



Luna Pier
shared-use path
planning study

City of Luna Pier

Monroe County, Michigan

Shared-Use Path Planning Study

Approved by the Luna Pier City Council
on August 10, 2023

acknowledgments

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on August 10, 2023



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The background of the page features a green field with a wooden gazebo in the middle ground. In the background, there are trees with autumn-colored leaves and a building with a tower. In the upper right corner, there are three flagpoles with the American flag and two green flags flying. The title '1. introduction' is written in large white letters across the top half of the page.

1. introduction

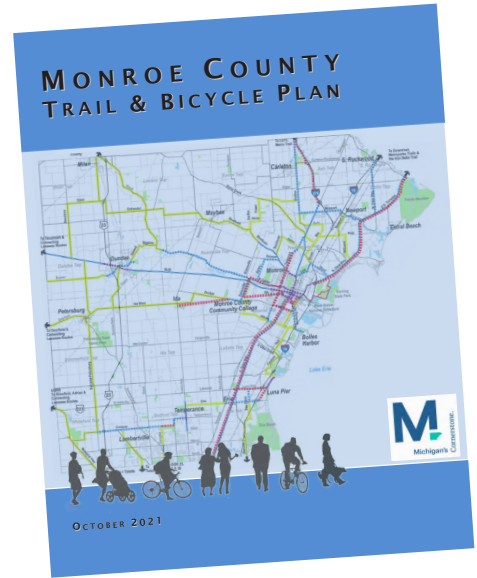
1.1 Luna Pier

The City of Luna Pier is located in Monroe County, Michigan, about 10 miles south of the City of Monroe. It is located on the shores of Lake Erie. According to the 2020 U.S. Census, Luna Pier had a population of 1,382. The population of Erie Township, the area surrounding Luna Pier to the west and south, was 4,299. Lake Erie stretches across the entire eastern border of the City. Whitewood Creek runs east-west through the southern half of the City limits, while Allen's Cove lies to the north. Every resident lives north of Whitewood Creek, despite a significant amount of land area south of the Creek.

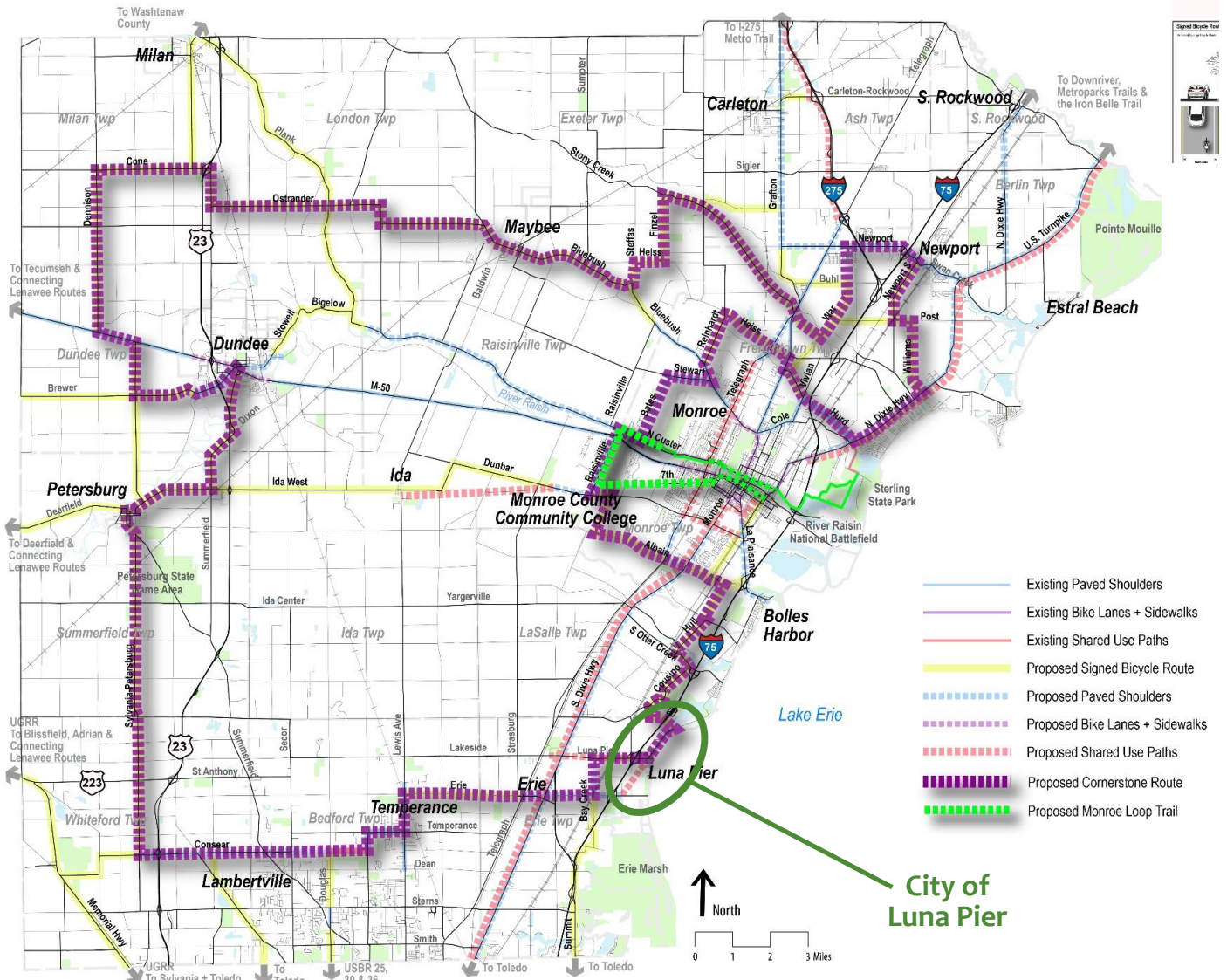
Monroe County has a total population of 154,809 as of 2020. Monroe County is in the southeastern corner of Michigan and is located between Wayne County (to the north) and Lucas County, Ohio (to the south). Both adjoining counties are major urban centers. Wayne County has nearly 1.8 million residents and includes the City of Detroit. Lucas County has a population of over 400,000 and includes the City of Toledo. Luna Pier is an approximately 15 minute drive by car from downtown Toledo and an approximately 45 minute drive from downtown Detroit.

1.2 Monroe County Cornerstone Trail

In 2021, Monroe County developed a Trail and Bicycle Plan to articulate a vision for providing a safe network of trails and bicycle routes linking Monroe County communities. The County-wide corridors include major existing and planned systems such as the regional River Raisin Heritage Trail and the Sterling State Park trails. The plan was developed in consideration of existing conditions, opportunities, and input from County stakeholders and residents. The map below shows the location of the proposed Monroe County Cornerstone Trail Route. As is illustrated on the map, a small segment of the Cornerstone Trail Route extends through the City of Luna Pier.



Proposed Monroe County Cornerstone Trail Route



Source: Monroe County Trail & Bicycle Plan

1.3 Purpose of this Study

The City of Luna Pier has secured funding through the Southeast Michigan Council of Governments (SEMCOG)'s Planning Assistance Grant Program to conduct a study which evaluates the feasibility, alignment, design, and costs of implementing Luna Pier's segment of the proposed Monroe County Cornerstone Trail Route.

This Study has been prepared to accomplish the following objectives:

- Engage with local leaders, stakeholders and residents to identify needs and opportunities related to non-motorized trail development within the City.
- Evaluate the feasibility of providing a shared use path or similar non-motorized route through the City of Luna Pier as a component of the Monroe County Cornerstone Trail.
- Evaluate the feasibility of additional shared use paths and non-motorized routes within the City which would connect to the proposed Cornerstone Trail.
- Establish design parameters for shared use paths and non-motorized routes that are safe, convenient and functional and meet both the mobility and recreational needs of pedestrians and bicyclists.
- Outline the necessary steps to implement the recommendations of the Study, while documenting resources available to the City of Luna Pier to aide in implementation.

1.4 Planning Process

The planning process for this Study was led by a Steering Committee of citizens and stakeholders including representatives of the City and Erie Township. During the process, the Steering Committee met on numerous occasions to discuss opportunities and project recommendations. Public engagement opportunities included a visioning workshop and stakeholder interviews.

The stakeholder interviews were held in February and March 2023 to gain feedback related to enhanced pedestrian, bicycle and other non-motorized travel within the City. The stakeholder interviews were conducted virtually (Teams/phone). The interviews brought important insights from entities including Consumers Energy, ITC, SEMCOG, Luna Pier Public Services, Com-

munity Foundation for Southeast Michigan, and the National Fish & Wildlife Foundation. A summary of the stakeholder interviews is included as **Appendix A**.

A Visioning Workshop for Community Mobility was held in April 2023 at Water Tower Park. The workshop included initial presentations on regional plans and initiatives, existing conditions and non-motorized needs. The attendees then participated in both individual and small group exercises, aimed at identifying and prioritizing non-motorized facility needs. A summary of the results of the workshop is included as **Appendix B**.

1.5 Benefits of Trails

Trails and non-motorized systems are a tremendous community asset, providing a host of benefits. Greenways and trail systems can enhance non-motorized local mobility and regional connectivity and lessen the traffic burden by providing alternative routes to school, work, shopping, etc. By reducing traffic congestion, these systems can also lessen the environmental costs associated with automobiles. At the same time, non-motorized systems promote healthier communities and increased recreational opportunities. By attracting visitors, investors, residents, and increasing property values, non-motorized systems can also bolster local and regional economies. Taken together, these benefits can strengthen individual and community well-being, while fostering greater economic and environmental sustainability. The following sections examine these benefits in greater detail.

Community Health & Quality of Life

Non-motorized systems and shared use trails offer many benefits that enhance the overall quality of life and health of the community. By linking urban areas to



Non-motorized systems promote healthier communities and increased recreational opportunities

local parks, trails permit increased access to affordable recreational activities and programs that are an avenue for exercise and education. The 2000 Census reveals that almost 75% of Michigan residents live in urban areas . As urban areas expand, large open areas for recreation are often lost to development. At the same time, increasing urban populations create a growing demand for these open spaces.

Michigan is unique in its abundance of parkland. However, access to many of these parks requires an automobile. Non-motorized systems can improve recreation opportunities by linking urban areas with local and regional parks. In addition to accommodating various recreation interests, such as walking, running, skating, and biking, trails also provide access to lakes, rivers, wetlands, and woodlands. Exposure to nature and outdoor landscapes in a region that is densely developed fosters passive recreation such as fishing and bird watching. Other outdoor recreational facilities, such as swimming pools, basketball courts, and running tracks are more accessible between parks. Shared use pathways encourage social interaction and community engagement.

Environment & Conservation

In addition to the physical health benefits offered by trails, they are also an asset to environmental and conservation efforts. Trails offer the opportunity for residents of Monroe County to increase their own environmental literacy through recreation programs, as well as simply being familiar with the local environment.

Non-motorized systems help to preserve the natural green space that already exists, and act as a buffer



Non-motorized systems offer valuable opportunities for people to experience and enjoy natural amenities



Trails can provide numerous economic benefits, from increasing adjacent property values to drawing visitors and tourists to a community

between the built and natural environment. They complement ongoing efforts throughout the County to reduce pollution and conserve important natural features. By reducing the volume of automobile traffic, non-motorized systems can improve air and water quality. Greenway linkages can also help protect sensitive ecological systems from ever-expanding urban development. Investment in Luna Pier's non-motorized network is an investment in the health and integrity of the region's most important natural resources.

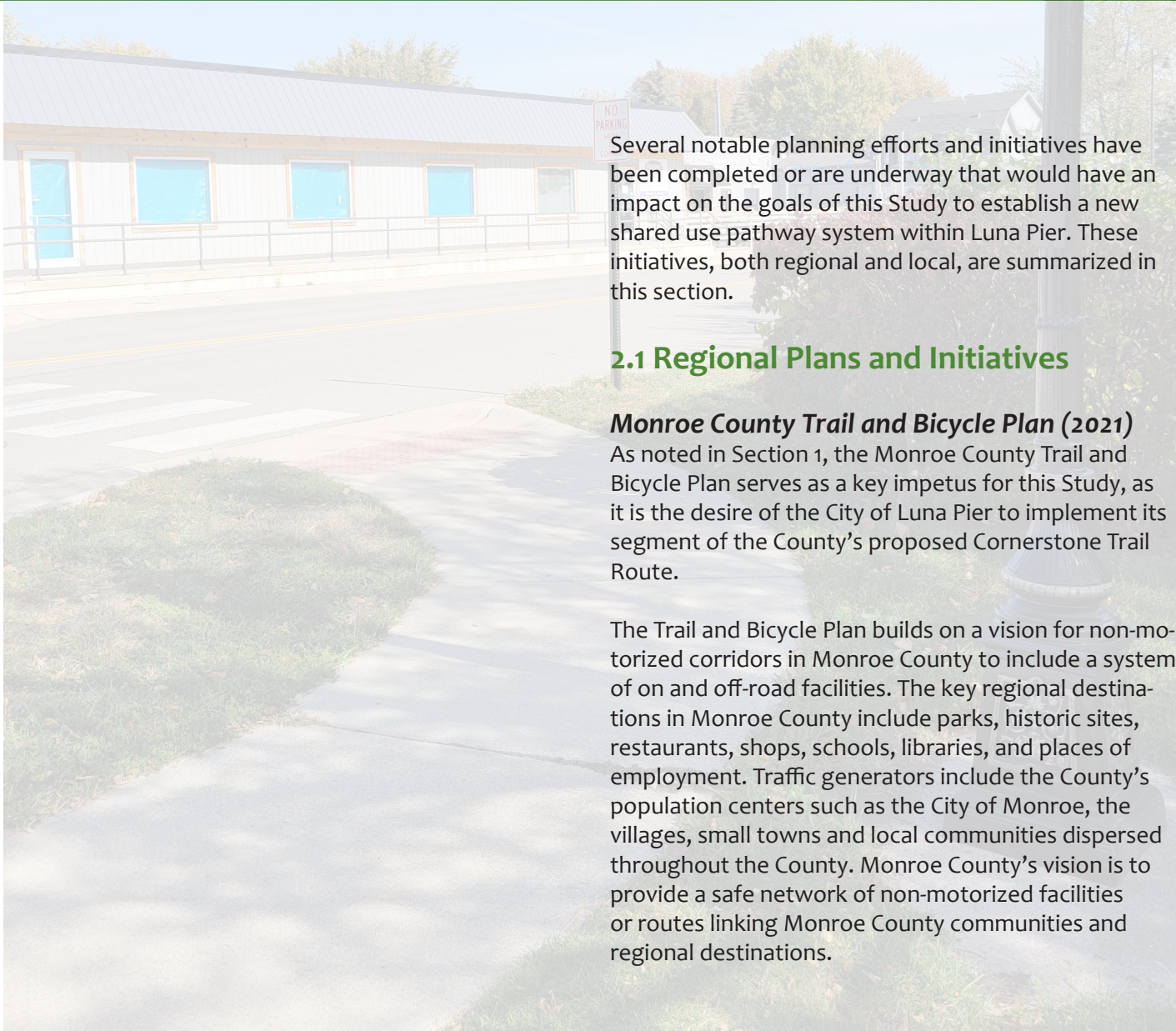
Automobiles are the largest source of air pollution in the US, emitting carbon monoxide, ozone, particulate matter, sulphur oxides, and hydrocarbons. These airborne pollutants contribute to several human health problems. Falling back to the land in the form of rain or dust, these pollutants can also degrade soil and water quality. A reduction in short vehicle trips can have significant impacts on environmental health.

Economic

The benefits of trails extend beyond environmental protections and community health. Trails and greenways are a practical complement to current efforts to bolster local economies. The surrounding community may experience an increase in property values that lie adjacent or near to the trail. There is a clear connection between non-motorized access and improved economic vitality.

The access provided by non-motorized systems is widely regarded as an attractive component of a community. Such systems can provide places to recreate, access to natural features, and reduce automobile reliance. These characteristics are often sought by potential homebuyers and are often touted as key selling points by real estate agents.

2. local and regional context



Several notable planning efforts and initiatives have been completed or are underway that would have an impact on the goals of this Study to establish a new shared use pathway system within Luna Pier. These initiatives, both regional and local, are summarized in this section.

2.1 Regional Plans and Initiatives

Monroe County Trail and Bicycle Plan (2021)

As noted in Section 1, the Monroe County Trail and Bicycle Plan serves as a key impetus for this Study, as it is the desire of the City of Luna Pier to implement its segment of the County's proposed Cornerstone Trail Route.

The Trail and Bicycle Plan builds on a vision for non-motorized corridors in Monroe County to include a system of on and off-road facilities. The key regional destinations in Monroe County include parks, historic sites, restaurants, shops, schools, libraries, and places of employment. Traffic generators include the County's population centers such as the City of Monroe, the villages, small towns and local communities dispersed throughout the County. Monroe County's vision is to provide a safe network of non-motorized facilities or routes linking Monroe County communities and regional destinations.



MAP 1
Regional Context

Luna Pier shared-use path planning study

0 0.25 0.5 1 Miles

WADE TRIM
 500 Griswold Street
 Suite 2500
 Detroit, MI 48226

\\dt-vs\projects\lpr600\ord\gis-data\projects\1 Regional Context.mxd

The Plan highlights four key segments within the County as primary points of focus:

1. The River Raisin Heritage Trail and its continued extension circling back to the City of Monroe supporting the current the Monroe Area Loop Trail project;
2. The Cornerstone bicycle route connecting the County's villages and small towns, thereby providing a complete interconnected county-wide system;
3. North and South Dixie Highway closing the north-south county regional gaps to Wayne County and to Toledo, Ohio; and
4. The Dundee connection via both M-50 and North Custer supporting the primary and central east-west county connections.

Demonstrating the increasing momentum toward implementation of the Plan, in the Summer of 2022, the Community Foundation of Monroe County was awarded a \$1.5 million grant from the Ralph C. Wilson, Jr. Foundation to help pay for the construction of the Monroe Area Loop Trail.

As shown in **Map 1** and **Map 2**, the proposed Monroe County Cornerstone Trail is meant to run into Luna Pier through downtown. The proposed Dixie Highway pathway runs north/south approximately 2 miles to the west of Luna Pier. Both of these regional trail segments are part of the central goal outlined in the Monroe County Trail and Bicycle Plan.

Map 2 shows the proposed Cornerstone Trail entering Luna Pier via Gaynier Road from the north, traveling south on Harold Drive, and exiting westward on Luna Pier Road. Harold Drive has an existing bike lane on its west side covering the entire span of the proposed route. This bike lane is to be used as part of the Cornerstone Trail. Gaynier Road and Luna Pier Road currently have little to no connected non-motorized facilities. The Monroe County Trail and Bicycle Plan proposes a signed bicycle route on Gaynier Road between Harold Drive and Cousino Road, then turning northward on Cousino.

A shared use path starting at Harold Drive heading west out of the City is proposed for Luna Pier Road. This section is projected to connect with the Dixie Highway pathway route west of the City.

These routes proposed by the County would drastically improve the non-motorized connectivity of Luna Pier to the surrounding area if they were to be developed.

Monroe County - Comprehensive Plan Update (2010)

Monroe County completed their latest Comprehensive Master Plan update in 2010. The purpose of their master plan is to guide and accomplish development “that is coordinated, adjusted, harmonious, efficient, and economical.” In their Objectives - Transportation section, the first non-motorized goal is to: “Develop and implement a network of designated bicycle lanes and paths which connect major population centers within the County and connect Monroe County with adjacent regional networks. Implementation of the proposed loop in Luna Pier would help accomplish this goal.

SEMCOG Bicycle And Pedestrian Mobility Plan for Southeast Michigan (2020)

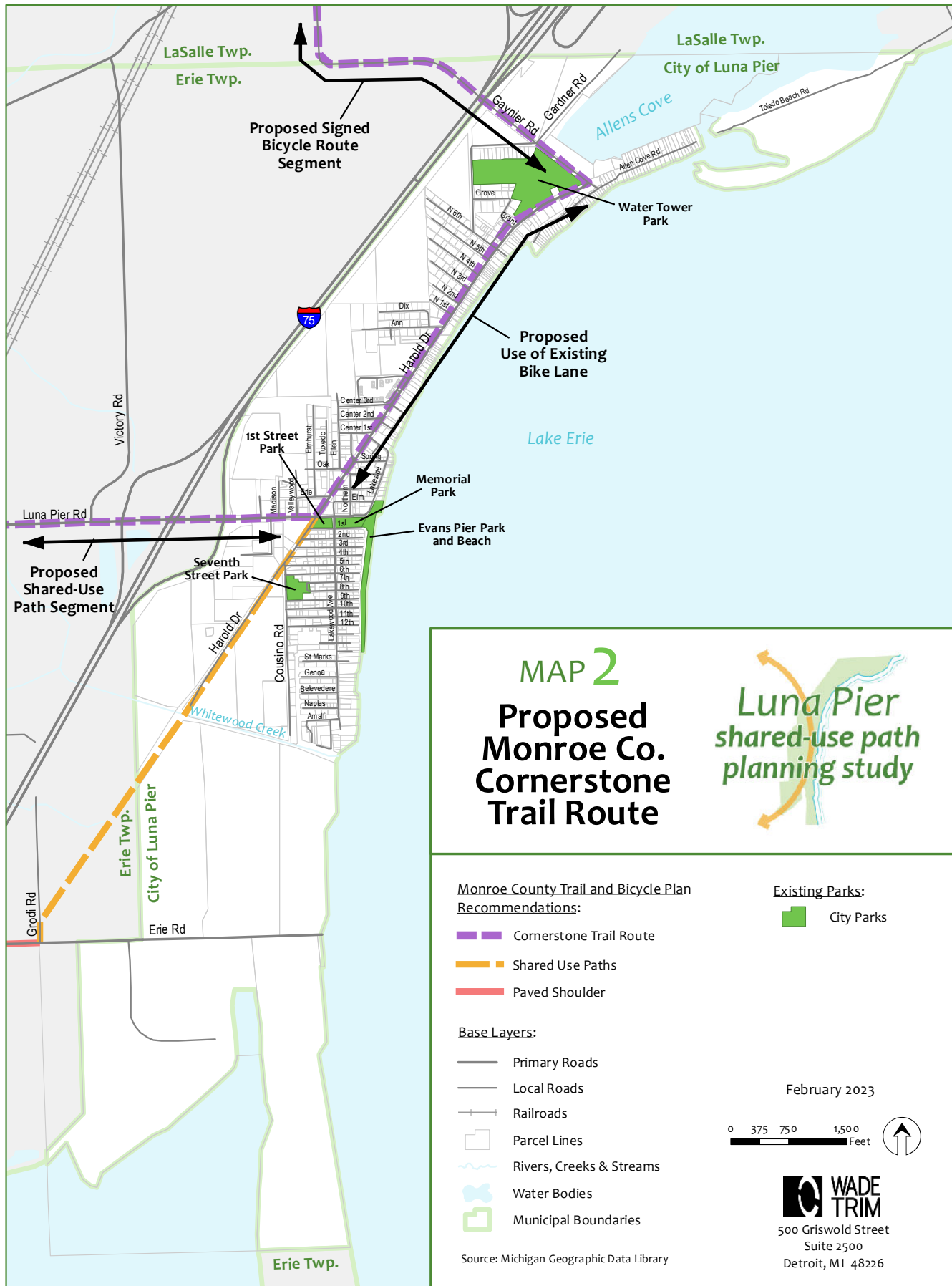
The Bicycle and Pedestrian Mobility Plan was completed by SEMCOG in March 2020. The purpose of the plan is to establish a common vision for bicycling and walking in the region, and provide guidance on how to increase the connectivity, use, and safety of the system for all residents.

The Plan outline several major goals, including:

- A growing interest in bicycle and pedestrian mobility throughout the region; the number of people walking and biking is increasing.
- A desire and need to enhance safety and comfort for people walking and biking through infrastructure improvements.
- Addressing gaps in the regional system and challenges for connecting existing and planned infrastructure.
- The need for collaboration and coordination to develop and sustain a regional bicycle and pedestrian system.

Community Foundation for Southeast Michigan's Great Lakes Way Plan

The Community Foundation for Southeast Michigan convened a group of organizations, municipalities, and private sector interests to explore ways to build on the region's freshwater assets. A vision was created for what is now called The Great Lakes Way Plan. The



MAP 2 Proposed Monroe Co. Cornerstone Trail Route

Monroe County Trail and Bicycle Plan Recommendations:

- Cornerstone Trail Route
- Shared Use Paths
- Paved Shoulder

Base Layers:

- Primary Roads
- Local Roads
- Railroads
- Parcel Lines
- Rivers, Creeks & Streams
- Water Bodies
- Municipal Boundaries

Existing Parks:

- City Parks

February 2023

0 375 750 1,500 Feet

500 Griswold Street
Suite 2500
Detroit, MI 48226

Source: Michigan Geographic Data Library

\\dt-vsl\projects\Lpr6001\origis-data\project\2 Proposed Cornerstone Route.mxd

Plan outlines an interconnected set of greenways and blueways that will stretch from southern Lake Huron through western Lake Erie, passing through the counties of Monroe, Wayne, Macomb, and St. Clair. The vision incorporates approximately 160 miles of greenways and approximately 156 miles of blueways along southeast Michigan's coastline. It will promote access to and usage of the Great Lakes by people of all ages, abilities, backgrounds, ethnicities, and interests. It will link residents and visitors to an impressive collection of world-class freshwater, wildlife, and recreation assets.

While the vision has been developed, much work remains. The blueways have been mapped and are already being used. Of the roughly 160 miles of greenways, 64% is completed, 26% has a partial connection, 25% has a plan in place, and just 11% lacks paths for bicycles or pedestrians. Luna Pier is not currently connected to other applicable greenways in the region. Implementation of the proposed Cornerstone Trail Route in Luna Pier would accomplish this goal.

Southeast Michigan Trails and Greenways Vision (2006)

The Community Foundation for Southeast Michigan worked with The Greenway Collaborative to facilitate workshops for each county within the Southeast Michigan region and developed GIS maps reflecting the public input received. The results identified existing, planned and conceptual corridors. The greenway vision helps communities identify and prioritize links within their jurisdiction. It also helps foster the connection of bike and hiking trails, conservation corridors and habitats among and between communities in the region.

Michigan Department of Transportation Michigan Mobility 2045 Plan (2021)

The MM2045 Plan was adopted by the State Transportation Commission in November 2021. It defines the long-term direction for the future of the state's transportation network for all users. Furthermore, it provides that direction with an aspirational multimodal vision, comprehensive goals/objectives, and actionable strategies to achieve that vision. It looks at past trends, new innovative initiatives, and at collaborative partnerships to lay out the direction that Michiganders, transportation stakeholders, and decision-makers aim to move toward by 2045. A central goal of the

Greenway System Legend:
A greenway network is comprised of three basic parts: links, hubs and sites.

Greenway Links
Links are the heart of the greenway system. They are the linear connections for people.

Type of Link:
 - Off-Road Corridors (Green dashed line)
 - Roadway Based Corridors (Bike Lanes & Sidewalks or Sidepaths) (Green solid line)

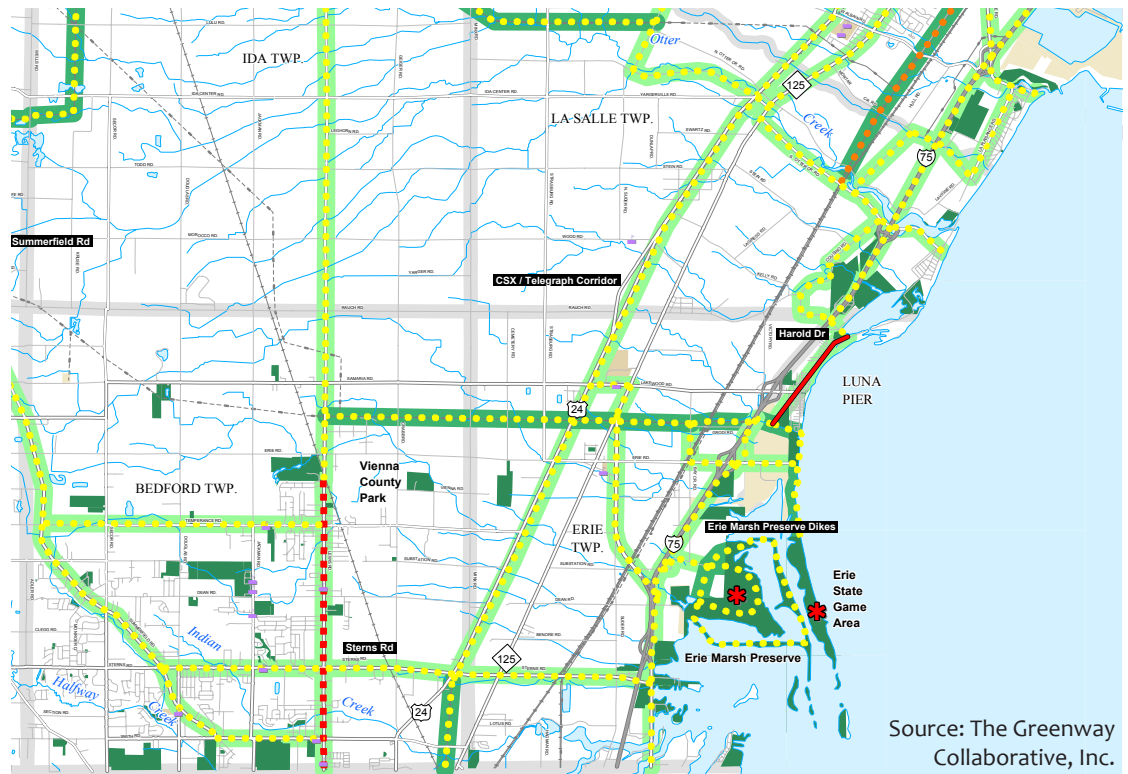
Status of Link:
 - Existing or Nearing Completion (Red dashed line)
 - Under Development (Red dotted line)
 - Detailed Design / Study Underway (Blue dashed line)
 - Planned (Included in a Report) (Orange dashed line)
 - Preliminary Concept (Yellow dashed line)

Greenway Hubs
Hubs are the anchors of the system, such as large parks and major cultural attractions.

Greenway Sites
Sites are smaller features than hubs that serve as points of interest and frequent destinations.

Legend for Other Symbols
 - City, Village and Township Boundaries (Grey outline)
 - Water (Blue outline)
 - School Properties (Brown outline)
 - Selected Large Private Properties (Yellow outline)
 - Freeway (Thick grey line)
 - Primary Road (Thin grey line)
 - Local Road (Dotted grey line)
 - Railroad (Black line with cross-ticks)
 - Power Transmission Line - Easement (Thin black line)
 - Power Transmission Line - ITC Owned (Thick black line)

Prepared by:
THE GREENWAY COLLABORATIVE, INC.
Conservation, Trail, Open Space, and Urban Planning



Source: The Greenway Collaborative, Inc.

Detail of the Luna Pier Area taken from the Southeast Michigan Trails and Greenways Vision

overview and context

THE GREAT LAKES WAY

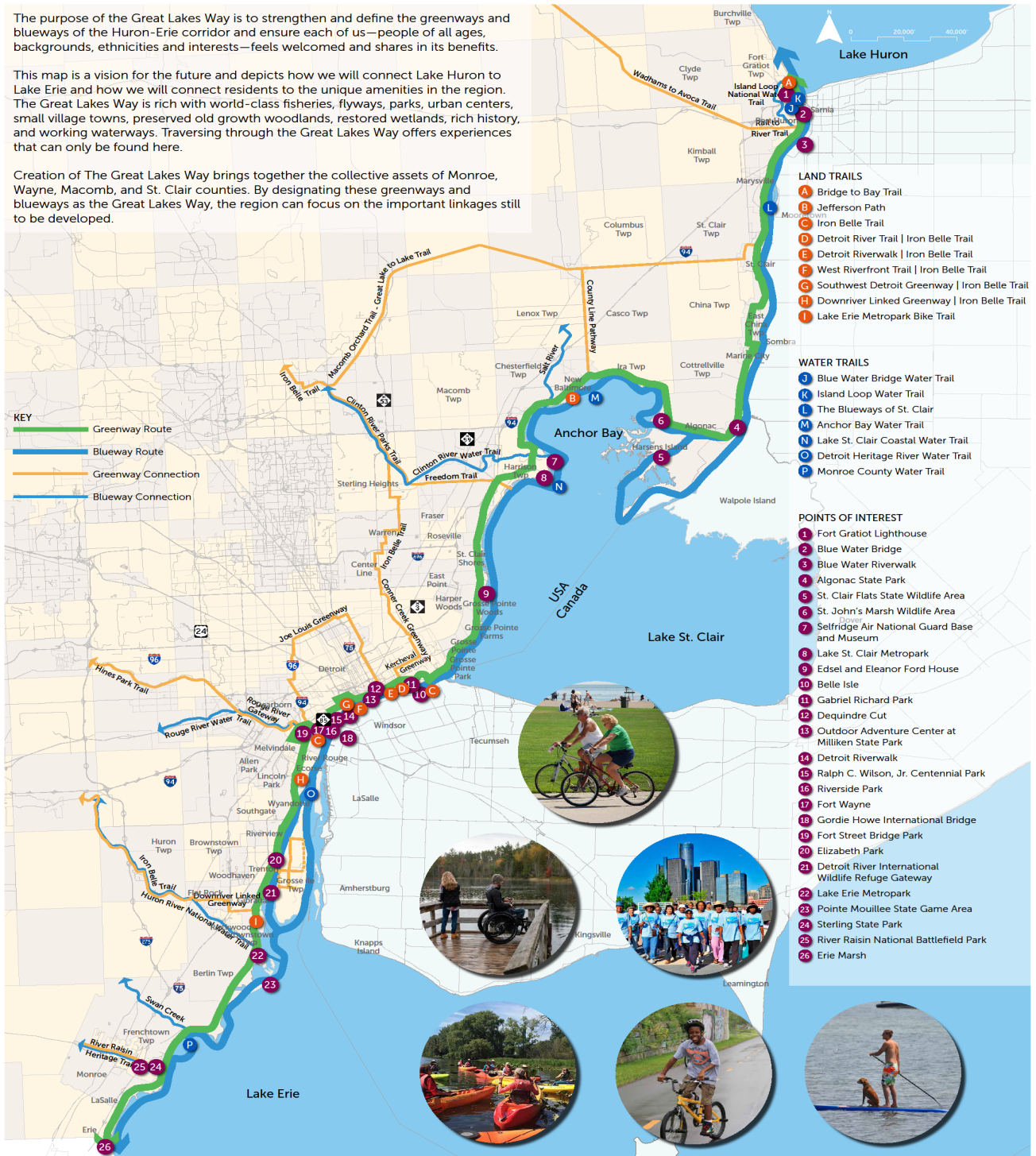


Vision: All residents and visitors of southeast Michigan are connected to and benefit from world-class fresh water, wildlife, recreation, and heritage right in our backyard through a Great Lakes Way – an interconnected set of 160 miles of greenways and 156 miles of blueways stretching from southern Lake Huron through western Lake Erie that provides access for all ages and abilities.

The purpose of the Great Lakes Way is to strengthen and define the greenways and blueways of the Huron-Erie corridor and ensure each of us—people of all ages, backgrounds, ethnicities and interests—feels welcomed and shares in its benefits.

This map is a vision for the future and depicts how we will connect Lake Huron to Lake Erie and how we will connect residents to the unique amenities in the region. The Great Lakes Way is rich with world-class fisheries, flyways, parks, urban centers, small village towns, preserved old growth woodlands, restored wetlands, rich history, and working waterways. Traversing through the Great Lakes Way offers experiences that can only be found here.

Creation of The Great Lakes Way brings together the collective assets of Monroe, Wayne, Macomb, and St. Clair counties. By designating these greenways and blueways as the Great Lakes Way, the region can focus on the important linkages still to be developed.



overview and context

Community Foundation
FOR SOUTHEAST MICHIGAN

For more information, visit greatlakesway.org

Source: Community Foundation for Southeast Michigan

Luna Pier Shared-Use Path Planning Study

MM2045 Plan is to: “Enhance mobility choices for all users of the transportation network through efficient and effective operations and reliable multimodal opportunities.” While there are no projects outlined in the plan involving Luna Pier, it does suggest municipalities pursue funding sources such as Surface Transportation Block Grants to assist in such non-motorized projects.

2.2 Local Plans and Initiatives

City of Luna Pier Master Plan (2009)

In 2009, the Planning Commission and Council members of the City of Luna Pier prepared a Master Plan to guide development and investment patterns for the City. As outlined in the Goals & Objectives section of the document, one of the City’s infrastructure goals is to expand the existing non-motorized trail system into a “loop system” at both ends of the City. It goes on to say the non-motorized loop will serve to connect features so as to create possible destinations for users.

City of Luna Pier Downtown Development Authority Tax Increment Financing and Development Plan (2013)

The 2013 TIF Plan outlines the Luna Pier Downtown Development Authority’s (DDA) intention for spending to achieve economic growth in downtown Luna Pier. The Plan outlines two main goals related to recreation: improvements to Memorial Park so it becomes more of an attraction, and improvements to the Luna Pier Harbor Club. If the proposed regional trail were to extend south of Luna Pier Road along Harold Drive, the pathway would connect to both of these amenities. The DDA’s funding could potentially help construct segments of the trail and finance improvements within the downtown area.

Erie Township Master Plan (2018)

In 2018, the Erie Township Planning Commission adopted their latest master plan to reflect their development vision for the next twenty years, and to guide the community and public officials on investment and growth decisions. The document contains a concept plan for non-motorized transportation in Erie Township. In this concept plan, there are proposed trails on Bay Creek Road, Erie Road and Luna Pier Road. All of these, if constructed, could help reflect the goal of a connected non-motorized system.

Erie Township 5-Year Park & Recreation Plan (2018-2022)

This Plan was developed to identify existing recreational opportunities and facilities, to consider future recreational needs, and provide direction for the future development of local parks and recreational programs in Erie Township. This plan is regarded as a supplement to the Erie Township Master Plan and is integrated into a larger local planning framework. This document is also considered to be a Community Park, Recreation, Open Space, and Greenway Plan as defined by the Michigan Department of Natural Resources (MDNR). In part, a goal of the Plan is to continue to develop a long-range strategy for acquisition and development of new greenways, multi-use trails and linkages between recreation facilities.

The Township’s Recreation Plan references the proposed trail routes identified in the Southeast Michigan Trails and Greenways Vision. These proposed routes are very similar to those proposed in the Monroe County Trail and Bicycle Plan.

2.3 Regional Assets

There are numerous locations in the area surrounding the City of Luna Pier which serve as popular and desirable destinations for residents and visitors. Presently, many of these destinations are primarily accessible only by way of vehicular travel. Destinations such as cultural institutions, schools, business districts, parks, nature areas, and major employers are important considerations in the development of a broader non-motorized system. Descriptions of key regional assets follow. The location of many of these regional assets identified on **Map 1**.

Lake Erie

Lake Erie, one of the five Great Lakes, borders Luna Pier and the surrounding communities. A main catalyst for the area’s existence, it is a centerpiece in the identity of the region. The lake supports abundant wildlife and features a variety of freshwater habitats. The lake draws visitors from within and beyond the region who enjoy its recreational opportunities. Lake Erie is of vital importance to the area’s past, present, and future.

Erie Marsh Preserve

Located on North Maumee Bay, Erie Marsh is one of the largest coastal wetlands on Lake Erie, supporting numerous animals and plants that would otherwise be hard-pressed to find suitable habitat. The most signif-

icant feature of this area is its role as a migratory and nesting area for shorebirds, waterfowl, land birds, and in the fall, raptors.

Erie (Unincorporated)

Erie is an unincorporated community located in the northwest portion of Erie Township. As one of the county's oldest communities, Erie was first settled as early as 1790 by settlers from the north in Frenchtown. It was given a post office named Bay Settlement on April 18, 1827. The name was changed to Erie after the township on March 5, 1835 and remains in operation.

Mason Schools

Luna Pier is part of the Mason Consolidated School District. The district has one elementary school, one middle school, and one high school. All three schools are located in Erie Township at the intersection of South Dixie Highway and Luna Pier Road, roughly 2.3 miles from the Luna Pier City Limits.

Sterling State Park

William C. Sterling State Park is the only Michigan State Park on Lake Erie. It is well known for its walleye fishing, three lagoons and sandy beachfront near the mouth of Sandy Creek. The park's 1,300 acres include lakefront camping, wildlife viewing, 7 miles of trails, more than 1 mile of sandy beach, boating and shore fishing on Lake Erie.

River Raisin National Battlefield Park

Established in October 2010, the River Raisin National Battlefield Park preserves, commemorates, and interprets the January 1813 battles of the War of 1812 and their aftermath in Monroe and Wayne counties in Southeast Michigan. The Visitor Center includes displays of dioramas & full-size British, Native American & American soldiers, as well as a 17 minute presentation on the Battles of the River Raisin. There is no fee and the Visitor Center is open daily year round. The grounds are open sunrise to sunset.

Pointe Mouillee State Game Area

On the western shores of Lake Erie, Pointe Mouillee State Game Area is one of the most respected waterfowl locations in Michigan. Consisting of 4,040 acres, it is one of the largest freshwater marsh restoration projects in the world. Along with exceptional waterfowl hunting, its numerous bird species and habitat diver-



Hiking trail within Sterling State Park

sity make it an important birding site in the Midwest. Along with many recreational opportunities that are present, Pointe Mouillee also has an annual waterfowl festival in September.

Lake Erie Metropark

Three miles of Lake Erie shoreline provides a panoramic view in this 1,607 acre park in southeastern Wayne County, just north of Monroe County. An abundance of wildlife and waterfowl inhabit the meadows, marsh and lagoons. Other features include picnic shelters, a wave-action swimming pool, a children's play area with a child-size town, a 6,400-yard, 18-hole, par-72 public golf course, the Marshlands Museum & Nature Center with a resident live bald eagle, boat launches and a marina. Lake Erie Metropark is an official Michigan Wildlife Viewing Area and a certified member of the Turfgrass Environmental Stewardship Program.

2.4 Local Assets

Despite its small size, Luna Pier has many cultural and recreational assets within the City limits. Given its status as a historic beach community situated between Detroit and Toledo, there are natural incentives which attract people to the area. While there is an adequate sidewalk network in the central business district of the City, it possesses little to no connectivity outside of that area. Local parks and shops could draw pedestrian traffic from the nearby area if connected by a larger non-motorized system.

City Parks

City parks are key stops for many residents, as they encourage physical activity, exposure to nature, and so-

cial interaction. They enhance their local communities and provide numerous opportunities for recreation. There are four parks and one public beach operated by the City of Luna Pier, which are described below. Their locations are identified on **Map 3**.

7th Street Park

Located between 6th and 9th Street off Cousino Road, this neighborhood park is the smallest in Luna Pier. 7th Street Park currently has a basketball court, a pavilion, benches, a swing set, and greenspace. There is no off-street parking available, nor do any pedestrian facilities lead to the park.

1st Street Park

1st Street Park is located in downtown Luna Pier and is framed by Harold Drive, Luna Pier Road, Lakewood Avenue and 1st Street. The park features play sets, walkways and open space.

Memorial Park

Memorial Park is also located in downtown, directly east from 1st Street Park. This park extends from Lakewood Avenue and connects to Evans Pier Park to the east. Memorial park features a veterans memorial, walkways, seating areas, open space and parking.

Evans Pier Park and Beach

Evans Pier Park is located in downtown Luna Pier, adjacent to Memorial Park and includes the City's public beach and pier. The pier and public beach are the focal points of the City. The pier and beach can be found on Lake Erie at the end of Luna Pier Road. Adequate space and seating is provided on the pier. The Luna Pier Lighthouse can also be found on site. Off-street parking is provided. Sidewalks provide connectivity between the parking lot, the pier, and park amenities.

Old Trolley Line Bridge

Extending southward from present-day Harold Drive, there is an old rail line with a bridge crossing Whitewood Creek, heading into Erie Township. Many decades ago, this rail line serviced an interurban electric trolley that ran from Toledo, Ohio to Toledo Beach just north of Luna Pier. The City was then known as the resort town of Lakeside. The bridge and some of the original rail line remain intact.

Downtown Luna Pier

Downtown Luna Pier is generally located along Luna Pier Road between Harold Drive and Northern Avenue. Business districts draw patrons from the nearby neighborhoods and well beyond. Connecting these facilities to the non-motorized network would result in great benefit, including providing a means of access to these destinations by those who do not have or use a motor vehicle.

Cultural Institutions

Cultural institutions play a significant role in the social and economic viability of the local communities, as well as a gathering space for residents. Cultural institutions within the City limits are the Rasey Library and the Luna Pier Baptist Church, which includes a 24/7 Teen Center.

Woodtick Peninsula

This sizable natural/wildlife area can be accessed via Erie Road on the far southern edge of the City. Bald eagles nest nearby and many types of birds and aquatic animals are present. A portion of this natural area is owned by the National Fish & Wildlife Foundation while the remainder is owned by Consumers Energy.

Luna Pier Harbor Club

Nearing the end of South Harold Drive is the Luna Pier Harbor Club. The club is a full service marina connected to Whitewood Creek which provides access to Lake Erie. The marina is privately owned but available for public use for a service fee.



\\dt-vs\projects\lpr600\01\gis-data\projects\3 Local Assets.mxd

3. existing conditions

3.1 Existing Non-Motorized Facilities and Amenities

The established multi-modal transportation network within and near the City is an important consideration in the identification of a preferred trail alignment and secondary non-motorized connections.

Sidewalks

Within the City, sidewalks are generally only found within downtown Luna Pier and along Lakewood Avenue. Currently, sidewalks are along Luna Pier Road from Lincoln Street to Lakeside Drive. Most of the streets within the City feature no sidewalks (see **Map 4.**)

The limited sidewalk network is a challenge to the provision of a safe and convenient pedestrian circulation system. As more non-motorized travel is developed, it will be critical to implement safe and convenient connections from the neighborhoods to other key local and regional locations.



Bike Lanes

As sidewalks are designed primarily to accommodate foot traffic, designated bicycle lanes are important facilities which provide a safe means of bicycle travel, particularly along collector and primary streets with higher vehicular traffic volumes. Presently, the only designated bike lane runs along the west side of Harold Drive between Gaynier Road and Luna Pier Road (see **Map 4**). There are no barriers between the bike lane and the road. Most streets do not currently have a continuous lane or shoulder width to support a bicycle lane.

In 2024, the Michigan Department of Transportation (MDOT) is scheduled to reconstruct the Luna Pier Road bridge that crosses over Interstate 75 just west of the City limits. As part of the reconstruction, MDOT will install a protected 12 foot wide pedestrian path on the bridge's north side. According to the preliminary schematics received from MDOT, the path will not extend further east or west past the scope of work necessary to complete the bridge reconstruction. Therefore, extending a non-motorized path to reach the bridge will be the responsibility of entities such as Luna Pier and Erie Township.

3.2 Natural Features

Map 5 shows the natural features and constraints within the Study area. Illustrated on the map are the river, streams, wetlands, and 100-year floodplain. Luna Pier has an excellent natural landscape. The natural environment is a significant asset with varied wetland habitats including public beach access to Lake Erie. Much of the publicly-owned land in the City is within the 100-year floodplain. These natural features present a unique opportunity to develop low-intensity recreational facilities such as trails.

3.3 Property Ownership

Map 6 shows ownership of properties within the City broken down into six categories: City of Luna Pier; Monroe County; State of Michigan; National Fish & Wildlife Foundation; Consumer's Energy; and, All Other Properties. Identifying City, County and State-owned land reveals areas where potential transportation routes may be constructed with relative ease. Properties owned by private foundations and private utilities also present an opportunity for collaboration with the owners to develop pathway facilities.

3.4 Existing Land Use

Reflective of their current land usage, **Map 7** shows all properties in Luna Pier broken down into nine land use categories: Single-family Residential; Multiple-family Residential; Commercial; Industrial; Marina; Recreation; Agriculture; Public/Semi-Public; and, Vacant/Undeveloped. As shown in the map, all of the City's residential areas are located north of Whitewood Creek. The area south of Whitewood Creek is mostly undeveloped open space. Commercial areas and downtown Luna Pier are centrally located within the City along Luna Pier Road. Several of the larger properties in the northern portion of the City are dedicated to agricultural uses.



MAP 5 Natural Features



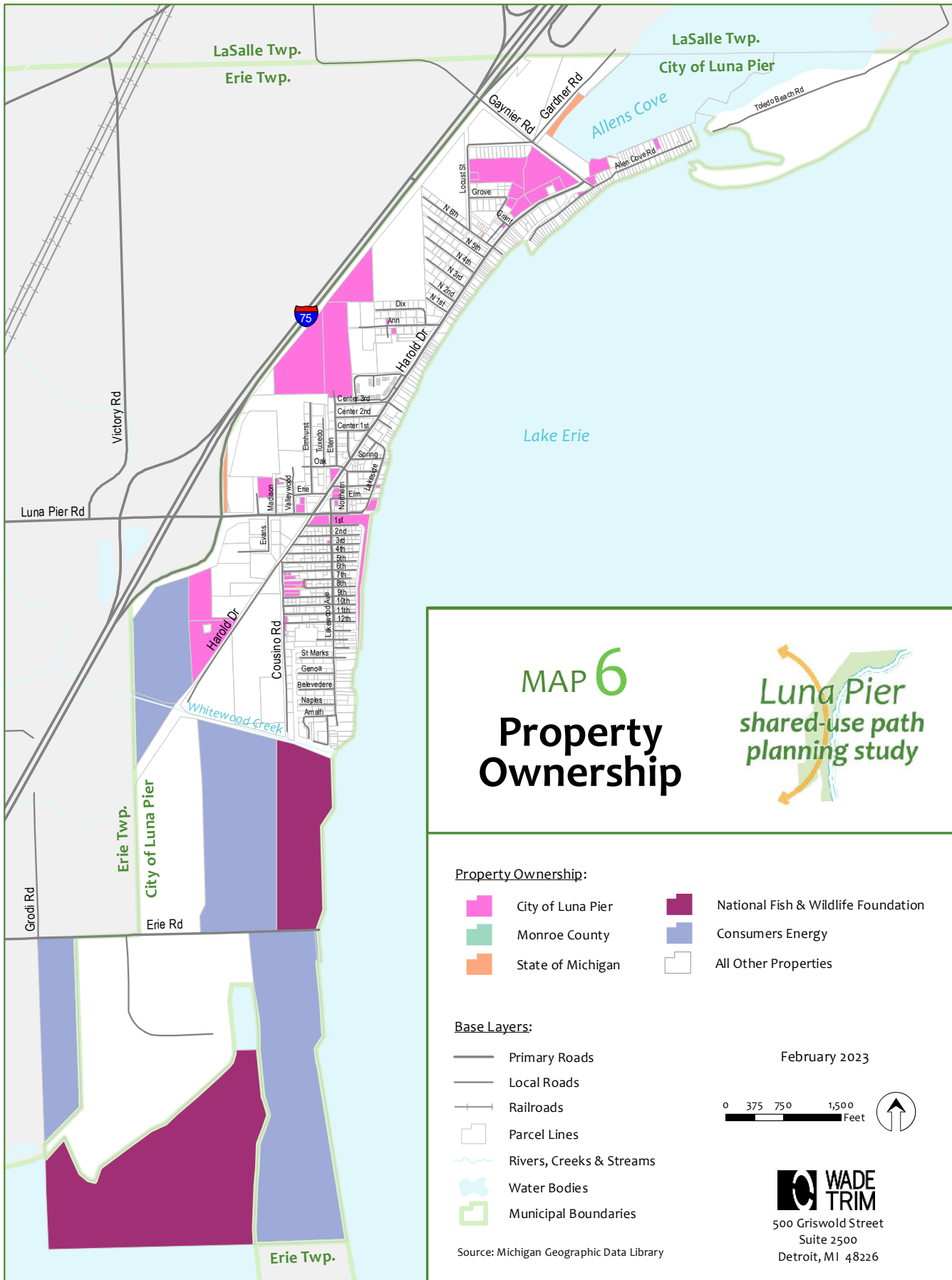
- Natural Features:**
- 100-Year Floodplain
 - Wetlands
- Base Layers:**
- Primary Roads
 - Local Roads
 - Railroads
 - Parcel Lines
 - Rivers, Creeks & Streams
 - Water Bodies
 - Municipal Boundaries

Source: Michigan Geographic Data Library; FEMA; National Wetlands Inventory

December 2022

WADE TRIM
500 Griswold Street
Suite 2500
Detroit, MI 48226

\\dt-vsp\projects\lpr600\ford\gis-data\projects\5 Natural Features.mxd



MAP 6 Property Ownership



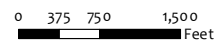
Property Ownership:

- City of Luna Pier
- Monroe County
- State of Michigan
- National Fish & Wildlife Foundation
- Consumers Energy
- All Other Properties

Base Layers:

- Primary Roads
- Local Roads
- Railroads
- Parcel Lines
- Rivers, Creeks & Streams
- Water Bodies
- Municipal Boundaries

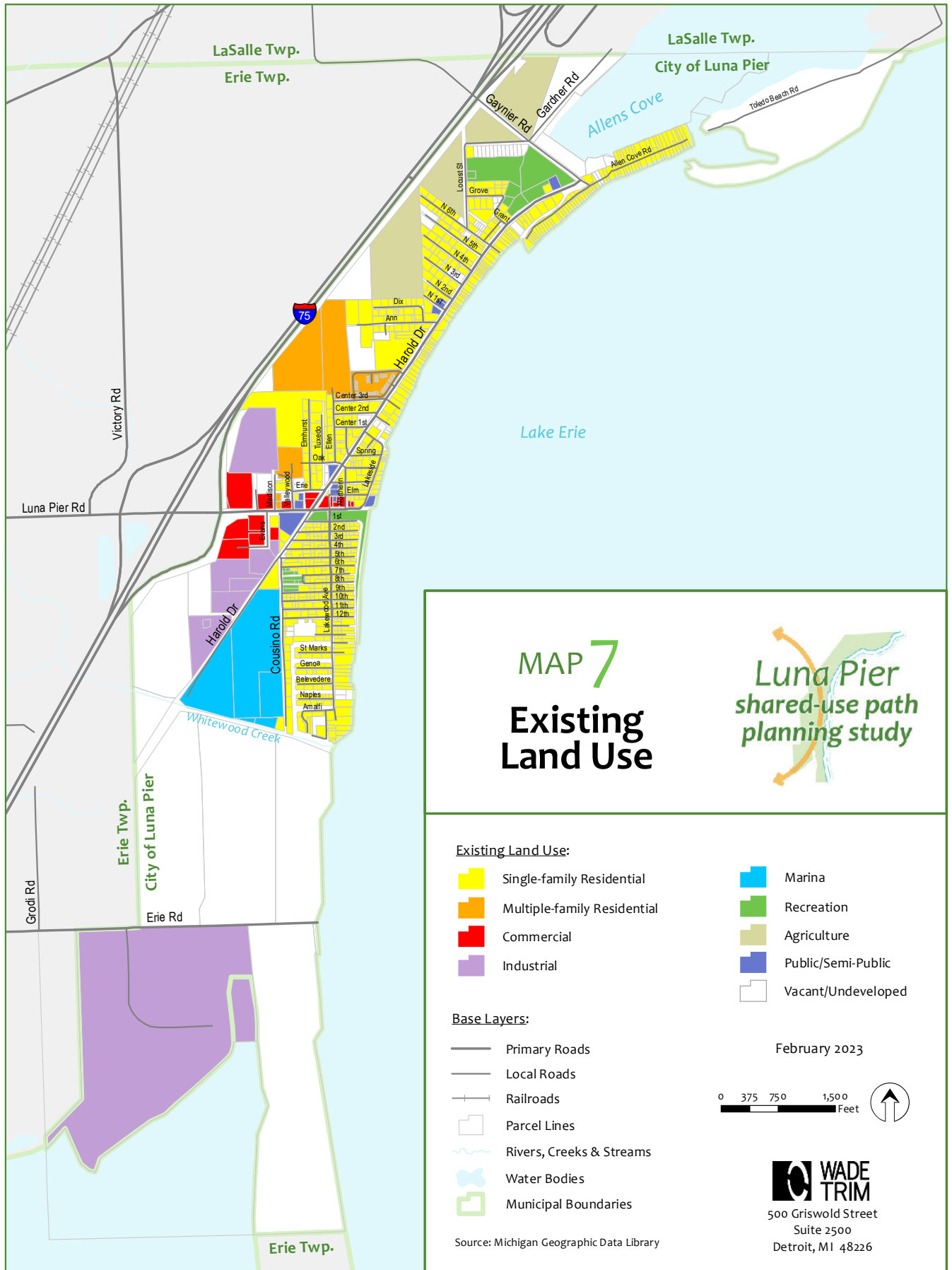
February 2023



500 Griswold Street
Suite 2500
Detroit, MI 48226

Source: Michigan Geographic Data Library

\\dt-vsl\projects\LP600\10\d\gis-data\projects\6 Property Ownership.mxd



3.5 Proposed Cornerstone Trail Route within Luna Pier

This subsection presents an analysis of existing conditions along the proposed Monroe County Cornerstone Trail route within the City of Luna Pier. From north to south, the proposed Cornerstone Trail consists of the following “segments” within Luna Pier (see also **Map 2**):

1. **Gaynier Road Segment**, from Erie Township to the City Limits, then extending to Harold Drive
2. **Harold Drive Segment**, from Gaynier Road to Luna Pier Road
3. **Luna Pier Road Segment**, from Harold Drive to the City limits and beyond into Erie Township

Additionally, the Monroe County Trail and Bicycle Plan recommends a secondary shared use path extending southwest along Harold Drive, which starts at Luna Pier Road, crosses Whitewood Creek and extends to the City limits and beyond into Erie Township. This subsection also includes an analysis of this segment, which will be referred to as the **Harold Drive South Segment**.

Gaynier Road Segment

Outside of the City limits (within Erie Township), Gaynier Road is a paved, two-lane road (with no center-line marking). No gravel shoulders are present. The road width is approximately 18 feet. The presumed right-of-way width is 66 feet. There is no posted speed limit.

At the Gaynier Road bridge over I-75, the road width expands to approximately 38 feet, but there are no marked shoulders or grade-separated sidewalks.

Within the City limits, Gaynier Road is a paved, two-lane road (with no center-line marking). The road is approximately 20 feet in width and features no shoulders. Based on Monroe County property mapping records, the right-of-way width is 66 feet. Sidewalks are not present within the Gaynier Road right-of-way.

Traffic count data is not available for Gaynier Road.



Gaynier Road - Rural road segment within Erie Township



Gaynier Road - Looking northwest from Harold Drive



Harold Drive - Looking southwest near Water Tower Park

Harold Drive Segment

Harold Drive is a two-lane road with 11 foot wide travel lanes and a 6 foot wide marked bike lane on its west side. The bike lane is separated from the travel lane through striping, but not by any physical barrier. For a small stretch near Luna Pier Road, the bike lane widens to 10 feet.

Based on Monroe County property mapping records, the right-of-way width varies and ranges between 60 and 80 feet. Sidewalks are not present within the Harold Drive right-of-way.

The posted speed for this stretch of road is 25 miles per hour. According to SEMCOG, the annual average daily traffic volume (AADT) is 2,800. Truck traffic is not allowed.

Luna Pier Road Segment

From Harold Drive and extending for two blocks to Valleywood Avenue, Luna Pier Road is a paved, two-lane road with 11 foot wide travel lanes. Curbing is present along the road edges and sidewalks are found along both sides of the road. The typical sidewalk width is 5 feet. Here, the right-of-way width is approximately 60 feet, according to Monroe County property mapping records.

After Valleywood Avenue and extending to the I-75 bridge, Luna Pier Road widens to 48 feet and accommodates three to four marked travel lanes. Curbing is present along the road edges. Sidewalks on both sides of the street continue from Valleywood Avenue but end at Lincoln Street. The typical sidewalk width is 5 feet. The right-of-way width of this stretch of Luna Pier Road varies and ranges from 66 feet to 80 feet, according to Monroe County property mapping records.

Within the City limits, the posted speed limit of Luna Pier Road is 25 miles per hour. According to SEMCOG, the AADT is 5,500.

At the Luna Pier Road bridge over I-75, the road is approximately 28 feet in width and accommodates two travel lanes. There are no marked shoulders or grade-separated sidewalks at the bridge. However, as noted earlier, this bridge will be reconstructed by MDOT in 2024. As part of the reconstruction, MDOT will install a protected 12 foot wide pedestrian path on the bridge's north side.

Beyond I-75 and extending into Erie Township, Luna Pier is a paved, two-lane road with 11 foot wide travel lanes. Marked shoulders are provided along both sides of the road, approximately 3 feet in width. The presumed right-of-way width is 66 feet. Outside of the City limits, there is no posted speed limit. According to SEMCOG, the AADT for this segment within Erie Township is 6,000.



Harold Drive - Looking southwest approaching Luna Pier Road



Luna Pier Road - Looking west from Valleywood Avenue



Luna Pier Road - Sidewalk along south side of road

Harold Drive South Segment

Harold Drive continues southwest from Luna Pier Road for approximately one-half mile until it ends prior to Whitewood Creek. This segment is a paved, two-lane road (with no center-line marking) approximately 20 feet in width. No road shoulders are present. The road right-of-way width varies from approximately 40 feet (south of Cousino) to 70 feet (north of Cousino), according to Monroe County property mapping records. No sidewalks are present.

The posted speed for this stretch of road is 25 miles per hour. Truck traffic is not allowed. Traffic count data is not available for this segment of Harold Drive.

Although Harold Drive ends short of Whitewood Creek, an old interurban trolley line right-of-way continues southwest for approximately 0.6 miles into Erie Township and ends at Grodi Road. Although the old trolley line tracks are no longer present, the trolley bridge over Whitewood Creek remains. According to Monroe County property mapping records, the width of the right-of-way varies from approximately 60 feet to more than 100 feet.



Old interurban trolley line bridge over Whitewood Creek



Old interurban trolley line right-of-way south of Whitewood Creek



Harold Drive - Looking southwest near the entrance to the Luna Pier Harbor Club



Natural areas south of Whitewood Creek

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4. design parameters



Various design parameters are summarized on the following pages in order to provide initial guidance related to the design and construction of non-motorized facilities within the Study area.

Although the content for the design parameters is based on established principles, all mandated design standards, such as those dictated by the American Association of State Highway and Transportation Officials (AASHTO), and other state, County, and local agencies, should be referenced at the time of design as they may change or be updated.

Designing and constructing non-motorized systems is a process complicated by existing conditions, public sentiment, ownership and jurisdiction, as well as financing and political will. With nearly every proposed non-motorized project, there will be a number of agencies, user groups, and departments that will need to remain involved during planning, design, and construction. For the Study, key entities will include the City of Luna Pier and other regional organizations.

4.1 User Types

The types of non-motorized trail users in Southeast Michigan are diverse, and many times each has their own view of what comprises a great trail design and experience. General preferences of primary trail stakeholder groups are described. In addition to the various stakeholder groups, trail systems are also utilized by people of all ages and abilities, adding to design and maintenance considerations.

Walkers

Walkers desire an opportunity for exercise and the ability to get from one place to another without dealing with a significant amount of vehicular traffic. Users include children walking to destinations such as school, the park, and to their friend's houses. Users also include adults casually walking to destinations such as their place of employment, shopping, or for recreational enjoyment. Special considerations need to be made for disabled persons and parents with strollers.

Walkers need and desire separation from vehicle traffic, especially higher speed traffic. Where sidewalks are present, sidewalks must be of adequate width and have even pavement with no trip and fall hazards. Sidewalk systems must be connected with minimal gaps. Safe road crossing opportunities should be provided through pedestrian signals and marked-crosswalks.

Within the City of Luna Pier, the relatively slow vehicle speeds and low vehicle traffic volumes allow for a generally safe environment for walkers. Because of the narrow streets in the City, few sidewalks are present. However, walkers are generally able to safely utilize the road itself for walking, again aided by low vehicular speeds and volumes.

Runners

Runners include those casually running for fitness as well as elite athletes. Fitness runners may prefer using a sidewalk or a shared use path as opposed to running within the street. Elite runners generally run in the road, against traffic, or run on shared use paths with limited traffic crossings. Surface condition, system continuity and visibility are key safety and design considerations for runners.

Bicyclists

Bicyclists include users of all ages and abilities. The graphic on the next page illustrates the various user types along with their confidence levels and comfort levels. Generally, those who are less confident riders, including children, will prefer riding on shared use paths and sidewalks, or on quiet residential streets with limited traffic. The more confident riders may still prefer riding on separated facilities such as shared use paths and sidewalks, but may also be comfortable riding in the road and/or within an on-street bicycle lane. The most confident riders will ride within the road with or without bike lanes.

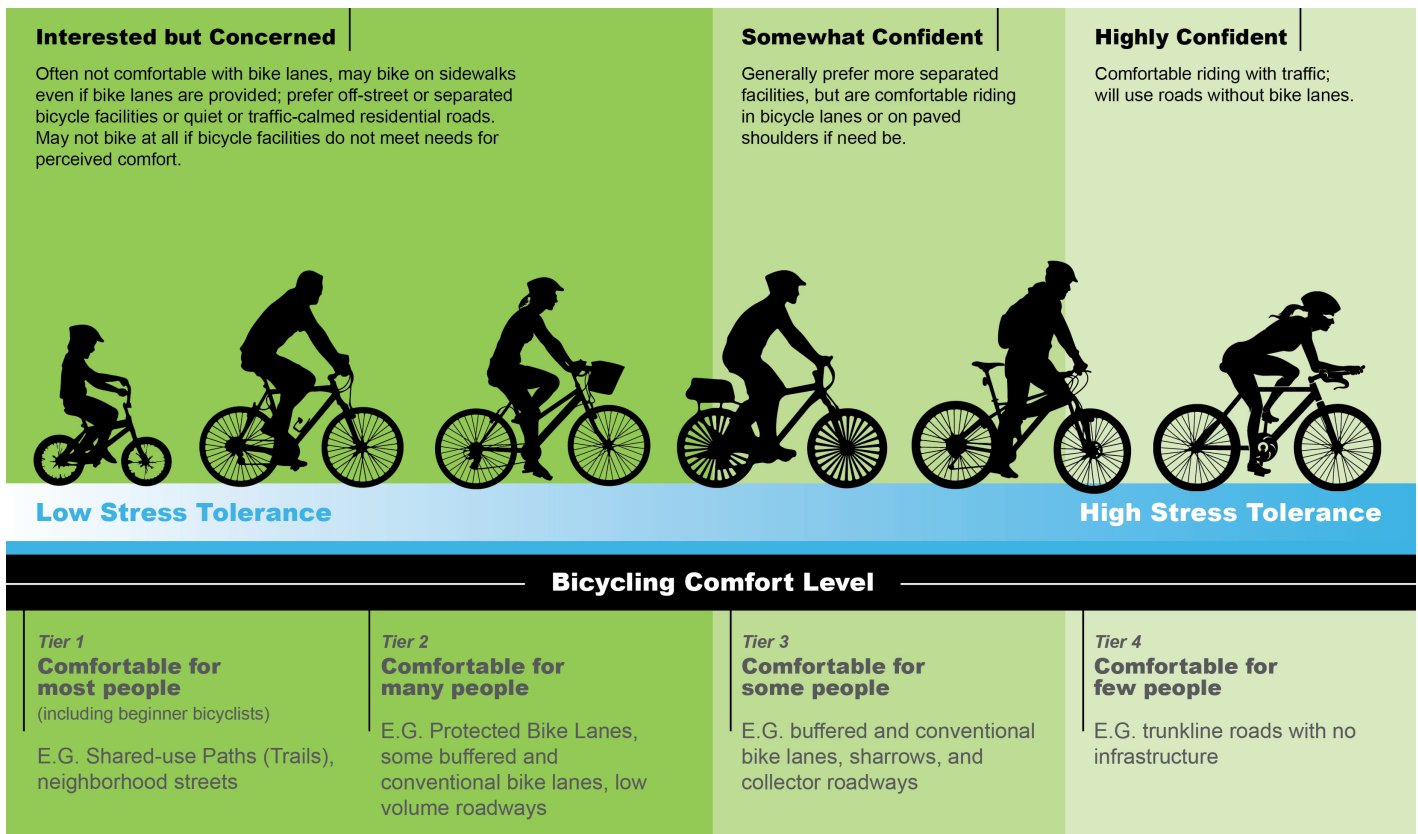
Map 8 illustrates bicycle comfort levels of the streets within the City of Luna Pier, based on data from SEM-COG. Because of the low vehicle speeds and volumes, all of the local and residential streets in the City are classified as “Tier 1” streets, which are comfortable for most bicyclists, even beginners and children. Harold Drive, between Luna Pier Road and Gaynier Road, is classified as a “Tier 2” street, which is a step up from the first tier but remains appropriate for most bicycle users. No “Tier 3” streets are found in the City. “Tier 4” streets include Luna Pier Road and Erie Road. These streets are not comfortable for most users.

The following are key design and safety considerations for bicyclists:

- Wide shoulder or bike lane
- Pavement condition
- “Clean” pavement edge
- Buffered from autos



Children and less experienced bicyclists prefer separated bicycle facilities such as shared use paths and require special safety and design considerations.



Types of Bicyclists

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

- Avoid conflicts with pedestrians
- Visibility and delay at intersections
- Bike parking
- Wayfinding signs

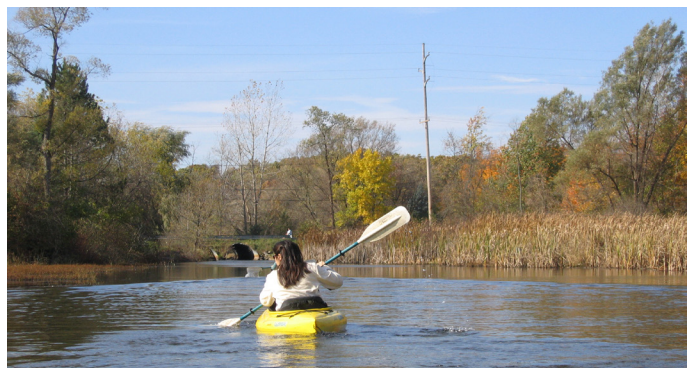
Persons with Disabilities

Special consideration must be made for persons with disabilities, who include the physically disabled, visually impaired and hearing impaired. Conditions which cause difficulties for persons with disabilities, and therefore must be avoided and/or rectified, include:

- Unpaved, broken surfaced
- Lack of ramps
- Lack of accessible pedestrian signals at signalized intersections
- Wide intersections with limited crossing time
- Lack of escalators, elevators or ramps to overcome steps
- Routes going nowhere

Canoers/Kayakers

Located on Lake Erie, the City of Luna Pier must consider the needs of canoers and kayakers as part of a well-rounded non-motorized circulation system. Canoers and kayakers range from less experienced children and families to highly experienced adult users. The most critical amenity for canoers and kayakers is a safe and accessible launch site. Other desired amenities include wayfinding signage, restrooms, vehicle and trailer parking areas, canoe/kayak racks, hose/boat washing stations and boat slides.



Kayaker on a calm river



MAP 8 Bicycling Comfort Levels



Roads Classified by Bicycling Comfort Level:

- Tier 1
- Tier 2
- Tier 3 - None found in Luna Pier
- Tier 4

Existing Parks:

- City Parks

Base Layers:

- Primary Roads
- Local Roads
- Railroads
- Parcel Lines
- ~ Rivers, Creeks & Streams
- Water Bodies
- Municipal Boundaries

February 2023

0 375 750 1,500 Feet



500 Griswold Street
Suite 2500
Detroit, MI 48226

Source: Michigan Geographic Data Library;
SEMCOG Bicycling Comfort Levels, 2022;

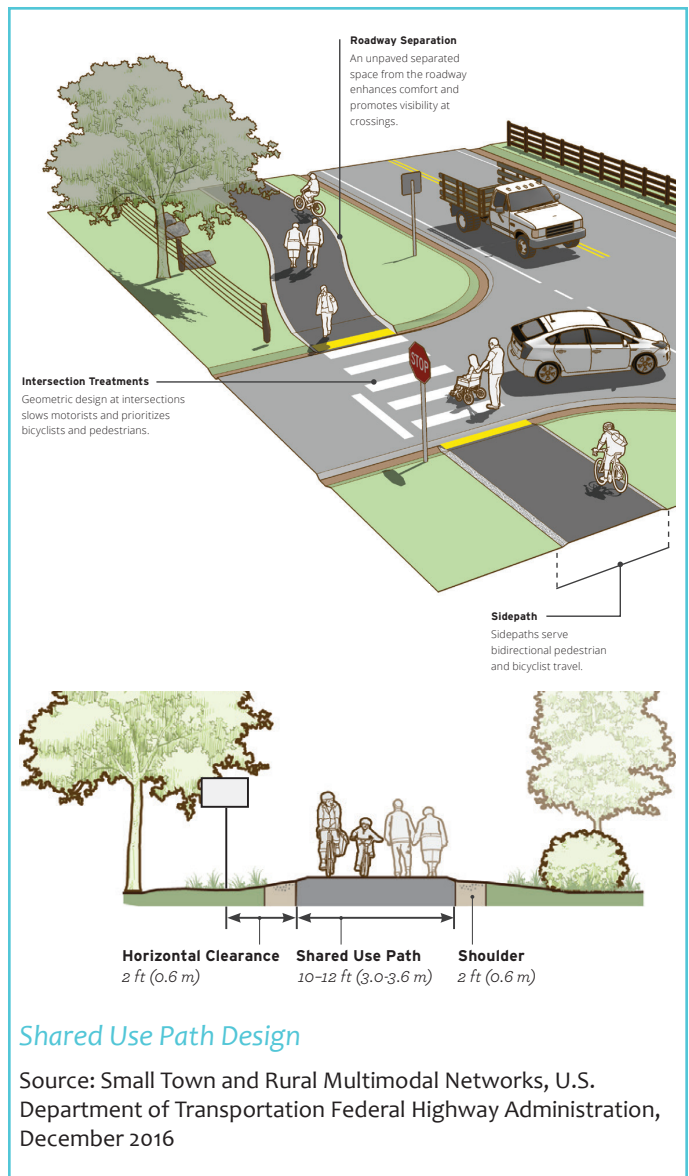
4.2 Facility Type Design Parameters

Design parameters for recommended non-motorized facility types within and around the City of Luna Pier are outlined below. These design parameters have been extracted from a variety of references and resources. It is important to note that nearly every design guideline has exceptions, necessitated by local conditions, ownership, jurisdiction, funding source, community desire, user groups accommodated, changing trends, intensity of use, and many other factors.

Shared Use Paths

Shared use paths, which accommodate walkers, runners, bicyclists, in-line skaters, wheelchair users and others, need to be designed in accordance with the American Association of State Highway and Transportation Officials (AASHTO) design requirements. In particular, the following design considerations should be used at the time of detailed design:

- Horizontal and vertical alignment to ensure clear sight lines
- Recommended asphalt surface, with crushed stone as a potential alternative surface
- Minimum width of 10 feet
- Two feet minimum clear zones on each side, to provide stopping and resting areas and allow for passing and widening at curves
- Avoid view obstructions at edges of the path by placing signs, poles, utility boxes, waste receptacles, trenches and other elements away from the edge of the path and using low-growing shrubs and groundcovers or high-branching trees
- Use bicycle speed limits
- Use delineation and separation treatments, such as colored paving, textured paving, pavement markings, and signing
- Use directional signing
- It is recommended to sign and mark a four-inch wide solid yellow line at the center of the path as well as edge lines when curves with restricted sight distances are experienced
- The desired vertical clearance to obstructions should be a minimum of 8 feet (10-feet is desirable); however, vertical clearance may need to be greater to permit passage of maintenance and emergency vehicles

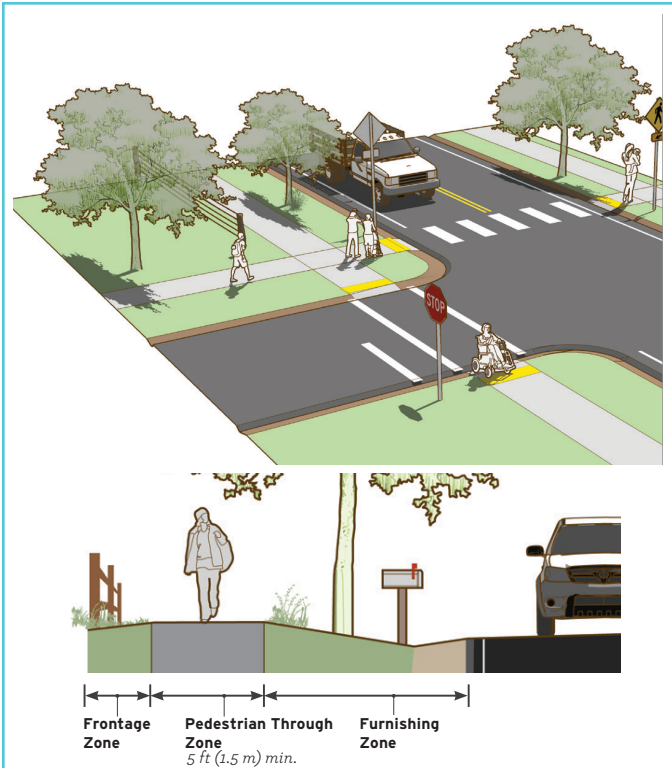


- Selective clearing and grubbing a width of 5 feet on each side of the path is desired so as to reduce the amount of vegetation encroachment and minimize the frequency of needed maintenance trimming

When planning, designing, and building a shared use path, there are a wide variety of cross sections that may be utilized. The selected design, material, and construction method is highly dependent on the existing conditions, soils, funding agency, user group(s), etc. A professional engineer or landscape architect should provide assistance in the design of the typical path cross-section. For all path design and construction, drainage, compaction, and material selection are key design considerations.

Sidewalks

Sidewalks run along but are physically separated from a roadway. They provide space for use by pedestrians that should be safe, comfortable and accessible to all. Typically, sidewalks consist of concrete pavement and range between 4 to 5 feet wide. AASHTO permits 4 foot wide sidewalks while the Federal Highway Administration (FHWA) recommends a minimum width of 5 feet.



Sidewalk Design

Source: Small Town and Rural Multimodal Networks, U.S. Department of Transportation Federal Highway Administration, December 2016

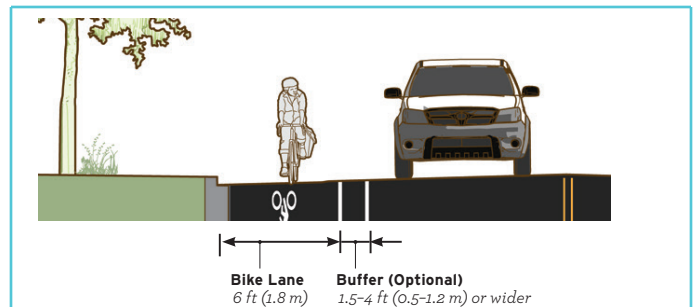
Bike Lanes

Bike lanes can be utilized when it is desirable to delineate available road space for preferential use by bicyclists and to provide for more predictable movements by bicyclists and motorists. Bike lane markings can increase a bicyclists' confidence in motorists not straying into their path of travel. Likewise, passing motorists are less likely to swerve to the left out of their lane to avoid bicyclists on their right.

A bike lane should be painted with standard pavement symbols to inform bicyclists and motorists of the presence of the bike lane. The standard pavement symbols are a bicycle symbol and a directional arrow.

Some roads can accommodate bike lanes with the addition of striping and traffic signs, while others require pavement widening and/or reconstruction.

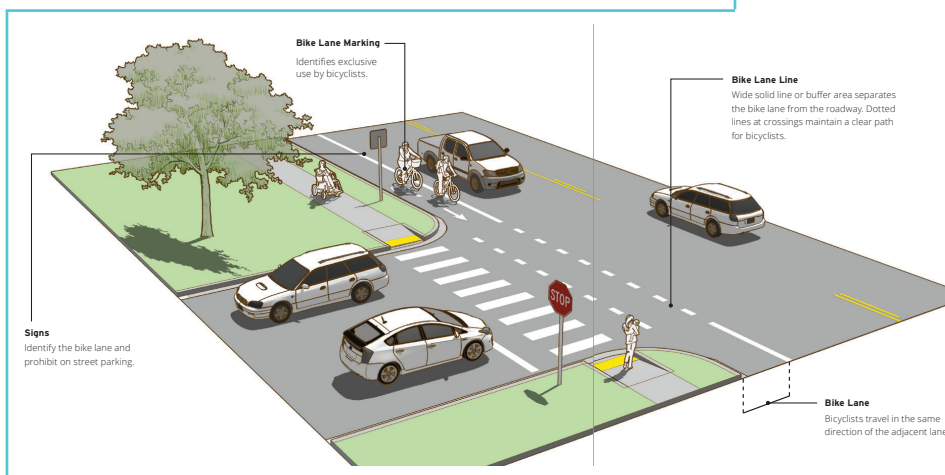
In some contexts, a separated bike lane may be appropriate. A separated bike lane is located within or directly adjacent to the street but is physically separated from motor vehicle traffic with a vertical device such as a curb or median.



Bike Lane Design

Source: Small Town and Rural Multimodal Networks, U.S. Department of Transportation Federal Highway Administration, December 2016

design parameters



Bike Routes

A bike route is an existing roadway with no specific non-motorized facility improvements or enhancements other than bike route signage. These routes are generally appropriate on local or rural roadways where traffic volumes are low and where the costs of adding dedicated non-motorized infrastructure outweighs the benefits. From the perspective of the bicyclist, the bike route signage provides confidence and enhances navigation. From the perspective of the motorist, the bike route signage raises the level of awareness of potential bicyclists.



Bike Route Sign

Source: Michigan Manual on Uniform Traffic Control Devices (MMUTCD) D11-1.

Paved Shoulders

A paved shoulder is a space along the edge of the roadway which serves as a functional space for pedestrians and bicyclists. At least 4 feet in width, paved shoulders are separated from the roadway by a solid white line and in some cases through physical features such as rumble strips. They can improve pedestrian and bicyclist comfort and safety when traveling especially along higher speed roadways, but only when adequate width of the shoulder is provided. Pedestrians and bicyclists who use the paved shoulders should travel in the same direction as the adjacent road lane.

Nature Trails

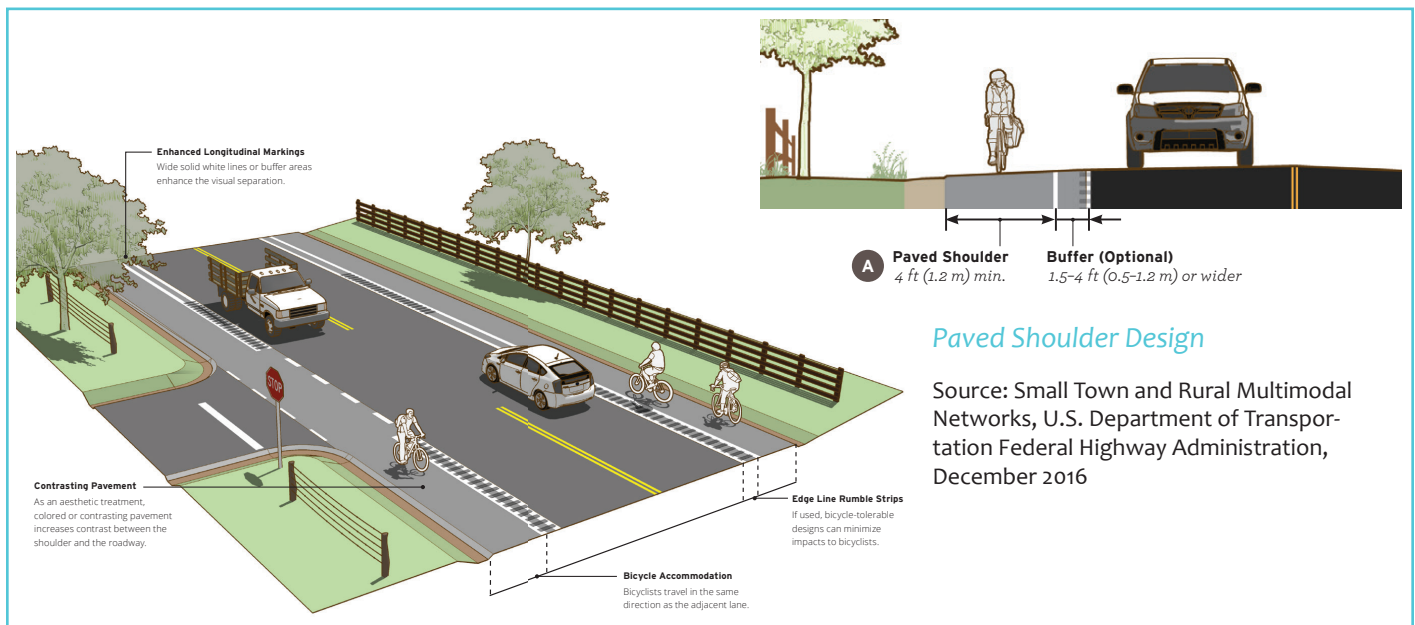
Nature trails are more rugged, off-road facilities with less stringent guidelines. They are designed to accommodate pedestrians and are not intended for cyclists or other wheeled users. Nature trails are typically 3 to 10 feet in width. Natural surfacing may include graded

soil, gravel, or engineered wood fiber or wood chips. Preparation varies from machine-worked surfaces to those worn only by usage.

Blueway Routes

According to the Michigan Water Trails Manual, a blueway route, also known as a water trail, is a recreational paddling route along a lake, river, canal or bay which is specifically dedicated for people using small boats like kayaks, canoes and stand-up paddleboards. A blueway route is organized, supported and managed by a dedicated entity and/or community partnership that declares its intention to be responsible for the long-term funding, development and management of the water trail.

Blueway routes must include a safe and accessible launch site. A launch site that is welcoming, well-maintained, and minimizes the stress for paddlers moving gear from their vehicle to the water creates a positive





An accessible canoe/kayak launch

experience and image for the water trail as well as the surrounding community. Launch sites should be designed in accordance with local and state regulations and accessibility requirements. Most launches or docks will require a permit from the Michigan Department of the Environment, Great Lakes and Energy (EGLE) and, if located along a Great Lake or connecting waterway, also from the U.S. Army Corps of Engineers. Launch types include:

- Natural surface launches
- Geotextile mats
- Concrete mats
- Concrete ramps
- Concrete stairs
- Wooden stairs
- Docks and piers
- Floating launches

Signage and markers are a key component of a blueway route. Blueway route signage includes all signs associated with wayfinding, navigation and use information viewed from both land and water. In addition, interpretive signs can provide information about the unique environmental, cultural and historical features associated with the blueway route and surrounding community. In some instances, information about nearby business amenities (e.g., where to eat, sleep and shop) can also be helpful.

Other desired amenities at trailheads include restrooms, vehicle and trailer parking areas, canoe/kayak racks, hose/boat washing stations and boat slides.

4.3 Other Design Parameters

Design parameters for special circumstances, facility enhancements and supporting facilities are outlined below.

Wetland Crossings

Where shared use paths extend through wetland areas, special design considerations are warranted. A boardwalk is the ideal solution used to cross wetland areas or other locations with sensitive vegetation or wildlife habitat. Wooden boardwalk segments should be a minimum of 14 feet in width, with edge treatment to prevent roll/step off. The depth of footings will vary depending on soil conditions.

River/Creek Bridge Crossings

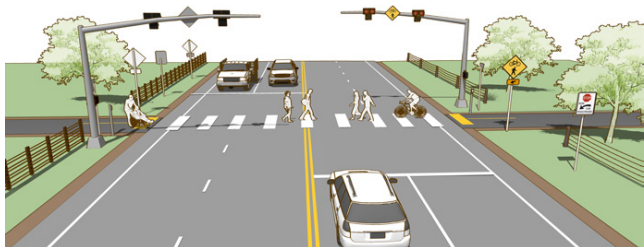
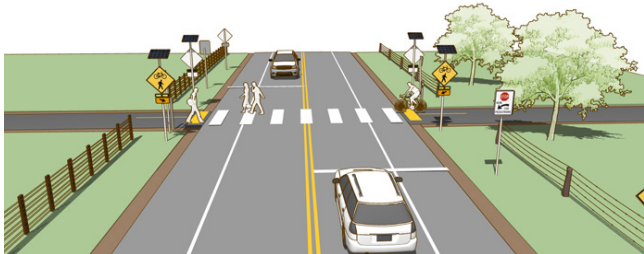
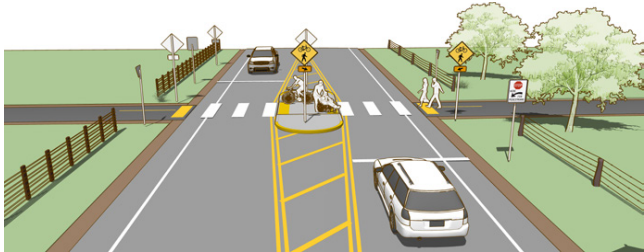
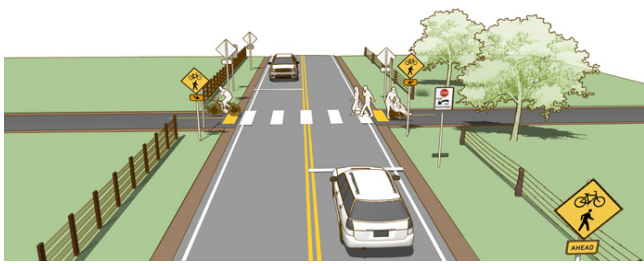
Similar to boardwalk segments in wetland areas, bridge segments, where the proposed trail crosses creeks and streams, should be a minimum of 14 feet in width. The length of the bridge, depth and size of bridge footings, and other construction details will need to be developed based on the specific characteristics of the proposed crossing and soil conditions.

Road Crossings

Each time a non-motorized route crosses a vehicular roadway, a potential conflict is created. Some intersections or crossings prove to be more problematic than others. During design and construction of road intersections and crossings, there are multiple solutions that can be utilized to provide for a safe and friendly environment for non-motorized users. The two most common types of non-motorized crossings are those that occur mid-block and those that occur at existing road intersections.

At-Grade, Mid-Block Crossings

Mid-block crossings occur where shared use path or other non-motorized route crosses a road far enough from another road intersection so that there are no unexpected vehicular turning movements that the route user may encounter. At these crossings, the shared use path or other non-motorized route should be at a 90-degree angle to the road, as much as is possible. Other considerations include traffic control devices, sight distance for both non-motorized users and motorists, refuge island use, access control, and pavement markings.



Mid-Block Crossing Design Options
(from Top to Bottom):

- *Marked crosswalk*
- *Median safety island*
- *Rectangular Rapid Flash Beacon (RRFB)*
- *Pedestrian Hybrid Beacon (PHB)*

Source: Small Town and Rural Multimodal Networks, U.S. Department of Transportation Federal Highway Administration, December 2016

At-Grade, Intersection Crossings

Where a shared use path or other non-motorized route crosses at an existing road intersection, it must be integrated close to the intersection in order to allow motorists and non-motorized users to recognize each other as intersecting traffic. Traffic control devices and separation distance between the road and path are also important considerations. Clear sight lines are especially important to reduce the possibility of conflicts between trail users and motorists.

Signage

Traffic, regulatory, warning and directional signs provide important information to all road users. Care should be given to follow the guidelines and standards in the Michigan Manual on Uniform Traffic Control Devices (MMUTCD) to ensure that the proper messages are given to the users. Also be aware that overuse of signs can breed noncompliance and lead to visually obstructing the most important messages.

A specialized wayfinding signage system was developed as part of the Monroe County Trail & Bicycle Plan for the proposed County-wide Cornerstone Route. This system has three components:

1. Confirmation signs
2. Decision and destination signs
3. Turn signs



Cornerstone Route Wayfinding Signage

Source: Monroe County Trail & Bicycle Plan

Universal Access Design Considerations for Trails

Walkways and Trails

- Multi-use trail – at least 8 feet wide, with cross-slopes under 2% and running slopes under 5%
- Regional trail system – at least 10 feet wide, with 1-foot buffers on either side, with cross-slopes under 2% and running slopes under 5%
- Unitary surface like concrete, boardwalk or asphalt, crushed aggregate/screenings that have been “stabilized” or natural soils enhanced with soil stabilizers
- Transition plates between trail and pedestrian bridges, decks, etc.
- Contrasting color treatment of the surface and textured surface treatments such as brushed concrete at intersections or interpretive stations to cue people who have vision impairments that there is something to pay attention to at that spot
- Larger (greater than 60”X60”) level areas at all turns and intersections
- Thoughtfully laid out on the site to maximize the experience with minimal difficulty
- Accessible amenities such as benches, restrooms (port-a-johns), drinking fountains, etc.

Boardwalk

- Wider width so two people can walk side by side or people can pass
- Edge treatment to prevent roll/step off
- In viewing areas all rails with clear viewing area between 32” and 51” for easy viewing
- Interpretive information in a variety of formats including auditory, large print, and pictures.

Source: MNRTF Application Guidelines, Michigan Department of Natural Resources

Following the Monroe County plan, this specialized wayfinding signage system should be employed as part of the implementation of Cornerstone Route segments within the City of Luna Pier.

Trailheads

Trailhead facilities are critical to the success of any local non-motorized system. In addition to offering public access to the system, they serve as rest stops for users and may even offer interpretive/educational spaces and facilities. Trailheads are formal entry points to the system and should provide supportive facilities such as vehicular parking, bicycle parking, restrooms, drinking fountains, and informational signage.

Facilities that should be provided at each trailhead, at a minimum, include vehicular parking, signage to identify the trailhead and adjacent/nearby routes, restrooms, and landscaping. Additional facilities may include enhanced site furnishings (lighting, bicycle parking and storage, benches, trash receptacles), interpretive/educational centers, picnic areas, interpretive signage and recreational amenities (playgrounds, fitness stations, etc.). Security amenities, such as an emergency call box, should also be provided within trailheads.

4.4 Safety and Security

Careful consideration for safety and security is an essential component in the design of any non-motorized facility or non-motorized system. The combination of a multitude of factors assists in developing and maintaining a safe non-motorized system. These include elements such as bicycle safe drainage grates, and providing adequate clearance along the edges of trails, paths and bike lanes. Considering pavement textures, sign distances, design speeds, proper striping and signage go a long way to help make non-motorized systems safe.

A security plan to ensure the health/safety of users and discourage illegal activities (i.e., the use of the trail by motorized vehicles) is another important consideration for a non-motorized system. In addition to policing, a non-motorized facility must be flexibly designed to allow access by emergency vehicles but discourage access by unauthorized vehicles.

4.5 Maintenance

Developing maintenance guidelines, standards, and policies will be essential in assuring a safe, well-used non-motorized system. Common maintenance concerns and solutions for shared use trails are presented below. (Source: Fairfax County Virginia Trail Maintenance Standards)

- Trail Inspection - Trails must be inspected on a routine basis. Inspections should include the trail surface, any culverts and water crossings, all amenities, signs, and surrounding vegetation. User safety should always be the primary consideration of any inspection. Potential safety problems should always take precedence when scheduling maintenance. Vandalism left unattended encourages more of the same and should likewise be a high priority for maintenance. Graffiti and “tagging art” should be documented with incident reports and police should be notified, then the graffiti removed or covered as soon as possible. Inspections may also need to be done after severe weather events or storms.
- Mowing - Mowing should be done on a regular basis to prevent trails from becoming overgrown. Brush and grass that grow along trails should not be allowed to grow to excessive heights within two feet of the edge of the trail surface.
- Tree and Brush Pruning - Pruning is performed for the safety of the trail user and to protect the trail and other assets located along the trail. Proper pruning also allows mowing operators to do a thorough and safe job. Inspectors need to be trained to identify potential hazards and to determine what can be handled by staff and what will require the attention of a private contractor.
- Leaf and Debris Removal - Keeping the trail surface clean is one of the most important aspects of trail maintenance. Mud and other sediment should be removed along with fallen leaves and branches to ensure the safety of users and to increase the life expectancy of the trail itself.
- Snow and Ice Removal - Decisions should be made early on as to whether trails will be cleared of snow and ice. Snow and ice should be removed, particularly from trails used by children going to and from school sites.
- Cleaning and Replacement of Culverts - Culverts often become clogged with trash and debris that must be removed to prevent flooding and undercutting of trail surfaces. Culverts may also need to be upgraded in size or replaced because of deterioration or increased storm water flow due to increased surrounding development.
- Maintenance of Water Crossings - Water crossings can be bridges, fair weather crossings, or open box culverts. Debris needs to be removed on an as-needed basis from these structures to allow for free flow of water and to reduce the risk of flooding. These structures need to be inspected on a regular basis for erosion control and action taken accordingly to preserve or replace the structure.
- Repairs to Signs and Other Amenities - These repairs may include kiosks, wood and metal signs, benches, etc. These amenities need to be kept in safe and aesthetically pleasing condition. Items that fall into disrepair often become the target of vandals. Repairs should be completed as quickly as possible to discourage vandalism.

4.6 Liability

The operation of publicly accessible parks and recreation facilities, including non-motorized facilities, brings legal responsibility for safety and maintenance and exposes the facility owner to liability. Concerns relating to liability are often an obstacle to the development and/or management of shared use trails and other non-motorized facilities, as public agencies, trail groups, and private landowners fear lawsuits from trail users. However, general legal protections afforded to facility operators significantly reduce liability risks. Coupled with the implementation of sound risk management practices, these legal protections should offset the liability concerns associated with shared use trail development and/or management.

Most states have recreational use statutes that substantially limit public landowner liability as long as fees are not charged for facility usage. If not protected by recreational use statutes, public agencies are often protected by governmental immunities. The recreational use statutes also protect private landowners who want to open their land to the public for free. Private landowners who have land adjacent to a trail are protected by trespassing laws. (Source: Rail-trails and Liability: A Primer on Trail-Related Liability Issues

& Risk Management Techniques. Rails-to-Trails Conservancy, September 2000.)

In Michigan, liability for landowners, tenants or lessees for injuries to persons on property for the purpose of outdoor recreation and trail use is limited by Part 733 of Public Act 451 of 1994 (Natural Resources and Environmental Protection Act). The Section generally states that such trail operators are only liable if the injuries were caused by gross negligence or willful and wanton misconduct on the part of the operator.

Therefore, it is important to implement a sound pathway management and risk management strategy. The following recommended risk management action items can be employed to minimize the possibility of injuries on a non-motorized pathway and to protect the trail owner in the event they are sued. (Source: Liability and Rail-Trails in Pennsylvania. Rails-to-Trails Conservancy, May 2007.)

- Design the trail for safety.
- Use prominent signage to warn users of potentially dangerous areas.
- Regularly inspect the trail and correct any unsafe conditions; keep records of inspections and remedial changes.
- Prominently post hours of operation and other rules and regulations, along with emergency contact information.
- Develop procedures for handling medical emergencies.
- Incorporate, which may limit the personal liability of principals.
- Purchase insurance or place the trail in public ownership, where it can be covered by the overall insurance policy of the City, County or state.
- Understand the state recreational use statute and other pertinent laws.

Another means of liability protection is insurance. According to a Michigan Trail Maintenance Survey conducted by the Michigan Trails & Greenways Alliance in 2006, approximately two-thirds of trail operator respondents carry liability insurance, with identifiable coverage ranging from \$1 to \$15 million.



5. action plan

This section establishes and describes the vision for non-motorized transportation within Luna Pier and the surrounding area. This vision is anchored by the recommended alignment and design of the Monroe County Cornerstone Trail Route within and beyond the City.

The recommendations included in this section collectively work toward the goal of developing a non-motorized transportation network that is convenient, proximate, and safe for all area residents.

5.1 Non-Motorized Vision

Overall Vision

The vision for non-motorized circulation within Luna Pier is illustrated in **Map 9**. This vision consists of a combination of shared use pathways, sidewalks, nature trails, bike lanes, blueway route and support facilities including trailheads, intersection/crosswalk enhancements and canoe/kayak launch sites. The City's vision is closely connected to planned non-motorized circulation routes within the surrounding communities, as illustrated in **Map 10**. The overall vision and its components are described in more detail in this section.



Points of Interest:

1. Water Tower Park
2. Memorial Park
3. Evans Pier Park and Beach
4. 1st Street Park
5. Seventh Street Park
6. National Fish & Wildlife Foundation Property
7. DNR Property

MAP 9 Non-Motorized Vision



Proposed Facilities:

- Shared Use Paths
- Sidewalks
- Blueway Route
- Nature Trails
- Bike Routes
- Paved Shoulders
- Trailheads
- Rest Areas (benches, etc.)
- Kayak Launches
- Bridge Improvements
- Intersection/Crosswalk Enhancements

Base Layers:

- Primary Roads
- Local Roads
- Railroads
- Sidewalks
- Rivers, Creeks & Streams
- Water Bodies
- Municipal Boundaries

0 375 750 1,500 Feet



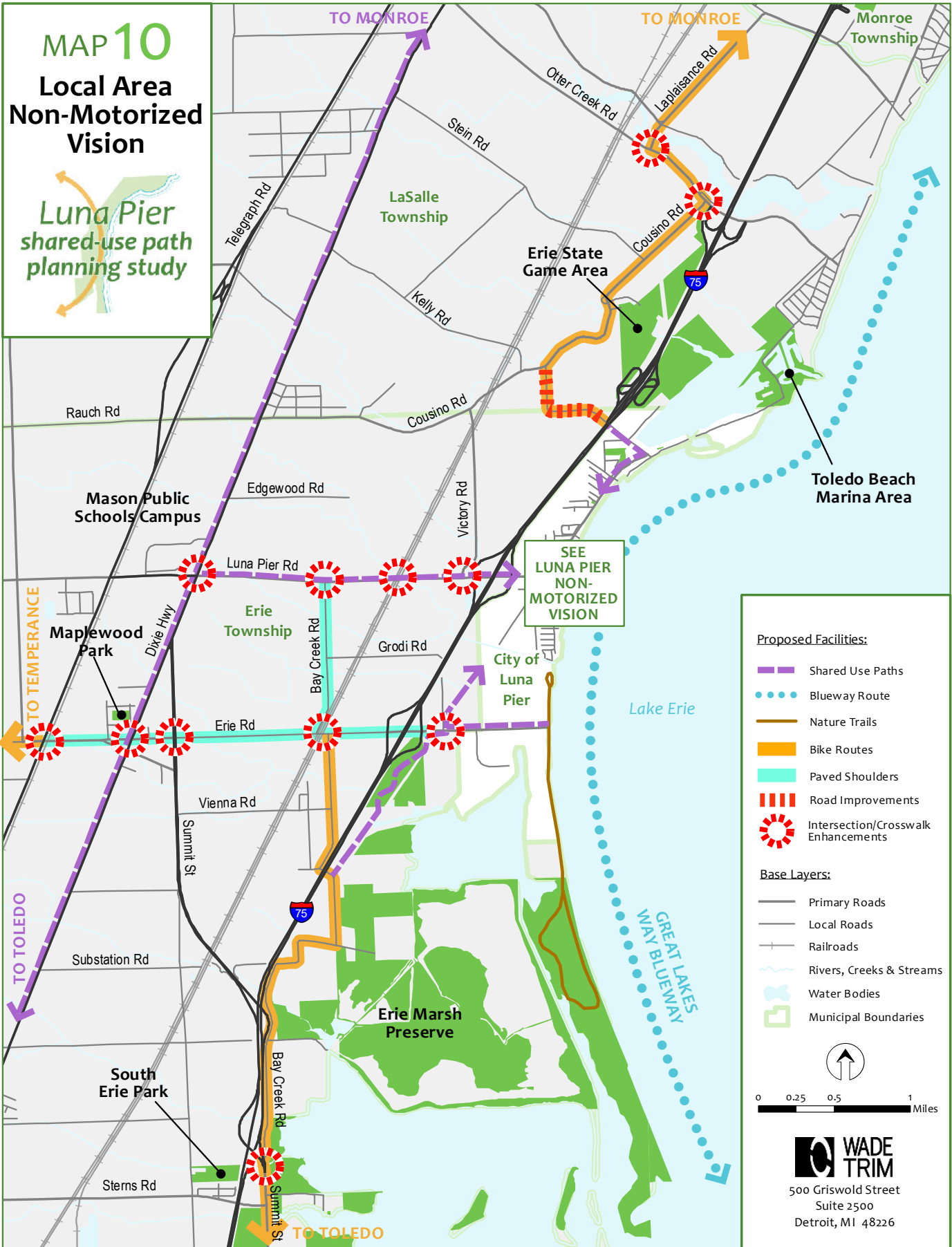
500 Griswold Street
Suite 2500
Detroit, MI 48226

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MAP 10

Local Area Non-Motorized Vision

Luna Pier shared-use path planning study



Proposed Facilities:

- Shared Use Paths
- Blueway Route
- Nature Trails
- Bike Routes
- Paved Shoulders
- Road Improvements
- Intersection/Crosswalk Enhancements

Base Layers:

- Primary Roads
- Local Roads
- Railroads
- Rivers, Creeks & Streams
- Water Bodies
- Municipal Boundaries

0 0.25 0.5 1 Miles

WADE TRIM
 500 Griswold Street
 Suite 2500
 Detroit, MI 48226

\\dt-vsl\projects\Lpr6001\ord\gis-data\projects\1 Regional Context.mxd

MAP 11 Proposed Cornerstone Route

Luna Pier
shared-use path
planning study



Proposed Cornerstone Route by Type:

- Shared Use Path
- Bike Route
- Paved Shoulders

Base Layers:

- Primary Roads
- Local Roads
- Railroads
- Rivers, Creeks & Streams
- Water Bodies
- Municipal Boundaries

0 0.25 0.5 1 Miles

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Suite 2500
Detroit, MI 48226

Cornerstone Trail Route

The recommended alignment of the proposed Monroe County Cornerstone Trail Route through and beyond Luna Pier is illustrated on **Map 11**. Within the City, the Cornerstone Trail route consists of shared use pathways. Outside of the City, the Cornerstone Trail is a signed bike route along selected County roads.

Luna Pier Vision Components

Trolley Line Pathway

Named after the former interurban trolley line, this is a proposed shared use path within a natural and undeveloped area generally between Grodi Road and the Whitewood Creek. The proposed path will run within the existing railroad right-of-way and will run on top of the raised rail bed. Because it will run along the existing raised rail bed, it is not expected to disturb any adjacent wetlands. At the north end, a proposed bridge (prefabricated steel truss bridge) will be constructed to cross the Whitewood Creek and connect to the City-owned property on the north side of the creek (at the south end of Harold Drive). The total route length is approximately 0.6 miles.

Harold Drive South Shared Use Path

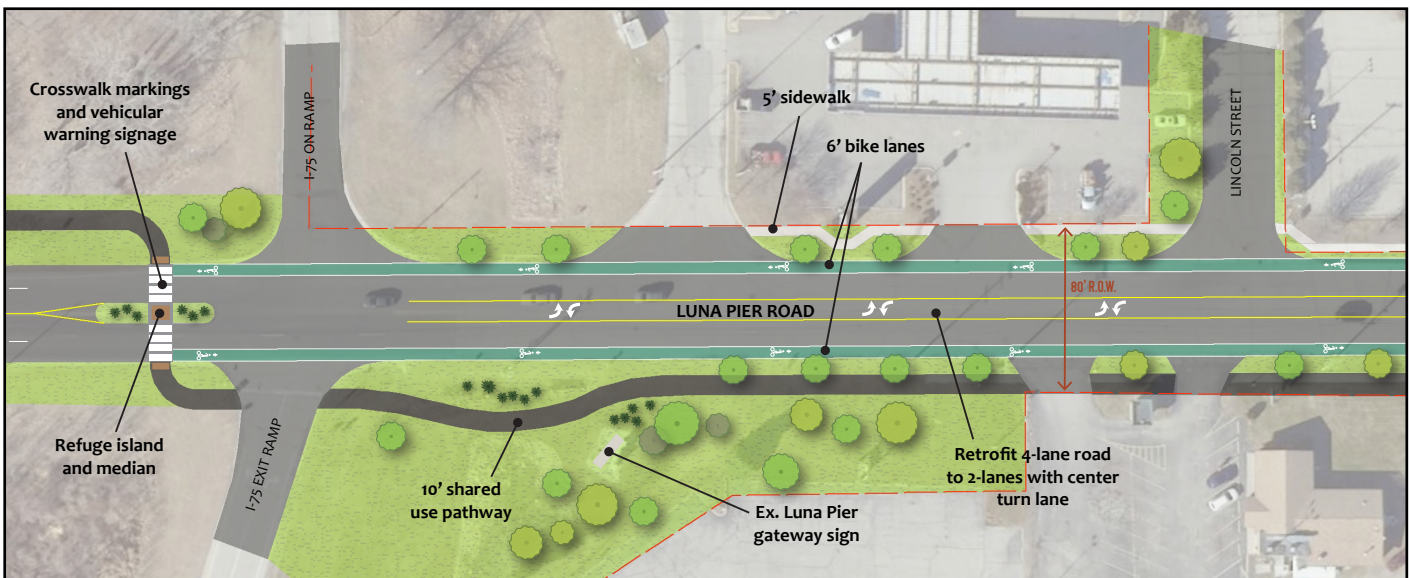
This is a proposed shared use path segment within the existing right-of-way of Harold Drive, from the Whitewood Creek to Luna Pier Road. The existing right-of-

way width is variable between 40 feet wide and 70 feet wide. A cross-section illustration is included on the next page which shows the proposed 10 foot wide shared use path along the west side of the road within the existing right-of-way. The segment length is slightly more than 0.5 miles.

Luna Pier Road Pathway and Improvements

This route involves the construction of a new shared use pathway along Luna Pier Road between the I-75 overpass to downtown Luna Pier. In 2024, MDOT is reconstructing the Luna Pier Road bridge over I-75 to include a protected shared use path on its north side. Starting at the bridge, the proposed shared use path will run along the north side of the road. A proposed crossing will occur at the interchange ramps and from that point the shared use path will run along the south side of Luna Pier Road to Harold Drive in downtown.

Additional short-term road improvements will include re-striping the road to accommodate two or three lanes of vehicle traffic with 6 foot wide bike lanes on each side of the road. Longer-term road improvements would include reconstruction to reduce the width of the road and to accommodate additional greenspace and streetscaping. A plan view drawing (below) illustrates the proposed improvements. A cross-section illustration is also included. The total route length is approximately 0.3 miles.



Luna Pier Road Non-Motorized Design Vision

May 2023

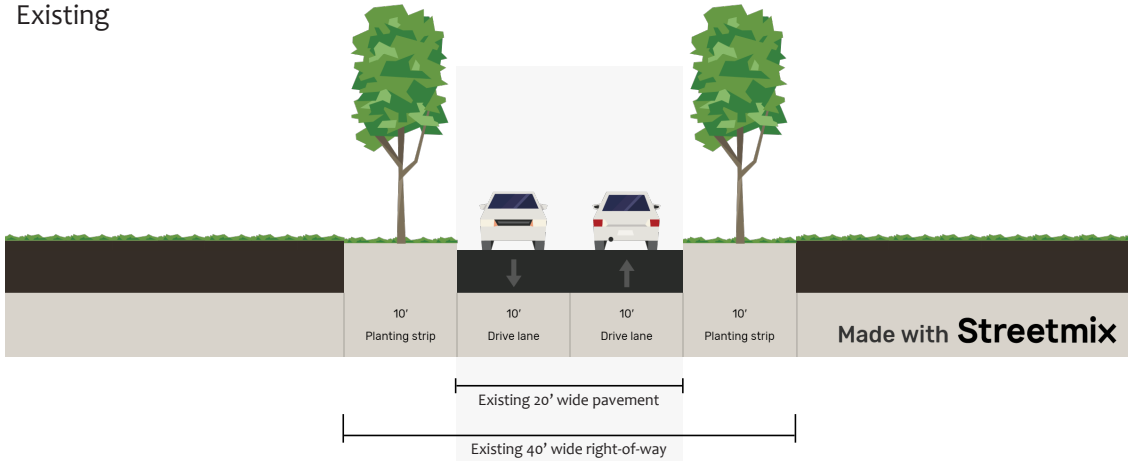


Non-Motorized Vision

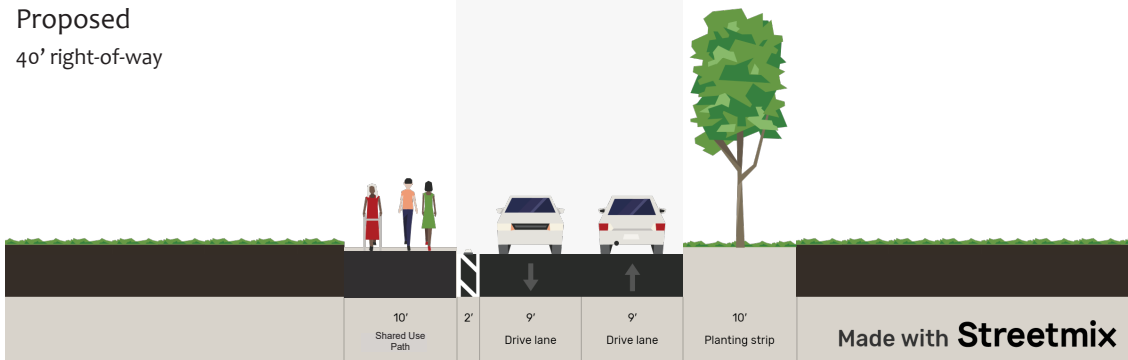
Harold Drive South (Luna Pier Rd. to Whitewood Creek - 40' to 70' right-of-way)



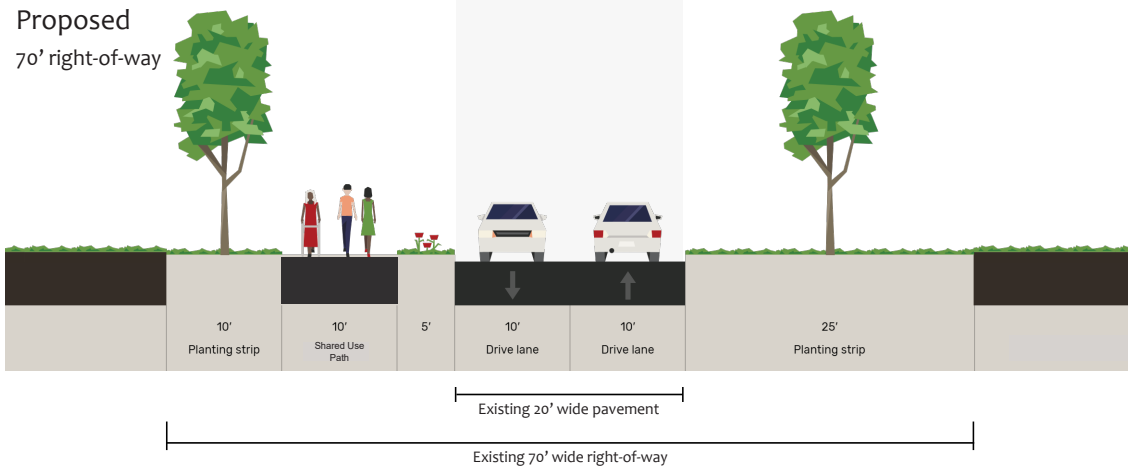
Existing



Proposed
40' right-of-way



Proposed
70' right-of-way

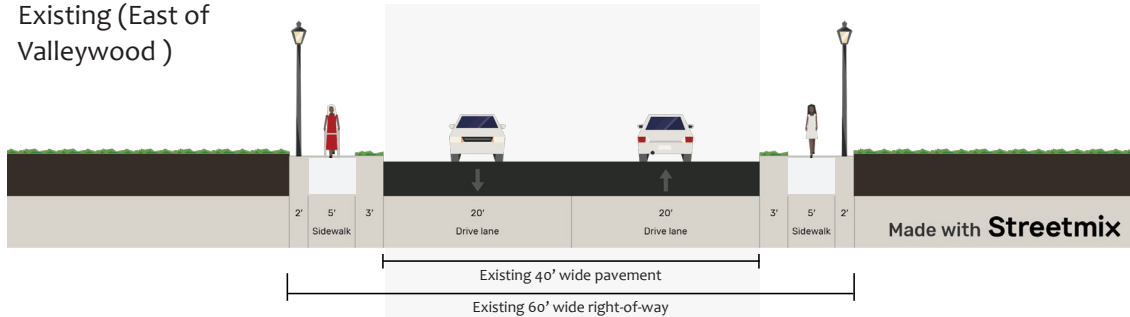


Non-Motorized Vision

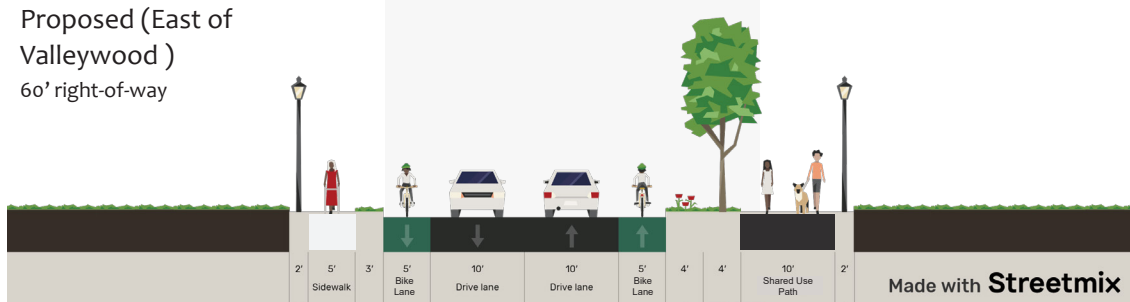
Luna Pier Road (I-75 to Harold - 60' to 80' right-of-way)



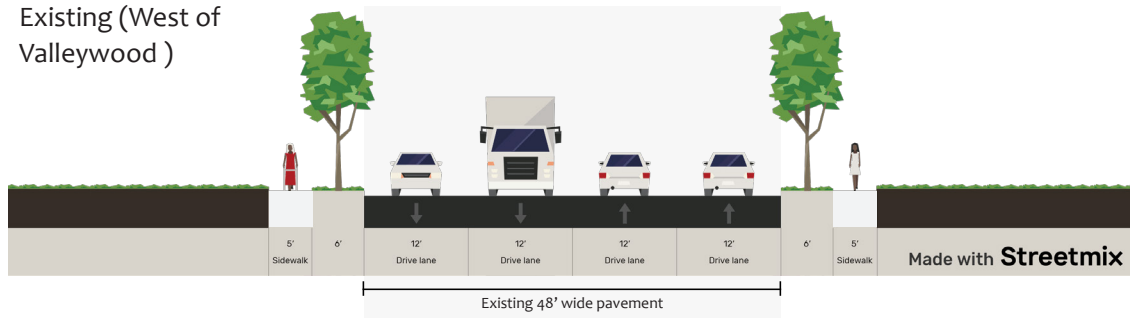
Existing (East of Valleywood)



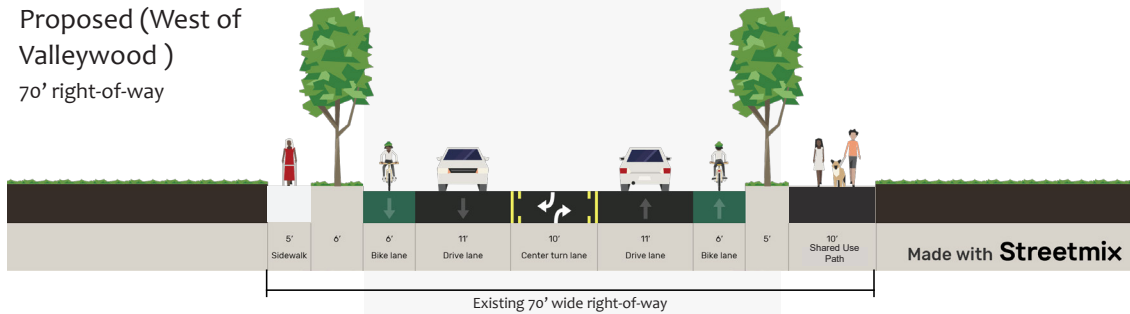
Proposed (East of Valleywood)
60' right-of-way



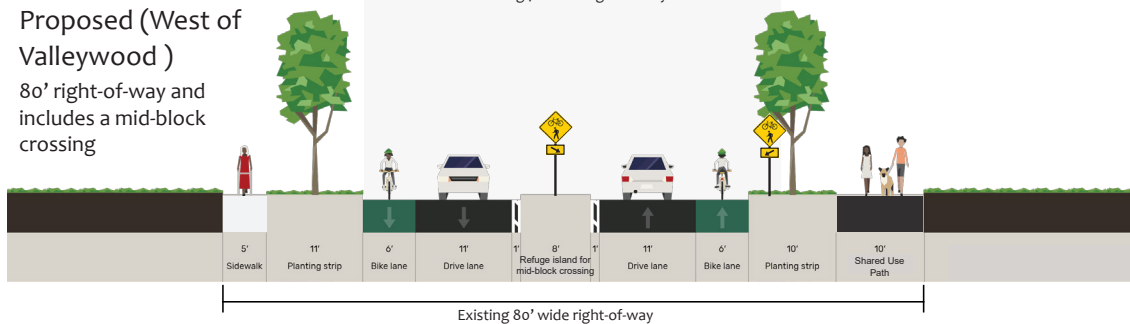
Existing (West of Valleywood)



Proposed (West of Valleywood)
70' right-of-way



Proposed (West of Valleywood)
80' right-of-way and includes a mid-block crossing

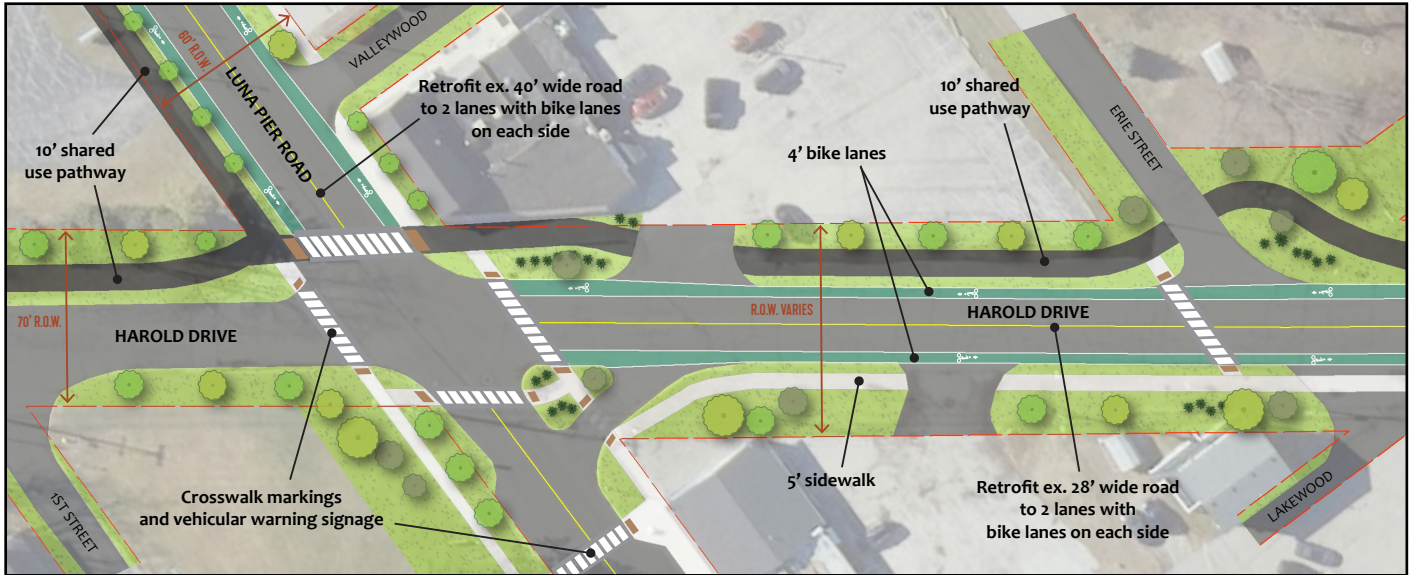


Harold Drive Pathway and Improvements

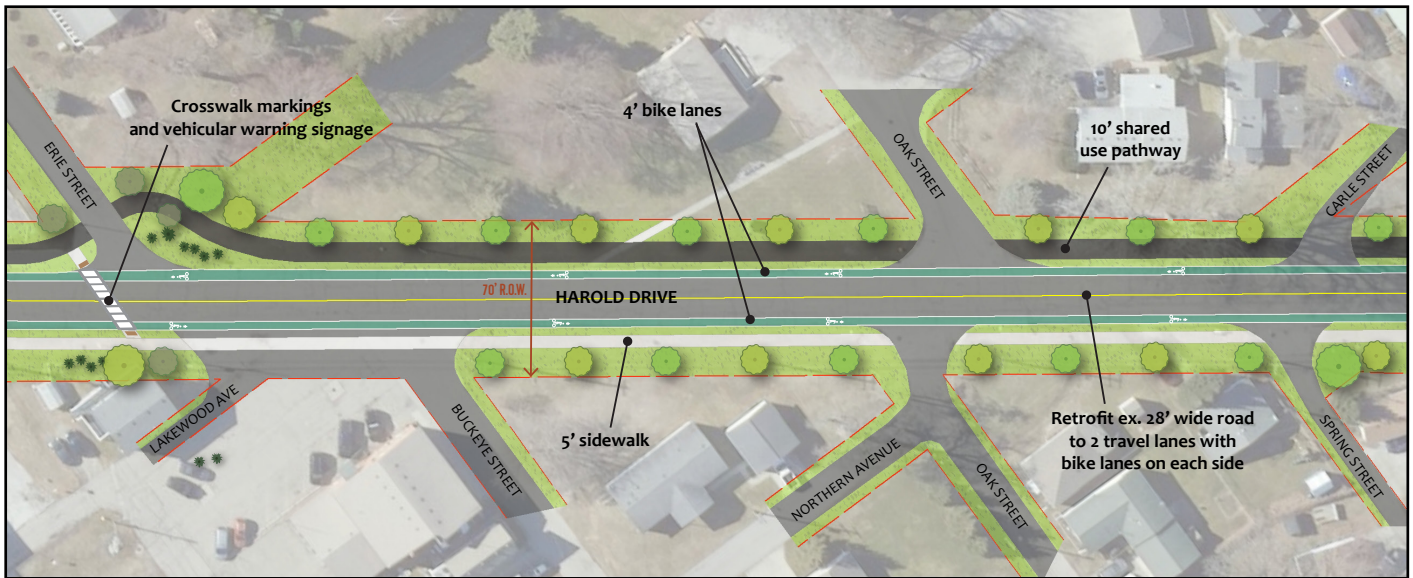
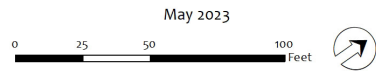
This route involves the construction of a new shared use pathway along Harold Drive between Luna Pier Road and Gaynier Road. The existing right-of-way width (70 feet) is sufficient to accommodate a 10 foot wide shared use path on the west side of the road. Given the high levels of existing pedestrian travel along this road, this plan also recommends the construction

of a 5 foot wide sidewalk on the east side of the road. The existing 28 foot wide pavement width is sufficient to accommodate two 10 foot wide drive lanes along with 4 foot wide bike lanes.

Plan view drawings (below) illustrate the proposed improvements. A cross-section illustration is also included. The total route length is approximately 1.1 miles.



Harold Drive @ Luna Pier Road Non-Motorized Design Vision



action plan



Harold Drive Non-Motorized Design Vision

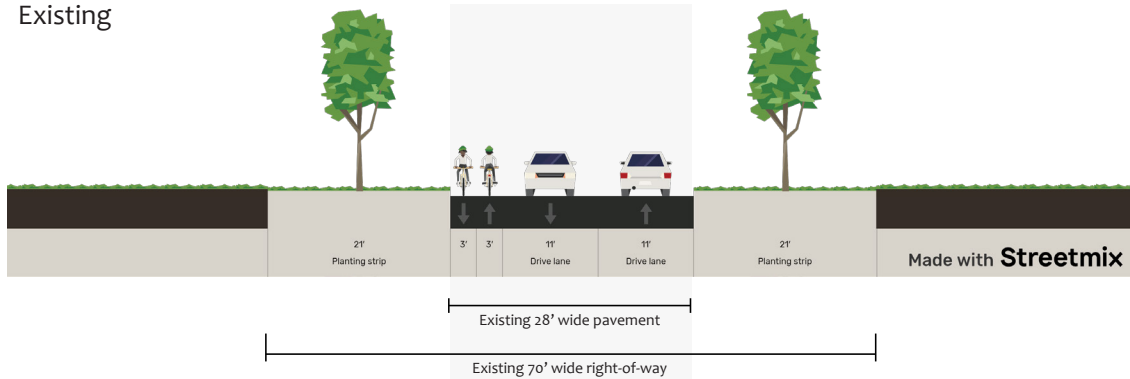


Non-Motorized Vision

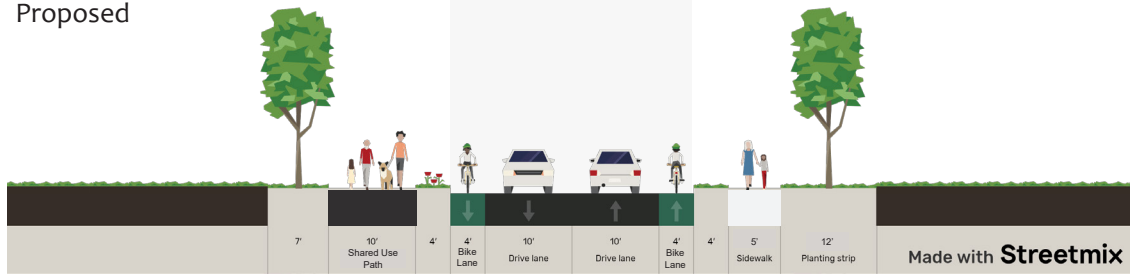
Harold Drive (Luna Pier Rd. to Gaynier Rd. - 70' right-of-way)



Existing



Proposed



Gaynier Road Pathway

This is a proposed shared use path segment which will be constructed along the south side of Gaynier Road, within the existing road right-of-way, between the I-75 overpass and Harold Drive. The total segment length is approximately 0.25 miles.

Whitewood Creek to Allen's Cove Blueway and Launch Sites

Taking advantage of Luna Pier's abundant resources, a blueway route (water trail) is proposed to be formally established. This proposed blueway route will be anchored by two launch sites: at the south end of Harold Drive where an existing launch site to the Whitewood Creek exists; and, near the north end of Harold Drive on City-owned property with frontage on Allen's Cove. The plan recommends the construction of ADA accessible kayak launch platforms at each site. Additional improvements would include signage at the launch sites and debris clearing within the Whitewood Creek and/or Allen's Cove to facilitate safe navigation within the waterways.

Erie Road Pathway

The Erie Road pathway is a proposed shared use path that would run along the north side of the road, within the existing road right-of-way, between Grodi Road and Lake Erie. This route would connect the proposed Trolley Line Pathway with Lake Erie and the National Fish and Wildlife Foundation property located on Lake Erie. A proposed trailhead would need to be established at the end of Erie Road at Lake Erie. Numerous wetlands are found within the area; therefore, portions of the pathway would likely need boardwalk segments. The total route length is 0.65 miles.

Lakeside Nature Trail

In connection with the Erie Road pathway, a proposed nature trail segment would open up the National Fish and Wildlife Foundation property for enjoyment and appreciation by area residents. Close coordination with the National Fish and Wildlife Foundation would be required to plan and design this nature trail.

Trailheads

Three trailheads are proposed in support of the non-motorized vision for Luna Pier. One trailhead would be established at the existing City-owned parking lot at Water Tower Park. This trailhead would support the use of the proposed Gaynier Road Pathway, Harold Drive Pathway, and the north launch site for the blueway route. Improvements at this location would include signage, bike racks, benches and landscaping.

A second trailhead would be established at the south end of Harold Drive within existing City-owned property. This location would support the use of the proposed Harold Drive South Pathway, Trolley Line Pathway, and the south launch site for the blueway route. The location currently features a gravel parking area. Improvements would include parking area improvements (to remain gravel surface), a restroom facility, bike racks, benches and landscaping.

The third trailhead location is proposed at the end of Erie Road to support the proposed Erie Road Pathway and the Lakeside Nature Trail. This trailhead would consist of a gravel parking area, restroom facility, bike racks, benches and landscaping.

Intersection/Crosswalk Enhancements

As noted on **Map 9**, intersection enhancements are proposed at several locations throughout the City. These improvements are likely to consist of at-grade street crossings with regulatory signage, ADA ramps and roadway markings. With generally low traffic volumes and speeds, it is unlikely that signalized crossings (such as rapid flash beacons) are needed. However, the need for signalization would be determined as part of final design of the crossings.

Local Area Vision Components

Shared Use Paths

As noted on **Map 10**, a shared use pathway is proposed to run along the north side of Luna Pier Road from the I-75 overpass westward into Erie Township and extending to Dixie Highway. This proposed pathway is consistent with Monroe County planning documents and takes advantage of the improved bridge overpass (with protected shared use pathway) which will be constructed by MDOT in 2024.

Erie to Bay Creek Pathway

As a “continuation” of the proposed Trolley Line Trail, a new shared use path is proposed to run south from Erie Road through mostly natural and undeveloped properties to Bay Creek Road. Many of the properties in this area are owned by the State of Michigan. Due to the presence of wetlands, several boardwalk segments would be needed. This proposed pathway is consistent with the greenway route planned by the Community Foundation for Southeast Michigan as part of the Great Lakes Way regional planning initiative.

Signed Bike Routes

Several rural County road segments in the area are proposed to be marked as signed bike routes, consistent with the Monroe County Trail and Bicycle Plan and the proposed Monroe County Cornerstone Trail. These include the Gaynier/Cousino route running north from Luna Pier and Erie Road, running west from Luna Pier.

Paved Shoulders

In addition to bike route signage, several rural County road segments are proposed to be improved with 4 foot wide asphalt shoulders. These include Erie Road and Bay Creek Road.

Phasing Strategy

Due to financial limitations, implementation of this ambitious vision for non-motorized improvements within Luna Pier and the surrounding area could only occur over an extended period of time. To aide in implementation of the proposed non-motorized routes and support facilities over time, a Route Phasing Plan Map has been prepared (**Map 12**). This phasing plan establishes six total phases. The first two phases are considered the top priority and would result in the completion of the proposed Cornerstone Trail route through Luna Pier.

The phasing plan is not intended to be a rigid schedule. Rather, the City and its partners must remain flexible as priorities may change over time and are heavily influenced by factors such as availability of outside funding sources. As the City refines the phasing schedule over time, the following should be considered in selecting segments to implement:

- Ease of implementation (few design conflicts and associated construction costs)
- Estimated daily usage



MAP 12 Route Phasing Plan



Schematic Route Phasing

- One
- Two
- Three
- Four
- Five
- Six

Base Layers:

- Primary Roads
- Local Roads
- Railroads
- Rivers, Creeks & Streams
- Water Bodies
- Municipal Boundaries

0 375 750 1,500 Feet



500 Griswold Street
Suite 2500
Detroit, MI 48226

\\dt-vs\projects\1-pr6001\01\gis-data\projects\12 Route Phasing.mxd

- Does the project serve multiple destinations (broad impact)?
- Does the project coincide with other project schedules (i.e. road reconstruction, park development, etc)?
- Will the project improve and/or ensure non-motorists' safety?
- Does the project provide connections to existing non-motorized facilities?

5.2 Cost Estimates

Generalized cost estimates for each phase of implementation (as identified on **Map 12**) have been prepared. Quantities and cost estimates for each phase of implementation are highlighted in the tables in this section.

The assumptions used in the development of the cost estimates are outlined in the table on the next page. These cost assumptions are preliminary in nature and should be used only for initial project budgeting and identification of outside funding sources. Final cost estimates for each segment will need to be developed at a later time and will be dependent on a detailed engineering analysis of site capacities and constraints.

Phase 1 - Tolley Line Pathway				
Erie Road to Whitewood Creek, Including Bridge over Creek				
Scope item	Length (Ft) or Quantity (Sum)	Unit Cost	Unit	Cost Estimate
Route Improvements				
Pr. 10' asphalt shared use path	3,223	\$80	per linear foot	\$257,840
Pr. 14' boardwalk segment*	0	\$600	per linear foot	\$0
Whitewood Creek Bridge - 14' prefabricated steel truss bridge	1	\$510,000	lump sum	\$510,000
Supporting Facilities/Other Improvements				
Pr. Trailhead - existing City property at end of Harold Drive	1	\$250,000	lump sum	\$250,000
	<i>Subtotal</i>			<i>\$1,017,840</i>
	<i>Soft costs</i>	25%	percent of subtotal	<i>\$254,460</i>
	<i>Contingencies</i>	10%	percent of subtotal	<i>\$101,784</i>
	Total			\$1,374,084

*Assumption is that no part of the proposed shared use path will be in wetlands given the proposed use of the former interurban railroad raised bed

Luna Pier Shared Use Path Planning Study
Cost Estimating Assumptions

Type	Unit	Cost*	Notes
Non-Motorized Routes			
10' asphalt shared use path	Per linear foot	\$80	Includes regulatory signage, site furnishings (bench and trash receptacle every 2,000 ft.), and landscaping (tree for every 50 ft., native edge plantings, etc.)
14' boardwalk segment	Per linear foot	\$600	Typical boardwalk section for wetlands areas
Signed bike route	Per linear foot	\$1	Typical signed bike route segment - new bike route signage along existing County roadway
Construct 4' paved shoulders	Per linear foot	\$20	Typical paved shoulders route segment - addition or improvement of paved shoulders along existing County roadway
5' sidewalk	Per linear foot	\$50	Typical concrete sidewalk segment
6' nature trail	Per linear foot	\$20	Typical nature trail with natural surfacing, including regulatory signage and benches every 2,000 ft.
Blueway route	Lump sum	\$30,000	Typical blueway route (water trail) to include signage at launch sites and debris clearing within Whitewood Creek
Bridge Improvements			
Whitewood Creek Bridge - 14' prefabricated steel truss bridge	Lump sum	\$510,000	Refer to Appendix C: Bridge Study for Whitewood Creek Crossing
Gaynier Road Bridge over I-75 - signage and striping improvements	Lump sum	\$5,000	Restriping and signage at Gaynier Road bridge to enhance awareness of pedestrian and bicycle travel - no structural bridge improvements are proposed
Road Improvements			
Harold Drive retrofit with bike lanes	Lump sum	\$35,000	Restriping existing street to accommodate two travel lanes with two 4' bike lanes
Luna Pier Road, east of Valleywood	Lump sum	\$10,000	Restriping existing street to accommodate two travel lanes with two 5' bike lanes
Luna Pier Road, east of Valleywood	Lump sum	TBD	Reconstruction of street to reduce pavement width and construct a wider greenway on south side with landscaping
Luna Pier Road, west of Valleywood	Lump sum	\$20,000	Restriping existing street to accommodate three travel lanes with two 6' bike lanes
Luna Pier Road, west of Valleywood	Lump sum	TBD	Reconstruction of street to reduce pavement width and construct a wider greenway on south side with landscaping
Gaynier Road improvements	Per linear foot	\$60	Gravel road surface improvements, 10' roadway with AA mdot gravel, grading, etc.
Crosswalks			
Signed crosswalk	Lump sum	\$5,000	Typical at-grade street crossing with regulatory signage, ADA ramps and roadway markings
Shared use path crossing at Luna Pier Road	Lump sum	\$75,000	New shared use path crossing of Luna Pier Road near the I-75 ramps - includes pavement markings, refuge island, vehicular warning signage, restriping and landscaping
Trailheads and Support Facilities			
Trailhead - new	Lump sum	\$250,000	Typical new trailhead to include, at minimum, gravel parking lot, signage, restrooms, bike racks, benches and landscaping
Trailhead - retrofit of existing Water Tower Park parking lot	Lump sum	\$15,000	Retrofit existing Water Tower Park parking lot to include signage, bike racks, benches and landscaping
Accessible kayak launch	Lump sum	\$75,000	New accessible kayak launch and related amenities including canoe/kayak storage locker and landscaping
Fishing Platform - new	Lump sum	\$40,000	New fishing platform
Other Costs			
Soft costs	Percent	25%	Survey, engineering, permits, inspections, etc.
Contingencies	Percent	10%	Contingencies for unique design and construction situations, such as steep slopes requiring substantial grading and retaining walls

*Note: All costs above are inclusive of activities such as mobilization, erosion control, tree protection, tree removal, clearing and grubbing of vegetation, grading, etc.

Phase 2A - Luna Pier Road Pathway and Improvements

From I-75 Overpass to Harold Drive

Scope item	Length (Ft) or Quantity (Sum)	Unit Cost	Unit	Cost Estimate
Route Improvements				
Pr. I-75 Bridge Improvements (2024 construction by MDOT) to include protected shared use path on north side of bridge	1	n/a (MDOT)	n/a	n/a
Pr. 10' asphalt shared use path	1,713	\$80	per linear foot	\$137,040
Pr. 5' sidewalk	200	\$50	per linear foot	\$10,000
Pr. shared use path crossing of Luna Pier Road near I-75 entrance ramps	1	\$75,000	lump sum	\$75,000
Luna Pier Road, east of Valleywood, retrofit with bike lanes	1	\$10,000	lump sum	\$10,000
Luna Pier Road, west of Valleywood, retrofit with bike lanes	1	\$20,000	lump sum	\$20,000
Supporting Facilities/Other Improvements				
Pr. signed crosswalks at Harold Drive	4	\$5,000	lump sum	\$20,000
Luna Pier Road, east of Valleywood, reconstruction	1	TBD	lump sum	TBD
Luna Pier Road, west of Valleywood, reconstruction	1	TBD	lump sum	TBD
	<i>Subtotal</i>			<i>\$272,040</i>
	<i>Soft costs</i>	25%	percent of subtotal	<i>\$68,010</i>
	<i>Contingencies</i>	10%	percent of subtotal	<i>\$27,204</i>
	Total			\$367,254

Phase 2B - Harold Drive Pathway and Improvements

From Luna Pier Road to Gaynier Road

Scope item	Length (Ft) or Quantity (Sum)	Unit Cost	Unit	Cost Estimate
Route Improvements				
Pr. 10' asphalt shared use path	5,600	\$80	per linear foot	\$448,000
Pr. 5' sidewalk	5,600	\$50	per linear foot	\$280,000
Harold Drive retrofit with bike lanes	1	\$35,000	lump sum	\$35,000
Supporting Facilities/Other Improvements				
Pr. signed crosswalks at selected intersections	2	\$5,000	lump sum	\$10,000
Pr. signed crosswalks at Gaynier Road	2	\$5,000	lump sum	\$10,000
Pr. trailhead - retrofit of existing Water Tower Park parking lot	1	\$15,000	lump sum	\$15,000
	<i>Subtotal</i>			<i>\$798,000</i>
	<i>Soft costs</i>	25%	percent of subtotal	<i>\$199,500</i>
	<i>Contingencies</i>	10%	percent of subtotal	<i>\$79,800</i>
	Total			\$1,077,300

Phase 2C - Gaynier Road Pathway

From Luna Pier Road to Gaynier Road

Scope item	Length (Ft) or Quantity (Sum)	Unit Cost	Unit	Cost Estimate
Route Improvements				
Pr. 10' asphalt shared use path	1,425	\$80	per linear foot	\$114,000
Gaynier Road Bridge over I-75 - signage and striping improvements	1	\$5,000	lump sum	\$5,000
	<i>Subtotal</i>			<i>\$119,000</i>
	<i>Soft costs</i>	25%	percent of subtotal	<i>\$29,750</i>
	<i>Contingencies</i>	10%	percent of subtotal	<i>\$11,900</i>
	Total			\$160,650

Phase 3 - Whitewood Creek to Allen's Cove Blueway and Launch Sites

Whitewood Creek through Lake Erie to Allen's Cove

Scope item	Length (Ft) or Quantity (Sum)	Unit Cost	Unit	Cost Estimate
Route Improvements				
Pr. Blueway route	1	\$30,000	lump sum	\$30,000
Supporting Facilities/Other Improvements				
Pr. Accessible kayak launches	2	\$75,000	lump sum	\$150,000
				\$180,000
		25%	percent of subtotal	\$45,000
		10%	percent of subtotal	\$18,000
	Total			\$243,000

Phase 4 - Erie Road Pathway and Lakeside Nature Trail

From Grodi Road to and along Lake Erie

Scope item	Length (Ft) or Quantity (Sum)	Unit Cost	Unit	Cost Estimate
Route Improvements				
Pr. 10' asphalt shared use path	2,330	\$80	per linear foot	\$186,400
Pr. 14' boardwalk segment	1,200	\$600	per linear foot	\$720,000
Pr. 6' nature trail - within National Fish & Wildlife Foundation property	2,500	\$20	per linear foot	\$50,000
Pr. 6' nature trail - south of Erie Road	TBD	\$20	per linear foot	TBD
Supporting Facilities/Other Improvements				
Pr. Trailhead - end of Erie Road and/or within National Fish & Wildlife Foundation property	1	\$250,000	lump sum	\$250,000
				\$1,206,400
		25%	percent of subtotal	\$301,600
		10%	percent of subtotal	\$120,640
	Total			\$1,628,640

Phase 5A - Erie Road Signed Bike Route with Paved Shoulders

From Grodi Road west into Erie Township and Beyond

Scope item	Length (Ft) or Quantity (Sum)	Unit Cost	Unit	Cost Estimate
Route Improvements				
Pr. 4' paved shoulders	TBD	\$20	per linear foot	TBD
Pr. Signed bike route	TBD	\$1	per linear foot	TBD
Supporting Facilities/Other Improvements				
Pr. Signed crosswalks at Grodi Road and Erie Road intersection	3	\$5,000	lump sum	\$15,000
				TBD
		25%	percent of subtotal	TBD
		10%	percent of subtotal	TBD
	Total			TBD

Phase 5B - Gaynier Road Signed Bike Route
From I-75 Overpass into Erie Township and Beyond

Scope item	Length (Ft) or Quantity (Sum)	Unit Cost	Unit	Cost Estimate
Route Improvements				
Pr. Signed bike route	TBD	\$1	per linear foot	TBD
Supporting Facilities/Other Improvements				
Gaynier Road improvements	TBD	\$60	per linear foot	TBD
	<i>Subtotal</i>			<i>TBD</i>
	<i>Soft costs</i>	25%	percent of subtotal	<i>TBD</i>
	<i>Contingencies</i>	10%	percent of subtotal	<i>TBD</i>
	Total			TBD

Phase 5C - Luna Pier Road Pathway
From I-75 Overpass into Erie Township and Beyond

Scope item	Length (Ft) or Quantity (Sum)	Unit Cost	Unit	Cost Estimate
Route Improvements				
Pr. 10' asphalt shared use path	TBD	\$80	per linear foot	TBD
	<i>Subtotal</i>			<i>TBD</i>
	<i>Soft costs</i>	25%	percent of subtotal	<i>TBD</i>
	<i>Contingencies</i>	10%	percent of subtotal	<i>TBD</i>
	Total			TBD

Phase 6 - Erie to Bay Creek Pathway
From Erie Road south through State property to Bay Creek Road

Scope item	Length (Ft) or Quantity (Sum)	Unit Cost	Unit	Cost Estimate
Route Improvements				
Pr. 10' asphalt shared use path	5,450	\$80	per linear foot	\$436,000
Pr. 14' boardwalk segment	1,400	\$600	per linear foot	\$840,000
Supporting Facilities/Other Improvements				
Pr. Signed crosswalk at Bay Creek Road	1	\$5,000	lump sum	\$5,000
	<i>Subtotal</i>			<i>\$1,281,000</i>
	<i>Soft costs</i>	25%	percent of subtotal	<i>\$320,250</i>
	<i>Contingencies</i>	10%	percent of subtotal	<i>\$128,100</i>
	Total			\$1,729,350

5.3 Funding Sources

Non-motorized facility funding opportunities and sources have continually evolved over the past number of years. While some funding programs have been reduced or discontinued, new initiatives have been introduced. Similarly, the priorities of funding programs continually change over time based on a variety of factors. This section provides a synopsis of potential funding sources from outside entities for non-motorized facility projects. Understanding available funding programs, their requirements, priorities and deadlines requires continuous monitoring. A few of the more common funding sources have been detailed here as a reference and resource for Luna Pier and its implementation partners.

Transportation Alternatives Program

This Michigan Department of Transportation (MDOT) features TAP grant awards that cover up to 80% of cost. Non-motorized projects are an eligible expense for the transportation enhancement program.

Surface Transportation Program

Projects are selected through the local metropolitan planning organization (SEMCOG) during the Transportation Improvement Plan (TIP) process. Surface transportation program (STP) funds may cover up to 80% of the total project costs and bicycle, pedestrian and recreation trails are eligible.

Act 51 Major and Local Streets Funds

Cities, villages, and counties receive Act 51 funds based upon the miles of Major or Local streets within their jurisdictions. A portion of these dollars can be used to pay for non-motorized construction work or design of future projects that will be funded with Act 51 funds. Non-motorized components of regular road projects may include wider lanes, enhanced sidewalks, and widened shoulders.

Safe Routes to School Program

This is a national program administered through the Michigan Department of Transportation as a competitive grant program that provides funds for a variety of efforts to increase children walking and riding to school and creating safe routes for them to use. With suburban neighborhoods designed solely for cars and regional schools laid out in communities that require busing many students to schools, this effort is to combat these design challenges. Implementation efforts

include infrastructure improvements, traffic enforcement, safety training, tools (bike helmets, safety vests) and student participation incentives including physical fitness challenges.

Congestion Mitigation and Air Quality Improvement Program

The purpose of the Congestion Mitigation and Air Quality (CMAQ) Program is to fund transportation projects or programs that will contribute to attainment or maintenance of the national ambient air quality standards for ozone, carbon monoxide, and particulate matter. CMAQ Program funds are allocated to counties that are within the boundary of areas that are or were designated as nonattainment or maintenance for ozone, carbon monoxide, or particulate matter under section 107(d) of the Clean Air Act. Funds may also be used for projects in proximity to nonattainment and maintenance areas if the benefits will be realized primarily within the nonattainment or maintenance area. Assuming Monroe County stays within the nonattainment classification, Luna Pier may be eligible for these funds.

Michigan Natural Resources Trust Fund

The Michigan Department of Natural Resources (MDNR) offers grants of unlimited amounts for acquisition of land for public recreation. The applicant must provide a local match. For construction projects, including the development of trail facilities, the Trust Fund will grant up to \$300,000 with 25% local matching requirements.

Land and Water Conservation Fund

The National Park Service is the originator of these funds for the Land and Water Conservation Fund, which provides funds for the acquisition and development of public outdoor recreation areas and facilities. The MDNR administers this federal program in Michigan, and grants may range from \$30,000 to \$300,000.

Special Local Millages

Special millages are use-specific and approved by the vote of the residents. Millages can be used to hire designers, staff, fund construction activities, provide maintenance, or serve as the basis for a bond issue. Special millages can be used to fund the construction of non-motorized facilities.

Local General Fund

As a part of the annual budget process, local municipalities may choose to utilize a portion of General Fund dollars to construct non-motorized improvements.

Local Bond Funds

Units of government may utilize their bond funding capacities to fund capital projects with the sale of municipal bond funds.

Special Assessments

A special assessment is an unique type of tax that is levied on a specific portion of a community. Special assessments are placed upon those adjacent land owners who will receive the greatest benefit from the project to be funded by the special assessment. Special assessments have been utilized by local units of government to fund sidewalk construction and improvements.

Philanthropy

Local community foundations, businesses, and local residents may be sources of funding for projects of interest.

appendix

- A - Stakeholder Interviews Summary***
- B - Visioning Workshop Summary***
- C - Bridge Study for Whitewood Creek Crossing***





Luna Pier shared-use path planning study



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