Ave.	LaPlaisance Rd.	Front St.				MT	
Subtotal					**$ 48,948**		
Off-Road Shared Use Paths							
Loop Trail Greenway	Roessler St.	Smith St.			$ 175,000	ST	2
E. Front St.	Murray St.	Kentucky Ave.	North	Retrofit	$ 129,500	ST	3
E. Front St. + Winchester	Kentucky Ave.	Bridge	North West	Retrofit	$ 77,000	ST	3
Roessler St.	Fifth St.	Elm Ave.	West	Retrofit	$ 147,000	ST	4
Elm Ave.	Telegraph Bridge	Roessler St.	South	Retrofit	$ 112,000	ST	4
Elm Ave.	Roessler St.	N. Dixie Hwy.	South	Retrofit	$ 570,000[1]	ST	
Telegraph Rd.	Seventh St.	Holiday Blvd.	West	MDOT, MCT & FCT	$ 651,000	LT	
Telegraph Rd.	Holiday Blvd.	Stewart Rd.	East	MDOT & FCT	$ 116,200	LT	
N. Dixie Hwy.	Detroit Ave.	I-75 Ramp	North	MDOT, MCRC & FCT	$ 105,000	LT	
Off-Road Shared Use Paths within Parks							
Munson Park	N. Custer Rd.	North Boundary			$ 770,000	LT	
Mill Race Park	Mill Race Park	Front St.			$ 336,000	LT	
River Raisin National Battlefield Park	Hellenberg Park	Plum Creek		RRNBP	$ 260,000	LT	

Street	From	To	Side	Needed Agency Coordination	Construction Cost Estimate	Time Frame	Priority
Sidewalks							
First St.	Jerome St.	Blossom Ln.	North		$ 26,250	**ST**	
First St.	Kentucky Ave.	Winchester St.	North		$ 27,000	**ST**	
N. Custer Rd	Anna Marie Dr.	Richards Dr.	North		$ 187,500	**ST**	
N. Dixie Hwy.	Noble St.	Heck Park	West	MCRC & MCT	$ 253,125	**ST**	
N. Dixie Hwy.	Heck	I-75 ramp	North	MCRC & MCT	$ 108,000	**ST**	
S. Custer Rd	Westwood Dr.	Telegraph Rd.	North	MCRC & MCT	$ 198,750	**ST**	
S. Custer Rd.	Westwood Dr.	Telegraph Rd.	South	MCRC & MCT	$ 144,375	**ST**	
S. Telegraph Rd	W. Seventh	Palmwood Ave.	West	MCRC & FCT	$ 79,800	**ST**	
S. Telegraph Rd.	W. Seventh	Stone St.	East		$ 70,500	**ST**	
N. Telegraph Rd.	Fredericks Dr.	Stewart Rd.	West	MCRC & FCT	$ 286,500	**ST**	
N. Telegraph Rd.	Eaton Dr.	Stewart Rd.	East	MCRC & FCT	$ 176,250	**ST**	
N. Monroe St.	St. Joseph Cemetery	Stewart Rd.	West	MCRC & FCT	$ 120,750	**ST**	
N. Monroe St.	St. Joseph Cemetery	Stewart Rd.	East	MCRC & FCT	$ 138,750	**ST**	
Stewart Rd.	Telegraph Rd.	Lavender St.	South	MCRC & FCT	$ 206,475	**MT**	
Cole Rd.	Monroe St.	Macomb St.	North	MCRC & FCT	$ 142,500	**MT**	
Cole Rd.	Monroe St.	Macomb St.	South	MCRC & FCT	$ 148,125	**MT**	
N. Macomb St.	Country Club Cir.	Cole Rd.	West	MCRC & FCT	$ 141,375	**MT**	
N. Macomb St.	Maywood Ave.	Cole Rd.	East	MCRC & FCT	$ 238,500	**MT**	
S. Dixie Hwy.	Dunbar Rd.	Jones Ave.	West	MCRC & MCT	$ 203,775	**MT**	
S. Dixie Hwy.	S Monroe St.	Jones Ave.	East	MCRC & MCT	$ 105,000	**MT**	
Jones Ave.	Custer St.	LaPlaisance Rd.	North		$ 121,500	**MT**	
Jones Ave.	S. Monroe St.	LaPlaisance Rd.	South		$ 157,500	**MT**	
LaPlaisance Rd.	Broadway St.	Jones Ave.	West	MCRC & MCT	$ 83,250	**LT**	
LaPlaisance Rd.	Navarre St.	Kentucky Ave.	East		$ 210,000	**MT**	
Kentucky Ave.	LaPlaisance Rd.	E. 9th St.	West		$ 162,750	**MT**	

Notes:

Abbreviations: MDOT: Michigan Department of Transportation, **MCRC:** Monroe County Road Commission, **FCT:** Frenchtown Charter Township, **MCT:** Monroe Charter Township, **TBD**: To be determined.

Note 1: Retrofitting the sidewalk along Elm Avenue from Roessler Street to North Dixie Highway into a shared use path is likely going to be phased in. A potential scenario would be to first replace the sidewalk for a shared use path along public or institutional properties along the River including the Monroe YMCA, Riverside School, the SSIHM River House, St. May's Park, and Cappuccilli Park. Second, the pathway could be implemented in front of multi-family residential and office/commercial properties found at the intersections of Roessler Street, Virginia Drive, Monroe Street, Macomb Street, and between the Railroad line and North Dixie Highway. Lastly, the single-family residential portion of the pathway could be implemented as opportunities arise.

General Note:

Construction cost estimates are for budgetary purposes only. Further investigations will be necessary to determine an engineers' probable cost opinion. Costs do not include any fees/amounts associated with conducting topographic survey, developing engineering design plans, or overseeing construction and performing inspections. An additional range of 10 to 30% may cover these costs, depending on the complexity of the project and the source of funding.

Figure 31. Network Plan Priority 1

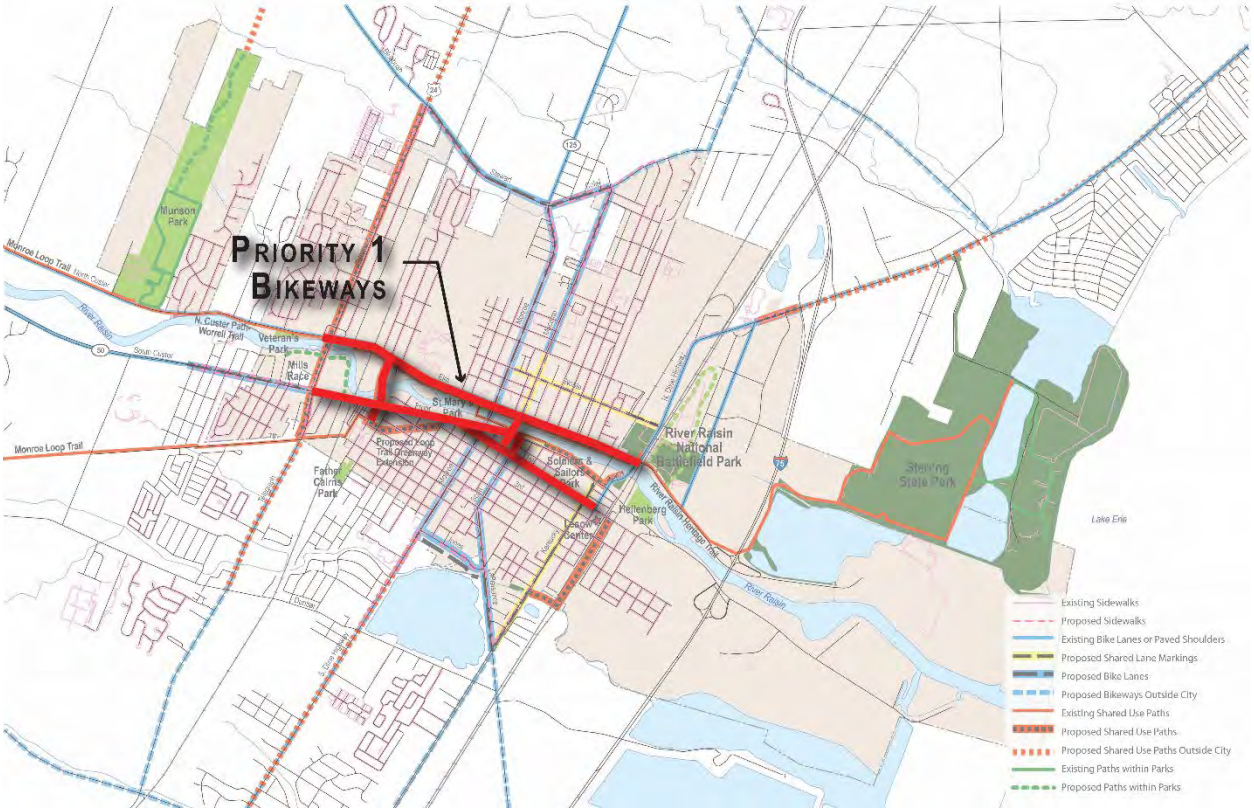
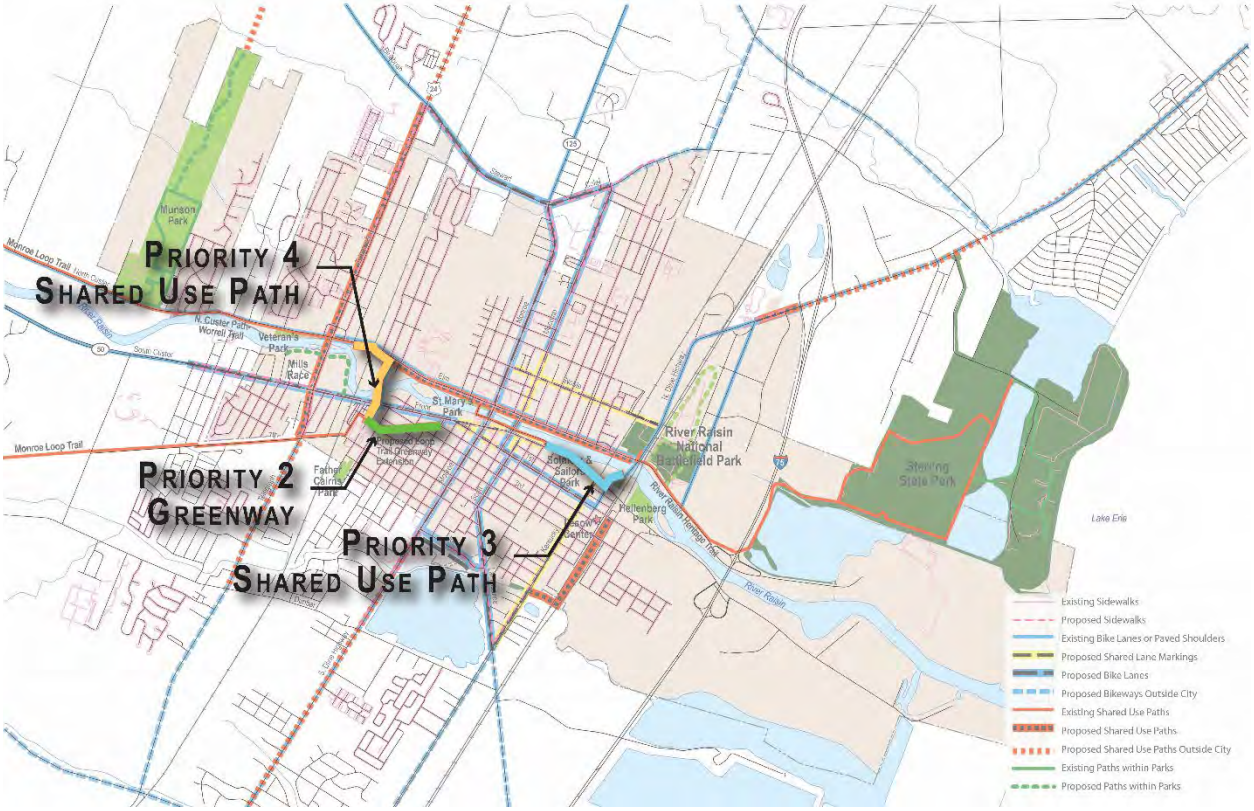


Figure 32. Network Plan Priorities 2, 3 and 4



Funding Opportunities

The following programs are potential funding opportunities for developing pedestrian and non-motorized transportation facilities. The type of projects allowed depend on the program, however, the categories range from planning and construction of pedestrian or bicycle facilities to design of public spaces, educational programs, research, and methods for reducing air pollution.

Transportation Alternatives Program & Safe Routes to Schools

MAP-21 (Moving Ahead for Progress in the 21st Century Act) is the most recent federal transportation funding law. It consolidates transportation funding programs that were available under the previous funding law including the Transportation Enhancement program, the Safe Routes to School program, and the Recreation Trails program into a program called Transportation Alternatives Program (TAP). This singular program is the largest federal source for trail funding.

Transportation Alternative activities are projects that "expand travel choices and enhance the transportation experience by integrating modes and improving the cultural, historic, and environmental aspects of our transportation infrastructure." Activities which may apply to the City of Monroe include the construction, planning, and design of on-road and off-road facilities for pedestrians, bicyclists, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act.

SEMCOG's TAP allocation allows an emphasis on "shovel ready projects" including sidewalk and shared use path modernization which would be really advantageous to the City of Monroe for a number of projects identified. The types of project eligible include widening sidewalks from the to 5 feet, widening paths to 10 feet, full reconstruction of existing sidewalks and paths, and ADA enhancement. Another category of projects include safety and connectivity projects such as crosswalks, midblock crossings, road diets, new sidewalk and shared use paths, and bicycle lanes.

Transportation Enhancement and Safe Routes to School (K – 8th grade) funds are distributed through a partnership between SEMCOG and MDOT. Each project are jointly evaluated by SEMCOG and MDOT staff to determine eligibility, consistency with TAP program requirements, and how well the project meets SEMCOG's Creating Success goals.

Approximately $10 million are available to be distributed in the SEMCOG region in 2022. Applications must be submitted through the MDOT's online grant system (MGS). A minimum 20 percent local match is required for proposed projects and applications are accepted online. Applications for 2022 are currently being accepted with anticipated construction target for 2023-2025.
http://www.semcog.org/TAPCall.aspx

Congestion Mitigation/Air Quality

This funding is provided to areas that are not in compliance with air quality standards or are in a maintenance area for air quality nonattainment issues. Congestion Mitigation/Air Quality (CMAQ) projects are awarded competitively and jointly between MDOT and SEMCOG. Applicants must demonstrate that they reduce emissions in order to be considered eligible for funding as determined by the Federal Highway Administration. Southeast Michigan is a designated non-attainment area.
http://www.michigan.gov/mdot/0,4616,7-151-9621_11041_60661---,00.html

Michigan Transportation Fund (Act 51)

Revenues from the Michigan Transportation Fund (MTF) are generated from state gas and value taxes. The funding is divided among MDOT, road commissions, cities, and villages. Each Act 51 agency is required by law to spend at a minimum an average of one percent of their Act 51 dollars on non-motorized improvements for any rolling 10-year period. The City of Monroe has expended more than $660,000 over the last 10 years, which is well over that requirement based on fund revenues of approximately $2.5 million in FY 2021. Along with the City millage funds, this amount can be used to provide portion of a match for federal funds.

Michigan Natural Resources Trust Fund

State grants are available to local units of government for acquisition and development of land and facilities for outdoor recreation such as shared use paths. In 2022, priorities were trails, wildlife/ecological corridors, and projects located within urban areas. The Michigan Natural Resources Trust Fund (MNRTF) provides funding for the purchase and development of land for natural resource based preservation and recreation. Goals of the program are to:

- Protect natural resources and provide for their access, public use and enjoyment,
- Provide public access to Michigan's waters, particularly the Great Lakes and facilitate their recreation use,
- Meet regional, county, and community needs for outdoor recreation opportunities,
- Improve the opportunities for outdoor recreation in urban areas, and
- Stimulate Michigan's economy through recreation related to tourism and community revitalization.

Grant proposals must include a local match of at least 25 percent of the total project cost. There is no minimum or maximum for acquisition projects. For development projects, the minimum funding request was $15,000 and the maximum was $300,000 in 2022. Applications are usually due in April online through the MiGrants system.
Natural Resources Trust Fund (michigan.gov)

Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) is a federal appropriation to the National Park Service, who distributes funds to the Michigan Department of Natural Resources for development of outdoor recreation facilities. The focus of the program has recently been on trailway systems and other community recreation needs such as playgrounds, picnic areas, athletic fields, and walking paths. Minimum grant requests were $30,000 and maximum requests were $500,000 in 2022. The match percentage must be 50 percent of the total project cost. Applications are usually due in April online through the MiGrants system.
Land and Water Conservation Fund (michigan.gov)

Recreation Passport Grant

The Recreation Passport Program provides funding to communities for the development of public recreation facilities. This includes the development of new facilities and the renovation of old facilities. Minimum grant requests were $7,500 and maximum requests were $150,000 in 2022. The match percentage must be 25 percent of the total project cost. Applications are usually due in April online through the MiGrants system.
Recreation Passport Grants (michigan.gov)

Michigan Spark Grant

The Michigan Spark Grant is a new program to help local communities that create, renovate, or redevelop public outdoor opportunities including completing critical trail projects. Criteria include public benefit, financial considerations, access to project site, access to new opportunities for people of all abilities, clarity of scope and ability to execute, renovation and long-term maintenance. The first round of applications launched in October 2022 with two more rounds of applications and grant awards expected in 2023 making approximately $ 65 milion of coronavirus state and local fiscal recovery funds available. Projects must be completed in 2026.
Michigan Spark Grants

DALMAC Fund

The goals of the DALMAC Fund are to expand and improve the bicycling environment in Michigan, increase bicycle safety, and promote goodwill toward bicycling in the community. Eligible activities include construction and design of bicycle facilities, bicycle education programs, bicycle promotion activities, purchase of bicycles and related equipment, and developing bicycle routes or maps. No specific match is specified and applications were due in March for 2022.
DALMAC Fund Grants - Tri-County Bicycle Association (biketcba.org)

PeopleForBikes Community Grant Program (formerly Bikes Belong)

The PeopleForBikes community grant program is funded by members of the American Bicycle Industry. Their mission is to put more people on bikes more often. The program funds projects in three categories: facility, education, and capacity building. Requests for funding can be up to $10,000 for projects such as bike paths, trails, lanes, parking, transit, and safe routes to school. Applications are due on October 31.
Grants | PeopleForBikes

City Roads and Trails Millage

Public support for bicycle and pedestrian improvements will be crucial in determining the level of services the City will be able to provide in the future. Renewing the City Roads and Trails millage need to be considered in the future for continued bicycle and pedestrian facilities development, upgrade, and maintenance.

Appendix

User Profiles, Types & Demand

Before considering trail or bicycle route development, an understanding of design standards and best practices should be considered. This chapter of the plan examines bicycle and trail development standards and practices that are relevant to the establishment of a citywide trail and bicycle network.

Types of Users

The needs and preferences of bicycle users vary depending on their skill level and the type of trip the individual wishes to take. Addressing the concerns of casual and inexperienced bicyclists as well as more experienced riders will encourage more people in Monroe to bike and walk in their daily lives.

Studies have shown that bicyclists and pedestrians share destinations and trip purposes common to other road users and, as a result, use all types of streets. Therefore, it would seem logical to add some bicycle and pedestrian improvements to all streets and roadways. Different types of users, however, generally prefer different types of streets. The American Association of State Highway Transportation Officials (AASHTO, 2012) recognizes different types of riders which are described in the margin to the right. Casual and less confident riders often prefer quiet neighborhood streets or recreational pathways. On the other hand, serious commuting and experienced riders can generally be found on roadways.

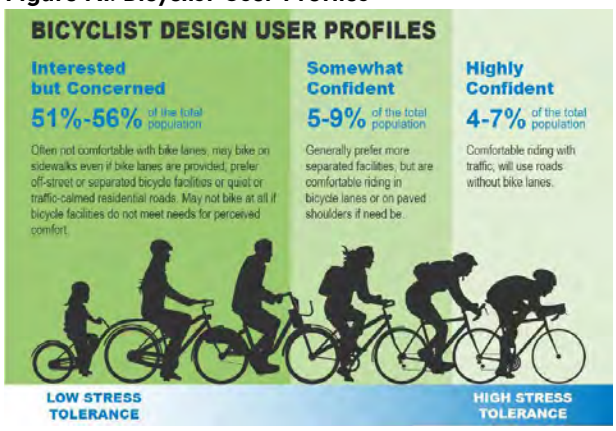
National studies have shown that on-road bicycle facilities for experienced riders and casual adult riders are generally safer than a sidewalk because they provide greater driver visibility. This is especially true at intersections and driveways, where conflicts with vehicles are most likely to occur.

Since bicyclists vary in skill and experience, the emphasis must be on establishing minimum standards which accommodate a full range of users while optimizing safety for all. The selection of pedestrian and bicycle facilities depends on a combination of several factors including the existing road network, potential destinations, scenic, and recreation amenities.

Experienced and confident riders generally use their bicycles as they would a car. They ride for convenience and speed and want direct access to destinations with a minimum of detour or delay. They are typically comfortable riding alongside a car; however, they need sufficient operating space on the traveled way or shoulder to eliminate the need for either them or a passing car to shift position. While comfortable on most streets, some prefer on-street bike lanes, paved shoulders, or shared use paths when available. Experienced riders avoid riding on sidewalks, which have speed and sight line limitations.

Casual or less confident riders may also use their bicycles for transportation purposes, for example, to get to the store or to visit friends, but prefer to avoid roads with fast and busy car traffic unless there is ample roadway width to allow easy overtaking by faster cars. Thus, casual riders are more comfortable riding on neighborhood streets, shared use paths, and prefer designated facilities such as bike lanes on busier streets. If no on-street facilities are available, they may opt to ride on sidewalks, which can be problematic, particularly in city centers.

Figure A1. Bicyclist User Profiles



Source: Bikeway Selection Guide (FHWA, 2019)

Bicycle Comfort Level

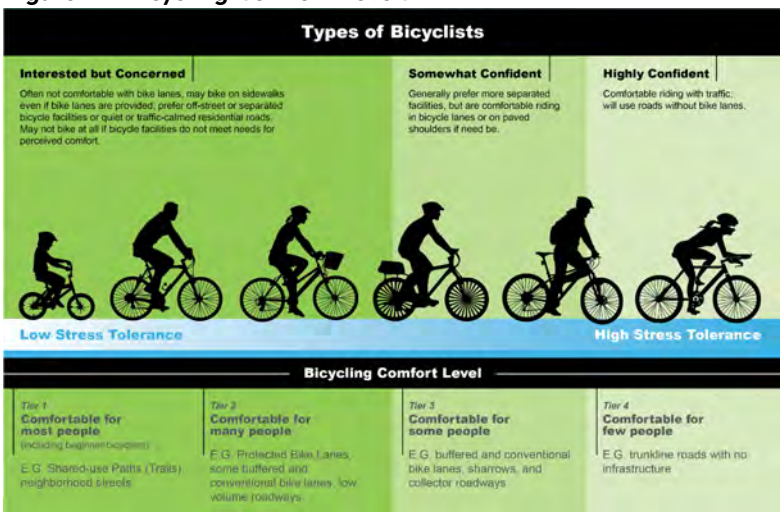
Not all roadways are equally comfortable for bicycling. Factors such as traffic volumes and speed, number of lanes, road widths, and on-street parking play a significant role in how comfortable a bicyclist may be to ride on a road. Figure A2 below shows the three types of bicyclists and their likely comfort level on different types of roadways with varying types of bicycle accommodations. A beginner bicyclist is much more likely to choose to ride on a sidewalk or a roadway that provides a relatively high level of comfort than they are to ride on a road with high traffic speed or volume. As illustrated in Figure A3, SEMCOG classified the region's roadways into four tiers of comfort based on traffic volumes, the number of travel lanes, posted speeds, and the presence of different bicycle accommodations.

Tier 1: Roadways and pathways comfortable for most people including all of the *Interested but Concerned* bicyclists and exhibiting low speed, shared use paths separated from the roadway and wide enough to accommodate both bicyclists and pedestrians.

Tier 2: Roadways that are likely comfortable for many people, including a majority of the *Interested but Concerned* adult bicyclists. These roadways may have either protected bike lanes, low traffic volume and speed. Some roadways with no bicycle accommodations also fall into this category.

Tier 3: Roadways that are likely comfortable for some people, including the *Somewhat Confident* bicyclists. These roadways may have bike lanes or wide paved shoulders with higher volume and faster traveling vehicles.

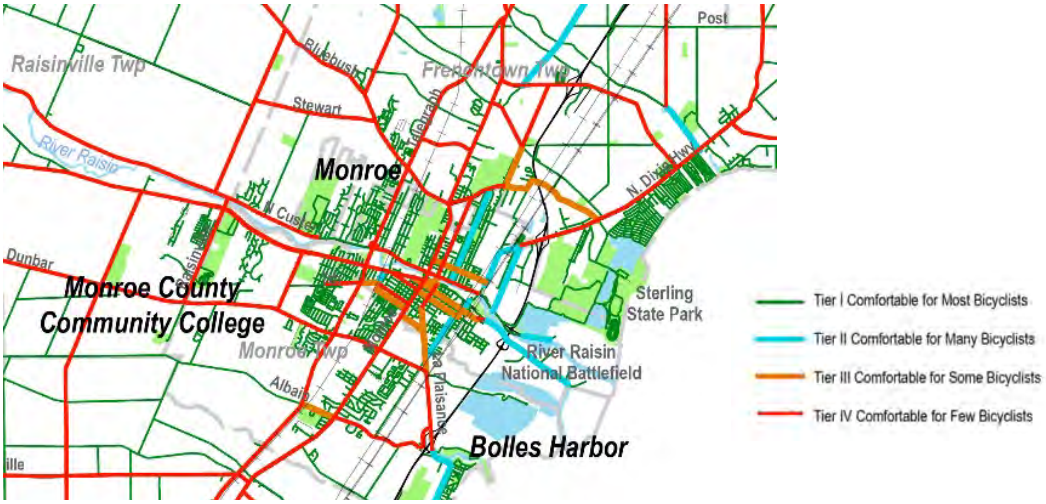
Figure A2. Bicycling Comfort Levels



Source: SEMCOG Bicycle and Pedestrian Mobility Plan for Southeast Michigan, 2020

Tier 4: Roadways that are likely only comfortable for a few people, usually the *Highly Confident* bicyclists. These roadways generally have no bicycle accommodations, and w ill often involve sharing the road with faster-moving vehicles.

Figure A3. City of Monroe Bicycling Comfort Levels



Source: SEMCOG data

Types of Pedestrian and Bicycle Facilities

The types of bicycle and pedestrian facilities that form the overall City of Monroe interconnected network include:

1. Sidewalks for pedestrian use,
2. On-street bicycle lanes for bicycle use,
3. On-street shared lane markings for bicycle use,
4. On-road paved shoulders for bicycle use,
5. Off-road shared use pathways for pedestrians and bicyclists, and
6. Crosswalks and other design features.

Each of the facilities has its place as a part of an overall non-motorized strategy for the City of Monroe. Most likely, there will be variation and combination of these types within the proposed corridors. A description of each facility follows.

The primary references for pedestrian and bicycle facility design standards are:

- *Guide for the Planning, Design, and Operation of Pedestrian Facilities (AASHTO, 2017)*
- *Guide for the development of Bicycle Facilities (AASHTO, 2012)*
- *Small Town and Rural Multimodal Networks (FHWA, 2016)*
- *Urban Bikeway Design Guide (NACTO, 2012)*
- *Bikeway Selection Guide (FHWA, 2019)*
- *Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG) (Architectural and Transportation Barriers Compliance Board, 2011).*
- *Michigan Manual on Uniform Traffic Control Devices (MMUTCD) (MDOT, 2005)*
- *Bicycle and Pedestrian Terminology (MDOT, 2014)*

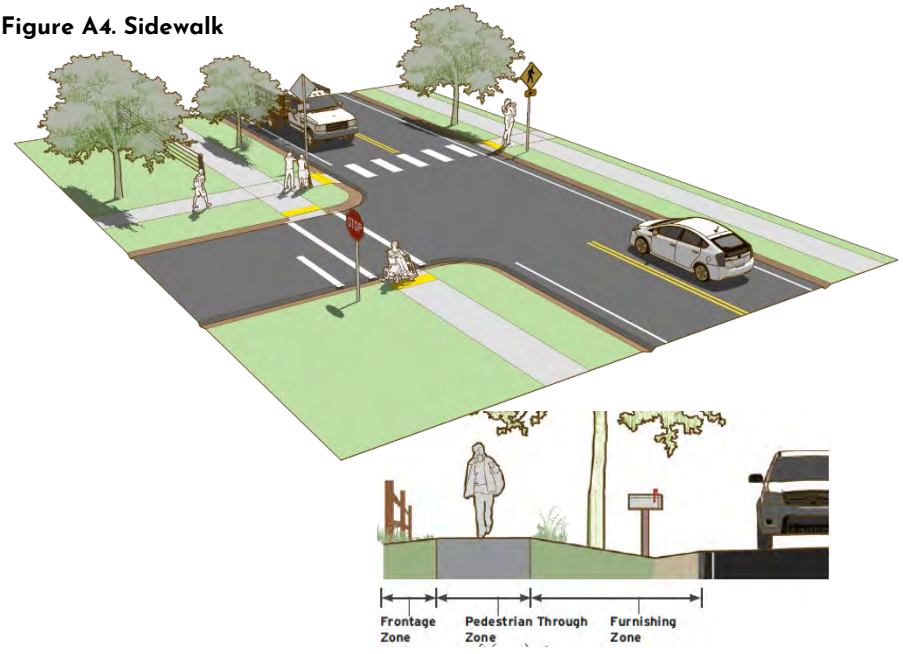
Sidewalks

Sidewalks are for pedestrians use. They consist of concrete pavement that are separated from the roadway by a landscape strip or buffer area. Ideally, a minimum buffer of five to six feet is preferred. In Monroe, older existing sidewalks are four feet wide. Any new sidewalk construction must comply with current ADA standards which require a five-foot minimum width for two-way travel and include ramps at roadway intersection. City sidewalks, when rebuilt, should be widened depending on the number of pedestrians who are expected to use the sidewalk at a given time.

Recommended widths for sidewalks are:

- 5 feet on local streets,
- 6 to 8 feet on arterial streets,
- 8 to 12 feet in downtown, and
- 8 to 10 feet in parks or schools.

Figure A4. Sidewalk

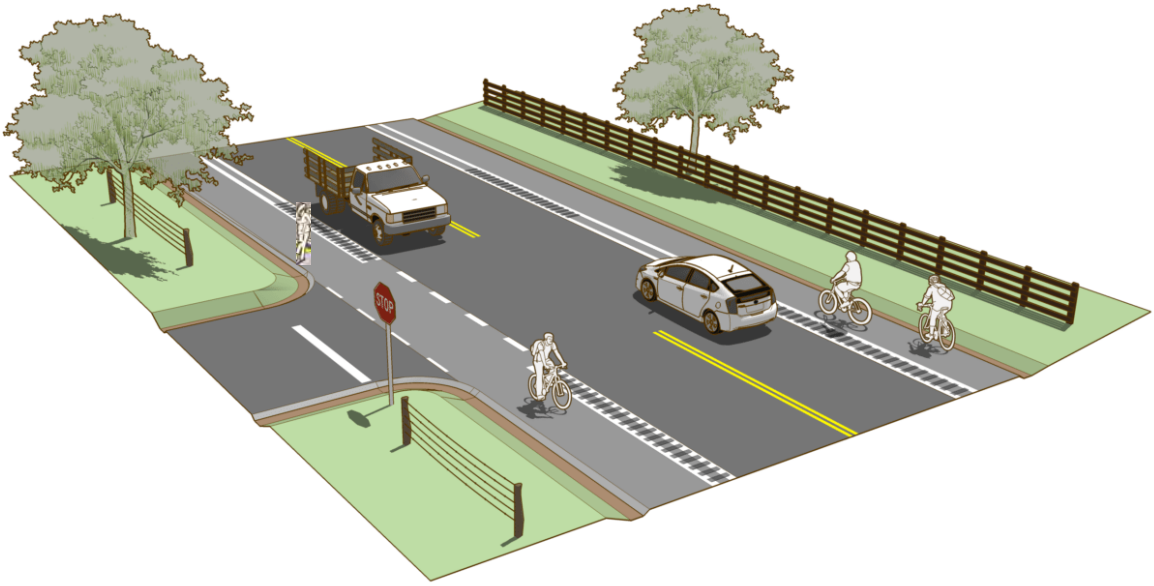


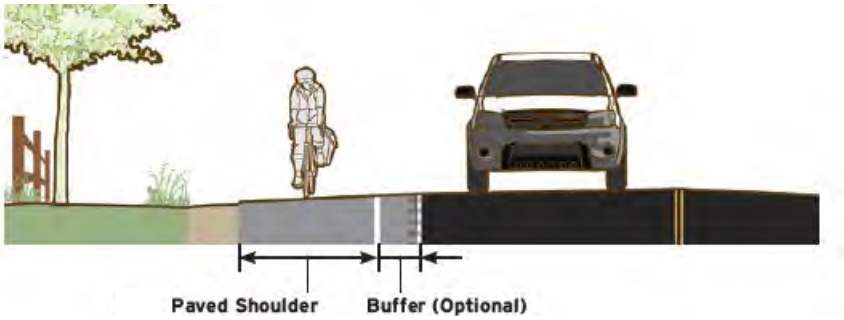
Source: Small Town and Rural Multimodal Networks (FHWA, 2016)

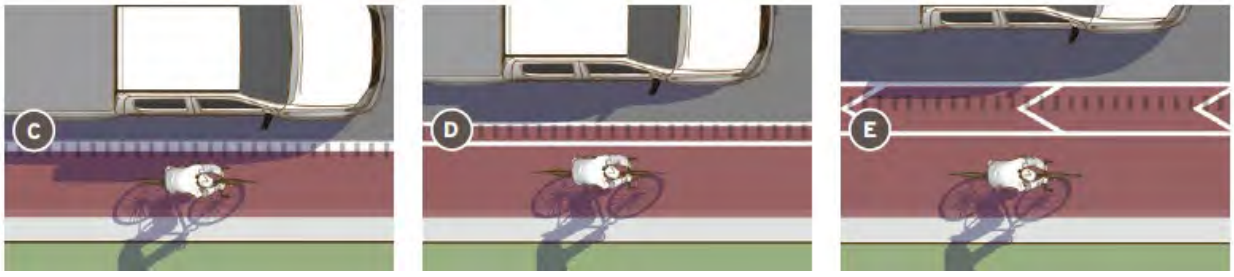
On-Road Paved Shoulders

A paved shoulder is the part of the roadway that is adjacent and contiguous to a regular vehicle travel lane. Paved shoulders can be used by bicyclists and can also accommodate stopped vehicles, emergency use, and pedestrians. Paved shoulders are appropriate bicycle facilities along roadways that do not have curb and gutter and have open ditch drainage. Paved shoulders intended for bicyclist use are at least four feet wide and the pavement should be smooth. When motorist speeds exceed 35 mph, additional width is recommended. A two-foot buffer adjacent to a paved shoulder will provide greater distance between cars and bicyclists thereby increasing safety and appealing to a wider cross-section of users.

Figure A5. Paved Shoulders







Source: Small Town and Rural Multimodal Networks (FHWA, 2016)

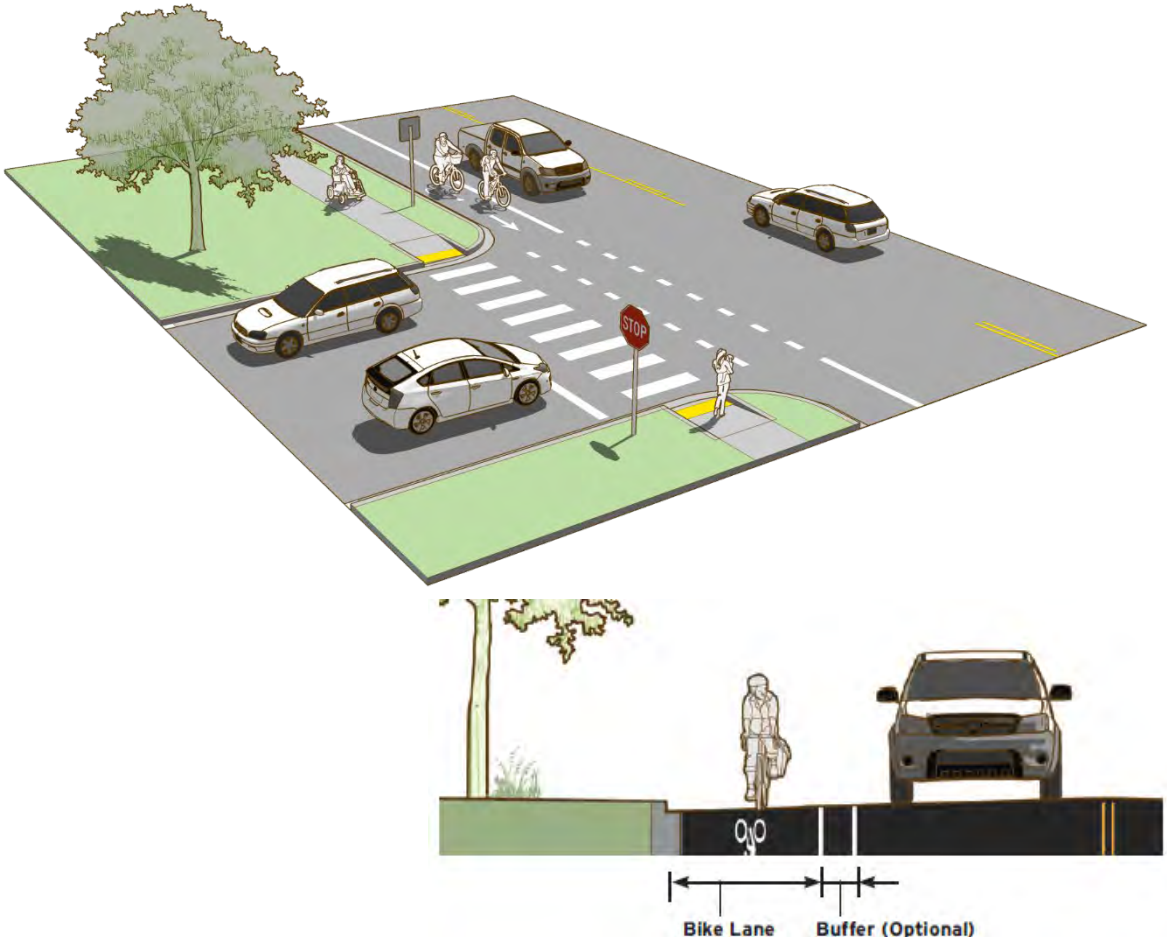
On-Street Bicycle Lanes

Bicycle lanes include designated lanes on roadways that incorporate striping, signing, and pavement markings for the preferential or exclusive use of bicyclists. They are one-way and a minimum of five feet wide. A minimum of three feet ridable surface should be provided where the joint between the gutter pan and pavement surface is smooth. If the joint is not smooth, four feet ridable surface should be provided.

According to the Federal Highway Administration (2019), bicycle lanes are appropriate on roadways having daily traffic volumes that exceed 10,000 or car speeds that exceed 30 mph.

Where parking is permitted, bicycle lanes should generally be placed between the parking lane and the motorized vehicle lane. The recommended lane width for this location is five to six feet (AASHTO, 2012). An important consideration in the design of bicycle lanes is the location of bicycle lanes at intersections. Guidance for pavement markings and signs at intersections is contained in the Michigan Manual on Uniform Traffic Control Devices (MMUTCD).

Figure A6. Bike Lanes

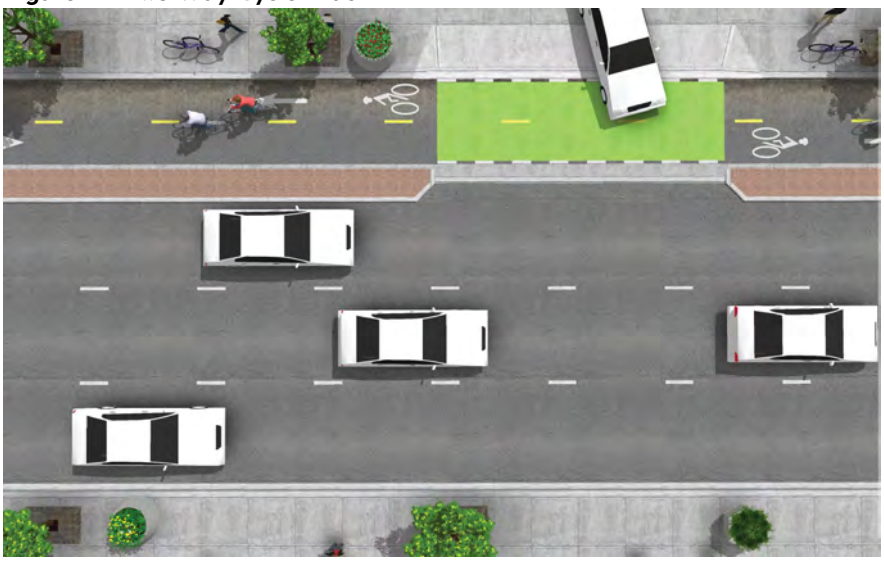


Source: Small Town and Rural Multimodal Networks (FHWA, 2016)

Two-Way Cycle Track

Two-way cycle tracks are physically separated on-street bike paths that allow bicycle movement in both directions on one side of the street. The desirable two-way cycle track width is 12 feet, but minimum width in constrained lcoations can be 8 feet. A dashed yellow centerline should be used to separate two-way bicycle traffic and to help distinguish the cycle track from any adjacent pedestrian area. Tubular markers may be used to protect the cycle track from the adjacent travel lane.

Figure A7. Two-Way Cycle Track



Source: Urban Bikeway Design Guide (NACTO, 2014)

On-Street Shared Lane Markings

Bicyclists sharing roadways with cars are appropriate for most streets having low daily traffic volumes or speeds (FHWA, 2019). Most local neighborhood streets in Monroe are currently suitable for shared roadway bicycling with no additional improvements necessary.

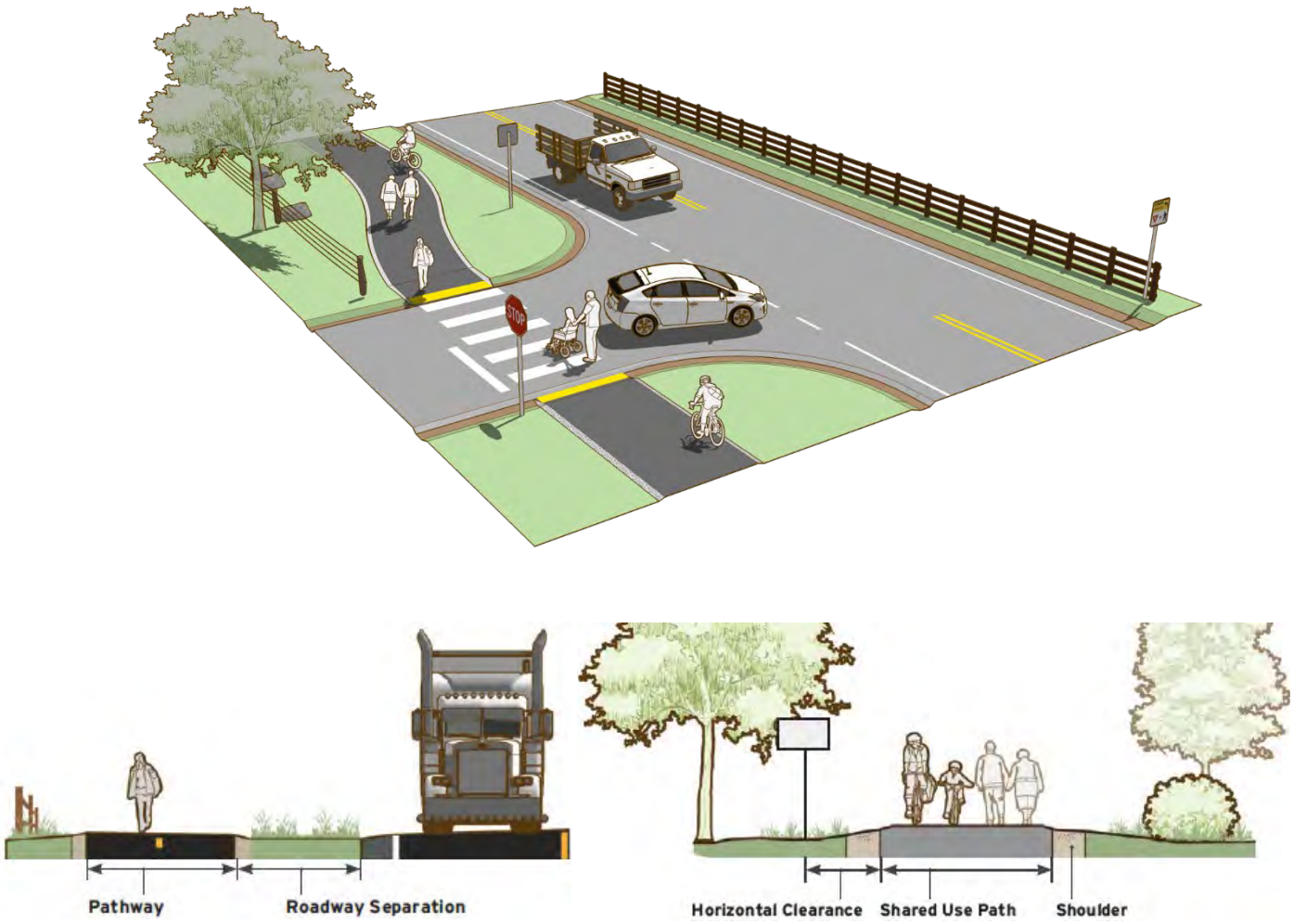
Shared roadways are also appropriate on roadways having higher traffic volumes and moderate speeds with provision of an increased shared lane width and/or shared lane markings. Shared roadways and lane markings are desirable in locations where the road right-of-way is limited or where it is not feasible to add pavement at the edge of a roadway to create a bike lane. They are also used in combination with dedicated bike lanes at intersection where the roadway accommodates a turning lane and there is not sufficient room for the separated bike lane.

A ***sharrow*** pavement width is used to mark the shared lane. Sharrows are chevrons pointing in the direction of vehicle traffic to indicate where a bicyclist would ride. They provide a visual cue that bicycles are expected on the roadway and indicate the zone bicyclists ride on. They are typically used on roadways where there is not enough space for bicycle lanes or which connect gaps between other types of bicycle facilities.

Off-Road Shared Use Pathways

Off-road shared use pathways are physically separated from car traffic. The path may be within the road right-of-way also called a side path, or within a park or easement. Contrary to on-road bike lanes or paved shoulders, shared use paths are normally two-way facilities. The AASHTO recommended pavement width is 10 feet, but 8 feet may be considered where path usage is low, where space is limited, or where pathways are located on both sides of a roadway. Similarly, 12 feet may be considered more suitable where path usage is expected to be high, such as in an urban situation or within an urban area. A minimum of a 2-foot clear zone needs to be maintained along both sides of a pathway, with an 8-foot vertical clearance.

Figure A8. Shared Use Paths

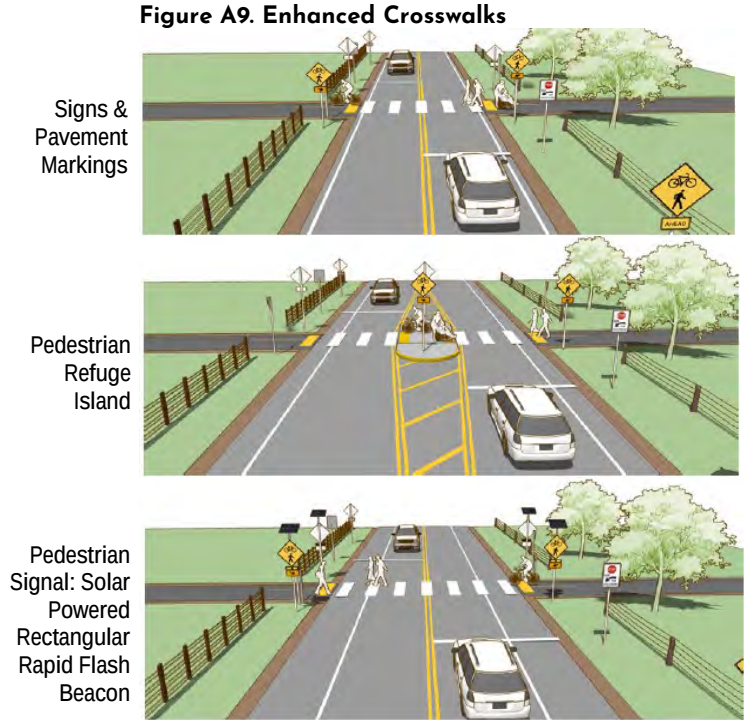


Source: Small Town and Rural Multimodal Networks (FHWA, 2016)

Crosswalks

Improving the safety of pedestrians and bicyclists crossing at roadway intersections also needs to be considered. The enhancements and features at each crossing vary based on a number of factors including: crossing width, traffic volume, pedestrian and bicycle traffic volumes, and sight lines. Refuge islands are one option to improve the safety of pedestrians and bicyclists crossing streets. These islands are raised longitudinal spaces placed in the center of a roadway, separating opposing lanes of traffic, and slotted along the pedestrian path. They reduce pedestrian crossing distances, act as a traffic calming feature, and increase the visibility of the crosswalk to motorists. Added features include pedestrian signals (Pedestrian Hybrid Beacon and Rectangular Rapid Flash Beacon) and pavement markings.

Figure A9. Enhanced Crosswalks



Source: Small Town and Rural Multimodal Networks (FHWA, 2019)

Other Design Features

Providing amenities such as bike stations/rest areas along non-motorized routes can make the system more inviting to users. Basic amenities which can be added in the future include bicycle racks, shade structures, benches, trash receptacles, and water drinking fountains. Additional amenities can include bicycle repair stations including an air pump, kiosks displaying a map of the trail, sheltered bicycle racks, restrooms, bicycle lockers, and other pedestrian amenities.

Signage

Pavement markings and signage are an additional consideration for the improvements of non-motorized facilities. The markings should be supplemented by regulatory signs placed at about the same location.

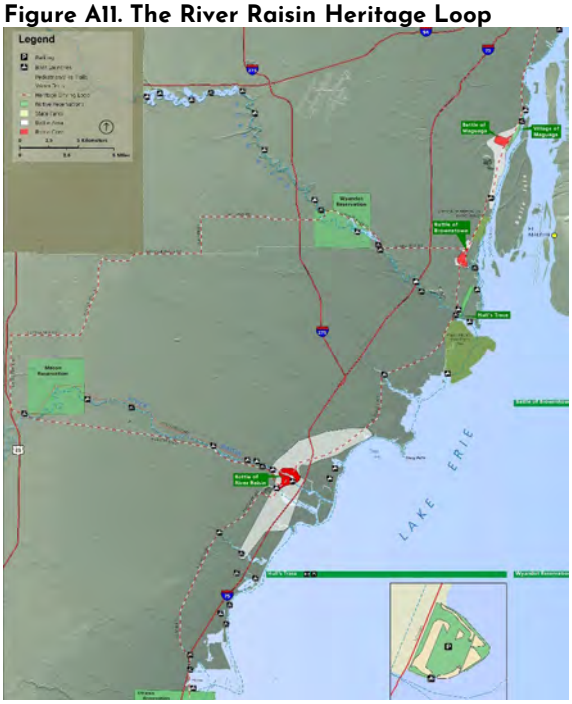
Additional signs may be located along bicycle routes and trails. They include four types of signs:

- Route signs, which identify the non-motorized route;
- Warning signs, which advise bicyclists and motorists of facilities and crossings;
- Regulatory signs, which inform bicyclists and pedestrians of specific traffic laws and regulations such as Bicycle May Use Full Lane; and
- Directional and wayfinding signs, which direct bicyclists to desired places and destinations; they can be placed at key locations along the route.

Figure A10. Sign Examples

Figure A11 depicts a Heritage Loop Trail which would connect the River Raisin National Battlefield Park to the region using historic roadways and connecting historic sites. The Heritage Loop connects the National Battlefield Park south to the Ottawa Reservation in Toledo through South Dixie Highway, west to the Macon Reservation in Dundee through M-50, and north to Hull's Trace through North Dixie Highway and U.S. Turnpike.

Figure A11. The River Raisin Heritage Loop



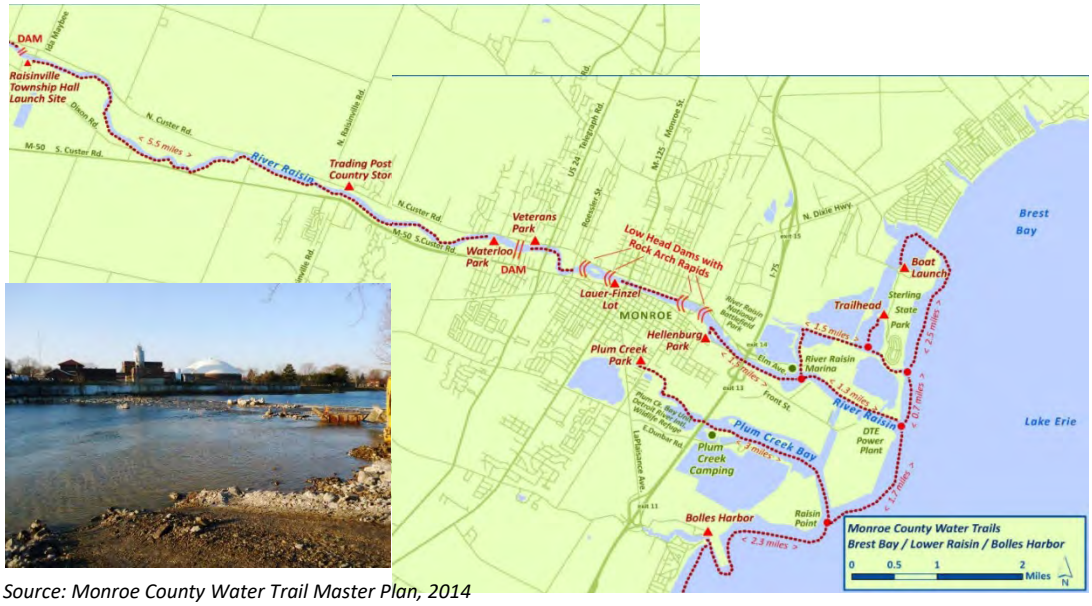
Source: River Raisin National Battlefield Park

There are other statewide and regional trail visions which traverse the City of Monroe and which provide connections to greater regional trail systems.

Water Trails

In addition to land trails and non-motorized connections, Monroe County developed a comprehensive master plan for improving the County's water trails in 2014. The Plan identifies specific recommendations for possible launch sites and other improvements. Figure A12 depicts the water trails planned within the City of Monroe along the River Raisin and along Lake Erie. Rock arch rapids have been installed along the River to restore fish passage through an initiative known as the River Raisin Legacy Project east of Roessler street, west of Veteran's Park, and by Cappuccilli Park. However, they still prevent the free passage of canoes or kayaks for those who do not wish to portage or navigate through rapids. The passages could be modified to facilitate the flow of small boats.

Figure A12. Monroe County Water Trails – City of Monroe Area



Source: Monroe County Water Trail Master Plan, 2014

Draft Complete Streets Resolution

Proposed Resolution
Of the Council of the City of Monroe, Michigan
Supporting a Complete Streets Policy for the City of Monroe

This resolution approves a Complete Streets Policy to incorporate Complete Streets principles of street design for all modes of transportation into roadway improvements and project phases.

WHEREAS, increasing active transportation (e.g., walking, bicycling, and use of public transportation) offers the potential for improved public health, economic development, a cleaner environment, reduced transportation costs, enhanced community connections, social equity, and more liveable communities; and

WHEREAS, Complete Streets are defined as facilities that are safe, comfortable and convenient for users of all travel modes, including walking, use of mobility aids, bicycling, riding public transportation, and driving motor vehicles; and

WHEREAS, the City recognizes that a comprehensive, well-connected, and reliable transportation network is essential to give residents the ability to travel to school, travel to work, engage in social activities, and contribute to the commercial and economic vitality of the City; and

WHEREAS, the City also recognizes the importance of partnerships with the Michigan Department of Transportation, the Monroe County Road Commission, Lake Erie Transit, Monroe Public Schools, utility companies, and other agencies to promote Complete Streets on roadways within but not owned and maintained by the City of Monroe; and

WHEREAS, the City seeks to align land use and transportation goals, policies and code provisions to create Complete Street solutions that are clear, concise, and consistent; and

WHEREAS, through a comprehensive planning process involving residents and community stakeholders, the City of Monroe Trails Advisory Committee has articulated a vision for bicycle and pedestrian improvements in the City;

NOW, THEREFORE, BE IT RESOLVED, By the City Council of the City of Monroe, the City approves the following Complete Streets policy:

The public roadway shall be designed, operated, and maintained to address accessibility and maximize the comfort, safety, and needs of all users, of all ages and abilities, whether traveling on foot, by using mobility aids or devices, by transit, by bicycle, or by motor vehicle, including freight and delivery.

The City shall incorporate this Complete Streets Policy into all appropriate projects to incrementally achieve a complete, interconnected transportation network that serves all users and encourages walking, biking, and transit use. An interconnected network will not only provide high-quality individual facilities, but also provide facilities that enable efficient and convenient transitions from one mode of transportation to another and from one type of infrastructure to another.

The City shall incorporate Complete Streets principles into all roadway improvements and project phases, including planning, design, right-of-way acquisition, land development, new construction, reconstruction, routine maintenance/rehabilitation, and capital improvements.

The City shall incorporate the Complete Streets principles established herein into all future or amended land use, transportation, area, and comprehensive plans, and all future or amended policies, resolutions, or ordinances impacting the public right-of-way.

The City shall continually look to the latest industry standards and guidelines to develop Complete Streets. The City of Monroe recognizes that design criteria shall not be considered prescriptive or taken as mandate; rather, Complete Streets guidance is intended to assist in the application of engineering and planning principles. The City shall strive to meet or exceed national best-practice guidelines on all transportation projects. The latest national, state, and local design guidance, standards, and recommendations available shall be considered in the implementation of Complete Streets.