

CHAPTER 6

TRANSPORTATION



IN THIS CHAPTER:

- ▶ TRANSPORTATION PLANNING PROCESS
- ▶ CLASSIFICATION OF STREETS AND ROADS
- ▶ TRAFFIC VOLUMES IN MARINE CITY
- ▶ PAVEMENT SURFACE EVALUATION
- ▶ TRAFFIC CRASH ASSESSMENT
- ▶ PUBLIC TRANSIT AND NON-MOTORIZED TRANSPORTATION



INTRODUCTION

This chapter provides an overview of local and regional circulation patterns on roads within the city. Traffic counts, crashes and other transportation studies were studied to identify necessary future road improvements. Public transportation and non-motorized transportation issues are also examined.

A transportation system is made up of a network of roads, highways, rail lines, airports, bikeways, and pedestrian ways. The purpose of a transportation network is to move goods and people from one location to another. Different land uses and the intensity of those uses will influence the performance and stability of that network. In much the same way, the type and size of the transportation network will affect the rate, pattern, and intensity of growth in a community.

The transportation component of this Master Plan has a number of critical functions:

- ▶ It serves as a reference guide regarding the transportation system within the city.
- ▶ It sets a vision for future motorized and non-motorized transportation needs within the city.
- ▶ It promotes a better understanding of the land use/transportation interface and how comprehensive planning can be better integrated.

TRANSPORTATION PLANNING IN ST. CLAIR COUNTY

The St. Clair County Transportation Study (SCCOTS) is the federally-designated transportation planning agency responsible for identifying future transportation needs and then developing and evaluating proposed solutions to maximize the effectiveness of system investments throughout St. Clair County. SCCOTS is comprised of representatives from local units of government throughout St. Clair County.

The St. Clair County Board of Commissioners appoints eleven citizens to serve as the Metropolitan Planning Commission (MPC). MPC representation is countywide, with an appointee from each St. Clair County Board of Commissioner district and three members at-large. A staff of professional planners,

analysts, technicians and administrative support staff assist the MPC. MPC staff members also serve as staff to SCCOTS.

In order to fulfill its federal and state mandates, SCCOTS, in conjunction with the Southeast Michigan Council of Governments (SEMCOG), is engaged in the following ongoing transportation planning activities:

Data Collection and Analysis

The SCCOTS program provides data collection and analysis to assist federal, state, regional, and local transportation planning agencies. The work performed in this program element has a direct impact on areas internal and external to the County. SCCOTS staff closely monitors local agency plans and planning efforts, providing analysis and formal reports that gauge whether those local plans and projects are consistent with county and local master plans.

Plan and Policy Development

This program element consists of the review, analysis, development, and coordination of various plans and projects. Staff assists in the development of projects, the coordination of resources, and access to funding. These delivery units also engage the programmatic requirements for Federal Transportation Funding. SEMCOG, MDOT, and FHWA are the other agencies that plan projects in St. Clair County.

Plan Implementation

The Plan Implementation element is centered on the short-term implementation of longer-term plans. These plan element delivery units focus on the provision of capital projects or planning processes administered through local agencies. Staff assists in the development of projects, the coordination of resources, and access to funding. These delivery units also engage the programmatic requirements for Federal Transportation Funding. SEMCOG, MDOT, and FHWA are the other agencies that plan projects in St. Clair County.

Support Services

These delivery units satisfy the administrative duties of the transportation planning program and include the development of an annual Unified Planning Work Program, general program administration, and professional development, enabling St. Clair County to receive Federal transportation funding. SCCOTS staff performs the administrative functions required for the receipt of Federal PL 112 funding for the transportation planning program.

REGIONAL TRANSPORTATION OVERVIEW

St. Clair County is one of seven counties surrounding the Detroit metropolitan area. The county encompasses an area of 724 square miles. The Port Huron-Marysville urban area stretches from the village of Lexington, south along the shores of Lake Huron and the St. Clair River, ending just north of the City of Algonac.

The St. Clair County road network is comprised of 2,200 miles of roads. Of that total, 1,130 miles are paved and 1,070 miles are unpaved. There are 366 bridges in the county – the majority of which are owned and maintained by the St. Clair County Road Commission. More than 300 bridges cross lakes, rivers and streams with one-to-two lanes.

Marine City is located 20 miles south of Port Huron, Michigan, along the shore of the St. Clair River. The largest Michigan cities in close proximity are Flint and Detroit. Flint lies 69 miles directly west of Port Huron and Detroit is 59 miles southwest of Port Huron.

The closest Interstate highways are I-69 and I-94. Interstate 69 is approximately 19 miles north of the City and Interstate 94 is roughly 12 miles west of the city.

CLASSIFICATION OF STREETS AND ROADS IN MARINE CITY

Marine City's system of roads consists of 23.34 total miles - of which 5.17 miles are Federal Aid-eligible. Most roads in Marine City are 2-lane roads, with 19 miles of the network having two lanes. There is approximately one mile of 3-lane roads in the City and roughly one mile of M-29 consists of four lanes.

Functional classification is the process by which a community's network of streets and highways are ranked according to the type of service they provide. It determines how travel is "channeled" within the roadway network by defining the part that any road or street should play in serving the flow of trips through a transportation network.

In order to separate through from local traffic and residential from commercial and industrial traffic, the Thoroughfare Plan for Marine City proposes a separation of the different kinds of traffic into a system of roads based on the Federal Highway Administration's Functional Classification System for small urban areas:

1. Interstates
2. Principal Arterials
 - a. Minor Arterials
 - b. Major Collectors
3. Minor Collectors
4. Local Streets

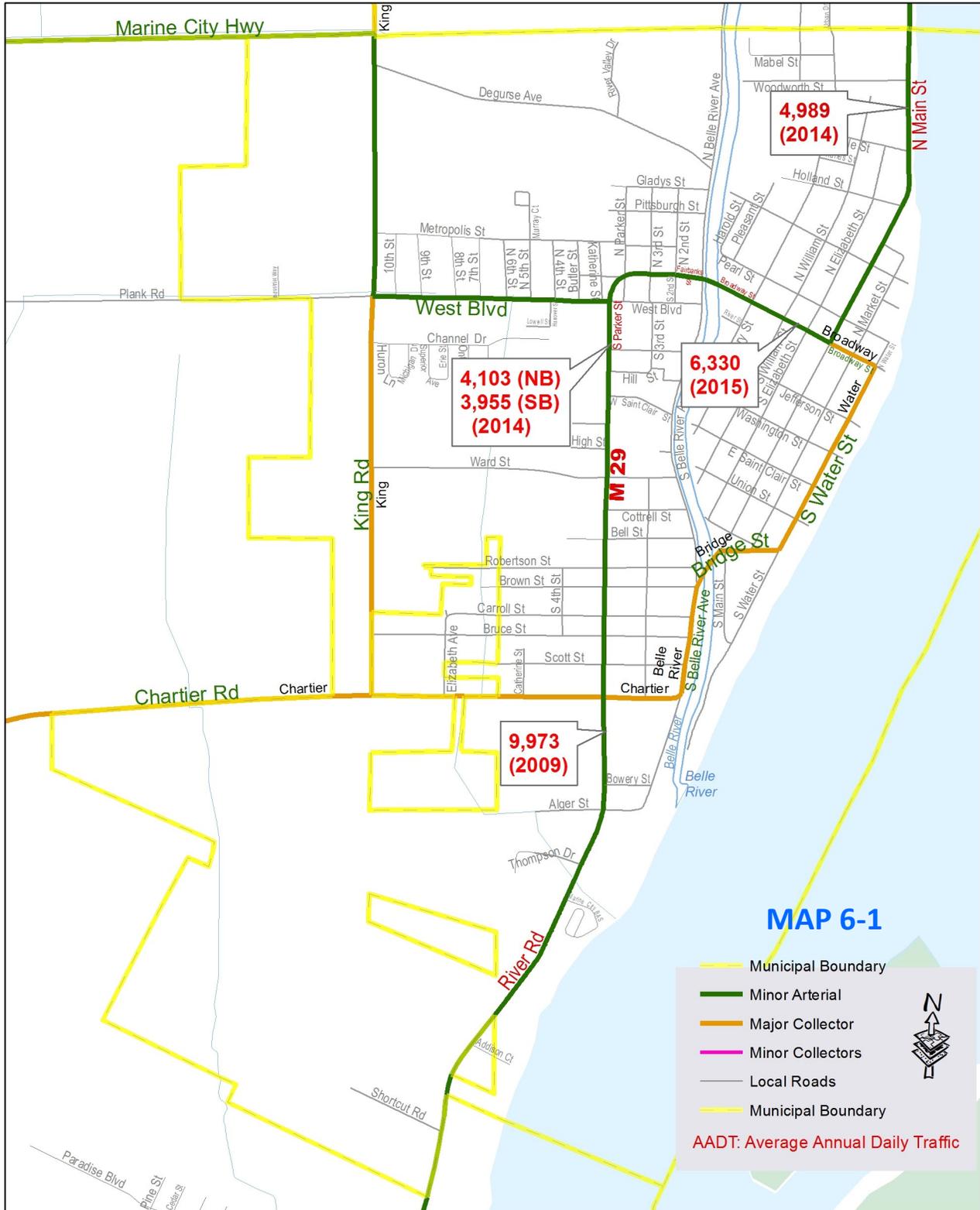
There are three of the above classifications present in Marine City, with most roads being either a Minor Arterial or a Major Collector. Those roads that are not classified as either a Minor Arterial or Major Collector are local streets.

These functional classifications are defined as follows:

Minor Arterials

These roads have a right-of-way of 100-150 feet and are intended to carry high volumes of through

Functional Classification & AADT



Map Source: SEMCOG
Average Annual Daily Traffic Database

Template Produced by:
Metropolitan Planning Commission
200 Grand River, STE 202
Port Huron, MI
COUNTY OF ST. CLAIR

traffic both within the City and to or from the surrounding region. Minor Arterials also can provide access to larger abutting properties and large commercial or business areas, such as shopping centers, factories and industrial parks. Often, they serve as State Trunkline routes. As through routes, there is a need to ensure continuous and safe traffic movements on these roads. The large volume of passenger and truck traffic on these routes is such that whenever possible they should not pass through residential areas.

Major Collectors

The collector street system provides both land access service and traffic circulation within residential neighborhoods, commercial and industrial areas. Unlike the arterial system, facilities on the collector system may enter residential neighborhoods, distributing trips from the arterials through the area to the ultimate destination. Conversely, the collector street also collects traffic from local streets in residential neighborhoods and channels it into the arterial system. In the central business district, and in other areas of similar development and traffic density, the collector system may include the street grid which forms a logical point for traffic circulation.

Local Streets

These roads have a right-of-way of 60-66 feet and are intended to provide access to residential neighborhoods and individual residential lots. Local streets typically carry relatively small volumes of traffic and are intended to discourage through traffic by means of low speed limits and stop signs.

COUNTY ROAD CLASSIFICATIONS

The St. Clair County Road Commission also uses, for maintenance purposes, a classification system based on the source(s) of funding for repairs and upgrades. This classification system, which the county applies to certain roads within Marine City, has two categories:

County Primary

These are roads for which the county is responsible for providing funds for maintenance and upgrades.

County Local

These are roads for which the county and the local community share in the maintenance and upgrade costs.

CROSS SECTION STANDARDS

To aid local communities in implementing thoroughfare plans, the St. Clair County Road Commission has established cross-section standards (showing the arrangement of the road surface, shoulders, median strips and utilities/drainage located within the various widths of road right-of-way) for the four road classifications given above (as well as expressways). According to these standards, local and collector thoroughfares are generally limited to two lanes of traffic. Standards for Regional Arterials and Major Thoroughfares indicate that they can accommodate up to four lanes of traffic (two lanes in

each direction) plus a left-turn lane. Regional Arterials may also be divided with a 60' wide median.

The Marine City Subdivision Ordinance also has minimum cross-section standards for City streets in platted subdivisions, set forth in §27-38 and §27-58 of the City of Marine City Code of Ordinances. These standards are as follows:

- ▶ Major Thoroughfares - 100' right-of-way
- ▶ Collector Thoroughfares - 80' right-of-way, 36'-40' pavement width
- ▶ Local Thoroughfares - 60' right-of-way, 28'-36' pavement width

MARINE CITY FUNCTIONAL CLASSIFICATIONS

Minor Arterials

Map 6-1 indicates that there are four minor arterials in the city. The first is State Highway M-29. This route runs south along Main St. from the northern City limits at East China Township to Broadway. M-29 then heads approximately west along Broadway to Fairbanks St., Fairbanks west to Parker and Parker south past the southern City limits into Cottrellville Township. M-29 is a paved two-lane route except for the sections along Fairbanks and Parker north of Chartier, which contain four lanes. The second minor arterial is Marine City Highway west of the City limits. Marine City Highway is a paved two-lane route from the City limits west to County Line Road, and then into Macomb County, where it becomes 26 Mile Road, running almost the entire width of that county. The other minor arterials are Plank Road, from King Road to M-29, and King Road, from M-29 to Plank Road.

Major Collectors

Nine existing road segments are classified as major collectors - four of which make up the "Water Street Loop." Additionally, the Master Plan proposes the creation of two new major collector routes. The existing routes are:

- ▶ King Road from Plank Road south to Chartier Street: King Road provides access to the City from St. Clair, China Township and East China Township, and connects much of the city's industrial areas with industrial areas in those other communities.
- ▶ Chartier Street from S. Belle River Avenue, west to the City limits: This links the City with an alternate route to Algonac.
- ▶ The "Water Street Loop" which consists of the following routes:
 - a. Broadway from M-29 east to Water Street
 - b. Water Street south to Bridge Street
 - c. Bridge Street west across the LaBuhn Bridge to Belle River Avenue
 - d. Belle River Avenue south to Chartier Street

This route serves as a link between M-29 and the International Ferry to Canada located

downtown on Water Street between Union and St. Clair Streets. Because of this particular function, the Water Street Loop was added to the Federal Aid System as a Rural Major Collector and is eligible for Federal funding. Such funding will make it possible to maintain those parts of the Water Street Loop that become damaged by the extensive truck traffic utilizing the International Ferry to Canada.

- ▶ DeGurse Avenue from King Road to N. Belle River Avenue.
- ▶ N. Belle River Avenue from M-29 to DeGurse Avenue

A proposed new collector route is:

- ▶ A north-south route running approximately halfway between King Road and Marsh Road from Marine City Highway south to Broadbridge Road: This new road should encourage development in the vacant areas between M-29 and Marsh Road and provide an alternative route to M-29 (via Broadbridge) from Marine City Highway. This proposed extension is not currently in the St. Clair County 2035 Long Range Transportation Plan.

The cost of construction of any new streets in undeveloped areas in the City should primarily be borne by the developer, although the City may want to offer a cost sharing program as an incentive to development. All new streets should be built to City standards prior to the City taking them over. The construction of those routes lying in unannexed areas of Cottrellville Township will have to be borne by the county and/or township, unless the city, county and/or township agree on other arrangements (such as further annexation or cost sharing agreements).

Local Streets

All remaining streets not previously listed are local streets. The majority of these are curb and guttered and paved. Those which are unimproved should be improved with a portion of the cost being assessed against the adjacent property owners.

TRAFFIC VOLUMES

Existing traffic volumes for roadways throughout Marine City vary, depending upon the location of the segment studied or the date the study was conducted. Table 6-1 displays the Annual Average Daily Traffic (AADT) on a number of the city's most traveled roadways. It is critical to consider existing traffic volumes when considering future development within the city, plans for roadway improvements or projecting future capacity. The City should work with SCCOTS and the St. Clair County Road Commission to evaluate existing conditions and establish an action plan for review of specific traffic management issues.

Map 6-1 shows the National Functional Classifications of the Marine City Road Network, along with the AADT counts for the busier road segments in the city.

TRAFFIC CRASH ASSESSMENT

Traffic crash frequency is commonly used as a measure in identifying existing traffic safety issues. As shown in Table 6-2, there were 352 traffic crashes in Marine City between 2011 and 2015. Of that total, approximately 81% of those crashes resulted in property damage only. During that time period, there were no fatal crashes. About 17% of the traffic crashes between 2011 and 2015 were the result

TABLE 6-1: ANNUAL AVERAGE DAILY TRAFFIC (AADT) COUNTS IN MARINE CITY			
BROADWAY			
Count Limits	Direction	Year	AADT
100 feet NW of Main Street	Northwestbound	2011	3,429
100 feet NW of Main Street	Southeastbound	2011	3,219
100 feet NW of Main Street	2-Way	2015	6,330
M-29 (MAIN)			
Count Limits	Direction	Year	AADT
100 feet N of Woodworth	2-Way	2009	5,551
100 feet N of Woodworth	2-Way	2014	4,989
PARKER			
Count Limits	Direction	Year	AADT
100 feet SW of Chartier Street	2-Way	2014	7,471
100 feet S of West Boulevard	2-Way	2014	7,924
100 feet S of West Boulevard	Northbound	2014	4,103
100 feet S of West Boulevard	Southbound	2014	3,955
RIVER			
Count Limits	Direction	Year	AADT
100 feet SW of Chartier Street	2-Way	2009	9,973
100 feet SW of Chartier Street	2-Way	2007	9,410
WARD			
Count Limits	Direction	Year	AADT
100 feet E of Parker Street	EB	2005	79
100 feet E of Parker Street	WB	2005	269
100 feet W of Parker Street	EB	2005	850
100 feet W of Parker Street	WB	2005	873
WATER			
Count Limits	Direction	Year	AADT
Between Washington & St. Clair	2-Way	2016	2,870

Source: SEMCOG, 2017

MARINE CITY MASTER PLAN

of lane departures and 4.5% were alcohol-related. Roughly 22% of crashes between 2011 and 2015 involved a driver aged 25 or younger, while about 16% of crashes had drivers 65 or older.

Table 6-3 shows the intersections in Marine City with the highest frequency of crashes. Large traffic volumes on roads do not necessarily lead to greater traffic hazards. However, it is not surprising in looking at Table 6-3 that many of the highest-crash intersections are along Parker Street, which also has some of the highest traffic volumes in the city.

PAVEMENT SURFACE EVALUATION AND RATING (PASER)

Each year, the St. Clair County Metropolitan Planning Commission (MPC) performs a visual inspection to evaluate pavement surface conditions on 50% of the federal-aid roads in St. Clair County. The next year, the same pavement evaluation is performed for the other 50% that was not done the previous year. Typically, PASER evaluates pavement distress in asphalt and concrete roads. For asphalt roads, the

TABLE 6-2: TRAFFIC CRASH SEVERITY IN MARINE CITY, 2011-2015

Crash Severity	2011	2012	2013	2014	2015	% of Crashes 2011-2015
Fatal	0	0	0	0	0	0%
Incapacitating	3	1	1	1	0	1.7%
Other Injury	20	16	15	6	4	17.3%
Property Damage Only	65	50	66	52	52	81%
<i>Total Crashes</i>	<i>88</i>	<i>67</i>	<i>82</i>	<i>59</i>	<i>56</i>	<i>100%</i>

Source: SEMCOG, 2017

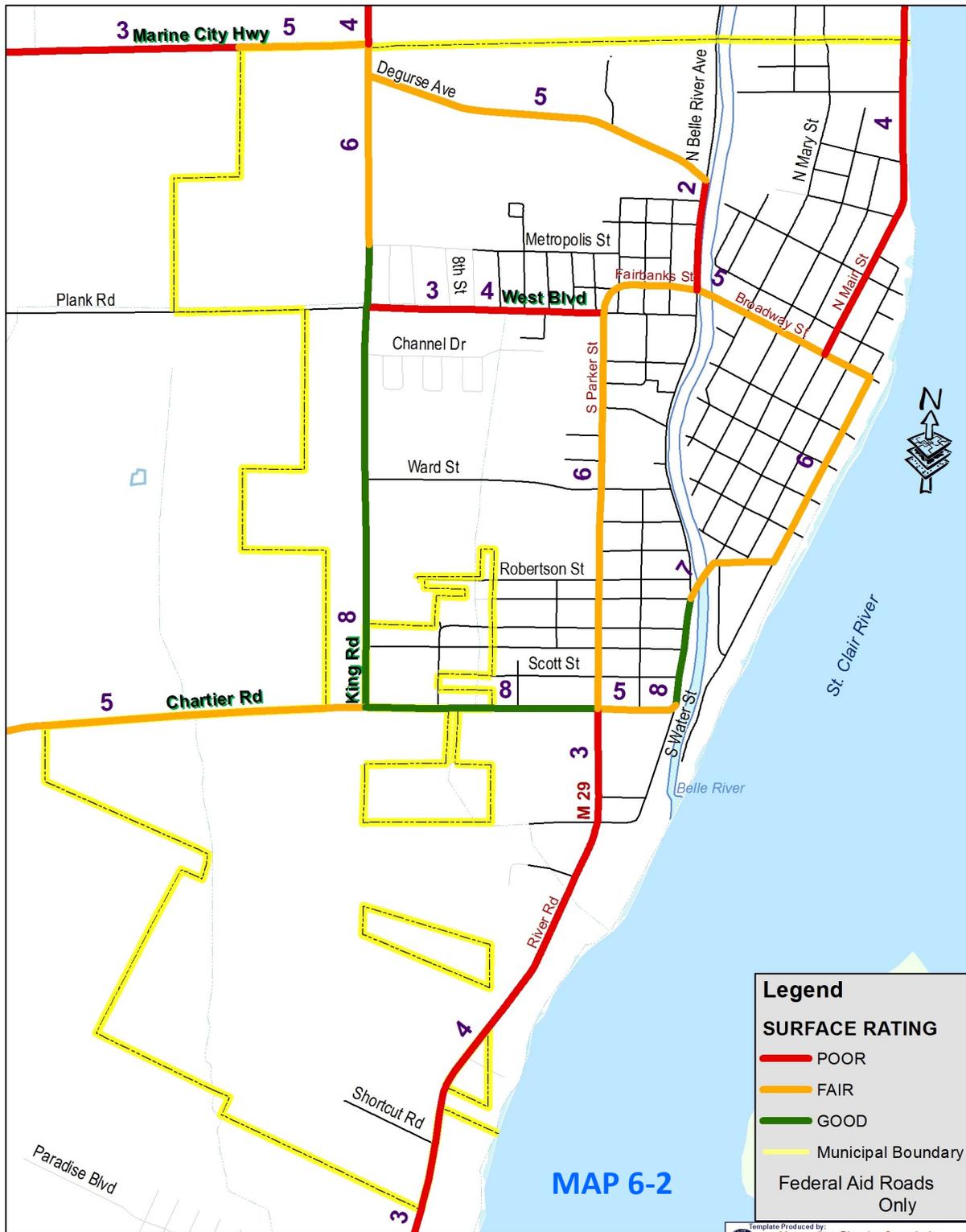
TABLE 6-3: HIGH-CRASH INTERSECTIONS IN MARINE CITY, RANKED BY 5-YEAR TOTAL

Local Rank	County Rank	Region Rank	Intersection	Annual Average 2011-2015
1	69	4,052	King Road @ Marine City Highway	4.0
2	145	6,452	Broadway Street @ Main Street S	2.6
3	145	6,452	Parker Street @ Main Street S	2.6
4	145	6,452	Parker Street @ Chartier Road	2.6
5	197	7,674	Broadway Street @ Mary Street S	2.2
6	230	8,440	Broadway Street @ Belle River Ave N	2.0
7	230	8,440	Parker Street S @ Ward Street	2.0
8	258	9,372	Fairbanks Street @ Parker Street N	1.8
9	258	9,372	River Road @ Shortcut Road	1.8
10	285	10,448	Water Street S @ Jefferson Street	1.6

Source: SEMCOG, 2017

PAVEMENT CONDITION 2016

Marine City Master Plan



Map Source: St. Clair County Transportation Study (SCCOTS)

template Produced by:
Metropolitan Planning Commission
200 Grand River, STE 202
Port Huron, MI
COUNTY OF ST. CLAIR

rating team looks at surface defects, surface deformation, cracks, patches and potholes. For concrete roads, the rating team evaluates joints, pavement cracks, pavement deformation (such as settlement or heave, utility repairs, patching, etc.), and surface defects (such as polishing, spalling, shallow reinforcing, etc.). In reviewing various defects, it is important to consider both the severity and extent. Typically, a defect will begin slowly and gradually become more severe. Rating the roads helps communities and road agencies manage road maintenance in an effective and fiscally responsible manner.

The most recent PASER data for Marine City is from 2016. The results of that evaluation showed that 11% of all road segments were rated as being in “Good” condition, 30% were rated as being in “Fair” condition, and 58% were rated as being in “Poor” condition. See Map 6-2.

PUBLIC TRANSPORTATION

The Blue Water Area Transportation Commission (BWATC) operates a fixed commuter route through Marine City that connects the greater Port Huron area with the more densely job populated Macomb County SMART transportation system at 23 Mile Road and Gratiot in Chesterfield Township. The route operates Monday through Friday and makes two round trip runs per day. It starts in Port Huron and has stops in Marysville, St. Clair, Marine City, Algonac, and New Baltimore.

The southbound portion of the commuter route enters Marine City from the north via M-29 and heads east on Broadway Street to Water Street. It then follows Water Street along the St. Clair River south until Bridge Street. At Bridge Street, the bus heads west to South Main Street and follows South Main Street south to South Belle River Avenue. The route continues south down South Belle River Avenue until it meets Chartier Road where it heads west until it reconnects with M-29 and continues heading south towards Algonac. After reaching its final destination in Macomb County, the commuter route follows the same path north through Marine City on its way back to Port Huron.

The commuter route in Marine City first stops along Water Street, in front of the Water Works building. It then stops again at the southern part of the City in front of the 5/3 Bank on M-29. The southbound bus enters Marine City at 8:00 am and 5:00 pm and the northbound bus enters at 9:10 am and 6:50 pm.

FERRY SERVICE

The Blue Water Ferry transports pedestrian passengers, automobiles, buses, and commercial trucks across the St. Clair River from Marine City to Sombra, Ontario. Running seven days a week, the first boat leaves Marine City at 7:00 a.m. and the last boat leaves Marine City at 10:30 p.m. Traveling from Sombra, the first boat leaves at 6:40 a.m. and the last boat leaves at 10:15 p.m. The rates for 2017 are as follows:

- ▶ Foot Passengers \$3.00 (round trip)
- ▶ Bicycles \$4.00 (round-trip)/\$2.00 (one-way)
- ▶ Cars \$7.00



- ▶ Trucks (as per weight)
- ▶ Motorcycles \$4.00 and \$5.00 with trailer
- ▶ RV'S \$7.00 and up

Data from the mid-1990s shows that automobile and truck traffic has remained relatively stable, while the number of pedestrian passengers has grown steadily.

Three ferries in Algonac provide passenger and automobile transportation service to Walpole Island, Russell Island, and Harsens Island. The latter two of these islands are within St. Clair County. Walpole Island is a Native American reservation within Ontario. United States Customs officials greet and control passengers who arrive in St. Clair County via the ferry from Sombra and the ferry from Walpole Island.

AIRPORTS

The Marine City Airport is one of two airports located in St. Clair County. is classified as a “general utility” airport, is designed for single-engine and some light two-engine, non-jet aircraft. Located on Marine City Highway, the airport has a 3,100-foot runway. As of 2017, it has around 24 aircraft based there.

The St. Clair County International Airport - located in Kimball Township - is a “transport facility” with a 5,100-foot runway capable of accommodating some jet aircraft; and a second 4,100-foot runway.

NON-MOTORIZED TRANSPORTATION AND PEDESTRIAN MOBILITY

Non-motorized traffic refers to quiet modes of transportation, such as bicycles, in-line skates, riding horses, and pedestrians of all ages and physical abilities. Non-motorized transportation can be an important alternative to the automobile as a source of recreation and as a means of commuting to work, school, and to shopping, social, and civic destinations.

A “greenway” refers to trails or pathways, designed for non-motorized traffic, that connect residential areas to other residential areas or commercial districts. Greenway resources refers to the total collection of trails and parks within a community or geographic area. Greenway resources include land and water areas, all of which function as an integrated system that provides more value than the sum of its individual parts.

St. Clair County has a conceptual greenways plan, which illustrates a system of trails and conservation corridors with significant natural features, such as soils, hills and valleys, drains, streams, rivers, wetlands, lakes, shoreline, woodlands, and wildlife habitat. The greenways plan’s objective is to maintain those natural features in a balanced ecological state while also allowing communities to grow in a controlled manner.

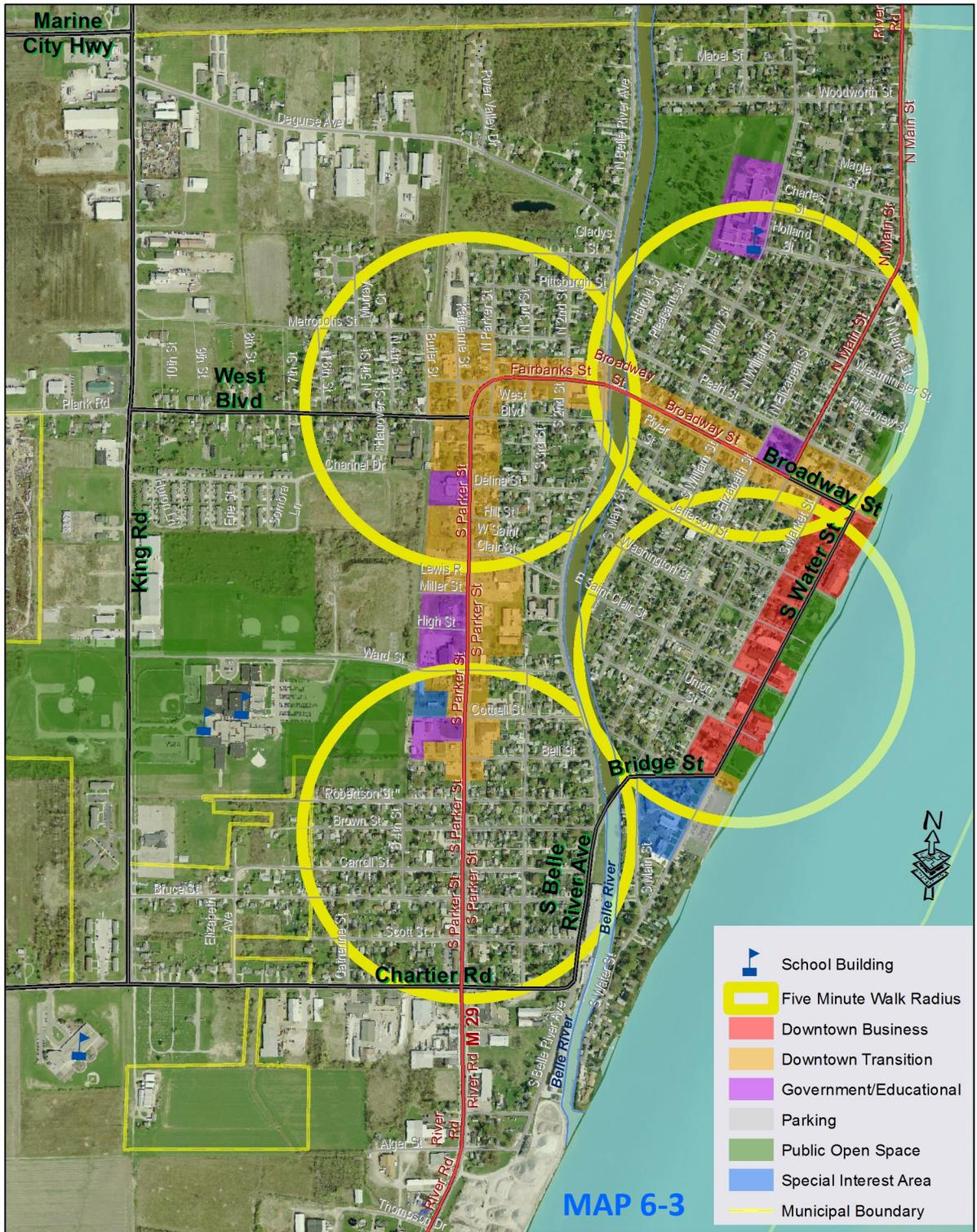
Bridge to Bay Trail

St. Clair County is working with 13 local communities to develop a 54-mile long network of non-motorized recreational trails linking the shoreline communities of New Baltimore (Macomb County), Algonac, Marine City, St. Clair, Marysville, Port Huron and Lakeport. Over 20 miles of paved trail have already been constructed in various sections utilizing funding from the Michigan Department of Transportation (MDOT), the Michigan Department of Natural Resources (MDNR) and private grants.



Pedestrian Mobility

Marine City Master Plan



Template Produced by:
 Metropolitan Planning Commission
 200 Grand River, STE 202
 Port Huron, MI
 COUNTY OF ST. CLAIR

Future plans call for the Bridge to Bay Trail to connect with the Macomb Orchard Trail in Richmond and the Wadhams to Avoca Trail.

Pedestrian Mobility

Map 6-2 highlights pedestrian mobility within Marine City. The yellow rings represent a five-minute walk from the center point from both the residential neighborhoods, the commercial corridor along Parker Street, and the downtown business district, along Water Street. As evident on the map, a pedestrian navigating Marine City's grid-patterned neighborhoods has relatively easy access to shopping and other services. Pedestrians typically can cover the entire length of Water Street in roughly five minutes, as well as walk along Broadway Street from Water Street to the Belle River.

Walkability is a key component of effective placemaking and enhances a community's overall quality of life. Marine City is unique from many other communities in the region in that it has a traditional downtown, a grid system of streets and neighborhoods, and a central business district adjacent to an important body of water (St. Clair River) and an international border. All of these characteristics work together to help define Marine City's character and provide a solid framework on which to build and promote opportunities for recreation, entertainment, and tourism. In many suburban communities throughout the region, those characteristics are not present in the community and pedestrian mobility is limited by the land use pattern, street design, and proximity to services. In Marine City, residents and visitors alike do not have to rely on the automobile to the extent that those other communities require.