Non-Motorized Transportation Plan 2011

BAY CITY AREA TRANSPORTATION STUDY (BCATS)

Draft Report

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Chapter 1 – Bay City Area Transportation Study Non-Motorized Transportation Plan

Overview

This Non-Motorized Transportation Plan is an effort by the Bay City Area Transportation Study (BCATS) to provide the local road agencies, cities, townships, and other officials a guide on methods to develop a comprehensive, connected, usable, and safe transportation system incorporating the use of non-motorized transportation. This plan was completed in cooperation with the Cities of Bay City and Essexville, the Bay County Road Commission, Bay Metro Transit Authority and was reviewed by members of the Riverwalk/Railtrail Committee and the Michigan Department of Transportation.

Part of the plan includes establishing and prioritizing the routes for a complete network of non-motorized transportation, what the options are for those non-motorized facilities and how best to develop those facilities.

All roadways, except those where legally prohibited, are available to cyclists, but many have not been designed to be used safely and comfortably by the cycling community. Therefore, bicycles as well as pedestrians and the disabled should be considered in all phases of transportation planning, new roadway design, roadway reconstruction, capacity improvement and transit projects.

Research continues to provide additional criteria for the design of appropriate bicycle facilities. The selection of a bicycle facility may depend on many factors, including vehicular and bicycle traffic characteristics, adjacent land use and expected growth patterns. A complete non-motorized transportation system also improves the livability and health of a community and it also gives its citizen a choice in their mode of transportation.

Goals and Objective

This document is intended to be a guide for the communities within and surrounding the BCATS on ways to provide for non-motorized transportation within their boundaries and to make bicycling a viable transportation alternative. With this plan in place, BCATS road agencies will be able to leverage more funding sources to make these non-motorized improvements. All design guidelines for non-motorized facilities in this document will be consistent with the current AASHTO specifications as of the approval of this Plan. After full implementation of this Plan, the BCATS will have a safe, connected and complete non-motorized transportation system. With the recent adaptation of PA 135 of 2010 by the State of Michigan which will require a Complete

Streets Policy in the State, this document can be the beginnings of a Complete Streets Policy for the BCATS agencies.

All of the routes and possible non-motorized facilities are recommended treatments and are not binding in any form. It should be noted that various factors may alter any route or a non-motorized facility. It should be understood that if funding cannot be identified for a specific non-motorized improvement or the cost of establishing the facilities would be disproportionate to the need or probable use, then the non-motorized facility is not required to be installed.

Chapter 2 – Previous BCATS Non-Motorized Efforts

Since the inception of the Bay City Area Transportation Study (BCATS) in the 1960's, two previous non-motorized plans were adopted, the 1980 Bicycle Plan and the 1995 Non-Motorized Facilities Plan (Bike Report). Each plan was put together by BCATS staff and approved by the Policy Committee.

1980 Bicycle Plan

The 1980 Bicycle Plan looked at 21 specific routes in the urbanized area and described what improvements needed to be made along those routes, providing cost estimates and specific improvements. On these routes, most of the improvements focused on sidewalks, curb cuts, and separated bicycle paths with the only on-road facilities options as being low volume residential streets and paved shoulders on the routes outside of the cities.

Highlighted results from this plan include the eventual development of Route #20 into the Riverwalk Trail in Veteran's Memorial Park, the addition of wide paved shoulder on Route #13 (State Park Dr) from Old Kawkawlin Rd to the Bay City State Park, and providing a separated shared use path along a portion of Route #9 (Truman Parkway/Wilder Rd) as part of the Bangor Trail.

1995 Non-Motorized Facilities Plan (Bike Report)

The 1995 Non-Motorized Facilities Plan (Bike Report) did not focus on any specific routes other than the plans at the time of expanding the Riverwalk/Railtrail Loop which has developed into a 17 mile loop and extension though Bay City, Portsmouth and Hampton Townships and an extension through Bangor Township connecting to the Bay City State Recreation Area. What the plan did focus on was providing general information on bicycle facilities and how the development of those facilities could be analyzed, selected, and implemented.

Related Non-Motorized Transportation Plans

In the past couple of years, several non-motorized plans have been adopted in the area around and including BCATS. The plans include the Tri-County Regional Pathway Study, the MDOT Bay Region Non-Motorized Transportation Plan and the City of Midland Non-Motorized Plan.

The Tri-County Regional Pathway Study looked at ways to connect the trail systems in the Great Lakes Bay Region communities of Bay City, Midland, and Saginaw. It resulted in specific route options connecting the three communities. The two routes that connect to Bay City are incorporated into this Plan and are identified on the BCATS Recommended Non-Motorized Network maps found on pages 14-22.

The MDOT Bay Region Non-Motorized Transportation Plan (NMTP) addressed the non-motorized trail system throughout the entire 13 county Bay Region, of which Bay County is part, and it shows options for the Inter-Regional System. All of the connections described in the Bay Region NMTP through the BCATS are identified on the BCATS Recommended Non-Motorized Network maps found on pages 14-22.

The City of Midland adopted a Non-Motorized Plan in 2009. Although Midland is outside of the BCATS, it is a nearby community that has been fairly progressive in pursuing improvements in non-motorized facilities. They were identified as a bicycle friendly community in 2010 by the League of American Bicyclist. This plan identified routes in the city, both on-road and off road bicycle facilities to create an interconnected system of bike-able locations.

Finally, the League of American Bicyclist proposed various bicycle routes throughout the country; including Bicycle Route 20 which passes through the Bay City Area. This route is identified on the BCATS Recommended Non-Motorized Network maps found on pages 14-22.

Chapter 3 - Existing Non-Motorized System

Sidewalks

In Bay City and Essexville, more than 90% of the roads have sidewalks on at least one side of the road. Annually, Bay City reviews the sidewalks in one of the nine city wards and adds additional sidewalks where they are lacking, makes repairs where needed and updates ramps to be ADA compliant. Residents can also make a request to the City to repair, replace, or add sidewalks in front of their property outside the ward planned for a given year. In doing so, the owner will be assessed the cost of the replace into their tax bill which can be paid over one (1) to ten (10) years. In Essexville, property owners can petition the city to install sidewalks at their own expense which can be added to their tax bill.

In the townships, more than 90% of the roads lack sidewalks, including those in subdivisions. Of the townships in BCATS, only Bangor Township has any ordinance requiring construction of sidewalks in new subdivisions and along strategic road corridors when an adjacent property undergoes major improvements or a new building is constructed. None of the townships in the BCATS have an ordinance pertaining to bicycle facilities and/or bicycle riders on the roadway.

Trails

In BCATS, there is more than 20 miles of non-motorized trails in three (3) separate areas, the Fraser Township Trail, the Hampton Township Nature Trail, and the Bay County Riverwalk and Railtrail.

The Fraser Township Trail utilizes 4 miles of the abandon rail line from north of Sherman Rd to south of Almeda Beach Rd. This trail is crushed limestone and runs adjacent to the Nayanquing Point Wildlife Area in Fraser Township.

The Hampton Township Nature Trail is a 2.5 mile crushed limestone path which connects the Finn Rd campground to Knight Rd and then continues west along the Saginaw Bay.

The Riverwalk and Railtrail is a 9.5 mile trail loop that uses a combination abandon rail corridors, widened sidewalks, a boardwalk and park pathways. This trail connects both sides of the Saginaw River and runs through Bay City, Hampton Township, and Portsmouth Township. Connecting to the Railtrail Loop is the Bangor Extension which runs 7.5 miles from the Railtrail Loop at the Liberty Bridge and out to the Bay City State Recreation Area (BCSRA). This route is considered part of the Bay County Riverwalk/Railtrail system and runs through Bay City and Bangor Township. It connects to the 1.5 mile long Frank Anderson Nature Trail in the BCSRA and the nature trails in the Tobico Marsh Wildlife Area. This entire trail network, with the exception of the nature trails at Tobico Marsh, is paved with asphalt or concrete.

On Road Bicycle Facilities

A limited, unconnected network of on-road bicycle facilities exists within BCATS (see the maps on page 7). Portions of the Bay County Riverwalk/Railtrail do use on-road facilities which include paved shoulders and "Share the Road" signing on low volume residential streets. There are several other roadways in the townships that provide a minimum 4 foot paved shoulder. The Liberty Bridge has a 4 foot concrete infill on the metal grates of the bascule portion of the bridge. This portion of the road is striped to mark the vehicle lane, but not officially identified as a bike lane. Completed during the summer of 2010, a bike lane was added on Two Mile Road and concrete sidewalks on Kiesel Road near Christa McAuliffe Middle School. These improvements were funded through a Safe Routes to Schools grant. Beyond these examples, the on-road facilities consist of the existing network of low volume residential streets.

BCATS Existing Non-Motorized Infrastructure

Upcoming Non-Motorized Projects

In the next 5 years, there are several planned projects to expand or improve the non-motorized infrastructure in the Bay City Area. Many of these projects are part of existing plans and programs are as follows:

Paved shoulders on 1.25 miles of Midland Road: In 2011, between Two Mile Road and ¼ mile west of Three Mile Road Midland Road will be reconstructed. This project will add 8 foot paved shoulders along this entire segment and be part of the Midland to Bay City Non-Motorized connection for the Great Lakes Bay Regional Trail Plan.

Paved Shoulders on 1.5 miles of M-84 (Westside Saginaw Rd): In 2011, between 2 Mile Road and Euclid Ave will be reconstructed and will include paved shoulders along the entire stretch. This phase II of a two phase project is part of reconstruction of M-84 in Bay County.

Bay-Zil Rail Trail Acquisition: The Michigan Department of Transportation (MDOT) is in the process of acquiring the abandoned rail line from Kochville Rd in Saginaw County to Backus St in Bay City. The property will be used for the Bay-Zil Rail Trail connection the Bay City trail system to the Saginaw trail system.

Paved Shoulder on 1 mile of North Union Rd: Planned for 2012 would be the reconstruction of North Union Road between Euclid Ave and Two Mile Road which will add paved shoulders and will also be part of the Midland to Bay City Non-Motorized connection for the Great Lakes Bay Regional Trail Plan.

Bay City Sidewalk Program: Bay City will continue its annual sidewalk replacement program to replace deteriorated sidewalks and fill in gaps where they exist, as funding allows.

Non-Motorized Improvement at the Central Bus Station: With the Bay Metro Transit Authority taking over full control of the Central Bus Station, various improvements are planned for the site. Planned are the additions of bike locker and more bicycle parking options.

Sidewalk Ramp Improvement: With every road resurfacing project, the road agencies (Bay City, Essexville, MDOT, and the Bay County Road Commission), must install sidewalk ramps that meet American with Disabilities Act (ADA) requirements where sidewalks exist and no ramp currently exists. If sidewalks are being installed as part of the project, then ADA ramps must also be installed.

Railtrail Resurfacing Projects: In the next 2-3 years, much of older portions of the 20 plus year old Bay City Rail Trail will be resurfaced as part of the maintenance of the trail. It will replace approximately two miles of the aging and cracked asphalt along the some of the oldest portions of the trail.

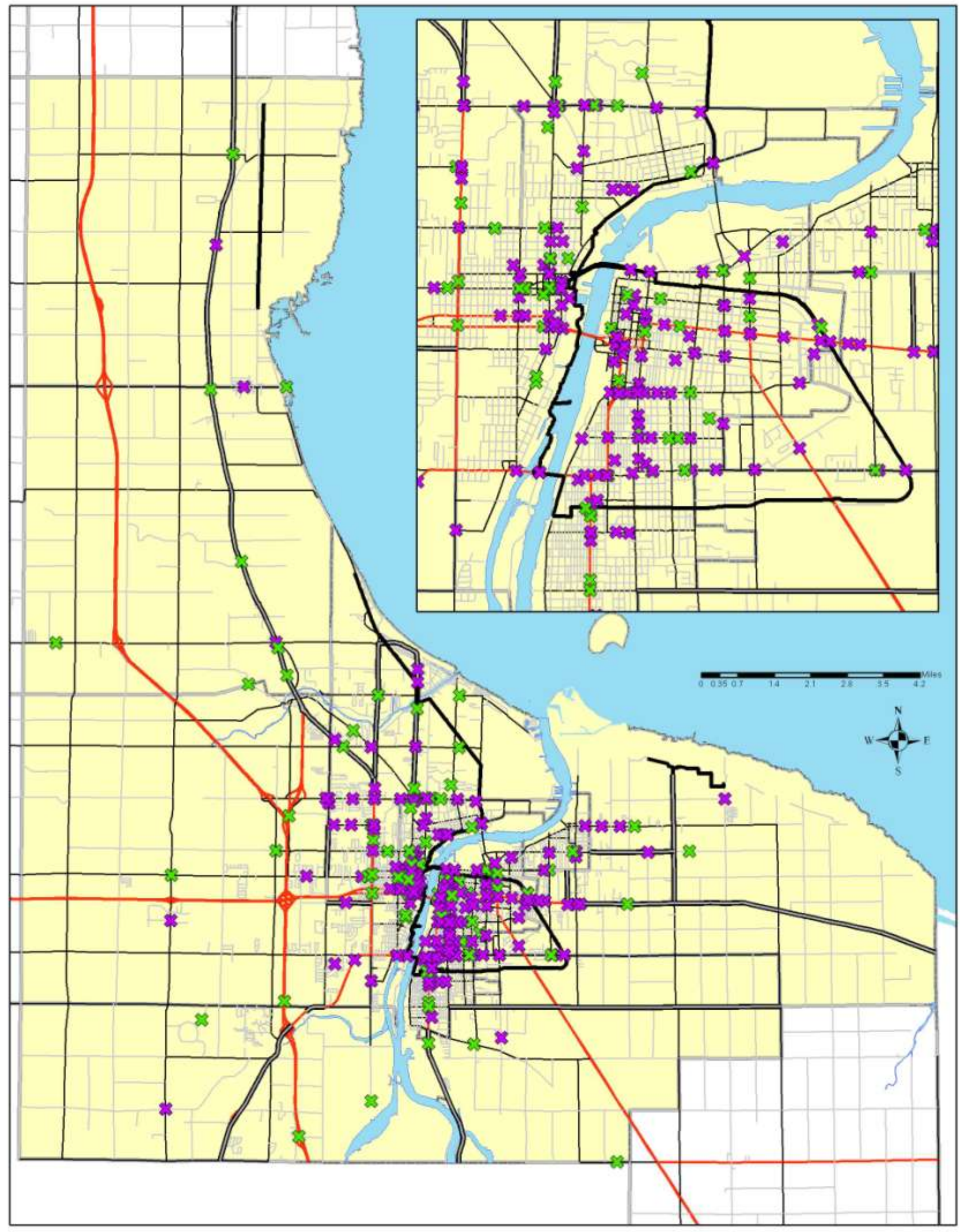
Safety of Non-Motorized Transportation Users

From design, to maintenance, to visibility, to education of all users, safety is continually a top concern for a non-motorized network. From 2005 to 2010 in the BCATS, there have been 270 reported traffic accidents involving bicyclists (178) or pedestrians (92), 12 of which were fatalities (five (5) bicyclists and seven (7) pedestrians), another 25 incapacitating injuries (12 bicyclists and 13 pedestrians). More than 67% (132 bicycles and 51 pedestrian) of all the non-motorized crashes within BCATS were within 0.01 miles (52.8 ft.) of an intersection and more than 86% (168 bicycles and 66 pedestrian) were within 0.03 miles (158.4 ft.) of an intersection.

Of those 270 non-motorized traffic accidents, 228 (153 bicycle and 75 pedestrian) or 84% were on Federal Aid Eligible Roads or at an intersection of a local road and a Federal Aid Eligible Road. Many of the non-motorized accidents could have been avoided with the proper education of either the drivers or non-motorized user. In the case of bicyclists and/or pedestrians, education on the proper use of the roadway and the rights of the bicyclist in the roadway is essential.

Apart from improving the education of non-motorized users and their rights, simply providing a non-motorized facility can further protect the motorist and the non-motorized user. For example, a striped bike lane on a collector road tells the bicyclist where and in which direction they should ride their bike. It also provides the motorists with a visual cue that alerts them that bicyclists are likely to be in the roadway, thus improving the visibility of the non-motorized user.

BCATS Non-Motorized Traffic Accidents 2005-2010



Chapter 4 – Connected Network of Non-Motorized Facilities

Creating a Connected Network

One essential for a network of non-motorized transportation facilities is connectivity. To create the network, the routes that will provide non-motorized facilities must be defined prior to developing the system. They should connect non-motorized users between their homes and destinations throughout the area. To make these routes possible, they must incorporate more than just the low volume residential/local roads and the separated trail system. The arterial and collector roads are needed to provide non-motorized transportation system connectors to the user's destination(s). Once a network of non-motorized facilities is established, it also needs to be maintained as any roadway. Proper maintenance on the network including on-road bicycle facilities and separated non-motorized facilities (shared use paths, sidewalks, etc) is essential to providing a connected network of non-motorized transportation facilities.

Complete Streets

According to Michigan Public Act 135 of 2010, a Complete Street "means roadways planned, designed, and constructed to provide appropriate access to all legal users in a manner that promotes safe and efficient movement of people and goods whether by car, truck, transit, assistive device, foot, or bicycle." Part of PA 135 requires all road projects to address the complete streets policies. Once the State Complete Streets Policy is fully established, BCATS will revisit this plan to adopt a Complete Streets Policy that conforms to that of the State of Michigan's Complete Streets Policy.

On Road Facilities

With the exception of the limited access highways, (I-75, US-10, I-75/M-13 Connector, and M-25 from I-75 to the cut off west of Gies Rd) all roads in the BCATS are available for legal use by bicyclists, although many BCATS roads, in their current state, do not offer a "comfortable area" for the majority of bicyclists. The simple adjustment of a lane width or the addition of lane striping could profoundly increase the safety, comfort, and visibility of the non-motorized user on the roads within the BCATS. According to the most current version of the AASHTO Guide for Development of the Bicycle Facilities, (1999 as of completion of this plan), many of our roads could be considered a bicycle facility by implementing these cost effective adjustments.

Any and all requirements for on-road bicycle facilities in the BCATS should follow the most current version of the AASHTO Guide for Development of the Bicycle Facilities. Following are a list of the various options for non-motorized facilities and a brief description of the options and benefits they provide to the non-motorized transportation user.

- **Paved Shoulders** – The addition of paved shoulders can often be the best way to improve a rural road for non-motorized usage. As a side benefit, paved shoulders can also extent the life of the road for vehicular traffic. To accommodate bicycle travel, a paved shoulder should be at least 4 feet wide, wider when speeds exceed 50 mph, where truck volumes are high or where high bicycle usage is expected.

- **Bike Lanes** – The addition of bike lanes to a roadway provide a dedicated area for bicycles. This can increase the bicyclist's confidence when riding in the roadway and alert the motorist that a bicycle may be in the roadway. Bike lanes should be a one-way facility and carry bike traffic in the same direction as the adjacent motor vehicle traffic. To provide adequate room for a bicyclist, a bike lane should be at a minimum of 4 ft. wide, with a recommended width of 5 ft. from the curb face to the bike lane edge marking. On roads where parking is permitted, the bike lane should be between the parking lane and the travel lane. Parking should never be allowed on a bike lane.

- **Wide Outside Lane (WOL)** – Where road width does not permit dedicated bike lanes, with or without on-street parking, and where the existing road width allows, re-striping the outside travel lane to a greater width than the inside travel lanes will allow a bicycle to share the road more comfortably with motor vehicles. For example a road consisting of four travel lanes and a center turn lane each 12 feet wide can be adjusted to two 14 ft. curb lanes, two 11 ft. travel lanes and 10 ft. center turn lane. This allows bicyclist more room to ride in the outside lane and the motorist more room to maneuver around them and still provide lane widths within AASTHO and State design guides which must be followed when changing the width of travel lanes.

- **Sharrows** – Sharrows are a pavement marking that assist bicyclist in improving their position on the road without bike lanes, reduce aggressive motorist behavior, encourage correct bicycling behavior and increase the comfort of (and therefore the number of) bicyclists on shared roads. They can accompany a WOL or used at a bottleneck intersection where road width does not allow for a bike lane. Any sharrows should be centered at least 4 ft. from the curb face on streets where parking is prohibited and 11 ft. from the curb face where on-street parking is allowed. They should clearly show the bicyclist where it is best to ride and alert the motorist to areas where they should expect to see bicyclist. On routes where sharrows are used, when future road reconstructed or resurfacing, it should not be mandated to add bicycle lanes added if it is not cost effective or feasible due to right of way restrictions or to on-street parking issues. However, if there is available space, conversion to a dedicated bike lane should be considered.

- **Shared Roads –** A shared road is any roadway that is suitable for both motor vehicle and bicycle use without any changes needed to the roadway. These roads should be paved, have a low traffic volume and/or low speed limits, and a low frequency of on street parked cars. For example, a road with an AADT (Annual Average Daily Traffic) of less than 3,000 and a speed limit of 35 MPH or less, and few parked vehicles, is considered a

suitable on-road facility for the vast majority of bicyclists. On roads with high speed limits, 40 MPH and above and an AADT below 1,000, the road could be considered a suitable on-road bicycle facility. However, some roads that fit in this category should provide another on-road facility if it is in a high bicycle use corridor such as a connection to a school, park, trail, or major bicyclist destination.

- **Signed Bicycle Route** – A signed bike route is not an actual bicycle facility, but a wayfinding system that can direct bicyclist to specific destinations on a "bicycle friendly" route. The signage should indicate the destination and direction of travel. These routes should not encourage illegal or unsafe behavior such as running stop signs, riding on the wrong side of the road, or sidewalk riding.

- **Selection of On-Road Bicycle Facilities –** Not every facility fits every road in every situation. Therefore, each on-road bicycle facility for each road needs to be selected with consideration given to other factors such as speed limit, traffic volume, on street parking, roadway width, and potential bicycle usage to name a few.

Other Non-Motorized Transportation Facilities

Besides the on-road bicycle facilities previously discussed, there are several other important non-motorized facilities necessary to providing a complete network for non-motorized transportation.

- **Bicycle Parking Facilities** – Providing bicycle parking facilities is important to an overall effort in promoting bicycling. All of the local communities require automobile parking for buildings, but none require parking locations for bicycle. As a result, bicycles are haphazardly locked to street signs, light poles, trees, and even benches. Because of this, people can be discouraged from bicycling until adequate parking is available. By providing this facility it encourages more riders, which in turn, promotes a healthier lifestyle. Bicycle racks should be designed so they:
  - Do not bend wheels or damage other bicycle parts
  - Accommodate locks to secure the frame and both wheels
  - Do not impede or interfere with pedestrian traffic
  - Are easily accessed from the street and protected from motor vehicles
  - Are visible to passers-by to promote usage and enhance security
  - Have as few moving parts as possible

  All townships and municipalities should look at ways to encourage the placement of bicycle racks on private development through site plan review or other financial incentive to add bicycle parking.

- **Shared Use Paths** – A shared use path is an off road facility designed to accommodate multiple forms of non-motorized transportation including walking, running, biking, and skating. These paths tend to be 10 feet to 14 feet wide to allow for two bicycles to pass in opposite directions safely.

- **Sidewalks** –Sidewalks are not generally regarded as a safe facility for bicyclists. Because of the number of driveways, the speed at which bicyclist travel, and the tendency of motorist to not be looking at the sidewalk for high speed traffic, increases the potential for accidents with bicyclists by a factor of five.* Sidewalks however do provide an excellent facility for pedestrians. By creating a completely connected system of sidewalks, the needs of the non-motorized user can fully met.

- **Public Transportation –** As many citizens cannot drive or chose not to, public transportation may be the only option for some trips. By adding capacity for bicycles in the forum of bike racks on buses for the fixed routes may encourage more rider to bring their bicycles to continue their journey beyond the reach of the fixed route.

ADA Compliance – Providing access for people with disabilities is a civil rights mandate that is not subject to limitation by project costs, levels of use, or "exceptional circumstances". While the Americans with Disabilities Act does not require pedestrian facilities in the absence of a pedestrian route, it does require that pedestrian facilities, when newly constructed or altered, be accessible for all users.

All non-motorized facilities should conform to the Americans with Disabilities Act standards for accessible design. This would include, but not limited to, curb ramps for all sidewalks; pedestrian signals; meeting gradient levels for pathways, sidewalks, and other facilities.

Policies toward Non-Motorized Transportation

BCATS encourages all of its entities; cities, townships, committees, and boards to establish policies that continue to promote and improve a non-motorized transportation network in Bay County and beyond. These policies would more than just increase non-motorized transportation, but also improve the quality of life for its residents, workers, and enhance visitation to our area.

*William Moritz, University of Washington - "Accident Rates for Various Bicycle Facilities" based on 2374 riders, 4.4 million miles. 1997.

Recommended Network of Bicycle Facilities

The following map series show one possible option of a completely interconnected non-motorized transportation network. Since sidewalks are the major facility for pedestrian use, the following map series focuses on the bicycle facilities. The goal of the map series is to connect all major destinations (schools, parks, shopping and employment areas, and other major attractors) for any non-motorized user, not just the recreational rider, with a network of various bicycle facilities.

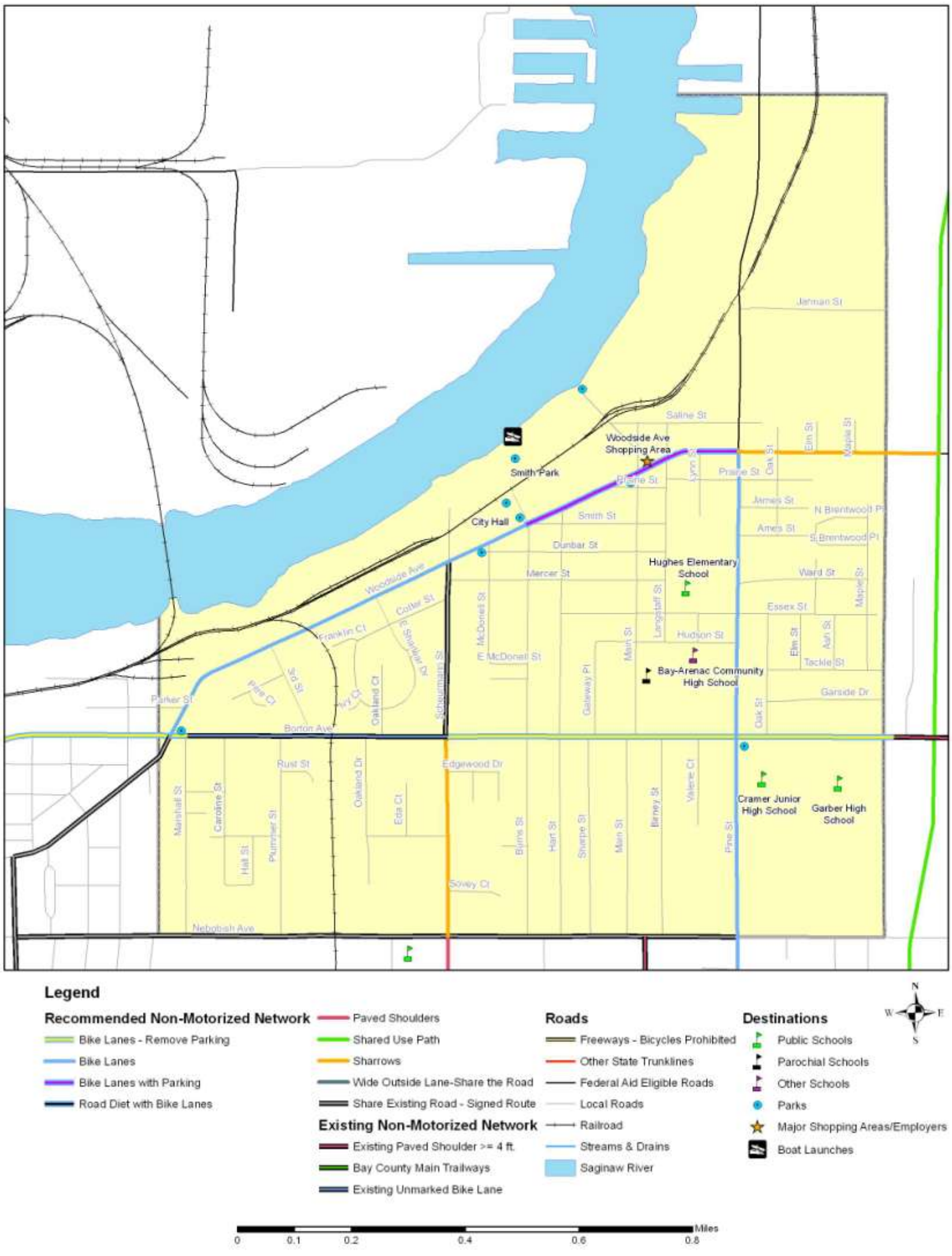
The maps take into account various factors including existing facilities, traffic volumes, road width, speed limits, on-street parking, and connection to destinations. Existing systems include trails, paved shoulders, and roads with traffic volumes and speeds low enough to easily accommodate shared usage with bicyclists. They also indentify roads that currently have the width to provide an on-road bicycle facility as described previously.

These maps provide only one option for our current system of road and trails and are not finalized or "set in stone." They do provide roadways options for bicyclists to use and they go a long way towards the completion of a non-motorized transportation system in Bay County. When future roadwork occurs on these identified routes, it provides an opportune time to establish the on-road bicycle facility.

Recommended BCATS Non-Motorized Network - Bangor Township

Recommended BCATS Non-Motorized Network - Bay City

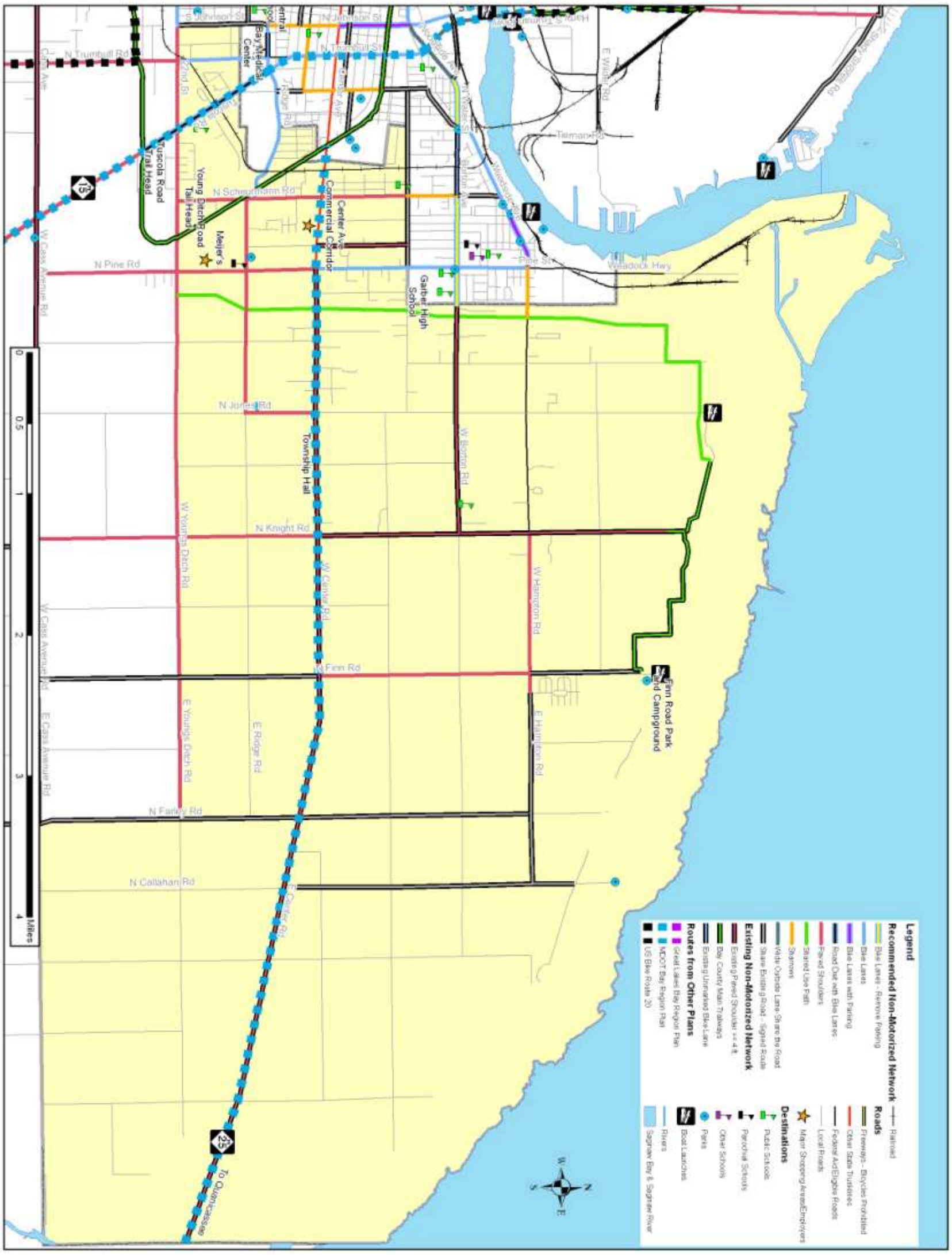
Recommended BCATS Non-Motorized Network - Essexville



Recommended BCATS Non-Motorized Network - Frankenlust Township

Recommended BCATS Non-Motorized Network - Fraser Township

Recommended BCATS Non-Motorized Network - Hampton Township



Recommended BCATS Non-Motorized Network - Kawkawlin Township

Legend

Recommended Non-Motorized Network
- Bike Lanes - Remove Parking
- Bike Lanes
- Bike Lanes with Parking
- Road Diet with Bike Lanes
- Paved Shoulders
- Shared Use Path
- Sharrows
- Wide Outside Lane-Share the Road
- Share Existing Road - Signed Route

Routes from Other Plans
- Great Lakes Bay Region Connecting Route
- MDOT Bay Region Routes
- US Bike Route 20

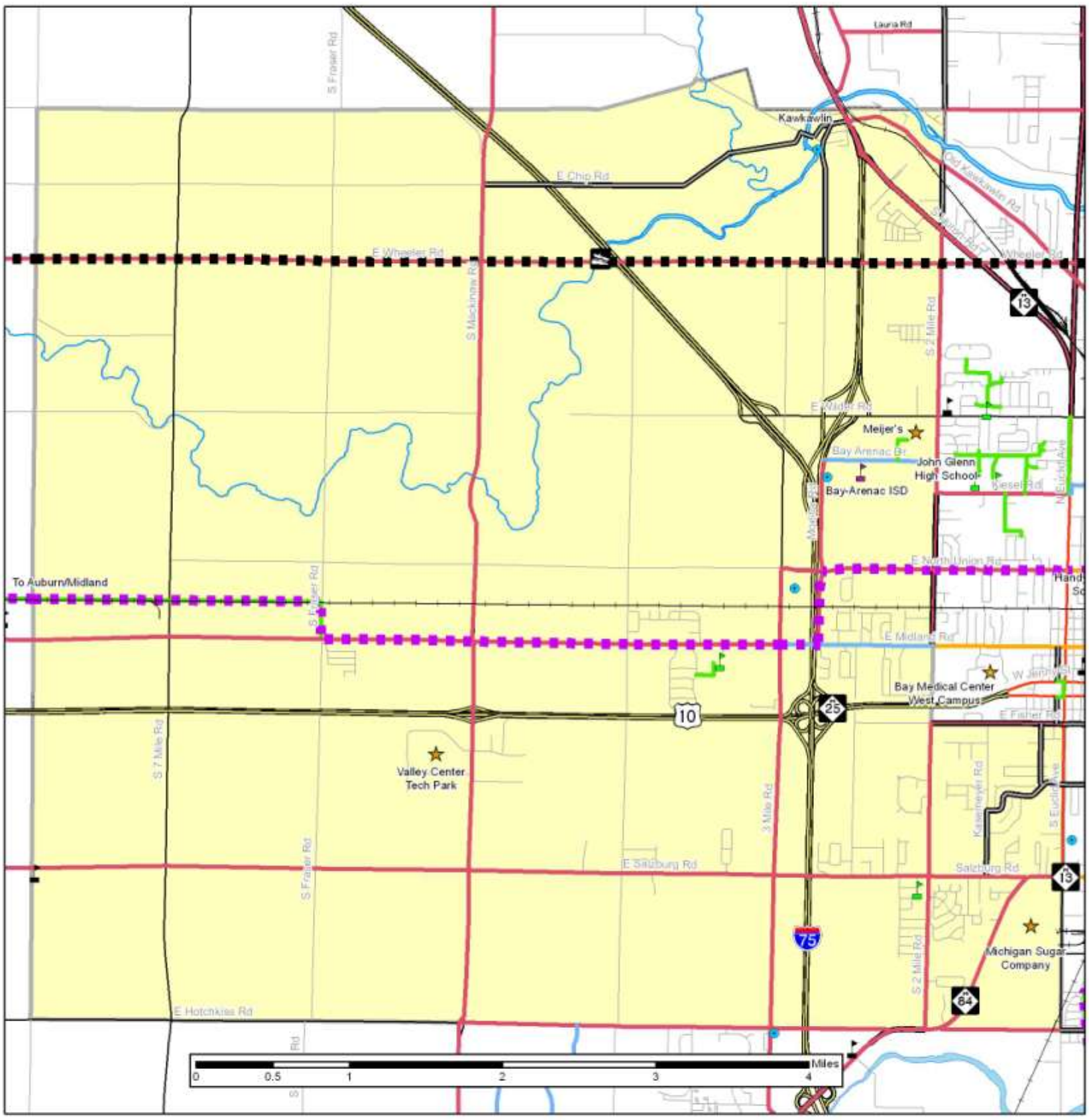
Existing Non-Motorized Network
- Existing Paved Shoulder >= 4 ft.
- Bay County Main Trailways
- Existing Unmarked Bike Lane
- Railroad

Roads
- Freeways - Bicycles Prohibited
- Other State Trunklines
- Federal Aid Eligible Roads
- Local Roads
- Rivers
- Open Water

Destinations
- Public Schools
- Parochial Schools
- Other Schools
- Parks
- Major Shopping Areas/Employers
- Boat Launches

N W E S

Recommended BCATS Non-Motorized Network - Monitor Township



Legend

Proposed Non-Motorized Network
- Bike Lanes - Remove Parking
- Bike Lanes
- Bike Lanes with Parking
- Road Diet with Bike Lanes
- Paved Shoulders
- Shared Use Path
- Sharrows
- Wide Outside Lane-Share the Road
- Share Existing Road - Signed Route

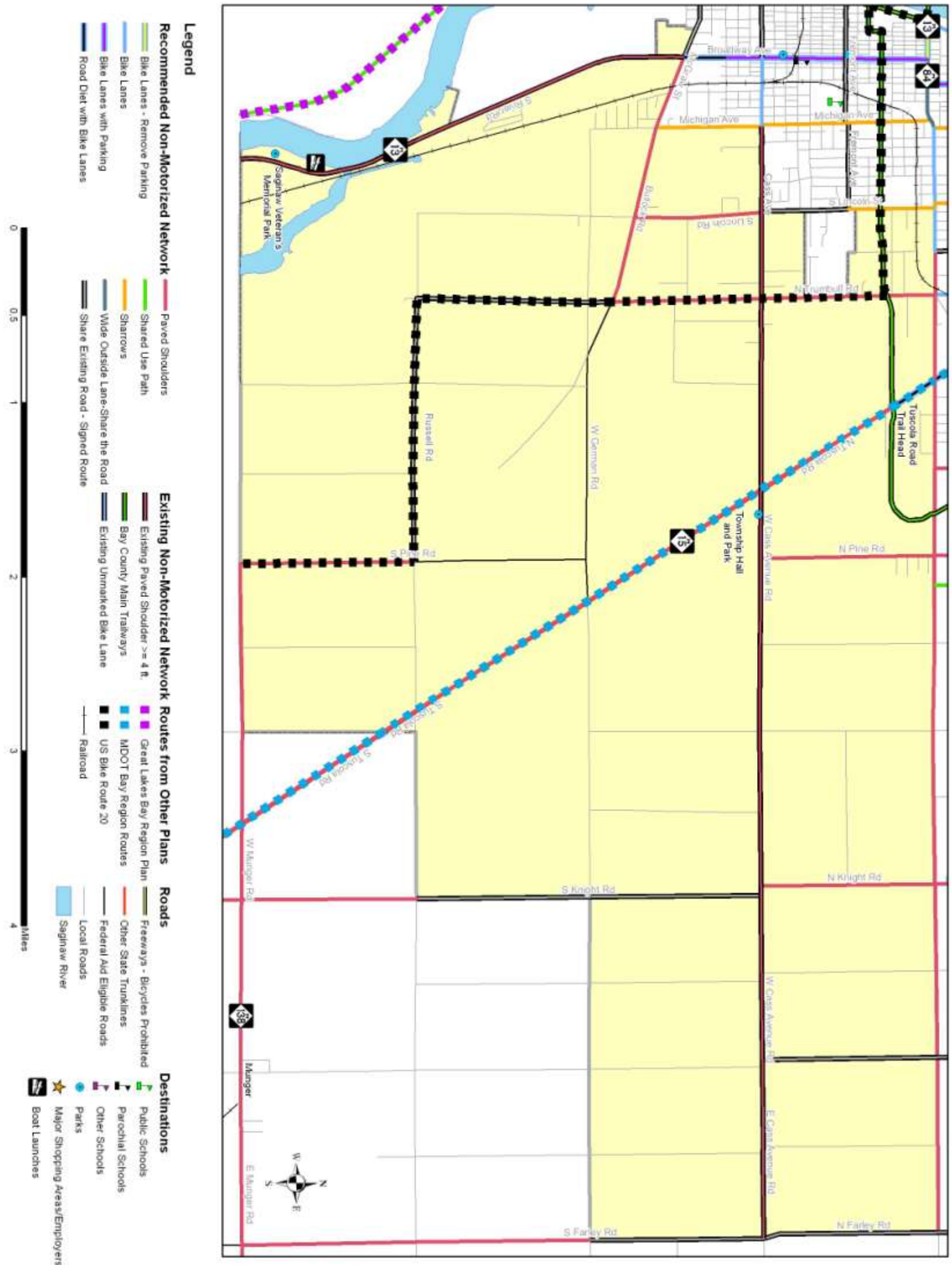
Routes from Other Plans
Name
- Great Lakes Bay Region Connecting Route
- MDOT Bay Region Routes
- US Bike Route 20

Existing Non-Motorized Network
- Existing Paved Shoulder >= 4 ft
- Bay County Main Trailways
- Existing Unmarked Bike Lane
- Railroad

Roads
- Freeways - Bicycles Prohibited
- Other State Trunklines
- Federal Aid Eligible Roads
- Local Roads
- Streams & Drains
- Open Water

Destinations
- Public Schools
- Parochial Schools
- Other Schools
- Parks
- Major Shopping Areas/Employers
- Boat Launches

Recommended BCATS Non-Motorized Network - Portsmouth Township



Priority Non-Motorized Routes

As a process in the development of this Non-Motorized Transportation Plan, BCATS in association with the local road agencies, selected specific corridors as the top priority in the establishment of non-motorized facilities. These routes consist of connections between existing non-motorized facilities, connections to and from major destinations, and several north-south and east-west connections through the area. The routes are identified on the following map.

Recent Non-Motorized Accomplishments

In the Bay City Area, recent non-motorized transportation improvements include the following projects:

Christa McAuliffe Middle School Safe Routes to School Project: This project provided the addition on sidewalks along a mile stretch of Kiesel Road in front of the Middle School and John Glenn High School to provide a safe walking area for students traveling to and from school. Part of that project included improving the paved should on Two Mile Road as well as a new pedestrian crossing at the intersection of Euclid Avenue (M-13) and Kiesel Road.

M-84 Paved Shoulders: As part of the reconstruction of M-84 in Frankenlust Twp, paved shoulders have been added from Delta Road to Two Mile Road.

Railtrail Resurfacing Projects: The 20 plus year old Bay City Rail Trail had two recent resurfacing projects to replace approximately one mile of the aging and cracked asphalt along the oldest portions of the trail.

Sidewalk Replacement and Additions: Bay City has continued its annual sidewalk replacement program to replace deteriorated sidewalks and fill in gaps where they exist. Several townships include Hampton and Bangor have been adding sidewalks along roads which have higher traffic and in commercial corridors to allow for pedestrians to access these businesses.

Top Priority Non-Motorized Routes

Chapter 5 – Implementation and Education

When to Add On Road Non-Motorized Facilities

There are various ideal times to begin the installation of the non-motorized facilities along the non-motorized routes. Numerous factors such as funding, road width, drains, and surfacing condition can determine whether or not a non-motorized facility could be installed. Below are a several options for the best time to install such facilities at a minimal extra expense.

- **Reconstruction and Resurfacing Projects** – When a road agency in BCATS has an upcoming reconstruction or resurfacing project on a non-motorized route, that agency should include the recommended on-road non-motorized facility if at all possible. If an alternate non-motorized facility or route is deemed more appropriate during the project development phase, the agency should verify the connectivity and viability with BCATS.

- **Road Restriping and additional Pavement Marking** – The addition of pavement marking or the adjusting of lane striping to incorporation an on-road non-motorized facility should only be completed on a roadway with a surface condition of good or better based on the PASER scale (6 or better). This process can also be used to connect non-motorized facilities that are in existence, but only lack a short connection. It is not recommended to add on-road non-motorized pavement marking a road in fair or poor condition (PASER scale of 5 or below). The result may be marking that could soon be covered by a future resurfacing project or an unsafe non-motorized facility due to poor road conditions such as potholes, large cracks, or crumbling shoulders.

- **Signed Bicycle Route** – By installing bicycle route signs as wayfinding system that can direct bicyclist to specific destinations on a "bicycle friendly" route. The signage should indicate the destination and direction of travel. These routes should not encourage illegal or unsafe behavior such as running stop signs, riding on the wrong side of the road, or sidewalk riding.

- **Additional Funding** – If and when additional funding options become available for the development of Non-Motorized Facilities, the first priorities should be to fill in gaps in the existing system or in the case of large scale funds, to focus on higher cost projects such as development of separated non-motorized trails or road widening to add bike lanes or additional paved shoulders.

Education of the Public on Non-Motorized Transportation

The Bay City Area Transportation Study should look to various options to help improve the education the people of Bay County in their Non-Motorized Transportation. Such as safety forums on the proper ways to share the road between motor vehicle and bicycles and posting information and maps on the Internet of the non-motorized projects and plans occurring in the area.