SMATS 2045
Metropolitan
Transportation Plan

Adopted March 28,
2017
Saginaw
Metropolitan
Area
Transportation
Study (SMATS)

111 S. Michigan Ave.
Saginaw, Michigan 48602

Phone (989) 797-6800
Fax (989) 797-6809

The preparation of this report has been financed impart through a grant from the Federal Highway Administration, U.S. Department of Transportation, under the Metropolitan Planning Program, Section 104(j)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the US. Department of Transportation

Table of Contents

Chapter 1: Introduction and Overview of the Planning Process

1.1 The Metropolitan Planning Organization

A metropolitan planning organization (MPO) is a federally mandated and federally funded transportation policy-making organization in the United States that is made up of representatives from local government and governmental transportation authorities. MPOs were introduced by the Federal-Aid Highway Act of 1962, which required the formation of an MPO for any urbanized area (UZA) with a population greater than 50,000. Federal funding for transportation projects and programs are channeled through this planning process. Congress created MPOs in order to ensure that existing and future expenditures of governmental funds for transportation projects and programs are based on a continuing, cooperative, and comprehensive ("3-C") planning process. Statewide and metropolitan transportation planning processes are governed by federal law (23 U.S.C. §§ 134–135, & 49 USC 1603, 1605, and 1607). Transparency through public access to participation in the planning process and electronic publication of plans now is required by federal law. As of 2015, there are 408 MPOs in the United States.

Why MPOs are essential:

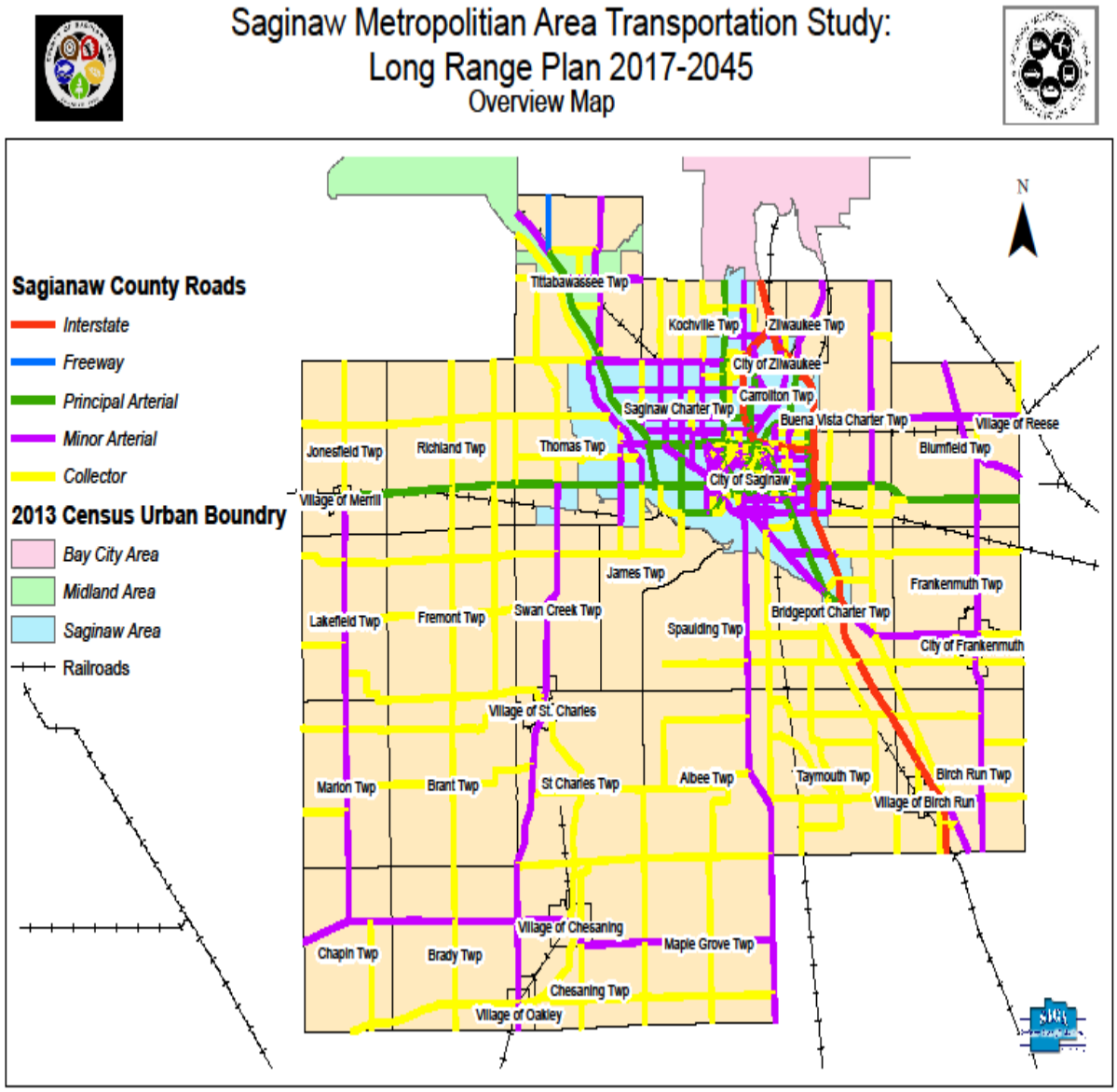
- Transportation investment means allocating scarce federal and other transportation funding resources appropriately;
- Planning needs to reflect the region's shared vision for its future;
- Adequate transportation planning requires a comprehensive examination of the region's future and investment alternatives; and

- An MPO is needed to facilitate collaboration of governments, interested parties, and residents in the planning process.

In other words, the federal government wished to see federal transportation funds spent in a manner that has a basis in metropolitan region-wide plans developed through intergovernmental collaboration, rational analysis, and consensus-based decision making.

1.2 SMATS Overview Map

Figure 1: SMATS Overview Map



1.3 The SMATS Transportation Planning Process

Every metropolitan area with a population of more than 50,000 persons must have a designated Metropolitan Planning Organization (MPO) for transportation to qualify for federal highway or transit assistance. The Saginaw County Metropolitan Planning Commission is the MPO for the Saginaw Urbanized area. Federal regulations require that the metropolitan area has a continuing, cooperative, and comprehensive transportation planning process that results in plans and programs that consider all transportation modes and supports community development and social goals. It is important that the membership of the MPO include the involvement of policy makers, technical staff, and the citizens of Saginaw County to address various facets of the transportation planning process.

The United States Department of Transportation (USDOT) relies on the MPO to ensure that highway and transit projects that use federal funds are products of a credible planning process and meet local priorities. USDOT will not approve federal funding for urban highway and transit projects unless they are in the MPO's program. Thus, the MPO's role is to develop and maintain the necessary transportation plan for the area to assure that federal funds support these locally developed plans.

Since the MPO is made up of those agencies responsible for carrying out transportation programs in the region, the process puts all units into partnership with one another to carry out the programs. Any agency can, however, carry out its own transportation projects with its own funds independent of the MPO.

1.4 MPO Three Main Planning Documents

The MPO performs three major work activities to meet specific federal requirements. These are:

- The development and maintenance of the Metropolitan Transportation Plan (MTP) through a "continuing, comprehensive, and cooperative (3C) planning process. Under previous legislation, this document was known as the "Long Range Transportation Plan" or, simply, "Long Range Plan."
- The development and maintenance of a four-year Transportation Improvement Program (TIP) that identifies all transportation system improvements in the SMATS area that receives Federal funding, including highway, transit, and non-motorized projects.
- The annual adoption of a Unified Planning Work Program (UPWP) or, more simply, Unified Work Program (UWP). This document presents a comprehensive one-year planning program that describes and coordinates the individual transportation planning activities of all agencies in the area.

1.4.1

These products are required for the SMATS Metropolitan Planning Organization to maintain its eligibility for federal transportation funds.

Unified Work Program (UWP)

The Saginaw Metropolitan Area Transportation Study's FY 2018 Unified Work Program (UWP) is the document that identifies major transportation planning and related activities that will be undertaken within Saginaw County during the project year October 1, 2017 through September 30, 2018. These

planning activities are supported by federal, state, and local funds. In FY 2018, SMATS intends to use third-party in kind contributions ("flexible match") provided by the Saginaw County Road Commission and the City of Saginaw to meet a portion of the local matching funds required for the FHWA grant funds. Detailed information on these contributed services is provided in the financial section of this document.

This Unified Work Program is prepared to meet requirements of transportation planning funding programs, and it includes descriptions of all facets of the Saginaw County Metropolitan Planning Commission staff's activities.

1.4.2 Transportation Improvement Program (TIP)

The Transportation Improvement Program (TIP) is an integral part of the planning process for the Saginaw Metropolitan Area Transportation Study (SMATS). According to the latest federal transportation bill, the FAST Act, a TIP must be developed for the Saginaw urbanized area by SMATS in cooperation with the State and transit operators. The TIP must be updated and approved at least every four years by SMATS and the Governor. It must include all projects to be funded under Title 23 and the Federal Transit Administration (FTA). There must be a reasonable opportunity for public comment prior to TIP approval. The TIP must be updated at least every four years, cover a period of not less than 4 years and must include a priority list of projects to be carried out in the first 4 years. The TIP shall be financially constrained and include a financial plan that demonstrates how the projects can be implemented while the existing transportation system is being adequately operated and maintained. Only projects for which construction and operating funds can reasonably be expected to be available may be included. In developing the financial analysis, SMATS shall take into account all projects and strategies funded under Title 23, U.S.C., and the Federal Transit Act, other Federal funds, local sources, State assistance, and private contributions. The TIP must also be consistent with the SMATS 2040 Metropolitan Transportation Plan. Project Selection and amendment criteria for the TIP projects can be found in Chapter 8.

1.4.3 Long Range Plan (LRP)

As has been previously mentioned, a Long Range Transportation Plan has a typical structure and development process. Presenting that structure and process helps explain the results and actions required to implement those results. To begin with, while planning has an end result in mind, it is also a circular process, in that good planning evaluates its end products and alters or modifies the process or content accordingly. The steps, and circular nature common to most long range planning, regardless of subject matter, can be seen in this graphic, which is used frequently to illustrate the process. In general, planning starts off with a "vision" or the big picture changes that everyone mostly agrees upon. This is a sort of dream, or best of all possible outcomes stage, and although reality will enter into the picture soon enough, knowing what people really want is very important to the process.

When specifically speaking about transportation planning, the elements involved are very similar, though the specific terms and data are different. The Long Range Transportation plan must address the 10 federally mandated planning factors, but it must also reflect the needs and priorities of the residents and stakeholders in the SMATS area. This can be seen as part of the larger planning and implementation process for SMATS.

This document will, by and large, follow that structure. After the development of visioning and the

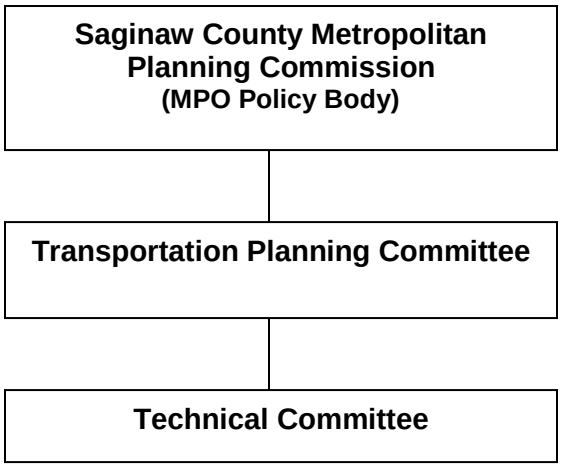
setting of goals and objectives that correlate with the Federal planning factors, we will explore the history of the area, the existing and projected data in a variety of forms, and the prioritized solutions that link back to the vision and goals of the plan.

Development and Amendment Process

SMATS shall consult with governmental units within the MPO, local economic development organizations, freight related businesses, non-motorized transportation groups and clubs, local transportation providers, and other interested parties in the development of the Transportation Improvement Program and the Metropolitan Transportation Plan. SMATS shall also conduct outreach, public comment periods and public hearings as described in the Participation Plan. Both the initial Transportation Improvement Program (TIP) and Metropolitan Transportation Plan (MTP) shall be published for a minimum of 45 days to receive written public comment before adoption. For any amendments at least one public hearing will be held prior to the adoption of an amendment to the LRP, the TIP, and any other major SMATS transportation planning document. Notice of a proposed amendment and the public hearing shall be given by at least one published notice. No specific comment period is required for an amendment, but a comment period for an amendment may be established by the SMATS Policy Body (Metropolitan Planning Commission) with the recommendation of the SMATS Transportation Planning Committee.

1.5 Organizational Structure for Planning

The Saginaw County Metropolitan Planning Commission is the policy body for the SMATS organization. The Saginaw County Metropolitan Planning Commission (SCMPC) consists of eleven (11) members who are appointed by the County Board of Commissioners and, in addition, representatives of the following entities who serve as non-voting ex officio members: MDOT, Saginaw County Road Commission, City of Saginaw, and the Saginaw Transit Authority Regional Services (STARS). The Saginaw County Metropolitan Planning Commission meets on a regular monthly schedule in the Saginaw County Courthouse. At these meetings current transportation issues are discussed and status reports on transportation studies and projects are presented. After committee discussions are completed, policy actions are taken that include adoption of the UWP, TIP and the Metropolitan Transportation Plan, revision of these documents when needed, and adoption of resolutions related to current transportation issues. Any financial matters relating to SMATS or sub-contractors have to go to the full County Board for approval, since SMATS is finically covered by Saginaw County.



The Transportation Planning Committee serves as the MPO's advisory body on all transportation-related matters. Transportation Planning Committee meets on a regular monthly schedule at the Saginaw County Metropolitan Planning Commission offices at the County Governmental Center. The voting membership of the Transportation Planning Committee includes the Chief Elected Official (or their alternate) from each unit of local government in the Saginaw Urbanized Area, and representatives of MDOT, the County Road Commission, the East Central Michigan Planning and Development Regional Commission, the 7-B Rural Task Force, STARS, and the Saginaw County Metropolitan Planning Commission. Non-voting members include representatives of the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). Non-voting membership is also open to rural municipalities, and all other public and private entities with an interest in the transportation planning process.

The Transportation Planning Committee also maintains a Technical Committee composed of individuals with expertise in transportation planning. The Technical Committee serves to provide advice and recommendations to the Transportation Planning Committee on all technical aspects of the transportation planning process. The Technical Committee meets as needed, but at least quarterly.

1.5.1

List of Planning Commission Members

Tim Courtney, Chair	Birch Run Township
Seymour Geiersbach, Vice-Chair	Saginaw Township
Delena Spates-Allen	City of Saginaw
Michael Cicalo	Chesaning Township
Charles Sledge	City of Saginaw
Marvin Walker	City of Saginaw
Tom Koski	Saginaw Township

G. Thomas Kerr	Frankenmuth Township
Rudy Patterson	Saginaw Township
Daryl McPhail	St. Charles Township
Calvin Williams	Bridgeport Township
Matthew Pitlock	MDOT-Lansing
Dennis Borchard, ex-officio	Saginaw County Road Commission
Beth London, ex-officio	City of Saginaw
Glenn Steffens, ex-officio	STARS

List of Technical and Policy Members

Rob Grose, Chair	Saginaw Township
Russ Taylor, Vice-Chair	Thomas Township
Len Ballosh	James Township
Dennis Borchard	Saginaw Co Road Commission
Sue Fortune	EMCOG
Seymour Geiersbach	Saginaw County Planning
Beth London	City of Saginaw
Rose Licht	Bridgeport Township
James Loiacano	Kochville Township
Delegate	City of Zilwaukee
Matthew Pitlock	MDOT (Lansing)
Marc McGill	Tittabawassee Township
Thomas Mayan	7-B Rural Task Force Small Cities & Villages
Christina L. Dillard	Buena Vista Township
Marvin Kozara	Carrollton Township
Glenn Steffens	STARS
John Tagget	Spaulding Township
Jay Reithel	MDOT (Bay Region)
Chuck Stack	Saginaw County (BOC)

1.5.2

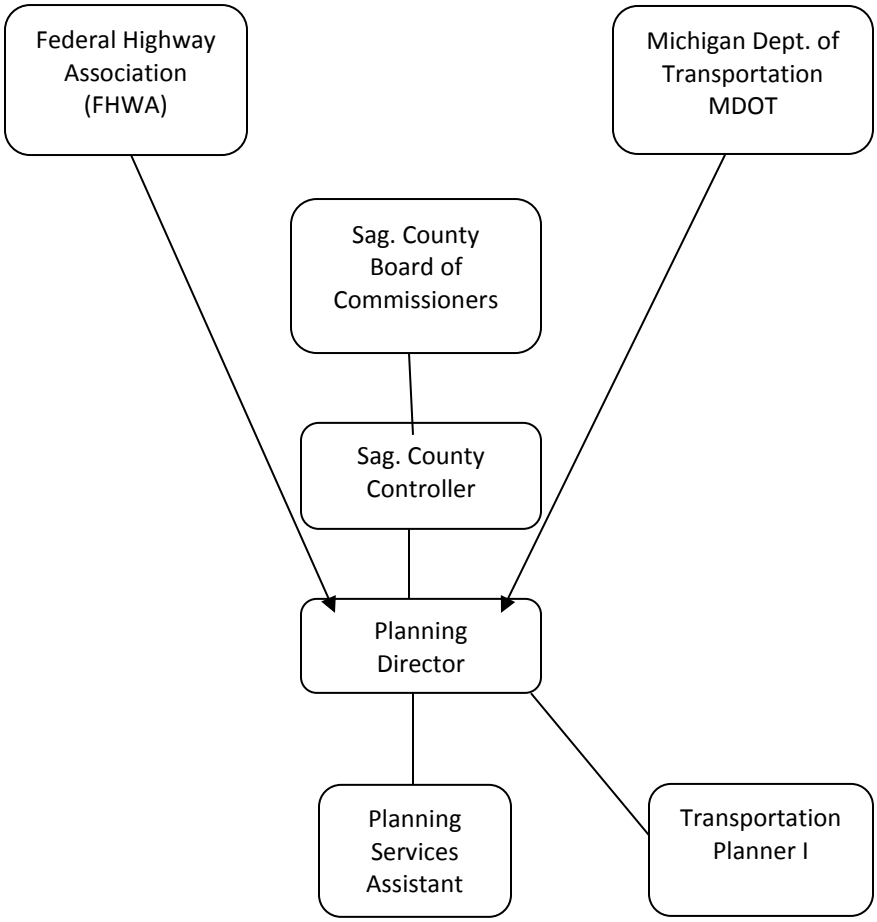
1.5.3

Organizational Staffing Structure for SMATS in FY 2018

The staffing in this document reflects the hiring of a new executive director in November 2017. That position has been vacant since the end of February of 2017. To address increased responsibilities anticipated to be asked of MPO's statewide, the SMATS Long-range document reflects an increase of staffing from 3 to 3 and ½ staffers.

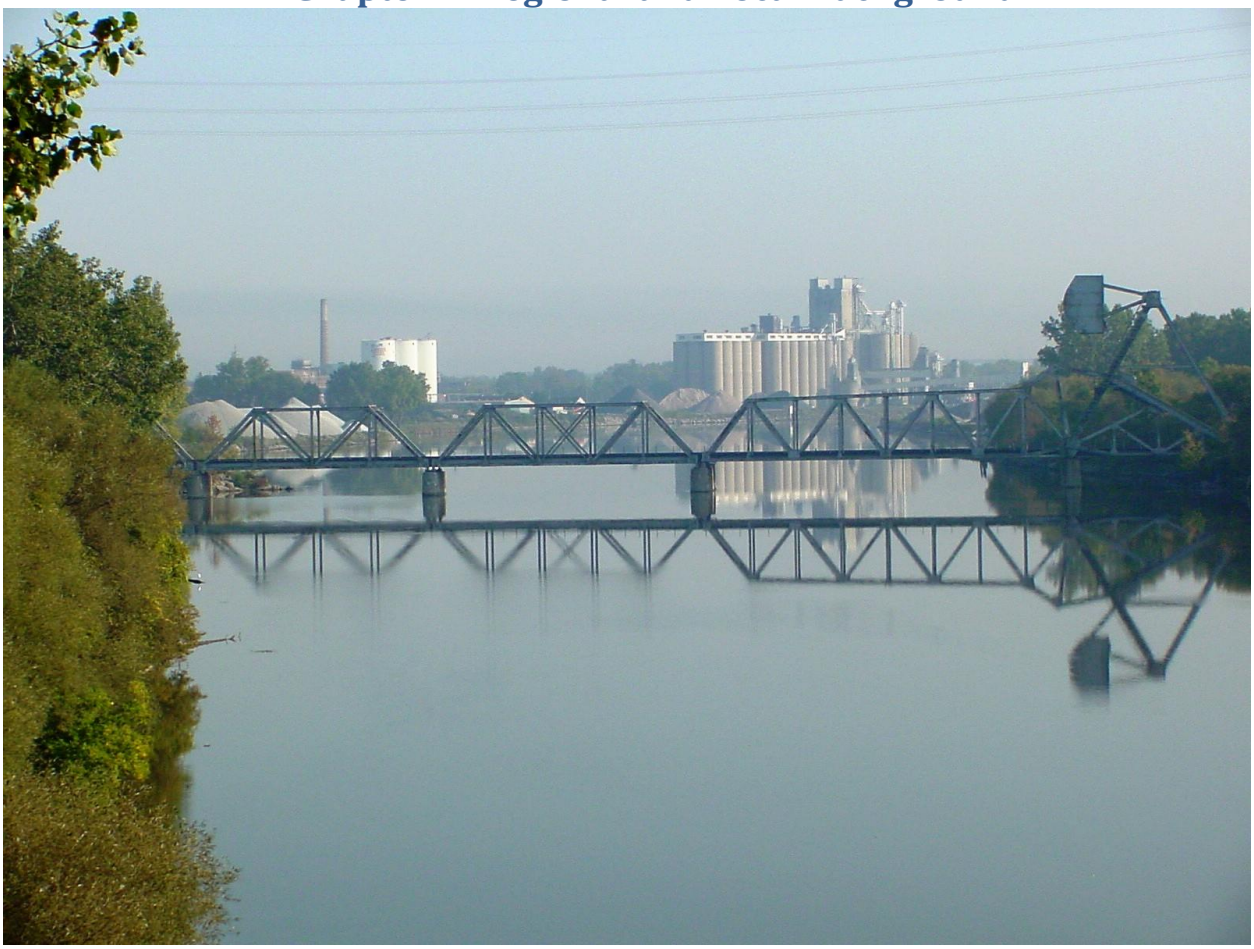
Specifically, in addition to a new director, SMATS will fortify the planning staff by retaining the existing Associate Planner Position, add a Transportation Planner I position (this will be accomplished by promoting and reclassifying the current Planning Service Assistant to a level 2 or above beginning) and adding a ½ time Planning Service Assistant to complete a staff at a level to address current and new workload demands.

The Director will report to the County Controller, and be the major link to administration at both FHWA and MDOT.



SMATS has prepared and maintained transportation plans (formerly known as "long range plans") for many years. The most recent plan was adopted in 2012 and was prepared for the horizon year of 2040. The current planning effort will substantially update and revise the current plan to address the new challenges and opportunities facing the Saginaw Metropolitan Area's transportation system, using a target year of 2045. The 2045 plan will continue to address the requirements established by federal transportation legislation, specifically MAP-21 and the FAST Act.

Chapter 2: Regional and Local Background



2.1 Region-

The Saginaw Area Transportation Study Area is located within the Great Lakes Bay Region (GLBR) of Michigan, encompassing the City of Saginaw, and is in close proximity to the cities of Bay City and Midland. The SMATS planning area comprises approximately 816 square miles and has a 2016 estimated population of 195,201. The largest population center within the SMATS area is the City of Saginaw with a 2016 estimated population of 49,892.

In total, the Great Lakes Bay Region offers a strong variety of tourism assets. There is a wide range of existing experiences that tourists can access and enjoy throughout the year, including urban and walkable options, natural and recreational activities in urban and rural areas and destination developments like outlet malls, waterparks, and sports and entertainment facilities. Historically, the region has been both a destination and a collection of pass-through attractions for those driving from the southern metropolitan areas to northern lower Michigan (including the Lake Michigan coast) and the Upper Peninsula. It has been difficult for the region's natural assets in Saginaw Bay and related rivers that flow into it to compete with the sandy beaches of Lake Michigan to the west. However, as the region has de-industrialized as part of a larger shift in the national manufacturing economy, the natural landscape, including the rivers and lakes, has been the focus of more attention, investment and

revitalization. The region boasts new and underway nature trails for hiking and biking, rivers and the Saginaw Bay for canoeing, kayaking and boating. Yet with active and committed leadership, more can be done to advance these assets to both restore quality and allow for recreational use.

The urban centers of Bay City, Midland and Saginaw have also been reinvigorated in recent years. All have developed substantially in terms of restaurants, sports and entertainment outlets and overall attractiveness and walkability. SMATS believes that active, walkable downtowns are not a fad and that current and future generations will be attracted to these environments, just as they will seek recreation in the natural environments. For these reasons, the recommendations focus primarily on urban developments that help attract and retain visitors, residents and companies – fully realizing that residents and companies also act as visitation generators. The assets that are developed to attract tourists also act as local assets to attract and retain residents, talented employees and the companies seeking this talent.

2.2 Saginaw-

Long known for its productive agricultural lands, lively culture, solid manufacturing base and bountiful natural resources, Saginaw County offers a rich and diverse quality of life enhanced and defined by a population willing to roll up their sleeves and make things happen. Saginaw County provides friendly and affordable living for approximately 200,000 citizens who live, work, learn and play within its borders. Encompassing 810 square miles located within the heart of the Great Lakes Bay Region, Saginaw County is home to a vast system of waterways and woodlands as well as a wealth of nature preserves, trails and facilities that support a love for green spaces and active lifestyles.

With a nod to its historical lumber and automotive heritage, Saginaw County uses a community-centered approach to foster education and healthcare expansion, a flourishing tourism industry and an active commitment to culture and the arts.

2.3 Geography

SMATS is located in a predominantly rural and generally flat area of lower Michigan. The area's low and level terrain, known as Lake-border plains, was formed as a result of glacier activities that occurred approximately 15,000 years ago. This glacial process contributed to the deposit of distinct soils which are native throughout eastern mid-Michigan. Another feature unique to the region is the Saginaw Bay watershed, Michigan's largest. This watershed encompasses over 8,500 square miles of land and drains approximately 15% of Michigan's land area into Lake Huron. Additional characteristics regarding the region include various woodlands, rivers, wetlands and other natural features. Within SMATS' boundaries there are five major waterways, the Flint, Case, Shiawassee, Tittabawassee, and Saginaw Rivers. The first four rivers converge near the City of Saginaw and turns into the Saginaw River that heads out to the Saginaw Bay. The rivers stretch inland across Michigan with coverage in all or parts of 22 counties.

Soils deposited in the SMATS area are a combination of loamy and sandy soils which are suitable for most development. However, these soils are generally impervious which stimulates frequent flooding in zones of close proximity to bodies of water. As a result, the County of Saginaw experiences flooding and standing water in a number of areas due to poorly drained soils and low land slope. To mitigate this, the

City of Saginaw and Saginaw County Road Commission implements best management practices to reduce the amount of impervious surfaces and preserve native vegetation which may assist in the soils ability to manage storm water.

Relevant amenities within SMATS' area include Shiawassee National Wildlife Refuge which was established in 1953 and contains more than 9,800 acres of marsh, bottomland hardwood forest, and grasslands. In more urbanized areas, grasses, landscaping plants, waterfront vegetation, and some wooded areas can be found. A significant wooded feature can be found at Imerman Memorial Park, Price Nature Center, and Ringwood forest. The parks are operated by the Saginaw Parks and Recreation department that provides a source of natural cover for local wildlife, as well as recreational opportunities for the general public.

2.4 Demographics

The twenty-one minor civil divisions that span the SMATS area contain both declining and growing population base in certain areas of the County. The changes that affect the population base are age distribution, racial and income makeup, and employment characteristics all profoundly influence the demand for, and use of, our transportation infrastructure. Both as a basic planning-level tool, and as preparation for the Travel Demand modeling effort, an understanding of the demographics of the SMATS area is essential. Further, monitoring changes in socio-economic data will be key to evaluating the effectiveness of the plan, and any changes to it, in the coming years.

Once work on the Travel Demand Model and Long Range Plan commenced in 2014, 2013 was chosen as a base data year. The 2013 population, household, and employment data was then reviewed with local units of government from December 2014 to March 2015 for accuracy. This process thereby accounted for any recent developments that could influence local data trends and revised the location/number of employees for businesses within each jurisdiction. This data was then reviewed and approved by SMATS Technical and Policy Committees in April 2015. These figures were then used as base year inputs to generate future year socio-economic data.
Exhibit 7 presents population, occupied households, and employments estimates for the year 2013 for all jurisdictions within SMATS boundaries, with the exception of the Freeland Area since it is being accounted for in the Saginaw County portion of the Travel Demand Model.

Table 1: SMATS Population and Household Data

Saginaw County	Population	Occupied Dwelling Units	Employment
Albee township	1,955	766	1,665
Birch Run township	5,855	2,481	4,684
Blumfield township	1,841	725	1,512
Brady township	2,087	794	1,652
Brant township	1,985	728	1,603
Bridgeport charter township	10,195	4,336	8,543

Fremont township	2,047	774	1,659
James township	1,752	727	1,489
Jonesfield township	1,568	591	1,256
Kochville township	5,030	1,194	4,707
Lakefield township	959	364	772
Maple Grove township	2,592	958	2,019
Marion township	942	364	738
Richland township	4,043	1,617	3,280
Saginaw city	49,892	19,429	38,623
Saginaw charter township	40,053	17,791	33,330
St. Charles township	3,230	1,271	2,545
Spaulding township	2,039	797	1,608
Swan Creek township	2,241	934	1,921
Taymouth township	4,386	1,553	3,568
Thomas township	11,691	4,676	9,648
Tittabawassee township	9,804	3,163	7,634
Zilwaukee city	1,899	728	1,551
Zilwaukee township	193	53	131
Fremont township	2,047	774	1,659
James township	1,752	727	1,489
Jonesfield township	1,568	591	1,256
Kochville township	5,030	1,194	4,707
Lakefield township	959	364	772
Maple Grove township	2,592	958	2,019
Marion township	942	364	738
Richland township	4,043	1,617	3,280

2.5 Future Years Population, Household, and Employment Data Projection

Utilizing 2013 as a base year, socio-economic data, growth rates and projections for the years 2025, 2035, and 2045 were generated. This is called the future year data. In order to identify population/household growth rates and future year estimates, SMATS was assisted by MDOT's Statewide and Urban Travel Analysis Section (SUTA) in coordination with the U of M – Institute for Research on Labor, Employment, and the Economy. This included utilizing Regional Economic Models, Inc. (REMI) forecast data as well as examining historical trends from the U.S. Census Bureau. Employment growth rates and future estimates are based on data from the Regional Economic Information System (REIS) published by the U.S. Department of Commerce, Bureau of Economic Analysis.

SMATS staff then reviewed future data again with local units of government for accuracy and the

inclusion of any known future developments within each jurisdiction. Once all data was reviewed and approved by local governments, SMATS staff prepared a regional analysis of future population, household, and employment data. Future year data was then utilized in the Regional Travel Demand Model to calculate trip productions and attractions for the SMATS area. Table 2 displays regional totals for each category of data as well as the growth rates that occur for the interim decades.

Table 2: SMATS Study Area Socio-Economic Data

	Population	Occupied Dwelling Units	Retail Employment	Service Employment	Other Employment
2013	197,301	79,650	16,829	53,407	38,774
2025	185,124	76,876	15,436	58,465	37,563
2035	180,362	76,672	14,629	61,098	36,589
2045	173,266	76,385	13,921	64,225	36,005

Additional information can be found in appendix C on how the data was gathered by MDOT.

Below is a Map of the projected population change in Saginaw County from 2010 to 2040

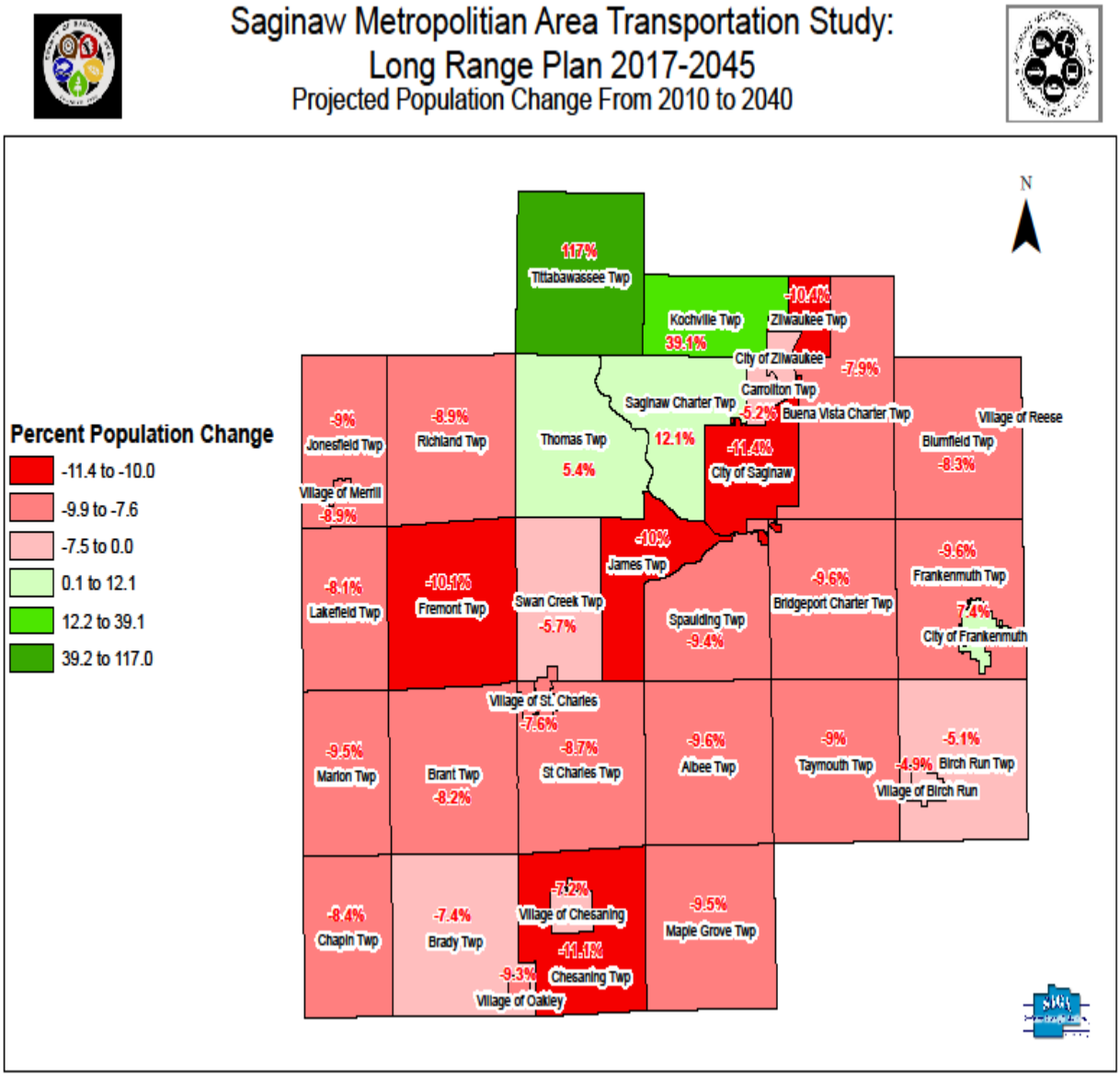


Figure 2: SMATS Projected Population Change

Chapter 3: Existing Transportation System within SMATS

The SMATS area is served by several forms of transportation. While it is true that the transportation planning process tends to focus on streets and highways, the other means of safely moving people and goods are equally important and must be addressed in the long-range planning effort. This chapter provides an overview of the existing transportation system and its multi-modal nature.

3.1 Roads and Highways

The National Functional Classification of roadways was developed by the Federal Highway Administration for all public roads. The higher classifications emphasize mobility while lower ones are for the purpose of property access. This taxonomy facilitates the grouping of roadways into categories based on the character of service they are intended to provide. Functional classifications of public roads play a critical role in transportation planning, allocation of funding, and management of the network.

The dominant form of access to other communities for both passengers and freight is the state trunkline network, which includes two freeways and seven state highways within the Saginaw Metropolitan Area Transportation Study boundary. The dominant artery through the area is Interstate 75 (I-75) which links Saginaw to Detroit and the Mackinaw Bridge.

Internal circulation is dominated by the road network. Freeways and state trunklines are supplemented by a grid of county and municipal arterials and collectors. The majority of the County's residents rely on the automobile for normal work, shopping, visiting, entertainment and recreation. The road network in Saginaw County, except for interruption by the Shiawassee Flats, provides a high degree of accessibility. Within the SMATS area, there are approximately 2,694 miles of public roads that are maintained through federal transportation funding as designated by the National Functional Classification Systems (NFC system described below). Roughly 326 miles are a part of the MDOT trunkline system and are classified under the NFC as Interstate, Other Freeway, and Arterials. These routes include I-75, US-23, M-13, M-25, M-46, M-47, M-57, and M-84. The major transportation engine of economic prosperity in Saginaw County is I-75. The remaining 722 miles of federal-aid eligible roads are categorized as Minor Arterials, Major Collectors, and Minor Collectors. These roads are generally owned by local road agencies such as the county road commission, cities, or villages. Roadways that are not funded with federal transportation money are considered “local”; there are about 1,646 miles of local roads within the MATS area. Local roads are also administered by local road agencies. Note that other local governments, such as townships, do not receive federal-aid funding for road projects. The Rural Task Force distributes Federal-Aid funding to rural areas in the state, including townships, small cities, and villages. The road commission has jurisdiction over these roads and they collaborate with local governments on projects.

National Functional Classifications

The following categories are listed in order of highest mobility function to the lowest mobility function:

1. **Interstate:**
   Designed to maximize mobility for long distance travel. Interstates link major urban areas across the United States and are generally four-lane limited access roadways which support high speed travel.
2. **Other Freeways:**
   Function similarly to interstate roads, however they do not cross state boundaries. These roads have directional travel lanes with access limited to on and off ramp locations.
3. **Other Principal Arterials:**
   Are highways in rural and urban areas which provide access between an arterial and a major land use. They typically support a high degree of mobility to major centers of metropolitan areas.
4. **Minor Arterials:**
   Support high-capacity travel generally within urban areas. The primary function of an arterial road is to deliver traffic from collector roads to principal arterials, freeways, or interstates.
5. **Collectors (Major & Minor):**
   Mainly are low-to-moderate capacity roads which serve to move traffic from local streets to arterial roads. Generate access to residential, commercial, and industrial areas.
6. **Local Roads:**

Are the lowest level of mobility regarding the NFC. These roads provide access property to and typically connect to collector roadways.

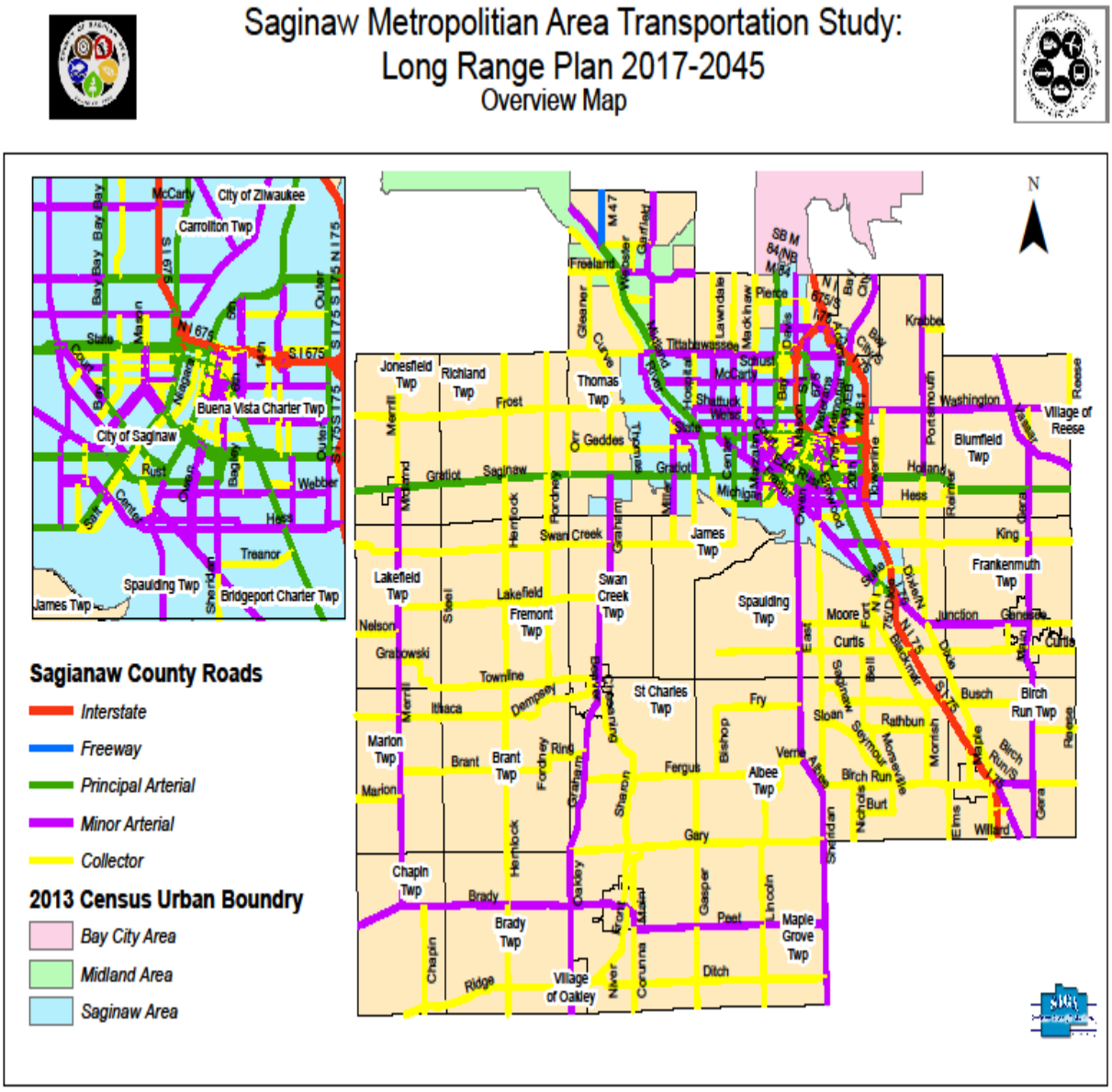


Figure 3: SMATS Overall Map

The Michigan Department of Transportation has in recent past fiscal cycles reconstructed four(4) miles of Interstate 75 in Saginaw County that work in concert with the I-675 and M-13 Washington Avenue interchange improvements have significantly positioned the rebirth of the core urban district of the City of Saginaw. The growth in the county this past decade in the north and western portion of Saginaw County is reflected in an increase of road projects in Thomas, Tittabawassee, and Kochville Townships. In Kochville Township, the continued growth of Saginaw Valley State University and the on campus

population has driven projects like the Fashion Square Blvd extension as the opening of many new businesses on the Bay Road. Thomas Township is also a growth area and home to the area's Solar Industrial Park. This will continue to be an area of the county that will continue to grow business and residentially in future years. A vibrant area in recent years is Tittabawassee Township, home to Freeland and a close commute to Midland and the employment of Dow Chemical and related businesses. Tittabawassee Township has grown greatly in residential development, much of which is middle class and above structures.

Travel Patterns

The above in is significant on two fronts: First, nearly 25% of Saginaw counties population cross county lines for work, so county residents that are among this subset are have nearly a thirty minutes minimum drive to work. Commuting plays a significant role in employment for the SMATS area. 2010 County-to-County commute data illustrates substantial work flows into and out of counties in the SMATS area to neighboring counties (gathering totals for the entire area is difficult due to SMATS' area including portions of Bay and Midland Counties). Figure 4 shows these travel patterns. In most cases, there are more people commuting out of Saginaw County for work then commuting to Saginaw County for work. The arrows point to Saginaw describes commuting to Saginaw County and the arrows pointing away show commuting from Saginaw County. The red circle displays commuting within that particular county for work (only counties within the SMATS area are shown). With so much activity between Saginaw, Midland, and Bay counties, it is critical that the MPO staffs of those counties work in concert to communicate and coordinate. That activity has begun and has been ongoing for several years now. The major issue challenges and opportunities are among the following.

3.1.1

Major Issues and Challenges:

- The major challenge is preservation of the existing transportation system.
- Strategies to improve the safety of the system are another key issue.
- The large number of river crossings and bridges (228) in the county present special challenges for maintenance and replacement.
- Continued effective use of limited resources to maximize dollar investment impact on existing road systems to keep the existing network in vast majority "good condition".
- Address the discrepancy between the condition of Federal Aid roads and Non Federal Aid roads as it is widening.
- Emphasis and activity placed with cross county transportation (I.E. Safety Programming, agencies and services that are transportation focused).
- Continue to build upon the Saginaw MPO relationship with the MPO's in both Mid land and Bay counties, this would include be not be limited to regular meetings among agencies staff to stimulate common energies to the transportation landscape and our geographic areas.
- Participate with our partners at FHWA and MDOT and partner agencies to benefit transportation objectives statewide as well as within Saginaw County.

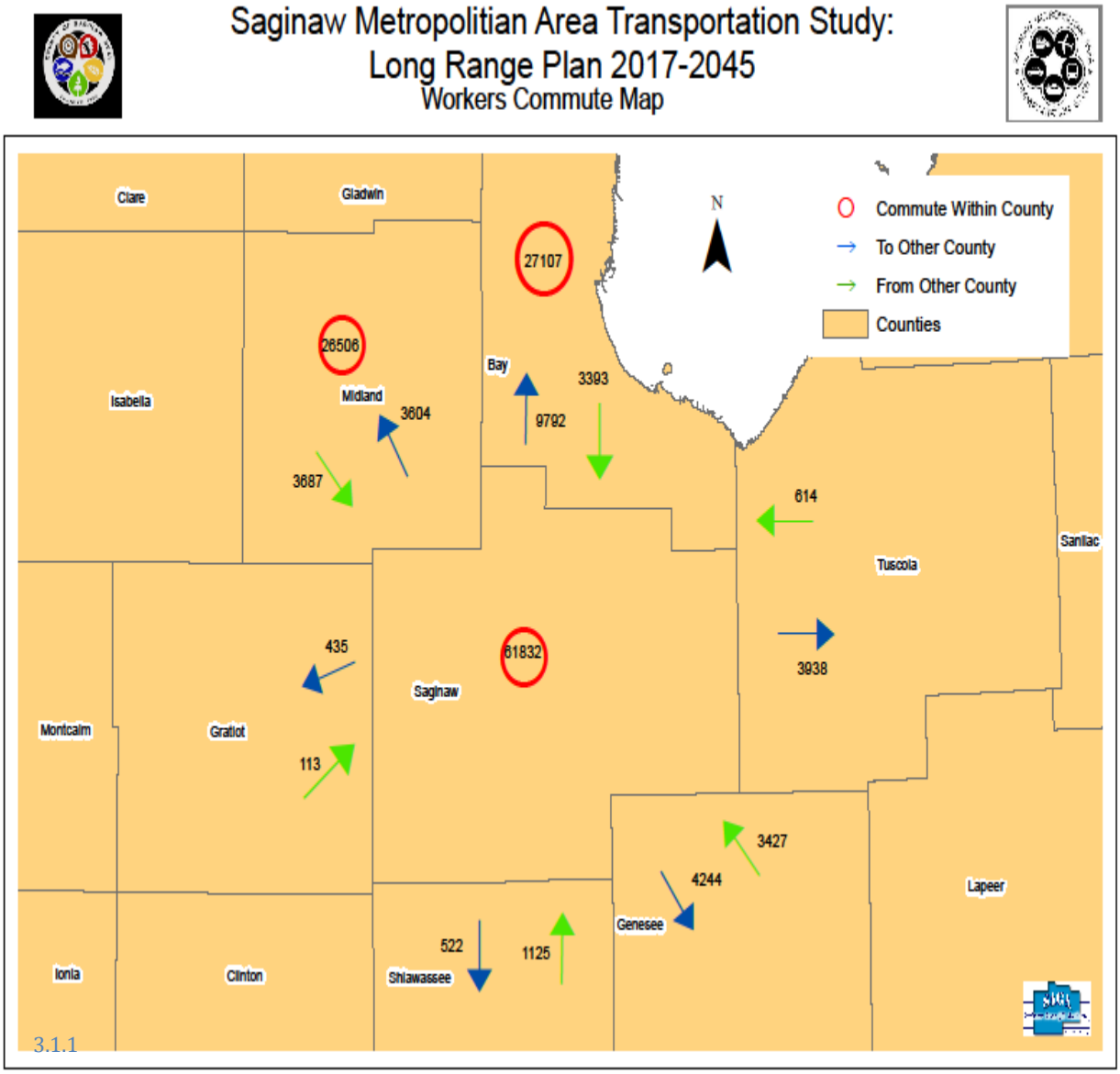


Figure 4 Map of Travel Patterns and Table

Works Commute Counties	Within	To	From
Saginaw	61832		
Midland	26506	3604	3687
Bay	27107	9792	3393
Tuscola		3938	614

Works Commute Counties	Within	To	From
Genesee		4244	3427
Gratiot		435	113
Shiawassee		522	1125
Clinton		88	197

3.2 Public Transit

Public transit in Saginaw County began as a department of the City of Saginaw. Originally, it operated as a city bus service for residents of Saginaw. In the middle 1990's the service went to an "authority" status. While STARS has at various periods of time in its history gained a financial relationship with several individual townships in Saginaw County, it remains today a mostly City of Saginaw focused service.

The goal is to expand its service delivery area and service options, as there are opportunities in multiple townships to benefit from the services. The STARS mission is to provide Saginaw with safe, efficient, dependable and affordable public transportation for all citizens seeking its services to work, doctors' appointments, shopping or school. STARS system in the urbanized Saginaw area travels 1.5 million miles per year, and 3,300 people ride the buses daily. It appears that the consumers of the service are reasonably pleased that their needs of commuting around the community are being met based on STARS recent successes at the City polls. STARS is an active participant in the SMATS transportation planning process, and historically there has been a close working relationship between the staff of both organizations, and that continues to be the case. In fact, SMATS is an active member of the STARS Transit Advisory Committee (TAC), an advisory body that has a direct communication link to the STARS Board of Directors.

It is significant to note that the STARS TAC maintains the appropriate involvement of agencies and officials that have a stake in the transit service to the community on behalf of the clients, customers and consumers that they are serving. The TAC membership also includes riders who are able to share firsthand experiences on issues of service delivery. This format creates a viable mechanism to provide STARS administration with valuable community input.

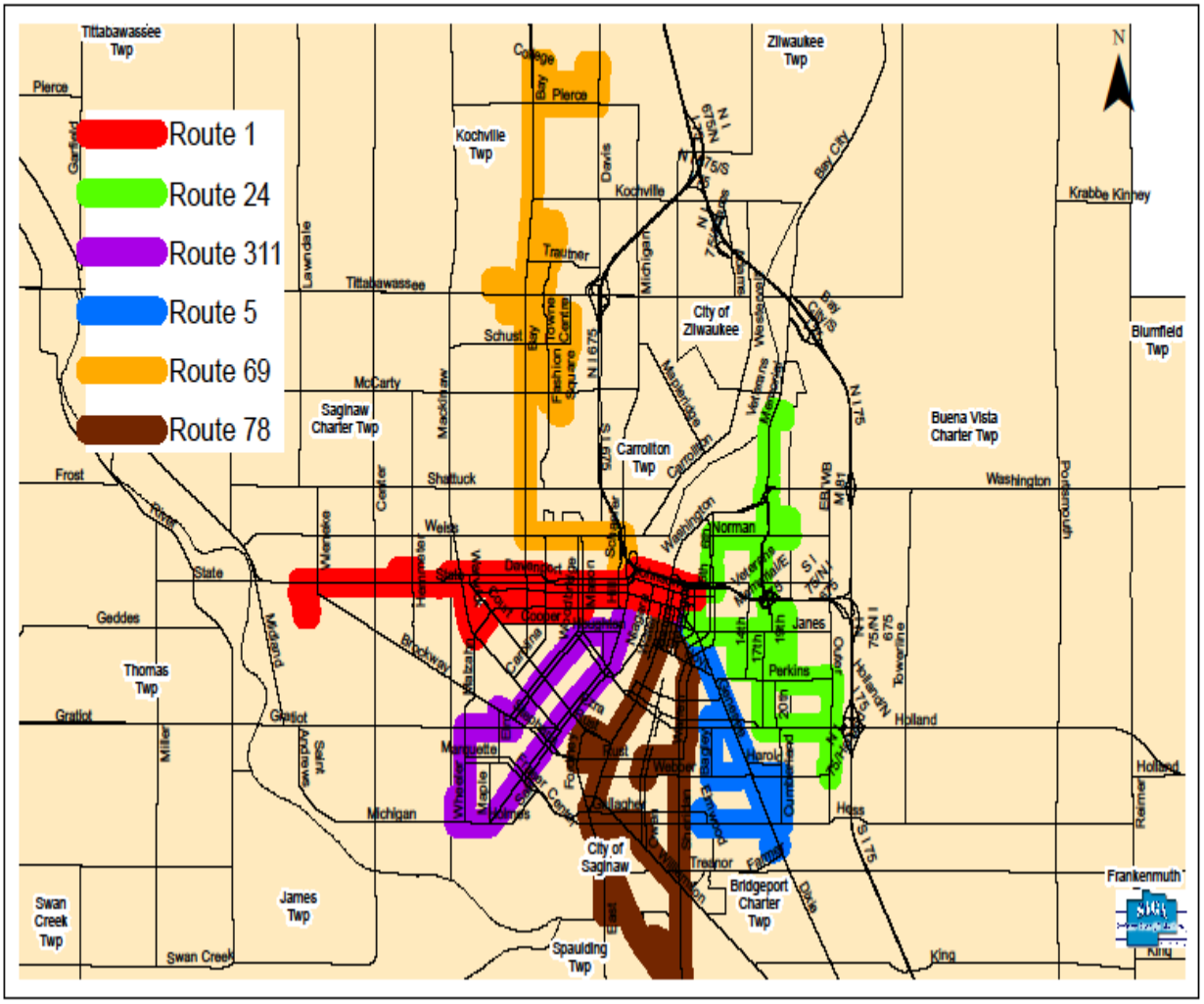
The organizational climate stabilized in the latter part of 2016 calendar with Saturday service restored, new leadership at the administrative and board levels, and a "partnering relationship “with MTA of Flint Michigan. The result is a reliable eight (8) route service six (6) days a week and an in demand lift service. With a fresh focus and renewed energy and optimism, partners at FTA and MDOT have taken notice.

Regionalization of transit service continues to be a priority for STARS and Saginaw County along with the entire Great Lakes Bay Region. SMATS intends on taking the lead in this effort in the County and Great Lakes Bay Region. With State funding on the decline, it will be important to find key stakeholders in the region that may offer support in this effort. One example is the effort from STARS and Blue Diamond

Steel Casting to get workers from Saginaw to the plant in Pigeon, MI in Huron County. The routes run three times a day throughout the work week and provide free service to Blue Diamond employees. This is a public-private partnership that can be utilized by other businesses in and surrounding Saginaw County.

Table 3: STARS Transit Information

STARS Transit	**Saginaw**
Service Area	Urbanized Saginaw Area, 63 Square Miles, Population- 200,169
Service Type	Demand Response curb-to-curb and fixed-route
Ridership	988,376 Annually (2014) 3,300 daily (2017)
Hours of Operation	Monday through Saturday from 5:55 a.m. to 9:00 p.m. (Sat. to 2:00 p.m.)
Fleet	54
Fares (Demand Response)	Gold Card (ADA Paratransit Eligible)- 2.75$ per one-way trip
Fares (Fixed Route)	Adults-$ 1.50 Seniors (Age 62)-$ .75 Persons with Disabilities-$ .75 (STARS SILVER or GOLD Card required) Children : 42” or taller than farebox-$ 1.50 Under 42” or shorter than farebox-$ .75 Transfers-FREE



3.2.1

Figure 5: Transit Routes Overview Map

Other Public/Private Transportation Providers

In addition to STARS, there are also a number of smaller transportation operators in the MATS area. They provide services to defined groups of people and have only a few vehicles each. These providers include retirement homes, senior citizen centers, public schools, churches, and local cab companies. Examples of these operating within the study area include MBS Taxi, Midland Public Schools, The Disability Network, and Midland Senior Services.

Major Issues and Challenges:

- Service availability is limited - ability to expand and serve population needs is a key; issue.
- Continue to find means to produce quality service in the most cost effective manner.
- Intermodal connections are currently often lacking.
- Continue to strengthen ties with Bay and Midland county transportation to strengthen regional transportation solutions.

3.3 Air Transportation

Air transportation in the SMATS area is provided by MBS International Airport and Harry W. Browne Airport. Additional general aviation facilities are located outside the urbanized area at Frankenmuth and Chesaning.

3.3.1 MBS Airport

MBS International Airport is a commercial airport located in Freeland, central to the three jurisdictions which own it - the City of Midland, Bay County, and Saginaw County. It is governed by a nine member commission made up of three representatives from each community. MBS mainly provides transportation to those living throughout the Great Lakes Bay Region. The airport supports 27 home-based aircraft which includes 13 single-engines, five multi-engines, and nine jet-engine aircraft. Approximately 50,000 flight operations are handled annually (take-offs and landings) with two runways of 8,002 ft. and 6,400 ft. length respectively. MBS Airport's recently constructed new terminal building is about 75,000 square feet. The two-story facility contains amenities such as various concession options, an efficient baggage claim, and convenient parking. In 2016 MBS approved a master plan targeting $100 million in airport projects over a 20-year span. Projects include new pavement construction and rehabilitation, rental car and maintenance facilities upgrades, as well as improvements to general/private aviation development.

Saginaw MPO has been tracking several years running activity levels at the airport as it applies to both passenger traffic and freight traffic. As a result of this tracking the pattern reflects stability and growth with the next noted numbers. In 2016 MBS average 20,147 passengers per month and freight activity totaling 43,462 tons of product moved per month. This compares favorably to 2015 numbers that reflected 19,633 passengers per month and 13,768 tons of product moved by freight per month. This will remain an item that we will track and monitor in the future and make available on our MPO website to assist in transportation planning discussions and considerations.

Table 4: Michigan Passenger Data for Airports

Michigan Department of Transportation – Total Scheduled Passengers

Community	Airport name	2015	2014	2013	2012	% Change 2012-15
Detroit	Metro Wayne	33,440,112	32,513,555	32,389,544	32,241,731	3.72%
Grand Rapids	G Ford Intl	2,550,193	2,335,105	2,237,979	2,134,956	19.45%
Flint	Bishop Intl	820,708	837,736	784,371	818,852	0.23%
Lansing	Capital City	323,510	376,912	418,850	389,600	-16.96%
Traverse City	Cherry Capital	429,364	397,649	378,241	362,059	18.59%
Kalamazoo/BCreek	Intl	244,878	266,758	253,236	255,236	-4.06%
Mid/Bay City/Sag	M B S Intl	235,598	246,957	244,504	271,686	-13.28%
Marquette	Sawyer Intl	83,732	80,657	84,254	76,001	10.17%
Houghton/Hancock	Co. Mem.	52,879	48,250	51,741	51,850	1.98%
Pellston	Emmet Co	50,758	56,817	53,831	49,451	2.64%
Sault Ste Marie	Chip Co Intl	45,391	41,752	42,794	39,125	16.01%
Muskegon	County	36,453	33,396	35,912	36,089	1.01%
Escanaba	Delta County	31,705	34,176	29,089	25,363	25.00%
I. Mtn/Kingsford	Ford	21,058	20,820	18,406	16,388	28.50%
Alpena	Alpena Co Rg	19,474	24,852	31,292	25,350	-23.18%
Manistee	Co Blacker	9,365	7,708	5,390	5,908	58.51%
Ironwood	Gogebic Co	9,218	4,971	4,948	5,081	81.42%

MBS has experienced a 54% decline in scheduled passengers since 1998 when the airport peaked with 589,798 down to only 235,598 for 2015. MBS has seen a slight decline since the 2040 long range plan was adopted (262,069 in 2010), according to the Michigan Department of Transportation Measure of Michigan Air Demand. The decline in passengers can be attributed to various factors including; the post 9-11 period, the economic decline, the deterioration of aging MBS terminal and/or the growth of Flint's Bishop International Airport. This ranks MBS the 7th busiest airport in terms of passengers in Michigan, behind Kalamazoo/Battle Creek and ahead of Sawyer Airport in Marquette. Delta Air Lines and United Airlines are currently operating daily scheduled flights in and out of MBS to Chicago, Detroit, and Minneapolis. Link to Airport Plan and Economic Impact study.

3.3.2 The Harry W. Browne Airport

The Harry W. Browne Airport is located in Buena Vista Township and owned by Saginaw County. The airport is located in close proximity to the extensive automobile manufacturing operations that are located in Buena Vista Township and surrounding areas. The airport currently has some level of parts supplier business activity, but is more known as a local airport for airplane enthusiasts to fly in and out of, as well to house their personal planes. However, the airport has the potential to become a major

contributor to the type of easy access that modern business requires to meet the deadline activities so necessary to be successful in a competitive environment. To enhance the airport's ability to serve the needs of business and industry, recent reconstruction of Towerline Road to all-season standards allows for the delivery of automotive parts to and from the airport. These improvements and other planned improvements will be an economic benefit to the region. Specifically, the Airport Board, understanding the opportunity to enhance the air activity on the property, has formulated an Airport Capital Improvement document that would funnel nearly $6,000,000 into the facility in the coming years. The majority of these dollars are Federal targeted to expand, enhance the totality of the facility from the administrative operations to runway and taxiway rehabilitation and lighting.

The Federal dollars involved in this plan would significantly upgrade the economic impact potential of the airport to the local manufacturers that are located strategically to airport services. The total Harry Browne Airport List is expanded upon in detail in the Michigan State Block Grant Program Form that lists Airport Capital Improvement Program or (LIP) FY2012-2017. With the rising success of the Nexteer Automotive facility on Holland Avenue(M-46) in Buena Vista Township, the neighboring airport would seem to have a bright, potentially expanding future as a key difference maker in attracting companies that have extensive business ties to Nexteer to relocate into Saginaw County, benefiting with an air field that is Saginaw County operated.

Major Issues and Challenges:

- Achieving increased air carrier activity at the MBS Airport and establishment of a major discount carrier.
- Increasing connectivity with other means of transportation - such as large trucks for freight movement.
- Funding to update facilities.
- Increasing accessibility to/from the road network. Promote the new terminal construction plans at MBS to increase the market share of air transportation.
- Encourage the continued operation of James Clement Airport as long as these operations are efficient and feasible.
- Continue development of new hangers, taxi-streets, aprons and auto parking facilities.
- Design and development of James Clements Airport as a Seaplane Base in addition to the existing facilities.
- Provide for adequate access and connectivity between air and other modes of transportation.
- Gain price advantages from major carriers to gain additional region business and leisure travelers.

3.4.1

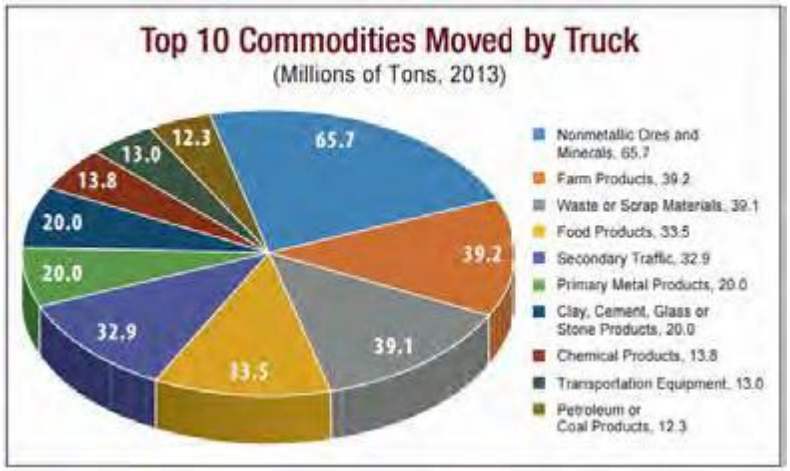
3.4 Freight and Rail Transportation

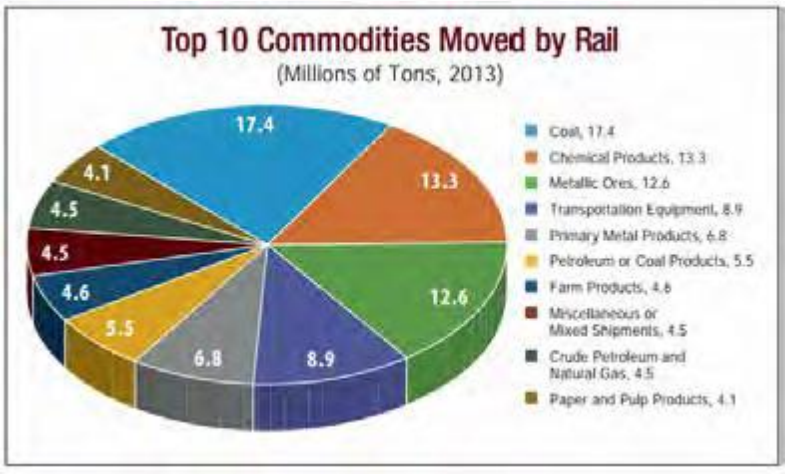
Michigan Freight Movement

In the years since the recession, freight tonnage moved has increased for all modes. All forecasts are

calling for continued growth in freight movements. The mix of commodities moving by each mode has stayed relatively the same, with manufacturing production the major driver of Michigan freight totals. The auto industry continues to play a crucial role in the overall totals of freight movements in the state. Two of the major freight-related projects in the state, the Detroit Intermodal Freight Terminal and the Gordie Howe International Bridge, have made progress and should alleviate congested infrastructure. The tonnage moved throughout the state has increased substantially since 2009. The total tonnage moved to, from, within, and through Michigan in 2013 was more than 505 million tons. This is about 70 million tons more than 2009, an increase of 16 percent. The modal shares remained largely the same. While all modes saw an increase in overall tonnage, water increased the least relative to 2009, leading to a decrease in share from 14 percent to 13 percent. This was met by an increase in rail from 19 percent in 2009 to 20 percent in 2013.

Table 5: Freight Data for Michigan





Source: State of Michigan Freight plan

Rail Transportation

Saginaw County seems to be consistent with the statewide trends as it applies to railroad activities. The active rail lines are mainly used for the shipping of agricultural products. After that, chemicals, automobile parts, coal, and other products also are transported along the existing railroad lines. The

common business plan for rail these days is for the major rail carriers to eliminate service and then sell the tracks to short line companies who then can operate at less cost. According to recent published stories in the local and statewide paper continues in the Saginaw Region. The rail lines represented in the SMATS area include the Huron & Eastern Railway, Saginaw Bay Southern, and the Lake State Railway.

In terms of trends, the situation is that while rail miles have decreased in the past decade, the amount of activity is level or above. Twenty-one percent of Michigan's rail miles are state owned. The state owns 872 miles of right-of-way, of which the vast majority are already in use. Maintenance is partially at state expense. In the SMATS area, the rail hauling of chemicals is of particular importance. Most of the material comes to and from a major manufacturer in the region i.e. Dow Chemical in the Midland area, so the activity regarding chemicals in this region is at a higher than normal level. This also translates to a higher than normal risk to the community in regards to the transport of hazardous materials. In the SMATS area, it is important that the personnel and process include coordination with county emergency Management. In this regard, SMATS staff works closely with County Emergency Management and Homeland Security on a variety of issues.

The other major trend concerning rail lines is the conversion of abandoned lines to "railtrails" for recreational use as non-motorized pathways. The Saginaw Valley Rail Trail has been developed in this manner, and several other rail corridors are proposed for conversion to pathway use. MDOT has developed a detailed State Rail Plan. That plan, available at (Michigan State Rail Plan), should be considered a companion document to this MTP and a source of more detailed information on rail system issues and proposed improvements. The State Rail Plan lists several projects in the Saginaw area that will provide track upgrades and crossing improvements.

Major Issues and Challenges:

- Work with employers, groups, and political leaders to expand the role of rail in providing manufacturing its necessary supplies and materials.
- Use new technology like ITS to divert traffic and or minimize traffic delays caused by rail crossings.
- Improve safety at rail crossings.
- Work with MPO's in Bay and Mid land Counties to facilitate dialogue with Dow Chemical and Nexteer regarding rail traffic patterns of utilization, future scheduling needs as well as corporate priorities in regard to this method of moving product/supplies.
- Relocate rights-of-ways that will allow a blend of safety improvements, consolidation of rail traffic on fewer lines and increased operating efficiencies.
- Continue upgrading of highway/ rail crossings.
- Remove unused or abandoned rail lines.
- Promote intermodal connection and access between rail and other modes of transportation.
- Continue development and expansion of the existing rail to trail system.

- Increase security/safety of rail cars carrying hazardous material through the BCATS region.
- Indicate and perform studies on a proposed multi-model transportation hub

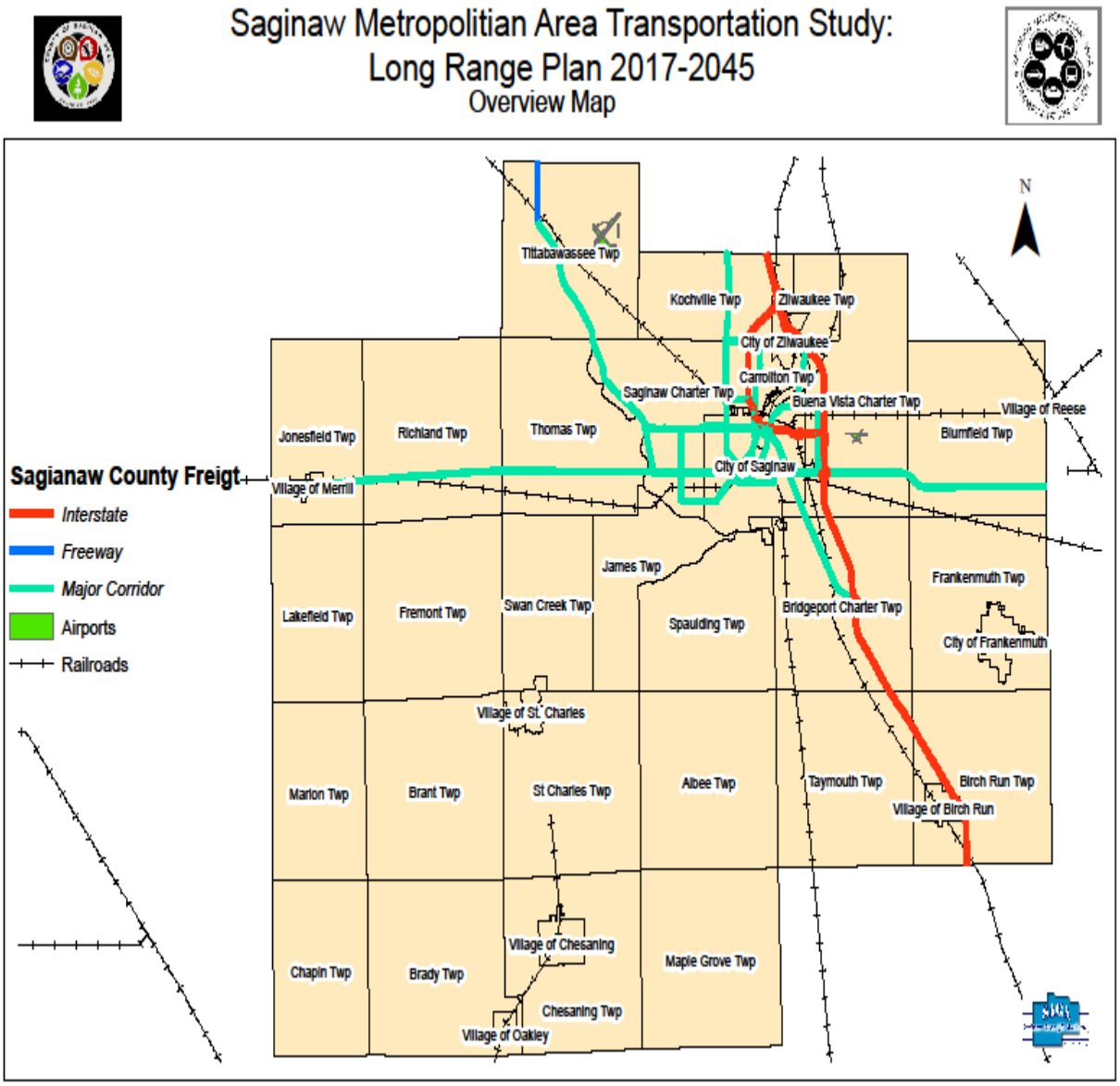


Figure 6: Airport, Freight and Rail Map

3.5 Water Transportation

The Saginaw River is one of Michigan's most important ports. It has been utilized for shipping since the early 1800's. The St. Lawrence Seaway opened in 1957, allowing access by ocean-going ships as well as Great Lakes vessels. Saginaw's commercial harbor is highly ranked in value of commodities, number of individual terminals, cargo diversity and total tonnage from Michigan ports. The major commodities be moved include limestone, sand, coal, salt, fertilizers, cement, petroleum, and chemicals. These products

serve the manufacturing, agricultural, and construction industries of the region and well beyond. There are approximately 20 marine terminals located on the river from Saginaw to the mouth.

The Saginaw River is one of Michigan's most important commercial harbors. The port ranks about fifth in the value of commodities being shipped from Michigan ports. It ranks seventh in total tonnages and second in the number of terminals and diversity of cargoes. Approximately 20 marine terminals are located along the river from Saginaw to the mouth of the river. These terminals handled approximately three million tons of cargo in 2009 and 320 ships in 2006, and have dropped to 110 ships in 2014. Currently, port transportation trends are increasing and future projections show that port usage will increase to 250 ships in the next 10 years.

Maintenance of the shipping channel has been an issue for many years. Heavy rains that hit the Great Lakes Bay Region in 2013 resulted in the Saginaw River being closed to commercial shipping for much of the summer due to sediment in the channel. As a result, the Army Corps of Engineers spent $1.2 million on emergency dredging, and in 2014 received $3 million more for dredging along the Saginaw River. In addition, 2016 continues the Feds commitment to Saginaw, with up to$2.8 million for the Saginaw shipping lane with the administration's budget for the Saginaw River. The Saginaw River shipping activity is the gateway to our communities' success in both auto manufacturing and agriculture. In addition to commercial shipping, the river system is used extensively for recreational boating and fishing. In the SMATS area, recent efforts have focused on the construction of additional boat launching facilities.

Major Issues and Challenges:

- Maintain the Saginaw River shipping channel.
- Encourage partnerships between shippers, government, and other entities to promote the river shipping industry and increase its efficiency
- Continued dialogue and collaboration with the Federal officials regarding the river and its importance to Mid-Michigan 'economic engine.
- Promote the retention and upgrading of port facilities.
- Promote intermodal connectivity and access between the port and other forms of transportation, specifically rail and trucking.
- Assist in finding ways to keep up the maintenance on the river channel to keep shipping on the river.
- Identify ways to increase usage of BCATS ports and waterways from the Saginaw River study.

3.6.1

3.6 Regional Inter-modal Study

Saginaw-Bay-Midland regional Inter-modal Study

Currently there is no inter-model study that is primarily focused on the Saginaw Metropolitan planning area (MPA) or the tri-city area. For a small MPO it is difficult with limited staff and resources to conduct a thorough review of the varying modes of transportation and collect data within each Metropolitan planning area. A regional study of the tri-cities areas will allow for SMATS and the other MPO's to

develop a detailed plan for the varying modes (e.g. Modes stated above in this chapter) of travel that are described in each MPO's LRP of the such as MBS, US-10, US-75, Saginaw River, etc.

A more regional approach will allow each MPO to contribute and develop a more robust plan and data collection efforts for the region. The regional plan could possible help in getting more interest from the private sector. Many of the region's major manufacturing and agriculture companies, Dow Chemical in particular, have expressed a desire to increase their use of rail and water-based transport. Current work for a regional transit operation could also be incorporated in the study. There is a wealth of transit options within the area, but they are not coordinated to the degree needed provide comprehensive transit options within the region. This is important for increasing the assets within the tri-city area.

A similar study of the one produced by Genesee County (below), but focused on the three counties of the Great Lakes Bay Region (Bay, Midland, and Saginaw) might provide insight on how to capitalize on our existing transportation infrastructure to the region's best economic advantage. The plan could tie in with recommendations and objectives from EMCOG's Comprehensive Economic Development Strategy (CEDS). EMCOG as the regional planning agencies could play a vital role in serving as the convening body for both private and public partnerships.

Below are some of the objectives and actions from the CEDS that incorporate a regional plan for varying transportation modes and infrastructure within the SMATS area:

- Create a tri-city inter-model study that includes a freight plan, MBS plan, a transit plan, and rail plan that will detail data collections methods and future projects to promote regional inter-model activities.
- Consider investing in re-configurations and/or expansions of the rail yards in Saginaw and Bay City to make rail transport more efficient for the region's rail-dependent businesses.
- Over the long-term, consider combining some or all of the region's separate public transportation agencies into a single, region-wide transit agency.
- Work with the region's higher education institutions, adult education providers, major employers, and other key constituents to identify ways to expand transit options to better serve the region's workforce. This may include extending public transportation into evening hours in some cases.
- The roundtable can serve as a regular forum to bring together public and private sector leaders involved in transportation and freight mobility to discuss transportation issues affecting the region, hear presentations from local/state/federal transportation planners, and learn about major transportation policy or funding efforts.
- Work with MBS, Oscoda-Wurtsmith and other smaller local airports, local economic development corporations, and the region's real estate community to identify opportunities to capitalize on available unused land and under-utilized buildings on airport properties.
- Explore an opportunity to have Southwest move operations to MBS after their exit from Flint Metro Airport.
- Work with MBS and major employers (Dow Chemical, Nexteer) and other large institutions (Central Michigan University and Saginaw Valley State University) to identify and aggressively.
- Support and leverage the US Army Corps of Engineers' study to widen and deepen the Saginaw River shipping channel as a way to encourage the continued and expanded use of the river for goods movement.

- Conduct an economic impact analysis of the water-based transport facilities in the Saginaw River and Saginaw Bay to demonstrate the number of jobs and amount of tax revenue that these transportation facilities provide to the region and the state, along with historical fluctuations of this impact.

The Genesee County Metropolitan Planning Commission Regional Study (In 2040 LRP)

The Genesee County Metropolitan Planning Commission (MPO for the Flint area), in cooperation with its partners, the Flint Area Chamber of Commerce and the Michigan Department of Transportation, conducted the I-69/I-75 Intermodal Transportation Study to determine how the region of Genesee, Lapeer, Saginaw, St. Clair, and Shiawassee counties can capitalize on its location at a significant crossroads of the national and international freight network. By doing so, it is expected that economic conditions and the quality of life in the region will improve.

The study area is served by major transportation facilities such as I-69, I-75, U.S. 23, and a number of state highways, the Blue Water Bridge and double-stacked rail tunnel in Port Huron which link the United States and Canada, deep water ports in Saginaw (the study incorporates the deep water ports in Bay County), and Port Huron; airports in Saginaw County (MBS) and Flint (Bishop); and, the Canadian Nation (CN) and CSX rail lines. The current population of the five-county area is approximately 975,000 people. Major manufacturing, commercial, and agricultural entities, dominated by automobile-related businesses, form a major part of the economy, which employs 460,000 people.

The vision of this study was forwarded to each county's Study Review Committee and the public for comment and stated the following:

- A major regional intermodal freight system serving trucks, trains, planes and ships with seamless interaction among all modes.
- Overseen by an intermodal commission, the region will offer transportation assets supported by state-of-the-art intelligent transportation system (ITS) technologies.
- This intermodal system provides a competitive advantage for commodity flow; creates a new dimension in the region's economy and improves the quality of life for the region's citizens.

3.7 Non-Motorized Transportation

The Fixing America's Surface Transportation Act (FAST Act) planning and funding guidelines require development of bicycle and other non-motorized transportation facilities. Accommodating Bicycle and Pedestrian Travel: Recommended Approach is a policy statement adopted by the United States Department of Transportation. USDOT requires that public agencies, professional associations, advocacy groups, and others adopt this approach as a way of committing themselves to integrating bicycling and walking into the transportation mainstream. The Design Guidance incorporates three key principles:

a) A policy statement that bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exits;

b) An approach to achieving this policy that has already worked in State and local agencies; and

c) A series of action items that a public agency, professional association, or advocacy group can take to achieve the overriding goal of improving conditions for bicycling and walking.

The development of recreational pathways has a long history in Saginaw County. The river walk in the City of Saginaw and the Saginaw Valley Rail Trial (SVRT) are among the first non-motorized pathway facilities to be developed in the county. These accomplishments happened in Saginaw County as a result of local initiatives.

With the past several national transportation bills, the guidelines contained language that required development of bicycle and other non-motorized transportation facilities. Further, it required that a policy statement include language that bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist.

3.7.1 Existing Non-Motorized Facilities

Efforts continue moving forward on the master vision to have the trails connect through the entire region. In fact, M-DOT commissioned the East Central Michigan Council of Governments to develop a non-motorized report document in the 14 county regions that Saginaw County is included. This work was meant to be a future road map of current and future vision requiring intergovernmental cooperation in regards to trail projects in the short and long term future that would result in maximizing trail dollars to projects that connect and extend. The plan is slated for completion in 2018 with cooperation from multiple Saginaw County agencies including SMATS. Multi-modal transportation options, particularly in urban areas, extend beyond transit and light rail to include walking and bicycling.

3.7.1 Trails

In SMATS, there is more than 30 miles of non-motorized trails in eight (7) separate areas, that are listed below.

Thomas Township Trail-

The Thomas Township Trail provides a paved, north-south route of just over 2 miles through this Michigan community. It begins at a connection with the popular Saginaw Valley Rail Trail, which heads southwest to St. Charles and east towards Saginaw.

Zilwaukee Pathway-

The Zilwaukee Pathway offers a paved route through the eastern Michigan city of Zilwaukee. It begins on the western shore of the Saginaw River at Zilwaukee Riverfront Park, where you'll find parking, restrooms, picnic pavilions, a playground, and a boat launch. From there, the trail heads north and west through residential neighborhoods to its end at Venoy Road.

Bay/Zil Rail Trail-

On October 15, 2016, a ribbon-cutting ceremony officially opened the 6.2-mile BayZil (Bay City to Zilwaukee) Rail Trail. This is one of Michigan's newest and most beautiful trails, running parallel to the Saginaw River on an abandoned railbed and crossing two bridges through vast marshes teaming with waterfoul. The Hotchkiss Road Trailhead offers the only public access to the trail, which dead-ends just north of Kochville Road. A southern trailhead is in the planning phase.

Sagianaw Valley Rail Trail-

The Saginaw Valley Rail Trail offers a year-round rural retreat from the urban confines of Saginaw. Rolling through a continuous woodsy border past farms, fields, and game areas for 11 miles, the paved trail connects the manufacturing center of Saginaw with the former coal-mining town of St. Charles.

Saginaw Valley State University trail-

Saginaw Valley State University trail has 6 miles of interlocking trails on the campus. The overall plan is to construct a 4 mile long trail is to linking Delta College to Saginaw Valley State University.

Tittabawassee Township Trail

The Michigan Department of Transportation (MDOT) invested $1 million and Tittabawassee Township matched to construct a 2.2 miles of non-motorized path between Tittabawassee and Freeland roads in Freeland. Overall this trail will link with other trails in the Great Lakes Bay Region Trail network, such as the proposed trail stated below in section 3.7.6.

Harger Line Rail-Trail

The Harger Line Railway was built in the late 1800s to connect Saginaw with Michigan's "Thumb" area. In 2006, the section of railway from 1-75 to Richville was purchased by the Michigan DOT for recreational use. In 2008, the railway was converted into a paved non-motorized, multi-use trail by the Michigan DNR. Approximately 10 miles long, the Harger Line Rail-Trail travels through some of Michigan's most fertile farm country.

Great Lakes Bay Region Trail

The Great Lakes Bay Regional Trail is currently in construction to create a trail that connects Saginaw, Midland, and Bay Counties. In the fall, of 2016, a section of the trail was completed linking the city of Zilwaukee in Saginaw County to the southeast part of Bay City. The overall trail linking the cities will include over a 100 miles of trails.

3.7.2

Sidewalks

In Saginaw City and Surrounding Townships, more than 90% of the roads have sidewalks on at least one side of the road. In the other townships, more than 90% of the roads lack sidewalks, including those in subdivisions. Of the townships in SMATS, Saginaw Township, and Hampton Township have 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.

On Road Bicycle Facilities

A limited, unconnected network of on-road bicycle facilities exists within SMATS. Some of the trails 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. In 2011, Michigan Department of Transportation approved a 310-mile long bike route (US Bicycle Route 20) that connects Marine City and Ludington. The US Bicycle Route 20 goes through the SMATS area following Iron-belle trail route from Frankenmuth to Zilwaukee. Bike Lanes with extended shoulders along M-84 and Midland Street have been constructed in certain segments of the road. Continued construction of on road facilities (paved shoulders, bike lanes, sharrows (shared bike lane), and wide outside lanes) when road construction is being completed is vital in providing complete streets for both motorist and non-motorist alike. Beyond these examples, the on-road facilities consist of the existing network of low volume residential streets. EMCOG is currently conducting an update to their regional non-motorized plan, which will include major bike routes throughout Saginaw County. An update and current progress on the plan can be found on their website.

3.7.3

Water Trails

3.7.4

The Saginaw River shoreline is one of Saginaw County's best kept secrets. Our riverbanks and shoreline host fringe wetlands and a diverse array of wildlife, migrating birds and historic battleground areas. There is a designated water trail along the Saginaw River and the water trail connects to additional trails along Saginaw bay and including river trails on the AuGres, Rifle, and Kawkawlin river. Campground areas along the shore are available for longer excursions or as a base for day use. The Saginaw Bay Blue Way Trail was created in 2014. Future use of this trail could see increased traffic along river brining people to local business.

3.7.5

Future Non-Motorized Projects

Planning efforts are ongoing to connect this non-motorized trail system to others trails in the region, such as a proposed connection between Delta Community College and Saginaw Valley State University along the M-84 Corridor. There are also proposed connections to trail systems developing in both Bay and Midland Counties. The following trail planning efforts portray the level of effort being expended in the SMATS study area, as well as, the greater Saginaw County area in regards to non-motorized transportation efforts. The following projects are listed in order of priority from first to last. The SMATS staff prioritized the projects based on promoting livability within the SMATS area such as promoting a healthier living, non-motorized safety, and access to amenities and jobs. SMATS also looked at feasibility and cost, such as, if the project is partially completed or currently has funding in place.

- Tittabawassee and Kochville Trail which will provide a major section in connecting the rest of the Great Lakes Bay Regional Trial (GLBRT) through Saginaw County. The GLBRT is currently in construction is certain sections and will hopefully complete all sections by 2025. Future development of the trail will link Bay City to Midland and Midland to Saginaw.

- The Iron-Belle Trail is a set of hiking and biking routes, is being developed by the Michigan Department of Natural Resources (MDNR), with MDOT as a partner. The Iron Belle Trail is the longest designated state trail in the nation and includes a route for hiking and a route for biking between Belle Isle Park in Detroit and Ironwood in the Upper Peninsula. The 1,273-mile hiking route incorporates a large portion of the existing North Country National Scenic Trail. It traverses the west side of the Lower Peninsula and borders Lake Superior in the Upper Peninsula. The east part of that runs through Saginaw County will traverse through the City of Frankenmuth, Bridgeport Township, City of Saginaw, City of Zilwaukee and Pinconning. Most of the trail will follow the existing segment of the Riverwalk/Rail trail. An interactive map can be found on the MDNR website by following the link (http://www.midnr.com/Publications/pdfs/ArcGISOnline/ironBelleWebApp/index.html).
- Trolley Line Trail- The proposed route for the extension of the Trolley Line Trail into Saginaw County will continue from Willard Road, running parallel to the Saginaw Bay Southern Railway railroad tracks in property owned by Consumers Energy, up to Beyer Road, and then north on Beyer Road to the Premium Outlets. The proposed link will not only expand upon an existing facility in Clio, but will also serve as the linchpin of a future non-motorized system that could eventually connect Montrose, Clio, Birch Run, Frankenmuth, Bridgeport and Saginaw and serve as a non-motorized hub that connects Detroit to Traverse City.

Conduct and prioritize a non-motorized corridor study on connecting current paths, trails, and on-road paths. Additionally, an overall assessment of current conditions of the non-motorized system will be needed with assessment management plan to continue to manage the system.

3.7.6 Non-Motorized Plan

SMATS plans to create a Non-Motorized Transportation Plan in 2018/2019. This plan will identify recommended routes for trails and on-road bicycle facilities and is intended to be a guide for the communities within and surrounding the SMATS area on ways to provide for non-motorized transportation within their boundaries and to make bicycling a viable transportation alternative. The plan is intended to illustrate the importance of connectivity of non-motorized transportation. One essential for creating 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.

The creation of a connected network of non-motorized routes could be a vital component in the Fast Act performance measure and EMCOG study on enhancing travel and tourism. MDOT is currently conducting case studies throughout Michigan on the benefits of bicycling in the community and the economy in a city. Key results from the study showed that throughout the state of Michigan total benefits of bicycling is approximately $668 million including $38 million in event and tourism spending[1]. The SMATS area with the existing and future development of regional trails could become a destination for bicycling, running, and kayaking events and a stop for long distance riders. Bicycle tourist seek scenic trails, support and service facilities (bike maintenance area and good maps) and nearby attractions which are provided or can be provided in the SMATS area.

3.8 Highlights of recent past, current and in the short term future initiatives include:

A.) The Zilwaukee to Bay City link. This critical piece links the Saginaw Area to the Bay City Area as it runs in between the Crow Island State Game Area and the Saginaw River.

B.) The link from Midland to Saginaw is progressing. This link directly connects to the Pere Marquette Rail Trail at the bridge in the city of Midland.

C.) Tittabawassee Township completed a section of the rail trail from the town area to the Sports Zone Fitness Center.

D.) The Great Lakes Bay Regional Trail Group is working toward a trailhead at Kochville and Milbourne roads and furthering the trail west along Kochville Road.

E.) A 2017 study will look at how to best link Frankenmuth, Bridgeport, and the City of Saginaw up to the Kochville/ Melbourne Road link.

F.) The Iron Belle Trail from Belle Isle Park in Detroit to Ironwood in the Upper Peninsula plows through Saginaw County. The DNR funding related to this project landed in three areas's to move this project forward in Saginaw County. The City of Frankenmuth and Bridgeport Township received $9,000each for trail sign identification, and Saginaw County received $25,000 for planning, designing and engineering.

Figure 7 is a map that displays both existing and proposed non- motorized trails in Saginaw County. This map is based on the information that is currently available to the Saginaw Area GIS Authority regarding both existing pathways and additional projects that are in various stages of discussion and planning.

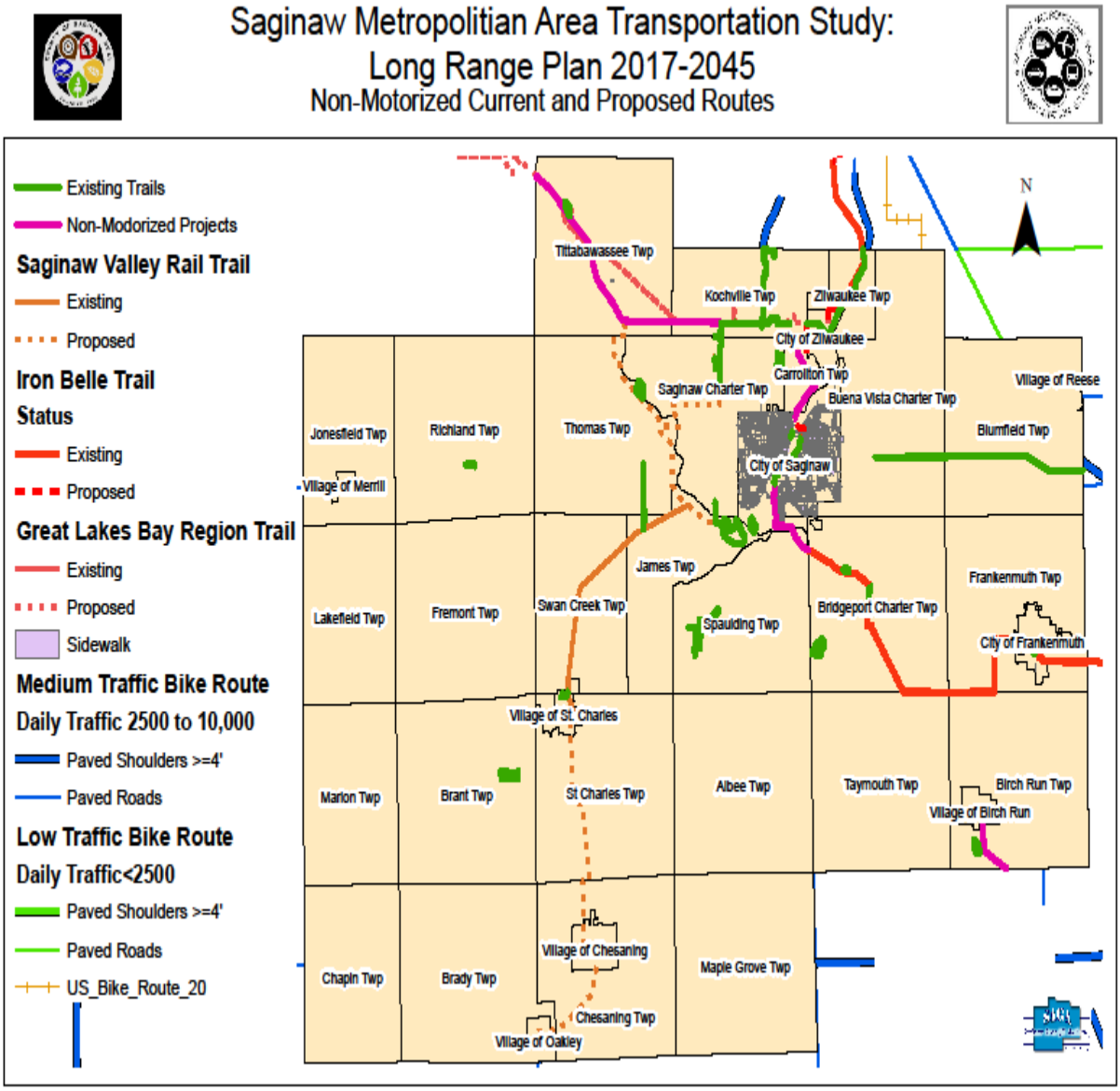


Figure 7: Non-Motorized Current and Proposed Routes

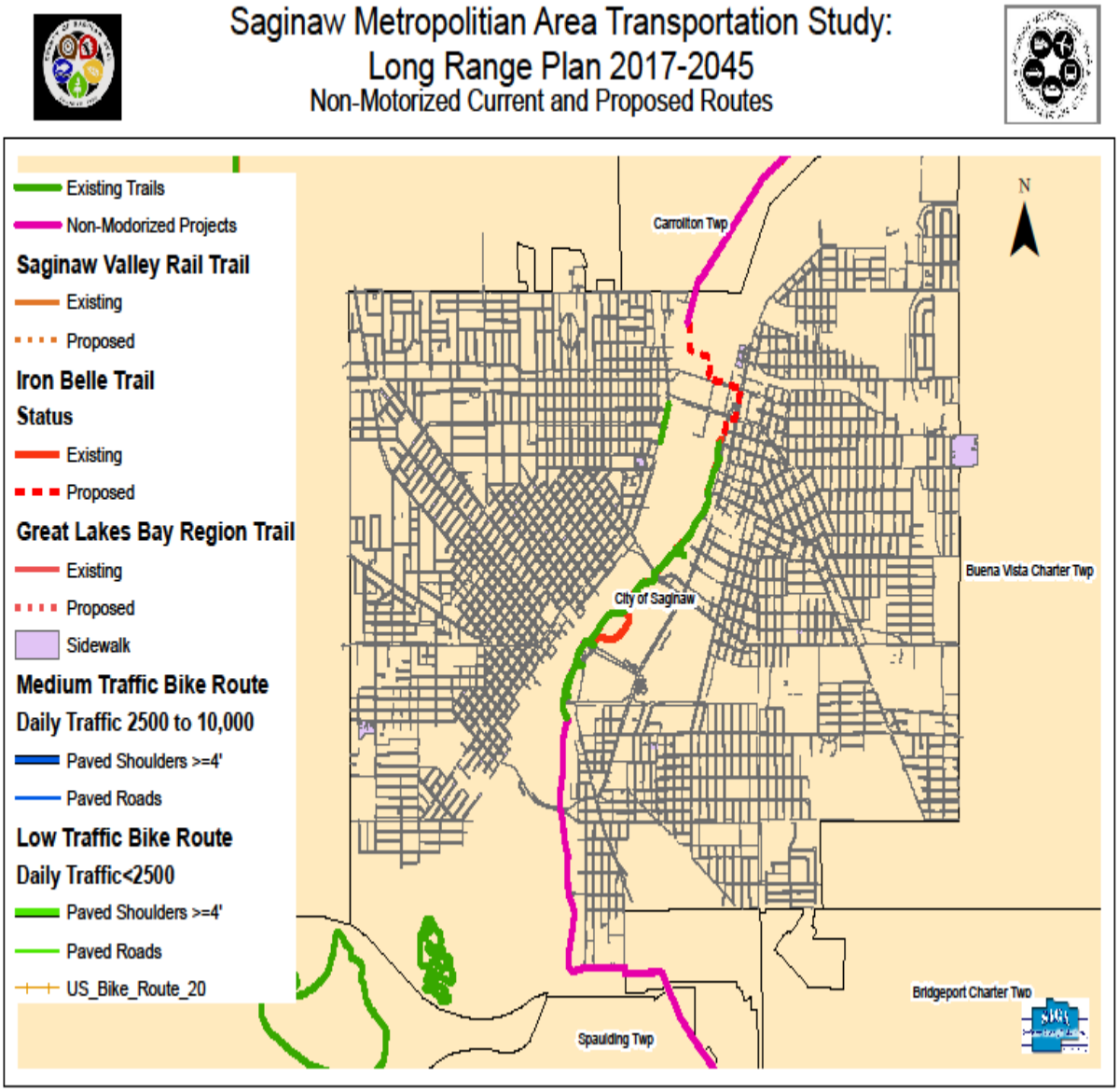


Figure 8: Non-Motorized Current and Proposed Routes for the City of Saginaw

Future efforts will continue to focus on the long-term development of an interconnected network of non-motorized routes both within the county and the surrounding region. These projects move forward as funding permits, involving Michigan Department of Transportation grants, the DNR, and local township monies. SMATS will continue to promote non-motorized planning activities with ongoing efforts to connect other trails in the region. SMATS works in conjunction with the efforts and staff of MDOT, local townships, and groups of local interested/ concerned citizens.

Major Issues and Challenges:

- Obtain funding and community support to develop region wide connectivity.

- Funding commitments need to address upkeep and maintenance obligations and responsibilities.

3.9 Intelligent Transportation Systems (ITS)

The SMATS planning process recognizes that ITS technologies must become an integral component of transportation plans and programs. BCATS will work toward the successful implementation of the objectives of the National ITS Plan.

The objective of The National Intelligent Transportation Systems Plan is to advance the safety, efficiency and security of the surface transportation system, provide increased access to transportation services, and reduce fuel consumption and environmental impact.

3.9.1 The ITS Vision is to ensure that:

Future transportation systems will be managed and operated to ensure that they provide seamless, end to-end intermodal travel for passengers regardless of age, disability, or location, as well as efficient, seamless, end-to-end intermodal freight movement. Future transportation systems will be safe, customer oriented, performance driven, and institutionally innovative, enabled by information from a fully integrated spectrum of computing, communications, and sensor technologies. Public policy and private sector decision-makers will seize the opportunity to make ITS a vital driver in achieving the vision of the transportation system for the 21st century. The National ITS Architecture has eight groups of ITS service areas. That include:

- Traffic Management (ATMS) – includes transportation operations centers, detection systems, Closed Circuit Television (CCTV) cameras, dynamic message signs (DMS), Portable Changeable Message Signs (PCMS), and other related technologies.
- Emergency Management (EM) – includes emergency operations/management centers, improved information sharing among traffic and emergency services, automated vehicle location (AVL) on emergency vehicles, traffic signal preemption for emergency vehicles, and wide-area alerts.
- Commercial Vehicle Operations (CVO) – includes coordination with Commercial Vehicle Information Systems and Networks (CVISN) efforts, Hazardous Material (HAZMAT) management, weigh-in motion (WIM) technology, and security technology, including driver authentication.
- Traveler Information (ATIS) – includes broadcast traveler information such as web sites, traveler information kiosks, and highway advisory radio (HAR).
- Archived Data Management (AD) – includes electronic data management and archiving systems.
- Vehicle Safety (AVSS) – includes connected vehicle technology such as collision avoidance and vehicle automation, specifically speed and steering.

- Maintenance and Construction Management (MCM) – includes work zone management, roadway maintenance and construction information, winter maintenance, and Road Weather Information Systems (RWIS).
- Public Transportation Management (APTS) – includes transit and paratransit AVL, dispatch systems, transit travel information systems, electronic fare collection, and transit security.

The introduction of ITS technologies into the institutional and funding framework of surface transportation, the current and proposed transportation infrastructure and future vehicle development offers the opportunity to achieve an Integrated Network of Transportation Information that will facilitate:

- Availability of information to allow travel choices wherever and whenever desired without being limited by physical disability, age or location.
- Full coordination between bus and rail transit, railroads, highway and arterial systems and eliminating missed connections, confusion during detours and diversions due to emergency and weather conditions.
- Timely and accurate commercial vehicle and freight data shared electronically among authorized stakeholders to support safety, security, productivity, mobility and environmental goals.

An Integrated Network of Transportation Information will require:

- Forging new partnerships within the public sector, at all levels, and the private sector, in its broadest sense, including manufacturers, carriers, service providers and travelers in all modes.
- Research into traveler behavior and requirements, user response to new types of information and personal services, and the types and quality of data that will be most useful to travelers and that will affect their travel patterns and behavior.
- Reaching out to the public safety community to assure a high level of communication and interface to support emergency and disaster response.

3.9.2 Interim Guidance issued by the USDOT:

The final rule and FTA policy on Intelligent Transportation Systems (ITS) Architecture and Standards were issued on January 8, 2001, to implement section 5206(e) of the Transportation Equity Act for the 21st Century (TEA-21). This final rule/policy requires that ITS projects funded by the Highway Trust Fund and the Mass Transit Account conform to the National ITS Architecture, as well as to USDOT adopted ITS Standards.

The final rule/policy means that regions currently implementing ITS projects must have a regional ITS architecture in place in four years. Regions not currently implementing ITS projects must develop a regional ITS architecture within four years from the date their first ITS project advances to final designs.

ITS projects funded by the Highway Trust Fund and the Mass Transit Account must conform to a regional ITS architecture. Major ITS projects should move forward based on a project level architecture that clearly reflects consistency with the National ITS architecture.

The Michigan Department of Transportation has completed a regional ITS architecture and deployment plans for the Bay Region in January of 2008. The document is available at: https://www.michigan.gov/documents/mdot/Bay_Region_ITS_Architecture_271327_7.pdf with amendments in 2015.

Chapter 4: Planning Factors and Goals

This chapter presents the goals and objectives that have been established for the SMATS transportation planning process. Since transportation has such a significant impact on the communities that SMATS serves, the Metropolitan Transportation Plan must reflect the values and desires of these communities and their residents. The goals and objectives provide guidance to the overall planning process, and they also provide a means of evaluating progress in implementing the plan.

Planning factors provide the ability SMATS to improve the livability of our residents and access areas needing improvement. Livability is the ability of transportation to provide a higher quality of life for citizens by providing access to a better road system, enhances the local economy, provides a safe system to navigate, and provide multiple modes of travel. SMATS will try and incorporate a result driven approach to implementing livability factors into the planning process. Projects will be considered for improving quality of life, improve economic vitality, promote energy conservation, safety, and ability to protect the environment.

4.1 FAST Act ten planning factors

The following goals and objectives have been formulated by an integration of previous SMATS goals and objectives along with the FAST Act ten planning factors that must be considered as part of the planning process for SMATS. The following factors have been explicitly considered, analyzed as appropriate, and reflected in the SMATS long range planning process. The plans and projects stated above are an integral part of SMATS reaching these goals.

SMATS Goal One/FAST Act Factor One

Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.

SMATS intends to continue support of economic vitality by selecting projects that support the objectives stated below and to continue to work with local economic development organizations plans and objectives. One such plan is the EMCOG Comprehensive economic development strategy (CEDS) report that highlights transportation strengths and weakness within Saginaw County. One of the region's biggest advantages is the significant amount of underutilized capacity across all modes (roads, rail, water, air), such as leveraging the Saginaw River shipping channel. One disadvantage is the transit operation within Saginaw County which only serves the City of Saginaw and few surrounding areas. Varying chapters and sections in the SMATS 2045 LRP address this goal such the existing transportation chapter, Regioanal Inter-modal section, non-motorized, project selection, and transit sections. Below are example of projects in the LRP that assist in obtaining SMATS goal one.

The Dixie Highway project is located in Bridgeport Township, Michigan which is SE of the City of Saginaw. This is an industrialized area of Saginaw County as well as a route heavily utilized for festivals and trips to Frankenmuth, Michigan and an alternative to I-75. The proposed project consists of reconstruction and expansion of Dixie Highway between Junction Road and Airport Road.

The overall scope of work for this project includes the replacement of the existing four-lane composite pavement roadway, which currently has inadequate lane widths, and no turn lanes. Proposed scope of work is to provide a five-lane cross section with proper lane width, improved shoulders, a center turn lane, and acceleration and deceleration lanes at major traffic generators such as businesses and intersections. Drainage will also be improved as needed. The addition of the left turn lane and wider lanes will promote increased safety along this stretch of Dixie Highway which currently has a high crash concentration associated with the lack of lane width and left turn lanes.

Proposed budget:
Engineering: $305,000
Construction Inspection / administration: $375,000
Construction: $3,320,000

Total Project Budget: $4,000,000

Another project on the Illustrative list that could meet some of the objectives is the Fordney Street re-constructions. Part of Fordney Street runs along Saginaw River and connects to Ojibway Island. If a non-motorized aspect is attached to this project it could enhance tourism to Ojibway Island, YMCA of Saginaw, Franke N. Anderson Water and Skate Park. It could attract new business to build or move the south side of the river. The Southern part of the project could provide better access to the above amenities to residents in the surrounding neighborhoods.

Objectives

- Promote general economic development
- Improve or enhance tourism
- Improve or enhance the movement of freight and services
- Improve or enhance the movement of workers
- Provide new access to jobs and opportunities
- Improve the value of residential or nonresidential properties

- Encourage investments from the private sector
- Improve access to terminals (sea, air, multimodal, etc)
- Enhance the ability of the freight system to support product exports/imports

SMATS Goal Two/FAST Act Factor Two

Increase the safety of the transportation system for motorized and non-motorized users.
The system safety for both motorized and non-motorized users is a State of Michigan focus for 2018 as the performance measures begins its influence in future programming as well as being mandating by Federal highway. SMATS has adopted for 2018 to embrace MDOT's safety standards.

4.1.2

On the motorized equation of safety standards, Saginaw County has several major intersections that historically have presented challenges for safety traffic engineers and law enforcement officials. For the purposes of this discussion, three such intersections are Bay and Tittabawassee roads, in Tittabawassee Township, Gratiot and Miller roads in Thomas Township, and Court Street and Michigan Ave. in the City of Saginaw.

Bay and Tittabawassee Roads
Local police agencies have worked in collaboration to patrol these corridors to enforce speed and driver related behaviors. The objective of this joint effort is to reduce and eliminate hazardous locations, increase enhance or add to the system of bike lanes and sidewalks, and minimize rail, auto, non-motorized conflicts. SMATS will as a component of its safety emphasis monitor activities and results by continuing working with local law enforcement.

Gratiot and Miller Roads
High traffic volume at peak hours resulted in a recent TIP road widening project at the intersections of Miller Road near Gratiot for our local Saginaw County Road Commission to address issues with traffic flow, vehicular accidents, fatalities and serious injuries.

Court St. and Michigan Ave.
Court and Michigan located in front of the Saginaw County Courthouse is a future safety project. This "cross at your own risk" designated pedestrian crosswalk is of interest to both the City and County officials for a variety of issues not the least of importance pedestrian safety. When using the crosswalk pedestrians are at risk of being injured or kill by speeding vehicles trying to beat the light on Court/Michigan or struck by a moving vehicle leaving the public metered parking lot adjacent to the Saginaw County Courthouse. Pedestrians of all ages are at risk of injury or death from traffic crashes, but the elderly or disabled are at a higher risk due their inability or impaired ability to properly judge distances and speeds in order to quickly cross the street to safety. This designated crosswalk has a history of pedestrian injuries and the possibility of future injuries exits.

Objectives
- Reduce vehicular accidents and eliminate hazardous locations
- Minimize rail/auto/transit/non-motorized conflicts
- Assist the monitoring or patrolling of the system
- Increase access to accident incidences and/or disabled vehicles
- Enhance or add to the system of bike lanes and sidewalks

- Enhance the public safety of pedestrians
- Contribute to a reduction in traffic volume
- Improve the handling and movement of hazardous materials

SMATS Goal Three/FAST Act Factor Three

Increase the security of the transportation system for motorized and non-motorized users.

Increasing the security of the transportation network has been a focus since 2001. The SMATS wild card in this category has always been the Dow Chemical train that passes through the region heading towards the Dow Midland plant. As a result, the potential for an accident exists in our region. The last incident was in Freedland in July 1989. A thirty-two car Chessie System Railroads (CSX) leaving from Port Huron heading towards Midland derailed in Freeland.

4.1.3

The 32 car train was rounding a curve when its first 14 cars derailed in Tittabawassee Township one mile north of Freeland. The tankers filled with toxic chemicals for more than three days burned out of control keeping thousands of residents in a 25 square mile out of their homes. Dozens of people were treated at Midland and Saginaw hospitals for inhalation of toxic fumes and skin irritation fortunately, at that time no life threating injuries were reported. Preventing disasters like the one that occurred in Freeland is SMATS goal and objective. SMATS has and will continue to work with rail professionals and other officials in multiple counties to improve safety and other issues related to this rail transport in our county.

Objectives

- Reduce, eliminate, or mitigate hazardous locations
- Assist the monitoring or patrolling of the system
- Increase access to accident incidences and/or disabled vehicles
- Enhance the public safety of pedestrians
- Improve the handling and movement of hazardous materials

4.1.4

SMATS Goal Four/FAST Act Factor Four

Increase the accessibility and mobility of both people and freight.

Accessibility for people, particularly the elderly, requires providing a more robust transit transportation system. The transit system here in Saginaw County has a long history of being limited by its City of Saginaw only funding source. The lack of adequate funding puts the elderly riders at a disadvantage because of the limited bus routes in Saginaw. The advantage of increasing transit funding would allow for the expansion of local bus routes. The elderly would have access to safe and plentiful transit transportation which can potentially increase road safety. Taking cars off the road and replacing with public transportation can help to reduce the total number of traffic accidents which is a benefit for everyone.

For SMATS to improve freight impact in our area it will require connections and collaborations that includes MBS Airport staff as well as economic development professionals. SMATS participation would be of importance of a systematic standpoint. The objectives to increasing accessibility for people and freight are; improving intermodal connectivity for people, integration/connectivity within people serving modes, and intermodal connectivity for freight. While these objectives are potentially possible, there's

not much history to draw from.

Objectives

- Provide enhanced or new capacity or mobility to the transportation system to move people.
- Provide enhanced or new accessibility to the transportation system to move people.
- Provide enhanced or new capacity or mobility to the transportation system to move freight.
- Provide enhanced or new accessibility to the transportation system to move freight

- Enhance the range of freight service options available to local business
- Provide appropriate access to and from major land uses
- Minimize barriers to disadvantaged and mobility-limited persons

SMATS Goal Five/FAST Act Factor Five

4.1.5

Protect and enhance the environment, promote energy conservation, improve quality of life and promote consistency between transportation improvements and State and local planned growth and economic development patterns.

Protect and enhance the environment has been and issues in Saginaw County for something with local river population. SMATS has historically had solid relationship and communication with the local Department of Environmental Quality (DEQ) staff. That is the go to agency regarding many of these topics.
SMATS has and will continue to be a participating member in local and regional conversations of non-motorized, traffic calming and brownfield site activity.

Objectives

- Reduce vehicle emissions
- Reduce vehicle noise
- Decrease fuel consumption
- Add to the convenience or efficiency of the system
- Protect wetlands or other natural habitats
- Decrease air or water pollution
- Promote non-motorized travel
- Promote traffic calming measures
- Support cultural and/or historic property retention or development
- Support community cohesion and design
- Promote environmental equity

4.1.6

- Enhance development of brownfields
- Conserve prime agricultural resources and open spaces
- Promote planning that is consistent with local township and city land use plans.

SMATS Goal Six/FAST Act Factor Six

Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
SMATS currently has representation on the Transits Authority Board in Saginaw County. The Saginaw

County Metropolitan Planning Commission Regional Study (in 2014 LRP) The Saginaw County Metropolitan Planning Commission (MPO for the Saginaw area), in cooperation with its partners, the Saginaw Chamber of Commerce and the Michigan Department of Transportation, conducted the I-69/I-75 Intermodal Transportation Study to determine how the region of Saginaw, Lapeer, Genesee, St. Clair and Shiawassee counties can capitalize on its location at a significant crossroads of the national and international freight network. By doing so, it is expected that economic conditions and the quality of life in the region will improve. is involved at the local level regarding transit discussions with STARS this document with local flavor of Bay Region discussion would be of extreme value to maximize SMATS impact with improving intermodal connectivity for freight and integration with freight serving modes.

Objectives

- Improve intermodal connectivity for people
- Improve the integration/connectivity within people serving modes
- Improve intermodal connectivity for freight
- Improve the integration/connectivity within freight serving modes
- Enhance the information/telecommunication networks that integrate freight and people serving modes

SMATS Goal Seven/FAST Act Factor Seven

4.1.7

Promote efficient system management and operation.
The most opportunistic opportunity for SMATS among the six listed section of this goal is to contribute to better vehicle and commercial traffic counts. This suggests, increased contact and participation with agency's counting program and increase active contact with the commercial (i.e. freight activity levels with SMATS boundaries). The timing of increased emphasis in these areas couldn't be better with the Highway Performance Monitoring System (HPMS) which is a national level highway information system that includes data on the extent, condition, and performance of the nation's highways on all public roads

Objectives

- Use Intelligent Transportation Systems (ITS) technology
- Reduce transportation system cost
- Contribute to better vehicle and commercial traffic count data
- Enhance administrative productivity/efficiency

4.1.8

- Enhance electronic processing of vehicle information
- Provide technologies to alert traffic to road conditions/alternate routing

SMATS Goal Eight/FAST Act Factor Eight

Emphasize the preservation of the existing transportation system.
There are five listed areas in this category. For the past decade at least, SMATS emphasis on rehabilitation and system maintenance have been driven by economic and population issues that have left the network with capacity issues that do not exist for the most part. What we do have is a network that is aging with not enough resources to "keep us even".

Objectives

Contribute to better system maintenance
Emphasize system rehabilitation rather than expansion
Incorporate new technologies
Maximize existing capacity
Optimize the use of existing infrastructure to enhance service

SMATS Goal Nine/FAST Act Factor Nine

Improve the resiliency and reliability of the transportation system, and reduce or mitigate stormwater impacts of surface transportation.

Two in particular require notation and attention of SMATS at this juncture. Of course common sense requires that SMATS works in cooperation with the road agencies and county drain commission to insure attention is given to improve safety issues such as drainage, grade replacement, improving rail crossings, as well as restriping alternate routing issues.

SMATS also recognizes that its technologies must be a component of transportation plans and programs. SMATS is committed to implementation of the objectives of the national ITS plan.

Objectives

- Improve infrastructure to mitigate stormwater impacts
- Emphasize system rehabilitation rather than expansion
- Incorporate new technologies
- Maximize and implement green infrastructure to manage stormwater runoff
- Optimize use of infiltration based approaches to reduce runoff, such as porous pavements, bio-swales, basins, and trenches.

4.1.10

SMATS Goal Ten/FAST Act Factor Ten

Enhance travel and tourism

Travel and tourism has never consistently connected with the SMATS transportation program. However, it must be noted, Frankenmuth in Saginaw County is a top designation for tourists all over the world. Frankenmuth is and has been represented on the Saginaw County Metropolitan Planning Commission Board and the SMATS program policy Board of Directors.

Objectives

- Contribute to a better infrastructure to facilitate increased foot traffic and safety for non-motorized transportation options throughout SMATS area
- Emphasize system and connectivity to the SMATS areas social and natural attractions
- Connect current trail systems
- Maximize the existing tourism features currently in place
- Optimize use of existing infrastructure to enhance service
- Maximize the existing tourism features currently in place
- Optimize use of existing infrastructure to enhance service

Chapter 5: Performance Measures and Plan Evaluation

Any plan, to be taken seriously, must include both a process for evaluating progress towards the goals and objectives identified and a system of measuring that progress. Monitoring progress towards achieving goals and objectives is helped by developing performance measures during the planning process.

A key feature of the Fixing America's Surface Transportation (FAST) Act is the establishment of a performance and outcome based program, originally introduced through the Moving Ahead for Progress in the 21st Century (MAP-21) Act. The objective of a performance-based program is for states and MPOs to invest resources in projects that collectively will make progress toward the achievement of national goals. 23 CFR 490 outlines the seven areas in which performance goals are required, these include: Safety, Infrastructure Condition, Congestion Reduction, System Reliability, Freight Movement, Environmental Sustainability, and Reduced Project Delivery Delay.

Within one year of the U.S. Department of Transportation final rules on performance measures, States are required to set performance targets in support of these measures. Within 180 days of the state setting targets, MPOs are then required to choose to support the statewide targets, or optionally set their own targets. To ensure consistency, each MPO must, to the maximum extent practicable,

coordinate with the relevant State and public transportation providers when setting performance targets. Any new TIP document must comply with performance reporting requirements beginning on May 27, 2018.

5.1 SMATS Performance Measure

SMATS Performance Measure One: Safety Measures

5.1.1

The Safety PM Final Rule supports the data-driven performance focus of the HSIP. The Safety PM Final Rule establishes five performance measures to carry out the HSIP: the five-year rolling averages for: (1) Number of Fatalities, (2) Rate of Fatalities per 100 million VMT, (3) Number of Serious Injuries, (4) Rate of Serious Injuries per 100 million VMT, and (5) Number of Non-motorized Fatalities and Non-motorized Serious Injuries.

Performance Measures:

- Reduce the number of fatalities
- Decrease the rate of percent of fatalities compared to total crashes
- Reduce the number of serious injuries
- Rate of Serious injuries percent of fatalities compared to total crashes
- Reduce the average number of non-motorized fatalities and non-motorized serious injuries.

Performance Targets:

The following Performance targets have been set by MDOT and, and a summary of the SMATS safety data can be found on the following graphs. MDOT used a 5 year moving average to determine the targets and a detailed report of MDOT's methods can be found on Saginaw County webpage. Additionally, SMATS will use information from both EMCOG's (Plan) and MDOT (Plan) safety report to analyses safety performance of the transportation system.

Table 6: Safety Targets

Safety Targets	MDOT Base Line	MDOT 2018 Targets
Fatalities	963	1003.2
Fatality Rate	1	1.02
Serious Injuries	5273.4	5136.4
Serious Injury Rate	5.47	5.23

Safety Targets	MDOT Base Line	MDOT 2018 Targets
Non-motorized Fatalities and Serious Injury	721.8	743.6
Saginaw County	**2012-2016**	**5 year average**
Fatalities	82	16.4
Serious Injuries	4853	970.6
Non-motorized Fatalities and Serious Injury	269	53.8

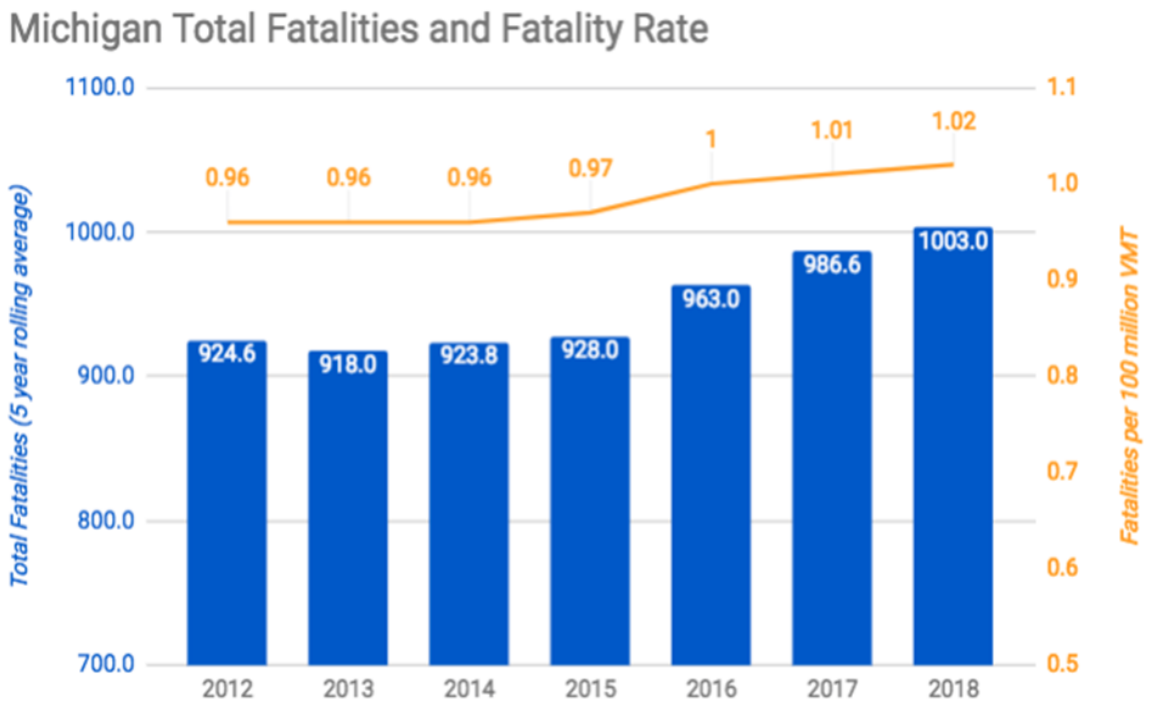


Figure 9: Michigan Safety Data (Fatalities)

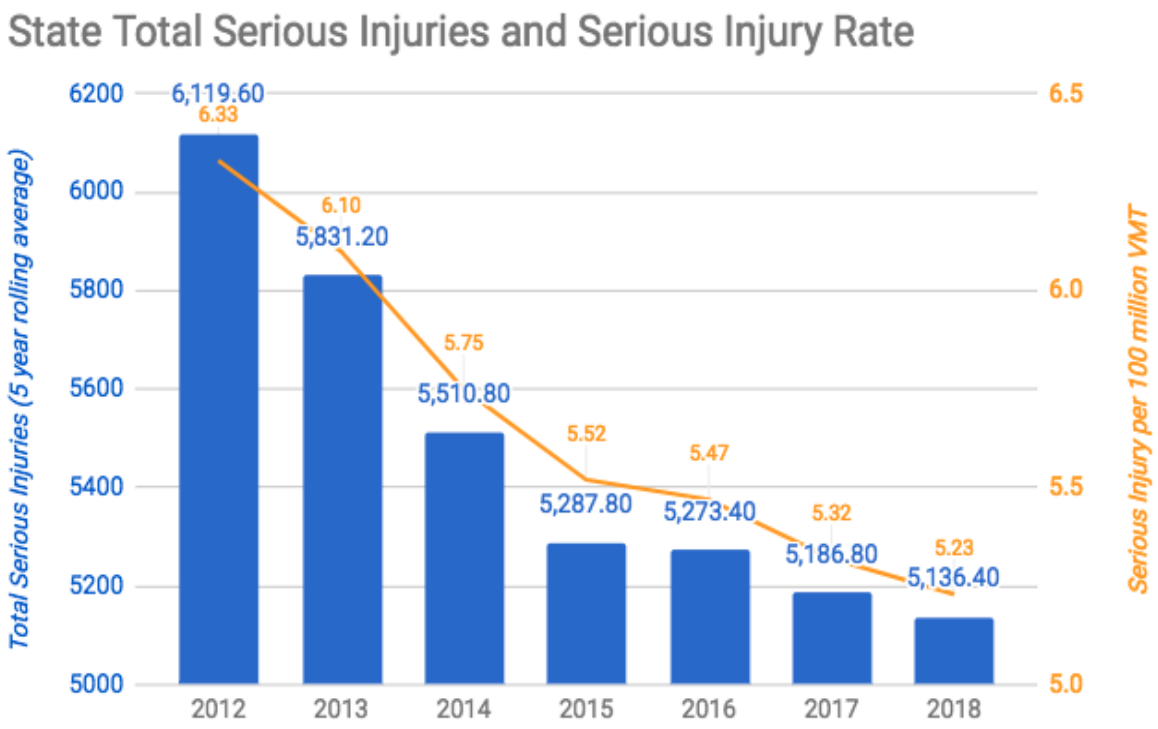


Figure 10: Michigan Safety Data (injuries)

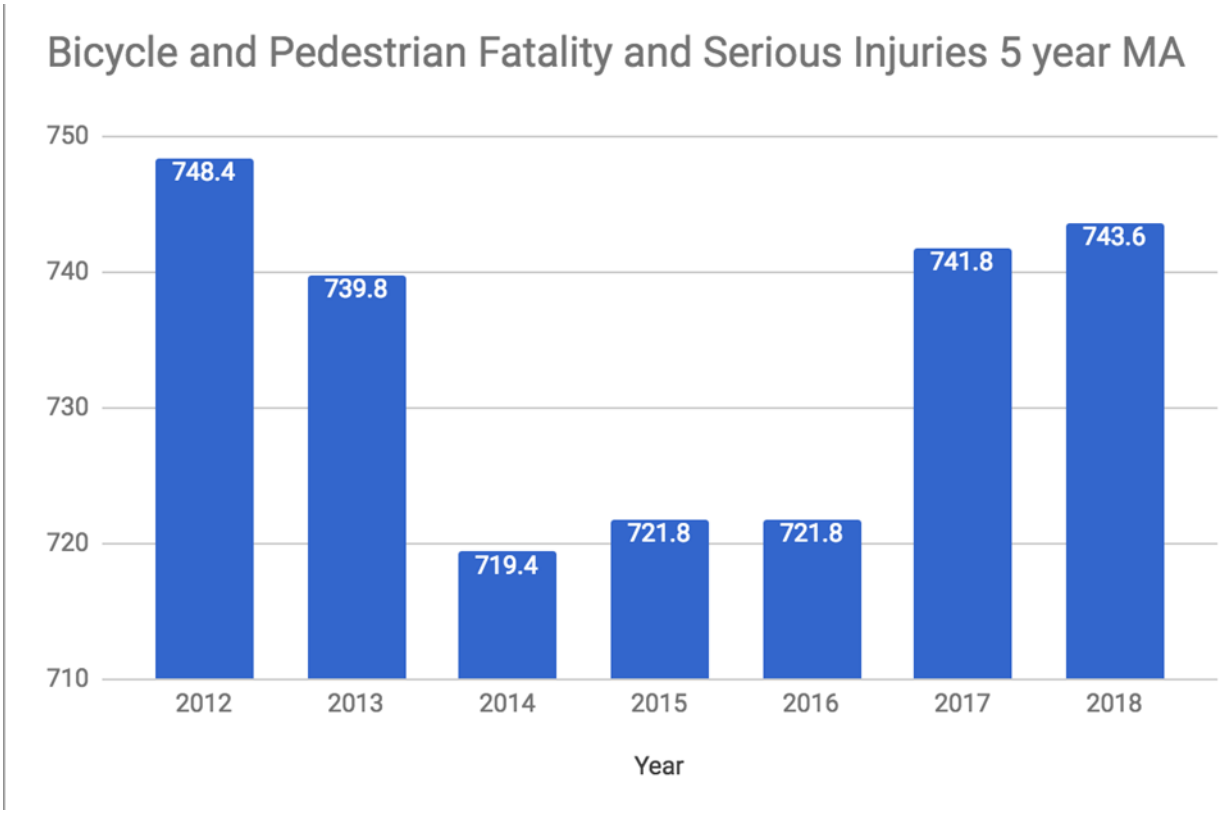


Figure 11: State Non-motorized Data

SMATS has adopted MDOT safety target for the safety performance measure at the December 19, 2017 Planning Commission meeting (found in supporting documents). SMATS has no control over the selection of Safety projects as there are selected through MDOT, City of Saginaw, and the Saginaw County Road Commission. *SMATS will only recommend high incident and impact areas for safety projects.

SMATS Performance Measure Two: System Performance/Freight/CMAQ

The purpose of this final rule is to establish measures for State departments of transportation (State DOT) to use to carry out the National Highway Performance Program (NHPP) and to assess the condition of the following: Pavements on the National Highway System (NHS) (excluding the Interstate System), bridges carrying the NHS which includes on- and off-ramps connected to the NHS, and pavements on the Interstate System.

Performance Measures:

- Percentage of reliable person-miles traveled on the Interstate
- Percentage of reliable person-miles traveled on the non-Interstate NHS
- Percent change in CO2 emissions from 2017, generated by on-road mobile sources on the NHS.

- A measure that will evaluate truck travel time reliability on the Interstate system (average truck reliability index).
- Total emission reductions for applicable criteria pollutants, for non-attainment and maintenance areas

Two measures to assess traffic congestion:

  - Annual hours of peak hour excessive delay per capita
  - Modal share; specifically, the percent of non-single occupancy vehicle travel, including travel avoided by telecommuting

Performance Targets:

Performance targets have not been set by MDOT currently. Knowing the targets will be set during the duration of this Long Range Plan SMATS will integrate some of the measures into its Goals and Objectives stated in the next Chapter (link).

5.1.3 SMATS Performance Measure Three: Pavement

The measures in this third rule will be used by State DOTs and MPOs to assess the performance of the Interstate and non-Interstate National Highway System (NHS) for the purpose of carrying out the National Highway Performance Program (NHPP); to assess freight movement on the Interstate System; and to assess traffic congestion and on-road mobile source emissions for the purpose of carrying out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program. This third performance measure final rule also includes a discussion that summarizes all three of the national performance management measures rules and the comprehensive regulatory impact analysis (RIA) to include all three final rules.

Performance Measures Pavement:

- percentage of pavements on the Interstate System in Good condition
- percentage of pavements on the Interstate System in Poor condition
- percentage of pavements on the NHS (excluding the Interstate System) in Good condition
- percentage of pavements on the NHS (excluding the Interstate System) in Poor condition
- impacting land use

Performance Measures Bridge:

- percentage of NHS bridges in Good condition
- percentage of NHS bridges in Poor condition

Performance Targets:

Performance targets have not been set by MDOT currently

SMATS Performance Measure Four: Asset Management

Asset management is a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on engineering and economic analysis based upon quality information, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the lifecycle of the assets at minimum practicable cost.

5.1.4

Performance Measures:

- Summary listing and condition description of the NHS pavements and bridges
- NHS pavements and bridges targets
- Asset management objectives and measures
- Performance gap analysis—State DOTs must include performance gaps that affect NHS pavements and bridges regardless of physical condition or ownership.
- Risk analysis
- Life-cycle planning
- Financial plan (minimum 10 years)
- Developing investment strategies

Performance Targets:

There are no targets for this rule to set. This is a state only requirement, but SMATS will have be required to provide assistance in helping the MDOT reach the States target.

5.1.5

SMATS Performance Measure Five: Transit Asset Management and Safety Program

In 2012, MAP-21 mandated FTA to develop a rule establishing a strategic and systematic process of operating, maintaining, and improving public capital assets effectively through their entire life cycle. The TAM Final Rule 49 USC 625 became effective Oct. 1, 2016 and established four performance measures. The performance management requirements outlined in 49 USC 625 Subpart D are a minimum standard for transit operators. Providers with more data and sophisticated analysis expertise are allowed to add performance measures and utilize those advanced techniques in addition to the required national performance measures.

Performance Measures:

- Rolling Stock: The percentage of revenue vehicles (by type) that exceed the useful life benchmark (ULB).
- Equipment: The percentage of non-revenue service vehicles (by type) that exceed the ULB.
- Facilities: The percentage of facilities (by group) that are rated less than 3.0 on the Transit Economic Requirements Model (TERM) Scale.

- Infrastructure: The percentage of track segments (by mode) that have performance restrictions. Track segments are measured to the nearest 0.01 of a mile.

Performance Targets:

Performance targets have not been set by MDOT currently for Transit. Knowing the targets will be set during the duration of this Long Range Plan SMATS will integrate some of the measures into its Goals and Objectives stated in the next Chapter (link).

Chapter 6: System Performance

Monitoring progress towards achieving goals and objectives is helped by developing performance measures during the planning process. In general, performance measures must be directly relatable to goals, utilize available data that is trackable over time, and measure progress. According to the Federal Highway Administration (FHWA), "Performance measures are a qualitative or quantitative measure of outcomes, outputs, efficiency, or cost effectiveness." The following information details how SMATS will evaluate this plan's foundation of data, information, and explanation stated in the previous chapters. This chapter will outline the process SMATS will take in adopting the Performance measure, data collection, and methodology on reporting projects.

6.1 Public Transportation National Performance Goals

In July 2012, President Obama signed the Moving Ahead for Progress in the 21st Century (MAP-21 federal transportation legislation) that established transportation systems moving toward a performance- and outcome-based program. The objective of this performance and outcome-based program is for the investment of resources in projects that collectively make progress toward the achievement of nationally set goals.

This emphasis was continued in the most recent transportation bill, the FAST Act. On December 4, 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act into law—the first federal law in over a decade to provide long-term funding certainty for surface transportation

infrastructure planning and investment. The FAST Act authorizes $305 billion over fiscal years 2016 through 2020 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs.

Transportation Performance Measures

As part of the bill, national performance goals were created for roads and highways along with public transportation providers. Roads and Highways National Performance Goals 23 CFR 150 outlines the national goals for the federal aid highway program around which the federally required performance measures were created. Below is a listing of those seven areas followed by a brief description of each goal and are also described in more detail in Chapter 5.

6.1.1

- Safety - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads
- Infrastructure Condition - To maintain the highway infrastructure asset system in a state of good repair
- Congestion Reduction - To achieve a significant reduction in congestion on the National Highway System
- System Reliability - To improve the efficiency of the surface transportation system
- Freight Movement - To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
- Environmental Sustainability - To enhance the performance of the transportation system while protecting and enhancing the natural environment
- Reduced project delivery delay - To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies/work practices.

6.1.2

Public Transportation National Performance Goals

MAP-21 also mandated the Federal Transit Administration (FTA) to develop a rule establishing a strategic and systematic process of operating, maintaining, and improving public capital assets effectively through their entire life cycle. The Transit Asset Management (TAM) Final Rule 49 CFR part 625 became effective Oct. 1, 2016 and established four performance measures. The performance Environmental Sustainability and Reduced Project Delivery Delays currently do not have any specific measures associated with these goals. Management requirements outlined in 49 CFR 625 Subpart D are a minimum standard for transit operators. Providers with more data and sophisticated analysis expertise are allowed to add performance measures and utilize those advanced techniques in addition to the required national performance measures. The Transit Performance Measures are described in more detail in Chapter 5.1.5.

6.2 System Management

One of the primary roles of SMATS is to facilitate coordination between the entities responsible for transportation improvements and operations in the area for performance measures. This is conducted

through various programs/strategies to enhance system management in order to achieve the Performance Measure Targets of the Long Range Plan. Below in Section 6.3 are several of those ongoing programs SMATS will participate in or facilitates to meet the targets.

MPO Performance-Based Planning Process: Going forward, any new LRP or TIP being developed must demonstrate the amount of investment being made towards each performance goal in a way that is mutually agreed upon by both MDOT and the MPO. Because the 2045 LRP and 2017-2020 TIP was developed prior to official federal guidance being released, and the state had not yet set targets, the MPO could not establish specific targets, except for Safety.

However, through the LRTP and TIP, the MPO established funding goals that generally target the performance categories specified. These goals were established in the LRTP and implemented through the 2017-2020 TIP as close as possible given the limitations on the availability and restrictions of local, state, and federal funding sources. The MPO will also continue to gather data for the development of performance measures such as pavement and bridge condition, traffic volumes, traffic flow, level of congestion, and safety. The MPO will begin to analyze progress toward the performance goals in fiscal years 2018 and 2019 using the annual listing of obligated projects to determine spending in each category. Completed projects will be evaluated to determine whether it contributes towards each performance goal. The MPO will begin to fully implement these performance goals during the 2020-2023 TIP development process. The 2020-2023 TIP applications will place emphasis on meeting the targets and using a more performance-driven project selection process.

6.2.1 Performance Reporting Requirements

According to 23 CFR 450.324(g)(4) in the FAST Act, metropolitan transportation plans shall, at a minimum, include: A system performance report and subsequent updates evaluating the condition and performance of the transportation system with respect to the performance targets described in §450.306(d), including:

- Progress achieved by the metropolitan planning organization in meeting the performance targets in comparison with system performance recorded in previous reports, including baseline data; and
- For metropolitan planning organizations that voluntarily elect to develop multiple scenarios, an analysis of how the preferred scenario has improved the conditions and performance of the transportation system and how changes in local policies and investments have impacted the costs necessary to achieve the identified performance targets.

This document will provide information on the current and proposed target information adopted by the Michigan Department of Transportation for roads/highways, and transit. Regular updates to all target data will be shown on the agencies website (list agency website here).

6.2.2 Roads and Highways Reporting Requirements

MDOT is required to report to FHWA on the establishment of state performance targets and the progress made in attaining the state targets on a *biennial basis (October 1, of each even numbered year*). One exception to the biennial reporting requirements is for the *safety performance* measures, which are required to be reported by MDOT to FHWA through the Highway Safety Improvement Program Annual

Report by *August 31 of each year.*

MPOs are not required to provide annual reports other than MPO decisions on targets. MPOs are required to report MPO performance targets to MDOT in accordance with the documented procedures for MPO reporting targets. This will result in MPOs reporting MPO safety targets annually to MDOT, and other performance targets as they are established (every two or four years).

Implementation Schedule
The timeline for implementation of the national performance measures is determined upon when a final rule establishing when the date for the rule is effective. The table outlines the effective date of the final rule and when States and MPOs must take action.

Final Rule	**Effective Date**	**States Set Targets By (1 year)**	**MPOs Set Targets By**	**MTP and TIP Inclusion**
Safety Performance Measures	April 14, 2016	August 31, 2017	Up to 180 days after the states set targets, but not later than Feb. 27, 2018	Updates or amendments on or after May 28, 2018
Pavement/Bridge Performance Measures	May 20, 2017	May 20, 2018	No later than 180 days after the State(s) sets target November 16, 2018	Updates or amendments on or after May 20, 2019
System Performance Measures	May 20,2017	May 20, 2018	May 27, 2018	Updates or amendments on or after May 20, 2019
Statewide non-metropolitan and metropolitan planning	May 27, 2016	No Targets	No Targets	
Transit Asset Management Plan	October 1, 2016	January 1, 2017	Optional reporting year for 2017 and mandatory for 2018. State will set targets for rural transit providers and urban providers will set own targets.	
Transit Safety Plan	Currently no regulation has been adopted to enact this rule.			

6.3 Safety

Current State Trends, Strategies and Targets

Going back to the 1960's the long-term trend in traffic fatalities in Michigan shows fatalities decreasing dramatically. There were more than 2,000 fatalities per year for the ten year period between 1964 and 1973. By 2011, the number of traffic fatalities in Michigan had dropped to a low of less than 900. There are many factors that have contributed to the long-term reduction in traffic fatalities including improvements in vehicle and occupant safety, stricter state safety laws, advances in life saving medical technology, and better and smarter deployment of engineering countermeasures. In more recent years, since 2008, the number of fatalities has fluctuated a bit, but remained around 900 per year. Calendar year 2016 marked the first year since 2007 in which the total number of traffic fatalities exceeded 1,000. The long-term trend in serious injuries shows a similar pattern. The same factors noted above have contributed to a significant reduction in serious injuries that have resulted from vehicle crashes since the mid-1990s.

6.3.1

To forecast the total fatalities and serious injuries for target setting purposes, MDOT and the Office of Highway Safety Planning relied on two different models. The models differed in the economic drivers or factors that were identified and used to forecast the two variables. The fatality models developed by MDOT relied on the relationship between oil prices, the Dow Jones Industrial (DJI) futures and fatalities. Both the price of oil and the level and changes in the DJI futures are closely correlated to the travel demand and traffic crashes.

Federal regulations require the use of five year rolling averages each of the performance measures. To determine a forecasted value for the five year rolling average for the first four measures listed above, a forecast for the total number of fatalities and serious injuries was obtained from both models described above for calendar year (CY) 2017 and 2018. The model created by MDOT produced an initial estimate for fatalities for CY 2017 of 968 and for CY 2018 of 912. These estimates were adjusted to account for recent data that show an increase in the number of fatalities thus far in CY 2017 that exceeds that the number experienced year-to-date in CY 2016. The adjusted values project fatalities of 1,057 in CY 2017 and 996 in 2018. The model created by UMTRI predicted 1,059 fatalities in CY 2017 and 1,063 in 2018. The final forecasted value for fatalities is the average of MDOT and UMTRI forecasted values, which predict 1,058 in 2017 and 1,030 in 2018. The finial State safety targets are reported in Chapter 5.1.1.

6.3.2

SMATS Targets Reporting and Safety Goals

SMATS has recently adopted the State Targets and passed a resolution in support of meeting those targets (Appendix C). The current numbers are addressed in Chapter 5.1.1 and indicate the baseline measurement for SMATS. The baseline number will be used to track the progress for Saginaw County on improving Safety within the SMATS area. SMATS does not select which safety projects will be implemented. The selection of Safety projects is conducted by MDOT, City of Saginaw, and the County Road Commission. SMATS will work with these entities to describe safety problem, and how project would reduce number and severity of crashes. This will be included in the next TIP development 2020-2023 and amended into the current TIP 2017-2020. Additionally, a complete reporting document on how all performance measure are incorporated into projects will addressed in the SMATS project selection process.

To meet the safety goal of reducing fatalities and serious injuries on the state Trunkline system the strategy of the Safety Program is to select cost-effective safety improvements, as identified in Michigan's Strategic Highway Safety Plan (SHSP), to address Trunkline locations with correctable fatality and serious injury crashes. All proposed safety funded improvements must be supported by the MDOT Region's Toward Zero Deaths (TZD) Implementation Plan to mitigate such crashes within the region. Priority is given to those projects, within each Region, with SHSP focus area improvements that have the lowest cost/benefit analysis or are a proven low-cost safety improvement to address the correctable crash pattern. On the local road system MDOT administers federal safety funds for safety improvements supported by a Local Road Safety Plan or addressed by means of a low-cost safety project. High Risk Rural Road is one program used to address rural roadways where fatalities and serious injuries exceed the statewide average for that class of roadway.

SMATS Safety Goals:

1. Improve the safety of Saginaw County roads to reach zero fatalities
2. Incorporate the 12 traffic safety emphases areas from the MDOT Regional Safety plan into SMATS plans, projects, and goals
3. Work with local agencies to promote safety training and classes, such as AAA Senior Driving safety and mobility resources for older drivers.
4. Work with the State and safety stakeholders to address areas of concern for fatalities or serious injuries within the metropolitan planning area

6.3.3 SMATS Reporting Safety Projects Selection and Data Collection

SMATS will continue to work with MDOT on reporting in a manner that is agreed upon between both parties. While FHWA may review MPO performance as part of ongoing transportation planning process reviews, there is no formal requirements for MDOT or FHWA to directly assess MPO progress toward meeting MPO targets. SMAT's intends to continue working with MDOT and update the Project submittal and selection process to include more description for Safety and other performance measure projects. SMATS also intends to incorporate an after action review of these projects to monitor the reported crashes at each project. Additionally, data will be collected on the entire Saginaw County road system and focus will be given to the top ten highest crash road segments and intersections.

Below is a list of the top ten road segments and intersection for crashes in Saginaw County from 2010 and 2014. The list of accidents was included in EMCOG's regional safety report that will be used along with the MDOT safety report to improve these high accident locations. Additionally, traffic records can be utilized to provide data driven solutions to determine what effects caused the accidents at these locations.

Table 7: Saginaw Highest Crash Area per Section

ID	Location	Total Crash per Year
1	Tittabawassee Rd	8.2
2	Tittabawassee Rd	8.2
3	Tittabawassee Rd	7

ID	Location	Total Crash per Year
4	Tittabawassee Rd	6.2
5	Tittabawassee Rd	5.6
6	Tittabawassee Rd	5.2
7	N Center Rd	5
8	N Center Rd	5
9	S Outer Dr	4.4
10	Tittabawassee Rd	4.2

Table 8: Saginaw Highest Crash Area per Intersection

ID	Location	Total Crash per Year
1	State St & Center Rd	34.4
2	Bay Rd & Shattuck	23.8
3	State St & Wieneke Rd	21.0
4	Tittabawassee Rd & Bay Rd	21.0
5	State St & Hemmeter	20.8
6	McCarty Rd & Bay Rd	18.8
7	Davenport Ave & Hill	18.0
8	Gratiot Rd & Center Rd	17.8
9	Midland Rd & Tittabawassee Rd	4.4

6.4.1

6.4 Other Performance Measures

Overview of Additional Performance Measures

Currently the remaining performance measure targets have not been set by MDOT and currently have a deadline of April 1st. Then SMATS will have 180 days to either accept the State targets or adopt Targets set by SMATS. As with the safety targets SMATS boards are in favor of adopting the State targets for the initial target setting. SMATS will follow similar procedures, as with the Safety targets in adopting, reporting, and evaluating target goals.

6.4.2

The information below will be used to develop information and collect data to support the State Targets for performance measures 5.1.2, 5.1.3, and 5.1.4.

Asset Management

SMATS is directly involved in the process of Asset Management with regard to monitoring road

conditions within the MPO boundaries. Asset Management is a process that provides key data for monitoring, planning and strategically improving the road network. Each local agency within SMATS' area has access to PASER data and Road- Soft computer software that assists in evaluating information that has been collected. This provides a means for local agencies to track road segments' distress and implement a strategic method of investing funds to mitigate those identified issues. In this Chapter a detailed evaluation of the Saginaw County PASER ratings from past years to current conditions are analyzed, along with future conditions. Additionally, the Saginaw County Road Commission and City of Saginaw are developing asset management plans a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on engineering and economic analysis based upon quality information, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the lifecycle of the assets at minimum practicable cost.

PASER Ratings and Current/Future Road Conditions

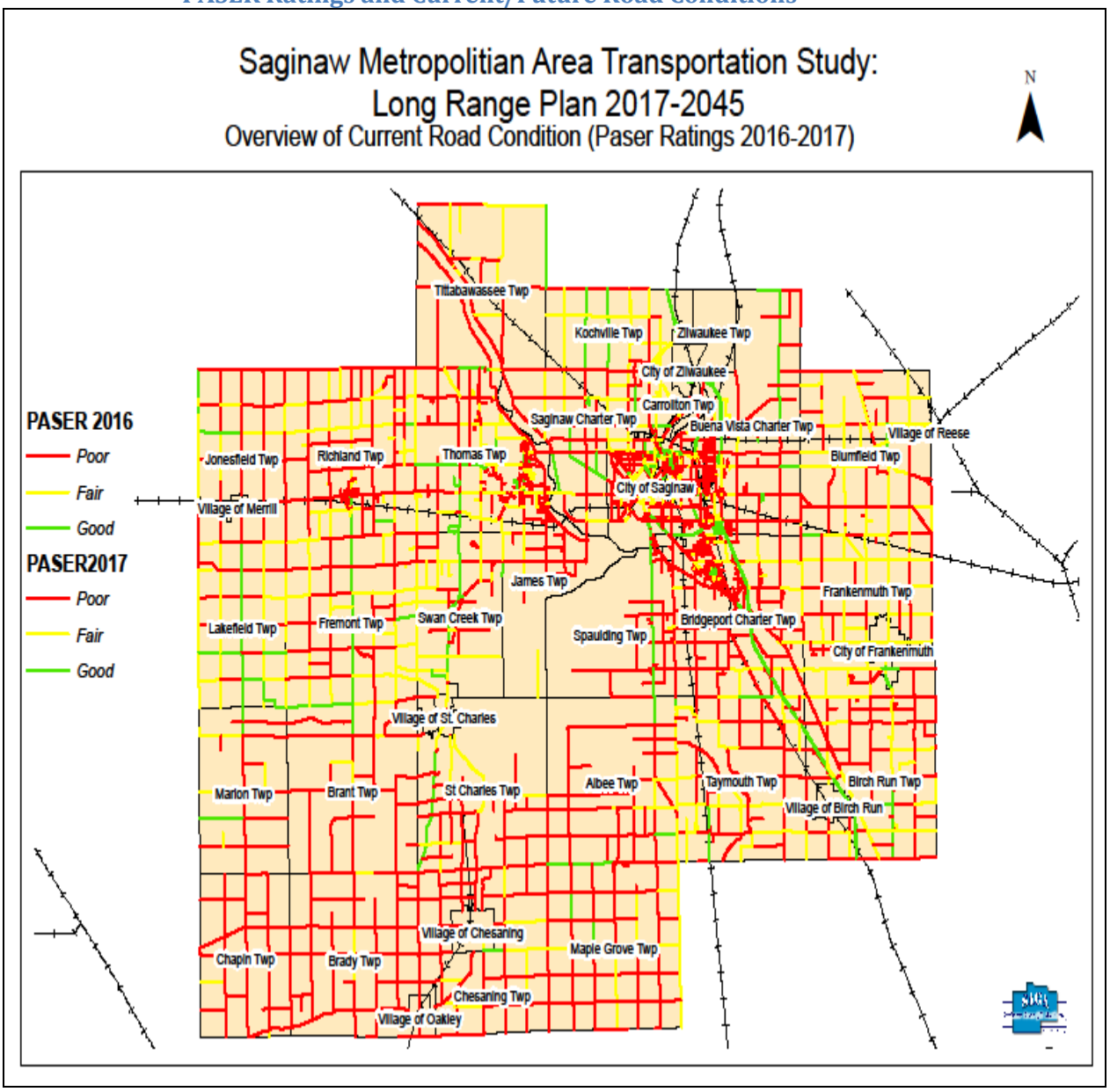


Figure 12: PASER Ratings and Current/Future Road Conditions

Table 9: Paser Rating 2009-2017

Year	Poor	Percentage	Fair	Percentage	Good	Percentage
2009-2010	328.545	0.30208	441.436	0.405877	317.63	0.292044
2011-2012	220.957	0.350711	290.728	0.461455	118.34	0.187834

Year	Poor	Percentage	Fair	Percentage	Good	Percentage
2013-2014	388.85	0.511561	306.013	0.402582	65.262	0.085857
2015-2016	1608.204	0.724667	471.938	0.212658	139.091	0.062675
2017	429.006	0.569821	231.405	0.30736	92.468	0.122819

6.4.4 Capital Preventative Maintenance (CPM)

CPM is a key implementation component of asset management practices. This strategy includes roadway improvements such as resurfacing, re-paving, re-striping, signal upgrades, re-decking, and other preventative activities which will extend the life of the existing transportation infrastructure. These projects are much smaller in scope and therefore are not identified specifically in the Long Range Plan. However, SMATS promotes CPM in its Transportation Improvement Program (TIP). These projects are typically identified as a General Program Account (GPA) on the TIP. A GPA is a grouping of similar CPM projects occurring each fiscal year. For example, a Saginaw County Road Commission GPA that has several resurfacing projects would be called Local Highway Rehabilitation and Reconstruction GPA. This GPA process makes it easier for local implementing agencies to complete CPM projects by streamlining project development and review

6.4.5 Traffic Counts

The collection of traffic count data is another example of ongoing system operations to enhance the transportation network in the SMATS area. Both the City of Saginaw and Saginaw County Road Commission collect traffic count data on federal-aid and local roads to be utilized for various purposes. For example, traffic count data can be used to assist with the review and potential reclassification under the NFC, of SMATS area roadways. Providing traffic count data for roadways which are supporting higher traffic volumes potentially allows for that roadway to be reclassified to a higher level. This process determines whether the roadway is eligible for federal funds, either as part of the National Highway System (NHS) or through the Surface Transportation Program (STP). SMATS plans on working with other agencies to increase the number of traffic counters and number of segments collected each year. SMATS will also work with MDOT and the agencies to streamline the collection process and provide a clean data set for MDOT personal. Hopefully, MDOT upgrade to MS2 software will provide a more convenient system to upload data and be able to distribute to varying agencies in MDOT. Additionally, SMATS will work with MDOT and other agencies to develop a non-motorized count system.

6.4.6 Complete Streets

This program is a measure to support a balanced transportation system and a guide to incorporating the needs of all users (i.e. transit and non-motorized) in the planning, design, and implementation of projects. Examples of non-motorized facilities considered while planning road projects include sidewalks, bike lanes, non-motorized paths, ADA accessible crosswalks and ramps, signalized intersections, among many other enhancements. SMATS requires that all projects proposed for inclusion in the TIP must be reviewed in consideration of the extent that the project will accommodate Complete Streets measures, or that the project should be exempt. Local agencies and MDOT are actively involved in this process and the implementation of these types of projects. SMATS as stated in the non-motorized section plan's on developing a complete streets guidelines within its area wide non-motorized plan.

Transit Coordination

SMATS will continue to work with STARS to conduct and update current studies to take a closer look at regional transit services and how they can be enhanced. Although these studies are on-going and will potentially lead to improvements regarding transit coordination and services, currently there are some noticeable issues with the area's public transportation. Work is currently in progress on enhancing the project selection and amendment process for STARS. Additionally, SMATS will provide information and help with developing performance goals for STARS such as a bus replacement schedule.

Enhancing Livability

Livability is the ability of transportation to provide a higher quality of life for citizens by providing access to a better road system, improve quality of life, enhances local economy, provides a safe system to navigate, and improve all modes of travel. Addressing livability issues in transportation planning, development and implementation ensures that transportation investments support both mobility and broader community goals. SMATS goals, performance measures, projects, and the above regional concerns when implemented and constructed will have these factors considered in the planning process. A detailed transportation network that connects and functions effectively will have a relevant impact on economic prosperity and quality of life. The following are ways SMATS can implement strategies to meet livability goals in the area.

1. Continue to network with other local industries and groups to design facilities that meet the needs of all users and modes of travel.
    a. Example of STARS transporting workers out of County.
    b. Tittabawassee Township working with local business along M-47 to develop a non-motorized trail along with MDOT.
    c. Provide access studies for business along Tittabawassee and Bay road to emphasize increased traffic flow and safety along these roads.
2. Promote projects that improve sustainability and the environment (SMATS goal five).
    a. Increase the number of projects utilizing recycled tire's instead of asphalt
    b. incorporate the principles of resiliency into their programs and projects, resulting in increased collaboration, better environmental outcomes, and improved quality of life for surrounding communities.
    c. Utilizing grants from other sources such as the Department of Interior to help increase public access to the Shiawassee National Wildlife Refuge, while preserving the natural ecosystem.
3. Implement safety performances measures (PM 1) and suggestions from the regional traffic safety plan to inform investment decisions into safety projects.
    a. Saginaw County has one of the highest percentage of senior citizens in Michigan, which will require SMATS to plan and implement senior citizen driver education classes and provide a quality transit system for those who cannot drive.
    b. Thomas Township with the assistance of the Saginaw County Road Commission is implementing the Safe Routes to Schools program and grants for area school's to help get kids safely and actively to school. Hopefully with this successful project in 2019 we can implement for others schools in Saginaw County.

Chapter 7: Urban Travel Demand Modeling Process and Results

Because of the interaction of traffic between Saginaw, Bay City, and Midland it was decided that the travel patterns of the area could be better modeled if a regional model was built. The travel demand model used for the Saginaw Metropolitan Area Transportation Study (SMATS) 2045 Metropolitan Transportation Plan (MTP) is a regional model, referred to as the Great Lakes Bay Region (GLBR) Model that includes Saginaw, Bay and Midland Counties. This effort required coordination and cooperation between SMATS, Bay City Area Transportation Study (BCATS), and Midland Area Transportation Study (MATS).

The urban area travel demand modeling process for the SMATS portion of the GLBR Model was a cooperative effort between SMATS, being the Metropolitan Planning Organization (MPO), and the Michigan Department of Transportation, Statewide and Urban Travel Analysis Section (MDOT). MDOT provided the lead role in the process and assumed responsibility for modeling activities with both entities reaching consensus on selective process decisions. The local transportation planning agency is the MPO, comprised of representatives of local governmental units and is the umbrella organization responsible for carrying out transportation planning in cooperation with MDOT and the Federal Highway Administration. This is typically accomplished by full coordination of the local agencies with the MPO.

The results of the modeling effort is to provide an important decision making tool for the MPO Metropolitan Transportation Plan development as well as any transportation related studies that might follow. The modeling process is a systems-level effort. Although individual links of a highway network can be analyzed, the results are intended for determination of system-wide impacts. At the systems level, impacts are assessed on a broader scale than the project level.

The travel demand modeling for SMATS has been completed through the use of TransCAD software utilized by MDOT. The model is a computer estimation of current and future traffic conditions and is a system-level transportation planning model. Capacity deficiencies are determined using a Level of Service E capacity.

The urban travel demand forecasting process used has seven phases:

1. **Data Collection,** in which socio-economic and facility inventory data are collected.

2. **Trip Generation**, which calculates the number of person trips produced in or attracted to a traffic analysis zone (TAZ).

3. **Trip Distribution**, which takes the person trips produced in a TAZ and distributes them to all other TAZs, based on attractiveness of the zone.

4. **Mode Choice,** which assigns person trips to a mode of travel such as drive alone, shared ride 2, shared ride 3+, and ride transit.

5. **Assignment,** which determines what routes are utilized for trips. Non-motorized and transit trips are accounted for however they are not part of the traffic assignment.

6. **Model Calibration/Validation**, which is performed at the end of each modeling step to make sure that the results from that step are within reasonable ranges. The final assignment validation involves verifying that the volumes (trips) estimated in the base year traffic assignment replicate observed traffic counts.

7. **System Analysis**, tests alternatives and analyzes changes in order to improve the transportation system.

There are two basic systems of data organization in the travel demand forecasting process. The first system of data is organized based on the street system. Roads with a national functional class (NFC) designation of "minor collector" and higher are included in the network. Some local roads are included to provide connectivity in the network or because they were deemed regionally significant. The unit of analysis is called a "link." A link is a segment of roadway which is terminated at each end by an intersection. In a traffic assignment network, intersections are called "nodes." Therefore, a link has a node at each end.

The second data organization mechanism is the Traffic Analysis Zones (TAZ). TAZs are determined based upon several criteria, including similarity of land use, compatibility with jurisdictional boundaries, the presence of physical boundaries, and compatibility with the street system. Streets are generally utilized

as zone boundary edges. All socio-economic and trip generation information for both the base year and future year are summarized by TAZ.

The two data systems, the street system (network) and the TAZ system (socio-economic data), are interrelated through the use of "centroids." Each TAZ is represented on the network by a point (centroid) which represents the weighted center of activity for that TAZ. A centroid is connected by a set of links to the adjacent street system. That is, the network is provided with a special set of links for each TAZ which connects the TAZ to the street system. Since every TAZ is connected to the street system by these "centroid connectors," it is possible for trips from each zone to reach every other zone by way of a number of paths through the street system.

7.1 Network

A computerized "network" (traffic assignment network) is built to represent the existing street system. The GLBR Model network is based on the Michigan Geographic Framework version 14 and includes most streets within the study area classified as a "minor collector" or higher by the national functional classification system. Other roads are added to provide continuity and/or allow interchange between these facilities.

Transportation system information or network attributes required for each link include facility type, area type, lane width, number of through lanes, parking available, national functional classification, traffic counts (where available), and volumes for level of service E (frequently described as its capacity). If the information is not the same for the entire length of a link, the predominant value is used. The network attributes were provided to the MPO and MDOT staff by the respective road agencies, with the exclusion of link capacity. The link capacity was determined by utilizing a look-up table, developed for MDOT as part of the Urban Model Improvement Program, which takes into account the network attributes and sets a capacity that would approximate a level of service "E". Therefore a volume to capacity ratio of 1 or greater indicates a Level of service E and is characterized by stop-and–go-travel, reduced flow rates and severe intersection delays. This typifies unacceptable or deficient traffic conditions.

The street network is used in the traffic assignment process. The traffic assignment process takes the trip interactions between zones from trip distribution and loads them onto the network. The travel paths for each zone-to-zone interchange are based on the minimum travel time between zones. They are calculated by a computer program which examines all possible paths from each origin zone to all destination zones. The shortest path is determined by the distance of each link and the speed at which it operates. The program then calculates travel times for all of the possible paths between centroids and records the links which comprise the shortest travel time path.

Speeds used to calculate minimum travel times are based on each link's national functional classification, facility type, and area type. Speeds represent a relative impedance to travel and not posted speed limits.

7.2 Trip Generation

The trip generation process calculates the number of person-trips produced from or attracted to a zone, based on the socio-economic characteristics of that zone. The relationship between person-trip making and land activity are expressed in equations for use in the modeling process. The formulas were derived

from MI Travel Counts Michigan travel survey data and other research throughout the United States. Productions were generated with a cross-classification look-up process based on household demographics. Attractions were generated with a regression approach based on employment and household demographics. In order to develop a trip table, productions (P's) and attractions (A's) must be balanced also referred to as normalization. Walk/bike trips are calculated using a factor for each trip purpose derived from the MI Travel Counts travel survey data. The Walk/Bike trips are removed from the Production/Attraction table before moving on to trip distribution.

The GLBR travel demand model also has a simple truck model that estimates commercial and heavy truck traffic based on production and attraction relationships developed from the Quick Response Freight Manual I (QRFM I). The QRFM I uses the employment data from the TAZs in its calculations.

Trips that begin or end beyond the study area boundary are called "External trips." These trips are made up of two components: external to internal (EI) or internal to external (IE) trips and through-trips (EE). EI trips are those trips which start outside the study area and end in the study area. IE trips start inside the study area and end outside the study area. EE trips are those trips that pass through the study area without stopping; this matrix is referred to as the through-trip table.

7.3 Trip Distribution

Trip distribution involves the use of mathematical formula which determines how many of the trips produced in a TAZ will be attracted to each of the other TAZs. It connects the ends of trips produced in one zone to the ends of trips attracted to other TAZs. The equations are based on travel time between TAZs and the relative level of activity in each zone. Trip purpose is an important factor in development of these relationships. The trip relationship formula developed in this process is based on principals and algorithms commonly referred to as the Gravity Model.

The process which connects productions to attractions is called trip distribution. The most widely used and documented technique is the "gravity model" which was originally derived from Newton's Law of Gravity. Newton's Law states that the attractive force between any two bodies is directly related to the masses of the bodies and inversely related to the distance between them. Analogously, in the trip distribution model, the number of trips between two areas is directly related to the level of activity in an area (represented by its trip generation) and inversely related to the distance between the areas (represented as a function of travel time).

Research has determined that the pure gravity model equation does not adequately predict the distribution of trips between zones. The value of time for each purpose is modified by an exponentially determined "travel time factor" or "F factor" also known as a "Friction Factor." "F factors" represent the average area-wide effect that various levels of travel time have on travel between zones. The "F factors" used were developed using an exponential function described in the Travel Estimation Techniques for Urban Planning, NCHRP 716 and calibrated to observed trip lengths by trip purpose derived from the MI Travel Counts travel survey data. The F factor matrix is generated in TransCAD during the gravity model process.

The primary inputs to the gravity model are the normalized productions (P's) and attractions (A's) by trip purpose developed in the trip generation phase. The second data input is a measure of the temporal separation between TAZs. This measure is an estimate of travel time over the transportation network

from TAZ to TAZ, referred to as "skims."

In order to more closely approximate actual times between TAZs and also to account for the travel time for intra-zonal trips, the skims were updated to include terminal and intra-zonal times. Terminal times account for the non-driving portion of each end of the trip and were generated from a look-up table based on area type. They represent that portion of the total travel time used for parking and walking to the actual destination. Intra-zonal travel time is the time of trips that begin and end within the same zone. Intra-zonal travel times were calculated utilizing a nearest neighbor routine.

The Gravity Model utilizes the by trip purpose P's & A's, the by trip purpose "F factors", and the travel times, including terminal and intra-zonal. The output is a TAZ to TAZ matrix of trips for each trip purpose.

7.4 Mode Choice

The number of person trips and their trip starting and ending point have been determined in the trip generation and trip distribution steps. The mode choice step determines how each person trip will travel. The GLBR travel demand model uses a simplified mode choice to predict mode choice.

The process uses a qualitative measure of transit network service at the zonal level to estimate transit mode shares. The transit trips are accounted for but not assigned to a specific route. The split between single occupancy vehicles (SOV) and shared ride trips (SR2 & SR3+) is based on the average auto occupancy for the applicable trip purpose. The output to this step is a vehicle trip matrix by trip purpose. The external trips and the truck trips, which are originally developed as vehicle trips which eliminates the need of the mode choice step for these trip purposes, are added to the vehicle trip matrix.

7.5 Assignment

The GBLR model has 4 time periods that were developed to match the peak periods observed in traffic counts.

The following period were used:
AM Peak (7a - 9a)
Mid Day (9a - 3p)
PM Peak (3p - 6p)
Night Time (6p – 7a)

A fixed time of day factor method was utilized. The factors were developed from the MI Travel Counts Michigan travel survey data and vary by trip purpose. Default factors from the Quick Response Freight Manual I (QRFM I) were used for truck trips.

The traffic assignment process takes the trips produced in a zone (trip generation) and distributed to other zones (trip distribution) and loads them onto the network via the centroid connectors. A program examines all of the possible paths from each zone to all other zones and calculates all reasonable time paths from each zone (centroid) to all other zones. Trips are assigned to paths that are the shortest path between each combination of zones. As the volumes assigned to links approach capacity, travel times on all paths are recalculated to reflect the reduction in seed due to congestion. This may create a

new shortest path which trips will be assigned to in the next iteration. This process continues through several iterations until no trip can reduce its travel time by changing routes and all used alternative paths between zones have approximately the same travel time. This user equilibrium assignment method reflects the alternative routes that motorists use as the original shortest path becomes congested. The assignment step produces an assigned volume for each link by time period that can be added together to calculate a daily volume.

7.5.1 Travel Demand Model Calibration/Validation

The outputs of each of the four main steps, Trip Generation, Trip distribution, Mode Choice and Assignment, are checked for reasonableness against national standards. Modifications can be made at each step before moving on to the next.

The final model calibration/validation verifies that the assigned volumes simulate actual traffic counts on the street system. When significant differences occur, additional analysis is conducted to determine the reason. At this time additional modifications may be made to the network speeds and configurations (hence paths), trip generation (special generators), trip distribution (F factors), socio-economic data, or traffic counts.

The purpose of this model calibration phase is to verify that the base year assigned volumes from the traffic assignment model simulate actual base year traffic counts. When this step is completed, the systems model is considered statistically acceptable. This means that future socio-economic data or future network capacity changes can be substituted for base (existing) data. The trip generation, trip distribution, mode choice and traffic assignment steps can be repeated, and future trips can be estimated for systems analysis. It is assumed that the quantifiable relationships modeled in the base year will remain reasonably stable over time.

7.5.2 Applications of the Validated Travel Demand Model

Forecasted travel is produced by substituting forecasted socio-economic and transportation system data for the base year data. This forecasted data is reviewed and approved by the MPO. The same mathematical formulae are used for the base and future year data. The assumption is made that the relationships expressed by the formulae in the base year will remain constant over time (to the target date).

Some of the applications of the model that were utilized in the development of the MATS 2045 MTP capacity project list are:

- Future traffic can be assigned to the existing network to show what would happen in the future if no improvements were made to the present transportation system.
- Network alternatives to relieve congestion can be tested. This process is often referred to as "deficiency analysis." From this, improvements can be planned that would alleviate demonstrated capacity problems.
- Proposed “road diet” configurations can be tested for their effect on the transportation system.
- The impact of planned roadway improvements or network changes can be assessed.

- Links can be analyzed to determine what zones are contributing to the travel on that link and to better understand traffic patterns.
- The network can be tested to simulate conditions with or without a proposed bridge or new road segment. The assigned future volumes on adjacent links would then be compared to determine traffic flow impacts. This, in turn, would assist in assessing whether the bridge should be build, replaced and/or where it should be relocated to.

Additional applications that may be performed outside of the MTP development are:

- Road closure/detour evaluation studies can be conducted to determine the effects of closing a roadway. This type of study is very useful for construction management.

- The impacts of land use changes on the network can also be evaluated (e.g., what are the impacts of a new regional mall being built).

Understanding of two issues are critical in using the modeling tools and processes:

- The modeling process is most effective for system level analysis. Although detailed volumes for individual intersection and "links" of a highway are an output of the model, additional analysis and modification of the model output may be required for project level analysis.

- The accuracy of the model is heavily dependent on the accuracy of the socio-economic data and network data provided by the local participating agencies, and the skill of the users in interpreting the reasonableness of the results.

7.5.3 System Analysis for MTP

Three different alternative scenarios were developed for the MTP deficiency report:

1. Existing trips on the existing system. This is the "calibrated," existing network/scenario. This is a prerequisite for the other two scenarios.

2. Future trips on the existing network. Future trips are assigned to the existing network. This alternative displays future capacity and congestion problems if no improvements to the system are made. This is called the "No Build" alternative, and usually includes the existing system, plus any projects which are in the MPO Transportation Improvement Program (TIP) and thus committed to be built in the near future.

3. Future trips on the future system. This scenario is the “Build” alternative and the network includes the capacity projects listed in the MTP.

It is important to remember that the volume to capacity ratio reflects a volume for a specified time period and a capacity for that same period of time. It does not reflect deficiencies that only occur briefly at certain short time periods or because of roadway geometrics, or roadway condition. Please refer to table below and the maps of the capacity deficiencies identified by the GLBR travel demand model.

Great Lakes Bay Region Travel Demand Model
SMATS Capacity Deficiencies
November 23, 2016

Table 10: Travel Demand Model Table

Road Name	**Extent**	**2013 V/C with TIP Projects**	**2045 V/C without MTP Projects**	**2045 V/C with MTP Projects**
Am Peak (7a-9a)				
Dixie Highway	Airport to Portsmouth	0.85-0.92	0.88-0.96	Not Deficient
Michigan	State to I-675 Ramp	0.87-1.29	0.91-1.33	0.90-1.32
Tittabawassee	State to I-675 Ramp	Not Deficient	0.78-0.83	0.78-0.83
Am Peak (7a-9a)				
Dixie Highway	Airport to Portsmouth	0.84-0.90	0.86-0.94	Not Deficient
Michigan	State to I-675 Ramp	0.86-1.26	0.89-1.31	0.88-1.30
Tittabawassee	State to I-675 Ramp	Not Deficient	0.83-0.89	0.83-0.89
Daily				
Dixie Highway	Airport to Portsmouth	0.81-0.89	0.82-0.91	Not Deficient
Michigan	State to I-675 Ramp	0.84-1.2	0.86-1.27	0.85-1.25

Because many of the capacity improvements affect connectivity and accessibility rather than direct expansion of deficient corridors the following results summary is included below.

7.6 GLBR model results Summary for SMATS Area

2045 Metropolitan Transportation Plan (MTP) Capacity Projects

- Dixie Highway from Airport Road to Junction add continuous center left turn lane. The added capacity reduces the Volume to Capacity (V/C) ratio on this corridor to less than 0.8 which drops the Level of Service (LOS) to a C. With this project the corridor is not rated as deficient.
- Dixie Highway from Junction to Birch Run Road, Road Diet (current 4 lanes down to 2 Lanes with a continuous center turn lane). This capacity reduction increases the V/C ratios to a range of 0.45 to 0.78 along the corridor with V/C ratios becoming larger towards the North end of the project limits, this would indicate a Los of C or lower. This project did not affect the model volumes in the area. This analysis indicates that this project would not adversely affect system wide traffic flows.
- Tittabawassee Road from Mackinaw Road to Lawndale add continuous center left turn lane. The Model volume is not effected by the added capacity. The 2045 "no build" LOS is a high C, very close to a LOS D. This project reduces the V/C which brings the LOS to the middle range of a LOS C.
- Davenport between Michigan Avenue and the Johnson Street Bridge /Niagara Street as a three lane cross section versus a five lane cross section or the current four lane cross section. This capacity reduction increases the V/C ratios to the .5 to .56 range along the corridor which would indicate a Los of C. This project did not have an effect on Model volumes. This analysis indicates that this project would not adversely affect system wide traffic flows.
- Center Street Bridge as a two lane bridge with the northern most lanes converted to two-way traffic. The southern two lanes would be converted to a pedestrian bike pathway. This capacity reduction increases the V/C ratios to the .78 which would indicate a Los of C. This project did not have an effect on Model volumes. This analysis indicates that this project would not adversely affect system wide traffic flows.
- I-75 between Hess and the South junction of I-675 add through lane in each direction (current 3 lanes each direction). The Model volume is not affected by the added capacity but the V/C ratio decreases on this corridor due to the increased capacity.

Table 11: Travel Demand Model Project Description

Project Number	**Project Description**	**Year Open to Traffic**

Project Number	**Project Description**	**Year Open to Traffic**
1	Dixie Highway from Airport Road to Junction add continuous center left turn lane.	2020 - 2025
2	Dixie Highway from Junction to Curtis Road, Road Diet. (Current 4 lanesdown to 3 lanes).	2025 - 2030
3	Dixie Highway from Curtis to Birch Run Road, Road Diet. (Current 4 lanesdown to 3 lanes).	2030 - 2035
4	Tittabawassee Road from Mackinaw Road to Lawndale add continuous center left turn lane.	2025 - 2030
5	Davenport between Michigan Avenue and the Johnson Street Bridge/Niagara Street as a three lane cross section versus a five lane cross section or the current four lane cross section.	2020
6	Center Street Bridge as a two lane bridge with the northern most lanes converted to two-way traffic. The southern two lanes would be converted to a pedestrianbike pathway.	2030
7	I-75 between Hess and the South junction of I-675 add through lane in each direction. (current 3 lanes each direction)	2020
8	Freeland Road at River Road intersection, intersection improvements including a roundabout	2020

Chapter 8: Transportation Deficiencies, Selection, and Projects

The center or focus of the Metropolitan Transportation Plan is a list of specific projects, which have been developed by SMATS. Each project must meet an identified transportation need, primarily addressing capacity and maintenance deficiencies and improving safety. Under Fast Act guidelines, each project must be fundable within anticipated financial resources. The following is a list of types of projects that may be programmed into the Transportation Improvement Program (TIP):

- Identified capacity deficiencies from the 2013 transportation network loaded with 2013 traffic volumes (existing problem areas).
- Identified capacity deficiencies from the 2045 transportation network loaded with 2045 traffic volumes (expected future problem areas).
- Maintenance type deficiencies (reconstruction or resurfacing needs) identified from ongoing pavement management practices, such as PASER data collection, of the implementing agencies and BCATS.
- Intersections identified as having existing or potential capacity or safety related issues from review of accident data or lane capacity analysis.

- Area wide or system wide issues or potential projects needing transportation systems management solutions or further study, which may include transportation enhancement and/or other intermodal solution.

The major priority is roadway repair and preservation. There are approximately 1,048 miles of federal aid routes within the SMATS urbanized area. About 722 miles are under local jurisdiction and about 326 miles are under state jurisdiction. SMATS, through funding from the Transportation Asset Management Council (TAMC), has rated the condition of these roadways since 2003. Working closely with the road agencies, pavement management practices are reviewed. As of February 2017, approximate 17% of SMATS federal aid eligible roads are in Good to Excellent condition, 27% in Fair condition and 56% are in Poor condition. A more detailed analysis of the PASER process and Saginaw County Road Condition can be found in Chapter 6.2.

8.1 Project Selection

For projects to be included in the SMATS 2045 MTP and new TIP for 2017 - 2020, SMATS sent out a "Call for Projects" to the implementing agencies. The projects are initially evaluated by the implementing agencies (road agencies and transit operator) using the Ranking Method for Preservation and Capacity Projects that was adopted by SMATS in February 2006. This method uses a numerical scoring process to objectively rank each project on its merit based on tangible performance measures. The document describing the complete ranking method is posted on the SMATS web page (http://www.saginawcounty.com/Planning/SMATS.aspx) and has not been reproduced as part of the TIP document. As noted in the "Ranking Method" document, the Metropolitan Planning Commission and Transportation Planning Committee should consider the TIP project prioritization criteria as a tool in decision making, but any decision should not be based solely on the ranking.

The proposed transportation projects received are brought forward to the SMATS Technical Committee for review. The committee discusses the projects and the related impacts and improvements to the transportation system on an area-wide basis. The committee then prioritizes the projects based on how the project will enhance the entire system in the SMATS region as well as reviewing the amount of available funds for transportation projects. These recommendations are then forwarded to the Transportation Planning Committee for concurrence and inclusion in the draft TIP. Finally, the Metropolitan Planning Commission reviews the project list and authorizes the release of the draft TIP for public review and stakeholder involvement activities in accordance with the Participation Plan. At the end of the review period, the Metropolitan Planning Commission considers the comments received, holds a public hearing, makes any necessary adjustments in the TIP, and then adopts the TIP.

Performance Measures currently do not affect the project selection process, but future iteration of project selection will include performance measures. SMATS is in the process of amending the project selection guidelines to include a table with all performance measures and Road agencies must check of

each box that the project meets for implementing that performance measures. Road agencies will also be required to submit a description of how this will affect the State targets.

8.2 Project Amendments and Administrative Changes to MTP and TIP

The TIP is a working document, and it may be amended as new projects and funding programs emerge, as changes in projects arise, or as other developments may occur. It is also possible to make administrative changes in the TIP without a formal amendment if certain criteria are met. The following table provides guidance to assist SMATS and local agencies in determining whether an amendment is needed for a project of if an administrative change is sufficient.

Table 1

Amendments Include:	Administrative Changes Include:
Adding new project(s). New projects include projects previously deleted from the TIP and then resubmitted at a later time for inclusion in the TIP.	Carrying a project from one approved TIP to the next as long as it is not a major capacity project and the carrying forward is done in the first quarter of the first year of the new TIP. There must be sufficient revenues to accommodate the project; otherwise it must be processed as an amendment.
Deleting projects	A minor change in scope of work (generally, anything not mentioned in the "Amendment" column is considered minor).
Extending the length of a previously approved project one-half mile or greater. This is considered a major change in scope of work.	Cost increases of 25 percent or less without a major change in scope of work AND without over- programming the TIP.
Adding a travel or turn lane one-half mile or greater in length to a previously approved project. This is considered a major change in scope.	Changing the source of federal aid for a project, within the same federal agency.
Adding a new project phase to a previously approved project. This is considered a major change in scope.	Changing the order of approved projects by year within the TIP.

Amendments Include:	Administrative Changes Include:
Adding federal funds to a project that previously did not have federal funds designated as part of the project funding.	Changing a federally funded project to advance construct. The project must be shown in both the advance construct and payback years.
Cost increases by more than 25 percent, with or without a major change in scope of work.	

8.3 LRP Projects 2017-2045

To identify general timeframes for implementation, the listed projects have been placed in three broad tiers: 2017 - 2025, 2026 - 2035, and 2036 - 2045. This method has been used to give a general sense of project priorities and timing. However, this listing is not meant to lock projects into a specific year. Instead, the timeframes are flexible and are meant to allow the movement of projects between tiers as needs and opportunities occur. The exception to this is projects that are already programmed in the current Transportation Improvement Program (TIP) for a specific year within 2017 through 2020.

The costs of the projects have been estimated to reflect year of expenditure dollars. The implementing agencies used an inflation factor of 3.3% per year to estimate future costs.
These costs have also been analyzed in terms of projected revenue sources and funding. This analysis is fully explained in the following chapter (Chapter 7) and is performed to ensure that the project list is realistic relative to funding that is expected to be available.

For discussion purposes, the projects have been divided into three categories based on the lead agencies that are responsible for carrying out each set of projects;

1. Local Road Projects which will be built by the Saginaw County Road Commission and the City of Saginaw within their respective jurisdictions;
2. Trunkline Projects on state highways that are under the jurisdiction of the Michigan Department of Transportation (MDOT); and
3. Public Transit Projects which will be developed by the Saginaw Transit Authority Regional Services (STARS).

Prior to 2012, SMATS long range plans only listed capacity improvement projects. Preservation and maintenance projects were not included. The 2040 Plan departed from this by also identifying preservation projects that are proposed within the timeframe covered by the plan. This process of also including maintenance projects has been continued in the 2045 Plan. This broader, more inclusive list of projects is intended to give a more accurate overall picture of the total transportation system improvements that are needed in the area.

The road projects identified in the plan are divided into two categories. Capacity projects generally involve the addition of travel lanes or turning lanes. However, this category also includes projects that reduce the number of travel lanes, often called "road diet" projects. The construction of new roads would also be considered capacity improvements, but they are not likely to occur in the SMATS planning area. Repair and rebuild projects focus on preserving the existing road system. The repair and rebuild project listings include the projects that are programmed in the current Transportation Improvement Program (TIP) through 2020. All of the proposed projects are listed in Table 6-1.

8.3.1 Local Road Projects

The local capacity improvement projects identified in this listing are all intended to address current or anticipated system deficiencies, based on the results of the Travel Demand Model and evaluation by the participating road agencies. The local capacity improvement projects identified in the plan involve the addition of continuous left turn lanes, construction of a roundabout, and conversions from four lanes to three lanes.

The locations of the local capacity projects are shown in Figure 6-1 at the end of this chapter.

8.3.2 State Trunkline Projects

State highway projects identified in the plan have also been further classified as capacity and repair and rebuild projects. The major MDOT capacity project that is proposed focuses on further improvements to I-75. This project involves the section of I-75 from Hess to the South I-675 interchange. This includes reconstruction and major widening.

The state repair and rebuild projects involve work on M-46 and M-57, bridge replacements on I-75 and M-46, and bridge preservation work on I-75 and M-83.

8.3.3 Public Transit

Projects Table 6-1 also lists the major capital projects that will be undertaken by STARS during the duration of this Metropolitan Transportation Plan. At this time, only the projects that are currently listed in the 2017 - 2020 TIP are included. These generally include proposed funding for vehicle replacements, equipment for maintenance and repair, and transit facility improvements.

Transit Projects-

STARS have are working on a Transit Master Plan that calls for a phased approach to expanding transit services to the entire county. The proposed service expansion will entail capital costs for additional vehicles and passenger service facilities. However, the timetable and, more importantly, the funding for implementation of the plan are uncertain at this time.

Non-Motorized Projects

Non-motorized planning efforts and projects were described in the review of the existing system in Chapter three. Several specific projects that are planned, funded, and ready to move forward are also listed in this chapter. The Projects are list below in section 8.5.5, and a map in the Non-motorized section in Chapter Three links the number of the project to its physical location on the map.

8.3.4

8.4 SMATS 2045 Metropolitan Transportation Plan Project List

Table 12: Local Road Repair & Rebuild Projects 2017-2020

ID	Route	Limits	Description	Estimated Cost*	Year	Agency
1	Freeland Rd	At River Rd Intersection	Roundabout & intersection improvements	$469,000	2020	SCRC
2	Jefferson Ave	Janes to Genesee	Resurface	$145,000	2017	Saginaw City
3	Veterans Memorial Pkwy	Wadsworth to Washington (M-13)	Concrete pvmt & joint repair; HMA mill & resurface	$606,000	2017	Saginaw City
4	Williamson Rd	Williamson, Thayer to Treanor	2 & 3-lane concrete pvt & joint repair	$1,283,000	2017	Saginaw City
5	Mackinaw St	Mackinaw, Congress to State (M-58)	3-lane HMA reconstruction	$1,016,000	2019	Saginaw City
6	M-46	Brennan Road to M-52	Two Course HMA Overlay with Drainage Improvements	$4,517,000	2018	MDOT
7	M-46	West limits of Merrill to Brennan Road	Mill & Two Course Overlay	$500,000	2018	MDOT
8	Williamson Rd	Williamson at King Drain	Culvert replacement	$62,250	2019	SCRC
9	Center Rd	Center, State (M-58) to 450' north	Mill & resurface	$40,000	2019	SCRC

ID	Route	Limits	Description	Estimated Cost*	Year	Agency
10	Fergus Road	Over Fairchild Creek	Bridge replacement	$1,245,000	2018	SCRC
11	Davis Rd	Davis, Tittabawassee to Pierce	Restore & rehabilitate	$2,500,000	2018	SCRC
12	M-57	Saginaw/Gratiot County Line to M-52	Restore & rehabilitate	$5,792,000	2020	MDOT
13	I-75	Hess to South I-675 Interchange	Widen - major (capacity increase)	$39,182,000	2020	MDOT
14	Niagara St	Niagara, RR tracks to Genesee	2-lane & 3-lane HMA reconstruction	$184,000	2020	Saginaw City
15	Davenport Ave	Michigan Ave to Johnson Street Bridge/Niagara Street	Convert current 4-lane configuration to 3 lanes	$1,600,000	2019	Saginaw City
16	Seymour Rd	Sheridan to Bell	Reconstruct	$1,000,350	2019	SCRC
17	Orr Rd	Orr Rd. Over Marsh Creek	Bridge replacement	$1,720,000	2019	SCRC
19	Gasper rd	Washington Ave (M-13) to Gallagher Street	Reconstruct	$1,000,000	2018	SCRC
20	Mason Street	Brockway Street to Remington Street	Mill and resurface HMA, 2 inch	$570,000	2036 - - 2045	Saginaw City

Table 13: Local Road Repair & Rebuild Projects 2020-2045

ID	Route	Limits	Description	Estimated Cost*	Year	Agency
1	Freeland Rd	At River Rd Intersection	Roundabout & intersection improvements	$469,000	2020	SCRC

ID	Route	Limits	Description	Estimated Cost*	Year	Agency
2	Dixie Highway	Airport Rd to Junction Rd	Add continuous center left-tum lane	$4,000,000	2018	SCRC
3	Dixie Highway	Junction Rd to Curtis Rd	Convert current 4-lane configuration to 3 lanes	$4,000,000	2020	SCRC
4	Dixie Highway	Curtis Rd to Birch Run Rd	Convert current 4-lane configuration to 3 lanes	$17,500,000	2030	SCRC
5	Tittabawassee Rd	Mackinaw Rd to Lawndale Rd	Add continuous center left-tum lane	$3,500,000	2025	SCRC
6	Davenport Ave	Michigan Ave to Johnson Street Bridge/Niagara Street	Convert current 4-lane configuration to 3 lanes	$1,600,000	2019	Saginaw City
7	Center Street Bridge		Convert current 4-lane configuration to 2 traffic lanes with 2 lanes converted to pedestrian & bicycle pathway	$500,000	2020	Saginaw City
8	Webber Street	Washington Ave (M-13) to City Limits	Reconstruct road with two-lane asphalt, curb and gutter cross section, including left-tum lanes at major intersections.	$5,800,000	2026 - 2035	Saginaw City
9	Mackinaw Street	Congress Avenue to Alexander Street	Reconstruct road with two-lane asphalt, curb and gutter cross section, including left-tum lanes at major intersections.	$1,800,000	2017 - 2025	Saginaw City

ID	Route	**Limits**	**Description**	**Estimated Cost***	**Year**	**Agency**
10	Mackinaw Street	Alexander Street to Hamilton Street	Reconstruct road with two-lane asphalt, curb and gutter cross section, including left-tum lanes at major intersections.	$2,100,000	2017 - 2025	Saginaw City
11	Mackinaw	Congress to State	HMA Reconstruct	$2,000,000	2017-2025	Saginaw City
12	Bay Street	Alexander Street to State Street (M-58)	Reconstruct road with three-lane asphalt, curb and gutter cross section, including	$2,300,000	2026 -- 2035	Saginaw City
13	Tittabawassee Rd.	Michigan to Bay	Pavement/Joint Repair	$1,500,000	2026-2045	SCRC
14	Norman Street Bridge	Over Veterans Memorial Parkway	Deck replacement and structure rehabilitation.	$1,400,000	2017 -- 2025	Saginaw City
15	Veterans Memorial Parkway	McGill Street to Needham Street	Mill and resurface HMA, 2 inch	$400,000	2017 -- 2025	Saginaw City
16	Veterans Memorial Parkway	Lapeer to McGill Street and Needham Street to Washington (M- 13)	Concrete Joint and Panel Repairs	$900,000	2017 -- 2025	Saginaw City
17	Congress Avenue	Court Street to Brenner Street	3 Lane HMA Reconstruct	$800,000	2017 -- 2025	Saginaw City
18	Federal Avenue	Washington Ave (M-13) to Warren Avenue	Mill and resurface HMA, 2 inch	$200,000	2036 -- 2045	Saginaw City
19	Fordney Street	Washington Ave (M-13) to Gallagher Street	Mill and resurface HMA, 2 inch	$300,000	2036 -- 2045	Saginaw City

ID	Route	Limits	Description	Estimated Cost*	Year	Agency
20	Mason Street	Brockway Street to Remington Street	Mill and resurface HMA, 2 inch	$570,000	2036 -- 2045	Saginaw City

Table 14: Local Road Repair & Rebuild Projects, 2017-2045- Section 2

ID	Route	Limits	Description	Estimated Cost*	Year	Agency
21	Center Road	State Street to 450' to North of State Street	Mill/Fill	$150,000	2018	SCRC
22	Center Road	Michigan to Gratiot Rd	Capacity	$2,500,000	2017-2025	SCRC
23	Michigan	Center to City of Saginaw Limits	Reconstruct	$2,000,000	2026-2035	SCRC
24	Williamson	Dixie to Treanor	Reconstruct	$5,000,000	2026-2035	SCRC
25	Williamson Avenue	Treanor Street to Owen Street	Reconstruct road with three-lane asphalt, curb and gutter cross section.	$830,000	2017 -- 2055	Saginaw City
26	Freeland Road	Garfield to Webster	Rehabilitation	$997,500	2036-2045	SCRC
27	Mason Street	Remington Street to State Street	Mill and resurface HMA	$260,000	2036-2035	Saginaw City
28	S. Michigan	Joslin to Dearborn	HMA Reconstruct	$2,500,000	2017-2025	Saginaw City
29	Niagara	RR Tracks to Congress	HMA Reconstruct	$1,300,000	2020	Saginaw City
30	Court	Oakley to Michigan	2' Mill/Resurface	$300,000	2026-2035	Saginaw City
31	Brockway Street	Passolt to Gratiot	Mill and Resurface	$725,000	2017-2025	Saginaw City
32	Hess Ave	Washington Ave (M-13) to City Limits	Reconstruct	$8,000,000	2026-2035	Saginaw City

ID	Route	Limits	Description	Estimated Cost*	Year	Agency
33	McCarty	Bay to Fashion Sq.	Reconstruct 3 lanes	$600,000	2030-2035	SCRC

Table 15: State Trunkline & Rebuild Projects 2017-2045

ID	Route	Limits	Description	Estimated Cost*	Year	Agency
1	I-75	Over CSX Railroad	Epoxy Overlay	$1,055,000	2017 - 2025	MDOT
2	M-83	Over Cass River	Bridge restoration	$1,205,000	2017 -- 2025	MDOT
3	I-75 Bridges	Over CSX Railroad;	Bridge replacement	$14,676,000	2017 -- 2025	MDOT
4	M-46	Over McClellan Run Creek	Culvert replacement	$2,971,000	2017 -- 2025	MDOT
5	M-46	Merrill west Village Limits to Brennan RD	Road rehabilitation	$4,915,000	2017 -- 2025	MDOT
6	M-46	Brennan Rd to M-52	Road rehabilitation	$5,048,000	2017 -- 2025	MDOT
8	M-57	Saginaw/Gratiot County line to M-52	Road rehabilitation	$6,516,000	2017 -- 2025	MDOT

Table 16: Public Transit Capital Projects 2017-2045

ID	Route	Limits	Description	Estimated Cost*	Year	
1	Vehicles	Vehicle additions & replacements	$4,887,000	2017	STARS	
2	Equipment upgrades	Equipment replacements	$1,050,000	2017	STARS	
3	Vehicles	Vehicle replacements	$200,000	2017	Saginaw County Commission on Aging	

ID	Route	Limits	Description	Estimated Cost*	Year
4	Vehicles	Vehicle replacements	$112,000	2017	Wellspring Lutheran Services
5	Vehicles	Vehicle additions & replacements	$4,500,000	2018	STARS
6	Vehicles	Vehicle additions & replacements	$4,500,000	2019	STARS
7	Facilities	Transit facilities repairs & replacements	$280,000	2019	STARS
8	Vehicles	Vehicle additions	$432,000	2020	STARS
9	Facilities	Transit facilities	$30,000	2020	STARS
10	Equipment upgrades	Equipment replacements	$200,000	2018	STARS

Table 17: Non-Motorized Projects. 2017 - 2045

ID	Route	Limits	Description	Estimated Cost*	Year
1	M-47 Non-Motorized Pathway	10' wide pathway adjacent to M-47 from Powley Dr. to Freeland SportsZone	$1,649,000	2017 -2025	MDOT
2	Birch Run Trolley Line Trail	Birch Run	$790,000	2017 -2025	MDOT
3	Vehicles	Vehicle replacements	$200,000	2019-2020	Tittabawwassee and Kochville Township
4	Iron-Belle Trail	Through City of Saginaw	$112,000	2020	Wellspring Lutheran Services

Project Map

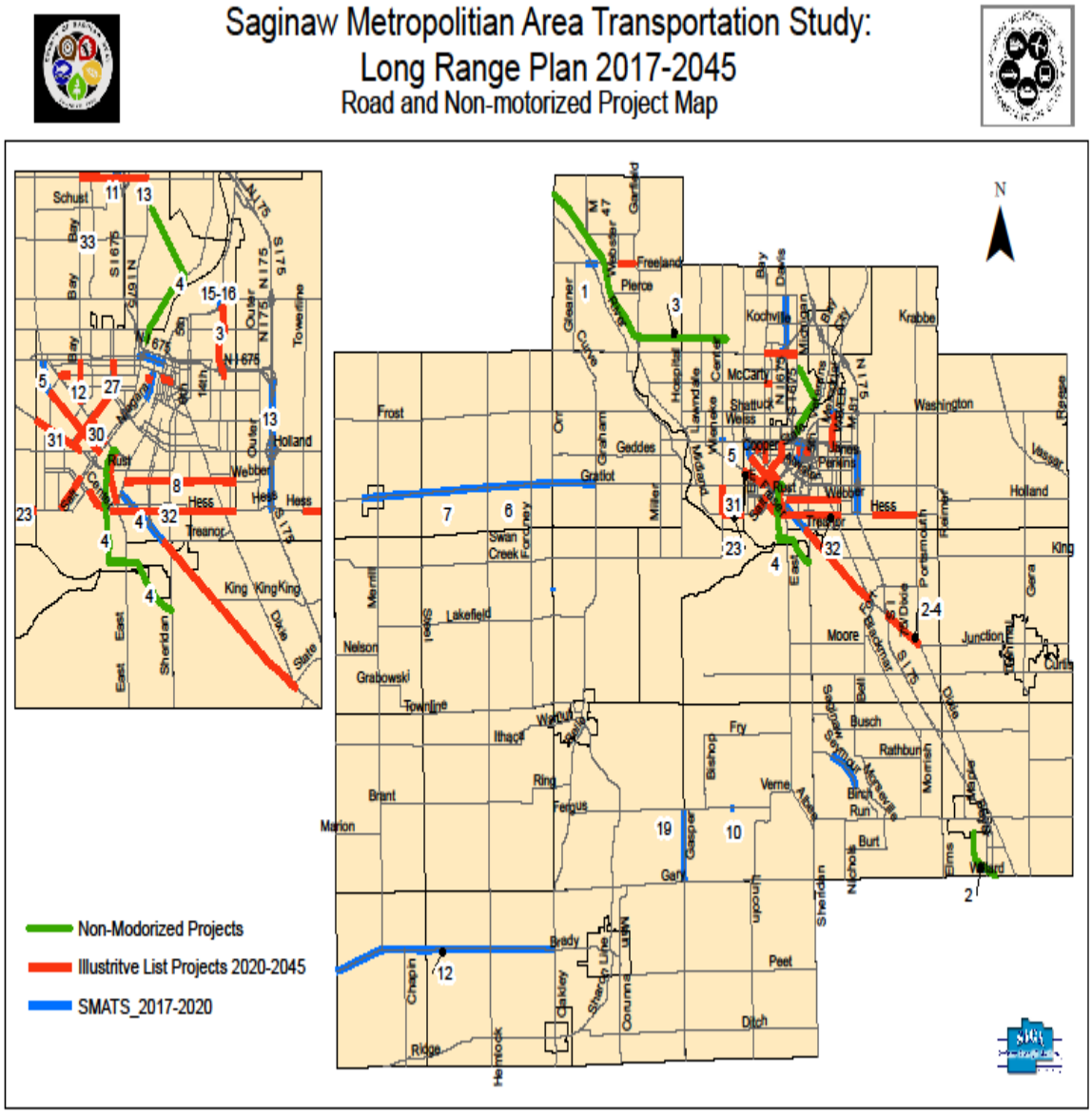


Figure 13: Road and Non-Motorized Project Map

Chapter 9: Financial Analysis and Constraint

This chapter provides a financial analysis of the proposed transportation projects relative to the existing system and demonstrates financial constraint. The Saginaw Metropolitan Area Transportation Study (SMATS) 2045 Metropolitan Transportation Plan (MTP) identifies the significant transportation system improvements that are proposed for development over the next 28 years. The Federal regulations state that the MTP must be financially constrained and that it must include a financial plan that shows how projects can be implemented. In essence, this requires identifying the projects that can be implemented using current revenue and those that will require proposed revenue sources, while also demonstrating that the existing system can be adequately operated and maintained. This process is intended to avoid unrealistic expectations for a "wish list" of projects that cannot be implemented. The resulting plan is "financially constrained" in the sense that it includes only those projects for which there will be sufficient revenue to complete.

9.1 MPO Revenue Estimates for Road Projects

Table 7-1 shows The FAST Act has Surface Transportation Block Grant funding that are expected to be available for the SMATS urbanized area over the life of this plan. These funds are based on a FY 2016 base year and grown by the agreed upon growth rates of 2% for the first 10 years and 2.4% for the remaining years. This method was developed by the Financial Working Group of the Michigan Transportation Planning Association (MTPA) and approved by that organization. As shown in the table, the code for these funds is "STUL," which is the designation for STP funds for urbanized areas under 200,000 in population.

9.2 MDOT 2045 MPO Long Range Revenue Forecast Methodology

The methodology developed by MDOT (March 28, 2012) to estimate the MDOT project revenues that are expected to be available to the SMATS area as well as the other Michigan MPO's is explained below. The resulting revenues are shown in Table 7-2.

9.3 Highway Revenue Forecast Growth Rate

MDOT Statewide Transportation Planning Division analyzed historical state highway revenue and historical federal obligations. State revenue and federal obligation growth rates were calculated. The revenue growth used in the long range revenue forecast for the near term has virtually flat rates to reflect the current economic conditions. For some years the state forecast assumes additional revenue through a variety of mechanisms to match federal aid. In order to take a conservative approach with the federal and state revenue forecasts beyond the near term, 90% of the historic growth rates were used. The resulting rates beyond the near term are: federal 2.6% annual growth, and state 2.3% annual growth.

Total estimated federal revenue: $31.4 B
Total estimated state revenue: $27.9 B

9.4 Revenue available for Capital outlay

Debt service, non-capital uses and routine maintenance are deducted from the estimated federal and

state revenue. The resulting FY 2017-2045 total estimated revenue available for highway capital outlay is $37.5 billion (in future year dollars).

Methodology for MPO Allocation of Capacity Improvement/New Road Dollars

The trunkline capacity improvement and new road (CI/NR) projects in the Long Range Revenue Forecast are in the 2017-2021 Five-Year Transportation Program, have earmarks or are on corridors of National Significance. They were reviewed and vetted by MDOT executive management. The revenue remaining after accounting for the CI/NR projects is available for the preservation program.

9.4.1

Methodology for MPO Allocation of Highway Program Preservation Dollars

A ten-year history of highway capital program investments (excluding CI/NR) was compiled. Each MPO's share was calculated by dividing the MPO investment by the total statewide investment over the ten year time frame. Next the FY 2017-2045 total estimated revenue for preservation was multiplied by each MPO share of historic investments. The result is FY 2017-2045 total estimated revenue for preservation for each MPO.

9.4.2

Table 18: STUL Funding

STUL Federal Funds Revenue Estimates	Funding
2016 STUL Base Amount	$1,761,060
2017 – 2045 Total STUL Funds Available	$73,396,718
MDOT Long Range Preservation Revenue Forecast	Funding
2017 – 2045 Total Funds Available	$1,371,189,189

9.5 Michigan Transportation Fund (Act 51) Revenues

The next step in the financial analysis is to examine the revenues that are available to the local road agencies through the Michigan Transportation Fund (MTF) under Act 51. Forecasts for Act 51 were developed with the same assumptions that were used for the federal revenues, using 2016 as the base year: no growth in 2016 and 2017; 3.7% annual increase from 2018 to 2025; and a 2.3% annual increase for 2026 to 2045. These projected revenues are shown in Table 7-3.

The MTF is a major source of funding for the local road agencies' operations and maintenance costs. It was estimated that 70% of the available MTF funding is used for routine maintenance and operations, including snow and ice removal, administration, mowing, road patching, and equipment. The remaining 30% was assumed to be available for capital improvement projects, including match for federal funds, preliminary engineering, and construction engineering.

Table 19: ACT 51 Funding

Year	SCRC	Saginaw City Major Streets	Zilwaukee City Major Streets	Total Available for Federal Aid Roads	Available for Operations & Maintenance	Available for Capital Improvements
2016 Base Year	$13,251,558	$4,767,051	$139,673	$18,158,282	$12,710,797	$5,447,485
Totals, 2017 – 2045	$605,665,454	$217,879,215	$6,383,783	$829,928,452	$580,949,916	$248,978,535.60

9.6 Financial Constraint for Highway Projects

Financial constraint for highway projects can now be evaluated. First, however, several items should be explained or clarified:

1. One MDOT trunkline capacity improvement project is listed in Chapter 6: I-75 widening (addition of a through lane in each direction) from Hess to the South I-675 interchange. However, this project will be built within the existing right-of-way. For example, road widening will be built into the median. Because of this, MDOT is developing this project according to their "repair and rebuild" template. Therefore, although the project is classified as "capacity improvement" in the SMATS MTP, it will be built with the system preservation revenues that are available to MDOT.
2. The non-motorized projects identified in Chapter 6 will not utilize STUL funds. The Tittabawassee Township and Birch Run area pathways will be built with transportation alternative (TA) and local funds. Additional separate pathway projects that may be developed during the period covered by the MTP are also expected to use transportation enhancement funds. Therefore, the costs of these projects are not included in the total cost of local road projects.

Financial constraint for local road projects and state trunklines in the 2045 MTP can now be demonstrated as shown in Table 7-4.

Table 20: Funding Sources

Funding Source	Funds
Total SMATS STUL Funds, 2017 – 2045	$107,468,188
MTF (Act 51) Funds Available for Capital Projects, 2017 – 2045	$52,273,643
Total Revenues Available for SMATS Local Capital Projects, 2017 – 2045	**$159,741,831**
SMATS Local Capacity Improvement Projects, 2017 – 2045	$31,569,000
SMATS Local Repair & Rebuild Projects, 2017 –	$50,917,500

2045	
Total SMATS Local Project Costs, 2017 – 2045	**$82,486,500**
Unassigned Balance Available for Local Capital Projects	**$77,255,331**
Total Revenues Available for MDOT Preservation Projects, 2017 – 2045	$1,371,189,189
Total Costs for MDOT Trunkline Projects in 2045 MTP	$43,532,000
Unassigned Balance Available for MDOT Preservation Projects	**$1,327,657,189**

It is important to note that the total projected MPO funding for 2045 is only an estimate of future revenues and may not reflect actual federal, state, and local funds available in future years.

9.7 Public Transit Revenue Estimates

Table 7-4 shows the transit revenue estimates that were provided by MDOT Office of Passenger Transportation. These are the funds that are expected to be available to STARS for transit operations. It should be noted that the estimates do not include funds for capital improvements. As MDOT noted in providing the estimates, discretionary funding was not used in the calculations. Because discretionary funding is difficult to predict, MDOT felt it should not be included in TIP or Long Range Plan revenue constraint analysis. Therefore, additional discretionary funds are not included in the transit revenue estimates.

The transit revenue forecasts were developed using the following growth factors:

- For federal funds, 3.08% for 2017 -2045.
- For state operating funds, 0.31% for 2017 - 2045.
- For state match, annual growth will be the same as the federal growth rates.

Public transit is also supported by a local 3 mill levy and farebox revenues collected by STARS. These additional revenues are estimated as follows:

- A local millage generates $1,500,000 per year.
- Farebox revenues generate $780,000 per year.
- Some modest growth in local revenue was assumed; revenue forecasts were calculated using the same growth rates as for the state operating funds noted above.
- Local revenue for 2017 – 2045 is estimated at $71,270,863 (Table 7-4).

Current Transit System Operating Costs

Operating costs for the current transit system are estimated to be about $7,750,000 per year. These costs were assumed to increase at the same rate as state revenues over the life of the plan. This results in total operating costs of $242,258,444 (Table 7-4).

9.7.1

Table 21: Operating Revenues

Federal & State Operating Revenues	**Federal**	**State Match**	**State Operating**	**Total**
2016 Base Amount	$2,176,461	$181,500	$2,417,594	$4,775,555
2017 – 2045 Total	$115,698,978	$9,443,762	$75,571,950	**$200,714,690**
Local Revenue (Millage & Farebox)				
2016 Base Amount				$2,280,000
2017 – 2045 Total				**$71,270,863**
Current System Operating Costs				
2016 Base Year				$7,750,000
2017 – 2045 Total				**$242,258,444**

9.7.2

Financial Constraint for Transit

Financial constraint for transit in the 2045 MTP can now be demonstrated as shown in Table

Table 22: STARS Finances

Total Federal & State Operating Revenues, 2017 – 2045	$200,714,689
Local Revenues (Millage & Farebox), 2017 – 2045	$71,270,863
Total Revenues	**$286,863,553**
MTP Capital Projects, 2017 – 2045	$16,191,000
Current Service Operating Costs, 2017 – 2045	$242,258,444
Total Expenditures	$258,449,444
Unassigned Balance Available for Transit	**$28,414,109**

Table 23: Summary table of all anticipated revenues and planned expenditures

Year	SMATS STUL	Saginaw County Act 51 Primary	City of Saginw Act 51- Major	Total $ for Fed Aid Roads
2017 Funding	1,822,769.62	1,371,293.46	1,264,522.63	4,458,585.71
Lane Miles	269.00	169.00	100.00	269.00
2018	1,859,969.00	1,398,719.33	1,289,813.08	4,548,501.41
2019	1,897,168.38	1,426,693.72	1,315,609.34	4,639,471.44
2020	1,935,111.75	1,455,227.59	1,341,921.53	4,732,260.87
2021	1,973,813.98	1,484,332.14	1,368,759.96	4,826,906.09
2022	2,013,290.26	1,514,018.78	1,396,135.16	4,923,444.21
2023	2,053,556.07	1,544,299.16	1,424,057.86	5,021,913.09
2024	2,094,627.19	1,575,185.14	1,452,539.02	5,122,351.35
2025	2,136,519.73	1,606,688.85	1,481,589.80	5,224,798.38
2026	2,179,250.13	1,638,822.62	1,511,221.60	5,329,294.35
2027	2,222,835.13	1,671,599.08	1,541,446.03	5,435,880.24
2028	2,267,291.83	1,705,031.06	1,572,274.95	5,544,597.84
2029	2,312,637.67	1,739,131.68	1,603,720.45	5,655,489.80
2030	2,358,890.42	1,773,914.31	1,635,794.86	5,768,599.59
2031	2,406,068.23	1,809,392.60	1,668,510.76	5,883,971.58
2032	2,454,189.60	1,845,580.45	1,701,880.97	6,001,651.02
2033	2,503,273.39	1,882,492.06	1,735,918.59	6,121,684.04
2034	2,553,338.86	1,920,141.90	1,770,636.96	6,244,117.72
2035	2,604,405.63	1,958,544.74	1,806,049.70	6,369,000.07
2036	2,656,493.74	1,997,715.63	1,842,170.70	6,496,380.07
2037	2,709,623.62	2,037,669.95	1,879,014.11	6,626,307.67
2038	2,763,816.09	2,078,423.34	1,916,594.39	6,758,833.83

Year	SMATS STUL	Saginaw County Act 51 Primary	City of Saginw Act 51- Major	Total $ for Fed Aid Roads
2039	2,819,092.41	2,119,991.81	1,954,926.28	6,894,010.51
2040	2,875,474.26	2,162,391.65	1,994,024.80	7,031,890.72
2041	2,932,983.75	2,205,639.48	2,033,905.30	7,172,528.53
2042	2,991,643.42	2,249,752.27	2,074,583.41	7,315,979.10
2043	3,051,476.29	2,294,747.32	2,116,075.08	7,462,298.68
2044	3,112,505.82	2,340,642.26	2,158,396.58	7,611,544.66
2045	3,174,755.93	2,387,455.11	2,201,564.51	7,763,775.55
Total	70,737,141.21	53,195,706.49	49,053,758.41	172,986,337.11

*Includes 30% of total Act 51 funds
Estimates are based on 2016 and increased annually for first 10 years by 2%, and remaining years by 2.4%

Chapter 10: Environmental Mitigation and Justice

10.1 Environmental Mitigation

SMATS has considered potential impacts on environmentally sensitive areas by the listed projects. The intent of the environmental mitigation process is to ensure that the decision makers and implementing agencies take into account any potential environmental impacts associated with the recommended transportation projects, so that consideration can be given to how such impacts can be mitigated.

This was accomplished by comparing the locations of the various transportation projects to available Geographic Information System (GIS) data layers containing relevant information. This information was obtained from the Saginaw Area GIS Authority (SAGA), of which Saginaw County is a member. The transportation projects were evaluated for their potential impacts on flood zones, wetlands, water bodies, and public lands (state, federal, and county). Figure 8-1shows the 2017 - 2045 capacity improvement projects in relation to environmentally sensitive areas.

All of the listed local projects will be constructed within the existing right-of- way, which will help to minimize any impacts. From this initial review, it was determined that the following local projects have the potential for environmental impacts:

Table 24: Environmental Impact Table

Route	Limits	Year	Type of Area Impacted
Dixie Highway	Various sequent	2018 - 2030	100-Year Flood Plain

Davenport Avenue	Michigan Ave to Johnson St Bridge/ Niagara	2019	100-Year Flood Plain
Center Street Bridge		2020	100-Year Flood Plain

It is important to note an initial finding that a project has the potential to impact a resource or sensitive area does not mean that the project cannot be built. This analysis is simply meant to call attention to potential impacts, and to ensure that environmental resources are adequately considered in all phases of project planning, design, construction, and maintenance.

SMATS and the agencies responsible for project implementation will take appropriate measures to minimize environmental impacts from the projects listed in this plan by following the guidelines established by the American Association of State Highway and Transportation Officials (AASHTO) Center for Environmental Excellence. Internet access to this resource is available at the following link (http:/ / www.environment.transportation.org). This site is intended to be a "one stop" source of environmental information for transportation professionals. The implementing agencies are encouraged to consult this resource and to utilize best practices in addressing potential impacts.

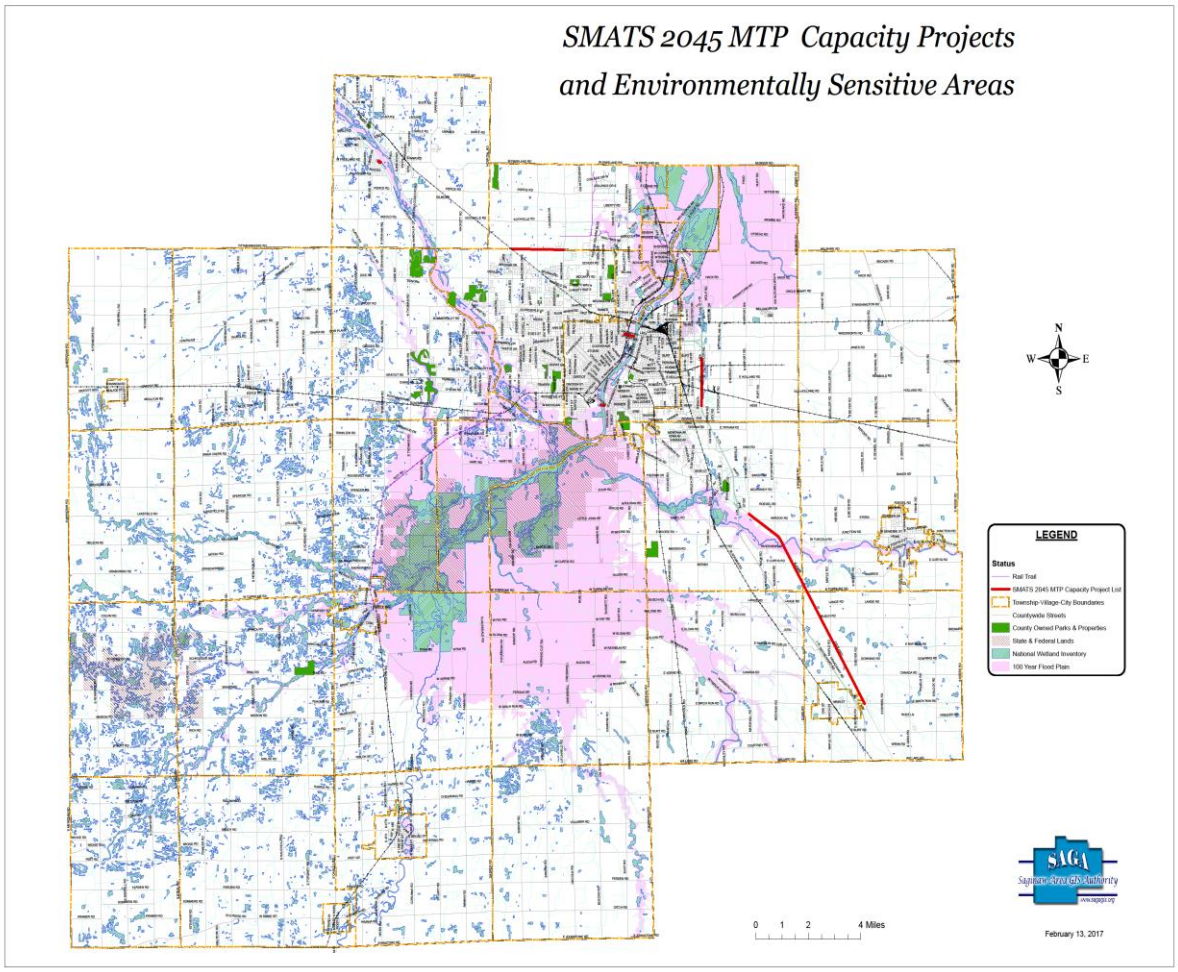


Figure 14: Environmentally Sensitive Areas Map

Chapter 11: Environmental Justice

In April 1997, the U.S. Department of Transportation (DOT) issued the DOT order on environmental justice to Address Environmental Justice in Minority Populations and Low- Income Populations (DOT Order 5610.2(a)). The order generally describes the process for incorporating environmental justice principles into all DOT programs, policies, and activities. Environmental justice is an important part of the planning process and must be considered in all phases of planning. This includes all participation activities, the development of the Metropolitan Transportation Plan, and preparation of Transportation Improvement Programs that are adopted by SMATS. Specifically, SMATS will ensure that environmental justice concerns are adequately considered within the project planning process and as part of its established Participation Plan activities.

11.1 Environmental justice includes the following fundamental concepts:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations.
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.
4. SMATS will aggressively participate in meetings and activities that will inform and encouraged active participation in the transportation planning process in these very select communities. This is in addition to website adjustments detailed in chapter 10.
5. To help in accomplishing the above SMATS will incorporate the latest demographic information and data to assist in addressing current Environmental Justice topics with the 21st century SMATS Public Participation Plan document.

SMATS will continue to work with all stakeholders to identify the residential, employment, and transportation patterns of low-income and minority populations so that their needs can be identified and addressed, and the benefits and burdens of transportation investments can be fairly distributed. SMATS will also continue to evaluate and where necessary, improve the Participation Plan to eliminate barriers and engage minority and low-income populations in transportation decision making.

SMATS will also continue to encourage the active participation of well-informed individuals, community groups, and other non-governmental organizations. The involvement of these individuals and groups advances the spirit and intent of environmental justice in transportation planning when they become involved in participation activities.

A basic concept is that early stakeholder involvement greatly improves opportunities for groups and individuals to achieve their desired impact on the process. There are many situations where public participation has influenced transportation decisions made in our community. SMATS will encourage both early stakeholders and the entire process involvement to maximize community inclusion.

SMATS has developed an extensive list of organizations as part of its public participation and consultations efforts. However, the following groups are especially relevant as part of the outreach efforts for environmental justice purposes:

- Community Action Committee (programs for low income & elderly)
- Salvation Army
- First Ward Community Center (Potter-Longstreet Neighborhood)
- SVRC Industries (vocational rehabilitation services)
- Saginaw Chippewa Indian Tribe
- AARP, Michigan Chapter
- Saginaw County Commission on Aging

This list will continue to grow as additional groups are identified. Environmental justice efforts are ongoing as part of SMATS' outreach and community involvement efforts. Specific strategies will be developed with each group after initial contact and discussions have occurred. This will ensure that the strategies will be developed jointly and cooperatively between the MPO and community organizations representing low-income populations and minority populations.

11.2 Definition of Minority" for Purposes of Environmental Justice

According to the U.S. DOT Order 5610.2 the following groups are defined as "minority":

1. Black (a person having origins in any of the black racial groups of Africa).
2. Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race).
3. Asian American (a person having origins in any of the original people of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands).
4. American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).
5. Native Hawaiian or Other Pacific Islander (people having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands).

Definition of Low-income" for Purposes of Environmental Justice
Low-income is defined as a person whose household income is at or below the Department of Health and Human Services (HHS) poverty guidelines. HHS poverty guidelines are used as eligibility criteria for the Community Services Block Grant Program and a number of other federal programs. However, a state or locality may adopt a higher threshold for low-income, as long as the higher threshold is not selectively implemented and is inclusive of all persons at or below the HHS poverty guidelines.

11.3 Analysis for SMATS Area All Projects

In accordance with Federal guidelines on Environmental Justice (EJ) that amplify Title VI of the Civil Rights Act, recent attention has been placed on the need to incorporate environmental justice principles into the process of transportation planning, as well as the implementation of projects. While procedural and analytical processes for meeting these requirements are largely unspecified, the potential for

disproportionate impacts of transportation improvement projects on racial minorities and impoverished neighborhoods must be considered. SMATS has conducted an analysis within the metropolitan planning area to identify the size and location of racial minority populations. Additionally, SMATS will conduct a review of populations below poverty level in the 2010 Census.

The SMATS area, as shown in Table 25, is predominately white in terms of race (66.79%), with minorities representing 33.21%. Further, there are 15,493 below-poverty-level households in the SMATS area representing 17.8% of all households. Table 25 shows the summary of the minority populations and households below poverty level for the SMATS area and the percentages of each group located within the 0.25 mile radius of the 2017-2045 LRTP projects. As the data shows, there are not any groups that are disproportionately neglected or overexposed in terms of proposed transportation projects. Data also shows that the low income population within the SMATS area is neither disproportionately burdened nor neglected with respect to future transportation improvements.

Table 25: Percent of Total Racial Distribution

Route	SMATS MPO	SMATS MPO	EJ Impact Area (0.25 miles)	% Within Impact Area
AREA	816	40.9		
Total Pop	200,169		12698	47.68%
White	133,699	66.79%	10416	39.11%
African American	38,114	19.04%	134	0.50%
Native American	877	0.44%	199	0.75%
asian	2,108	1.05%	1071	4.02%
Hispanic	15,573	7.78%	9	0.04%
Hawaiian	65	0.03%	1106	4.15%
Other Races	4,757	2.38%	999	3.75%
Two or More Races	4,976	2.49%	12698	47.68%
Total Households	87,037			
Households below Poverty Level	15,493	17.8	7,487	48.3%

The table above compares the minority populations within the Impact Area to the total population within the Impact Area. This analysis shows that similar percentages of most minority groups and low-income population are represented within impact areas of proposed transportation projects. Accordingly, it seems clear that imminent transportation system investments are affecting all involved in a similar manner and the projects do not disproportionately burden nor fail to meet the needs of any segment of the population.

Table 26: Percent of Each Minority Group Impacted

Route	SMATS MPO	EJ Impact Area (0.25 miles)	% Within Impact Area
Total Pop	200,169	26633	13.31%
White	133,699	12698	9.50%
African American	38,114	10416	27.33%
Native American	877	134	15.29%
Asian	2,108	199	9.43%
Hispanic	15,573	1071	6.88%
Hawaiian	65	9	14.42%
Other Races	4,757	1106	23.26%
Two or More Races	4,976	999	20.08%
Total Households	87,037		
Households below Poverty Level	15,493	0	48.33%

11.4 Analysis of SMATS Area for Capacity Projects

SMATS has developed and maintains a demographic profile of the transportation planning area that includes identification of the locations of minority populations and low income populations as covered by the executive order on environmental justice. For the 2045 plan, similar profiles were prepared using the 2010 Census information from the 2040 plan.

Using the latest Census data at the tract level, a series of Environmental Justice (EJ) Analysis maps was developed. The maps identified all Census tracts where the population exceeded the countywide average for the following environmental justice factors: Low Income Areas, African American Minority Areas, Hispanic Minority Areas, Asian American Minority Areas, and American Indian Minority Areas. The locations of the capacity projects listed in the plan were then overlaid on the maps to provide a visual analysis of the areas that may be impacted by the various projects. The projects and the EJ areas they might impact are shown in Table 9-1. The Environmental Justice maps are included at the end of this chapter as Figure 9-1 through 9-5.

11.5 Conclusions

This analysis shows that a total of 3 capacity projects (out of 7 total) may impact one or more of the EJ analysis areas (Projects listed below in Table 27). All of the projects will be built within the existing right-of-way. None of the projects will involve any relocations or displacements.

Review of the preceding tables and the maps indicates that SMATS' site-specific 2045 Plan projects will impact non-minority as well as minority and low-income populations. The figures in the tables suggest that larger percentages of the non-white populations may be impacted during the construction phase of the projects. However, the completion of these projects will, in turn, provide a higher benefit to those project areas than the overall population. None of the planned projects involve residential

displacements. Other construction related projectimpacts, such as noise, dust, and access inconvenience will be short-lived and confined to the traditional construction season.

During the planning process, all projects will have an opportunity for public comment and participation. Project open houses are held for major projects to discuss the impacts of the project on the community, including any impacts on low income populations or minority populations. Also, during construction, appropriate detour routes are developed to minimize delay and disruption on all population groups.

Having followed the appropriate environmental justice practices, SMATS have not identified any disproportionately (unusually high) adverse impacts on minority or low income populations that would result from the projects selected for the 2045 Metropolitan Transportation Plan.

Table 27: EJ Areas Impacted by Capacity Projects

Route	Limits	Description	Year	EJ Area(s) Impacted
Tittabawassee Rd	Mackinaw Rd to Lawndale Rd	Add continuous center left-tum lane	2025	Low Income
Davenport Avenue	Michigan Ave to Johnson St Bridge/Niagara	Convert current 4- lane configuration to 3 lanes	2019	Low Income; African American; Hispanic
Center Street Bridge		Convert current 4- lane configuration to 2 traffic lanes with 2 lanes converted to pedestrian and bicycle pathway	2020	Low Income; African American; Hispanic

11.6 Environmental Justice Maps

Saginaw Metropolitian Area Transportation Study:
Long Range Plan 2017-2045
Environmental Justice Maps
Households Below Poverty Level Percentage of 21.1%

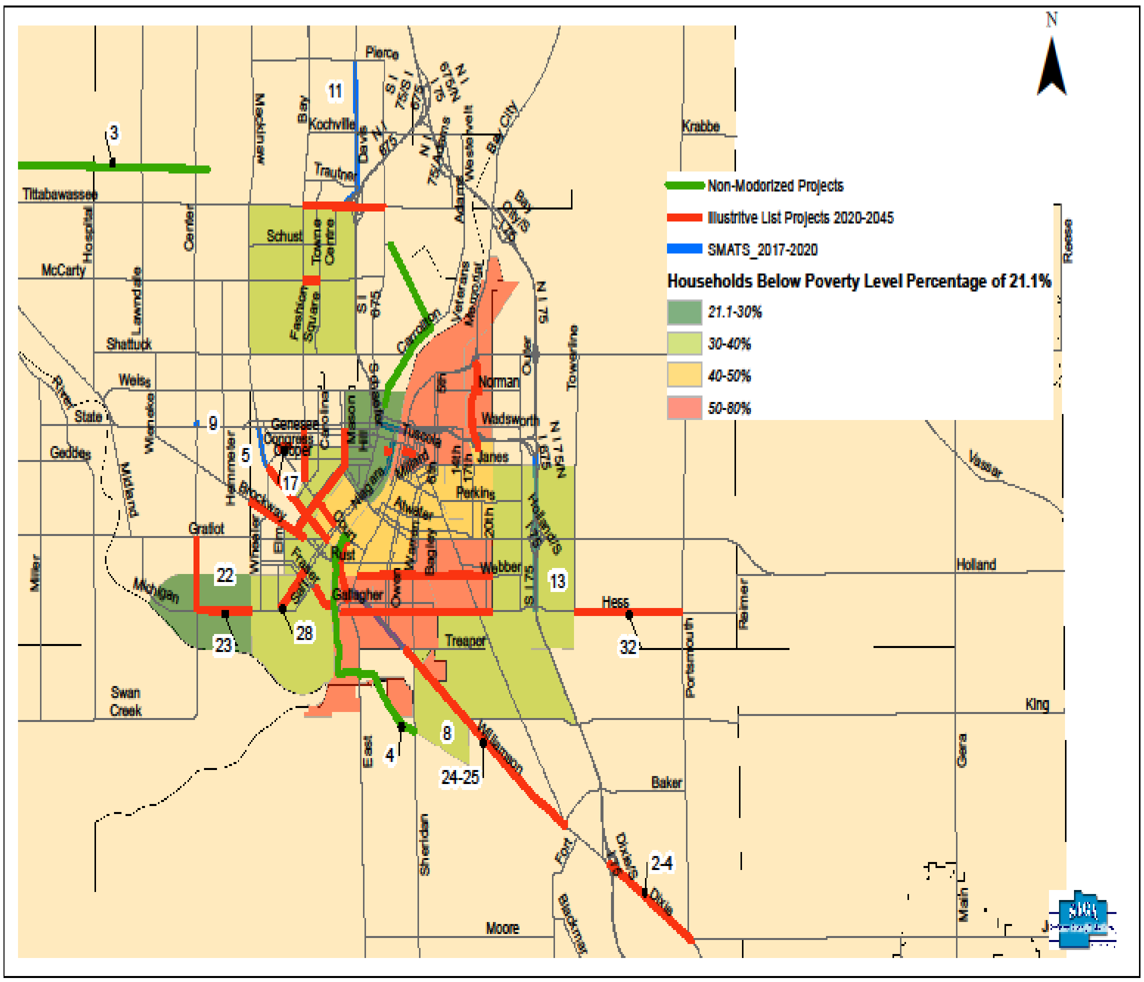


Figure 15: EJ Poverty Map

Saginaw Metropolitan Area Transportation Study:
Long Range Plan 2017-2045
Environmental Justice Maps
African American Populations above Area Average of 22.7%

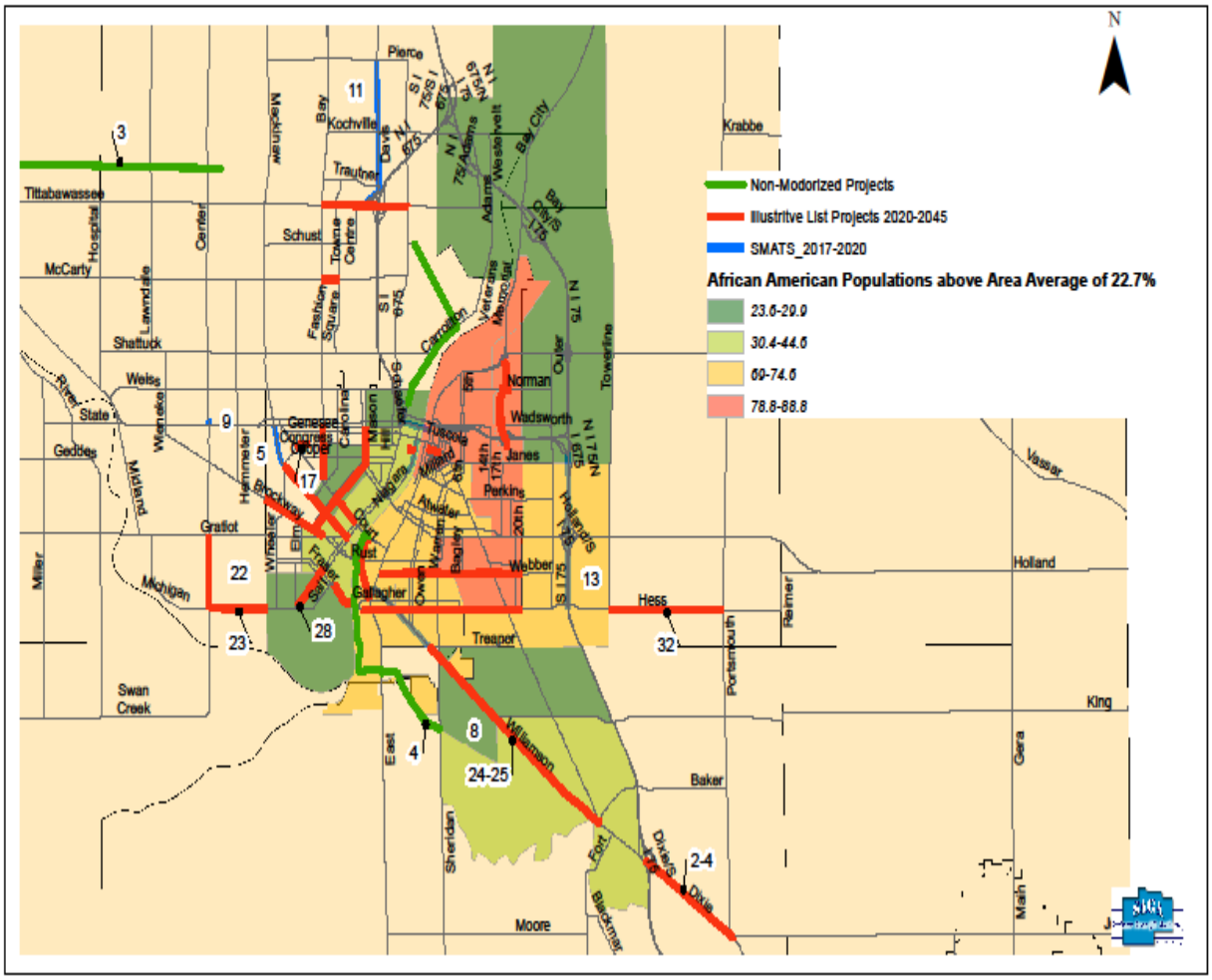


Figure 16: EJ African American Population

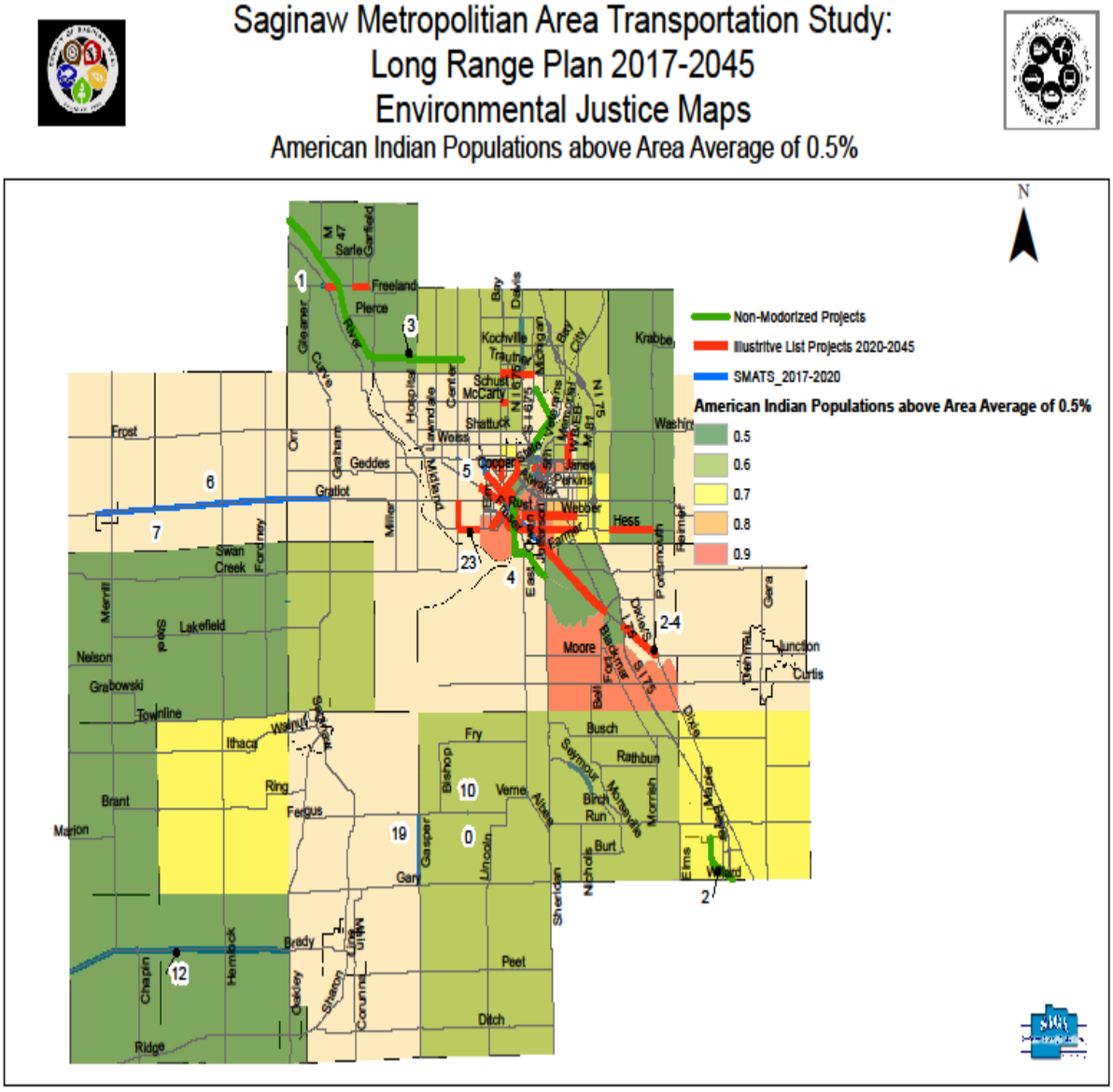


Figure 17: EJ Map of American Indian Population

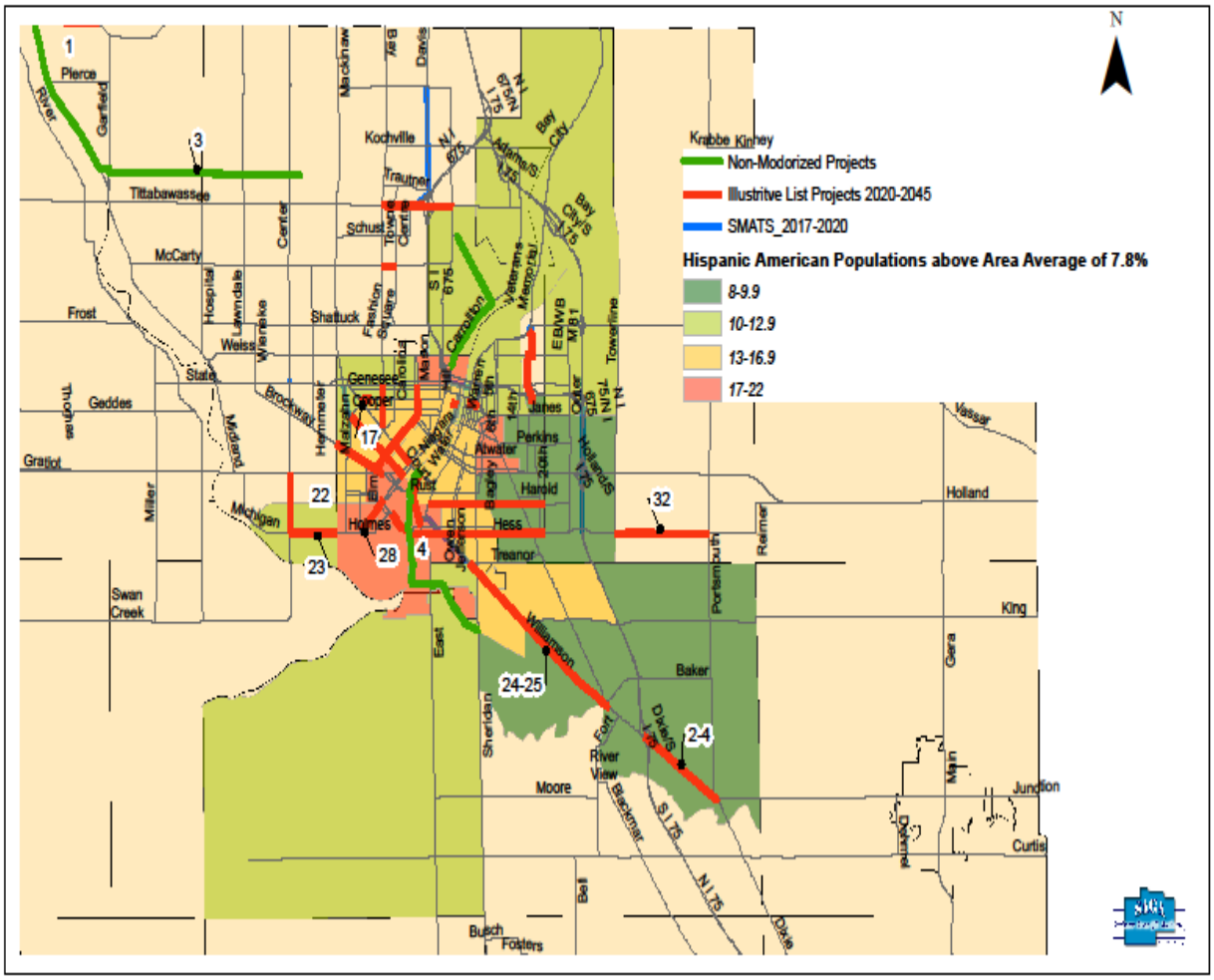


Figure 18: EJ Map of Hispanic American Populations

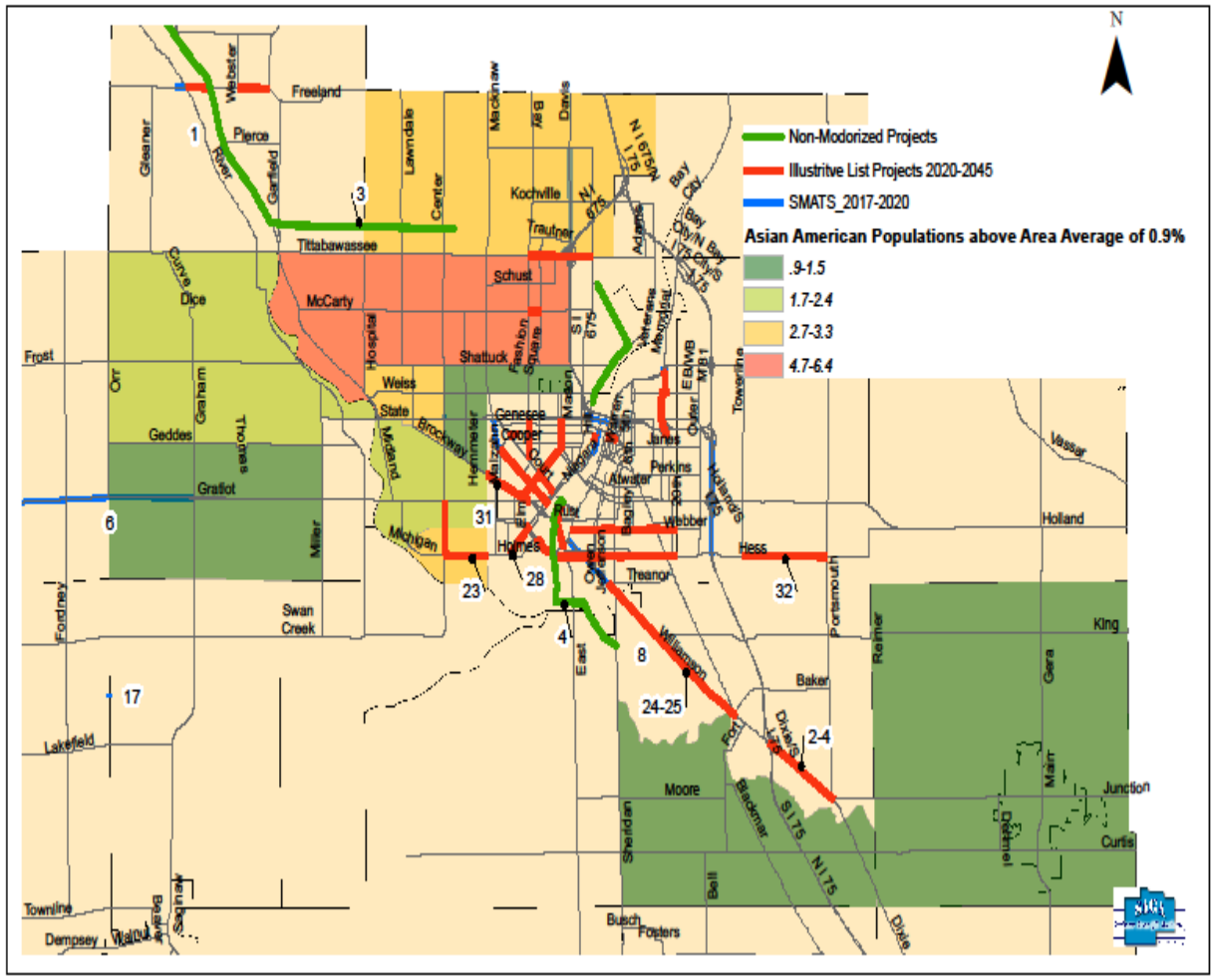


Figure 19: EJ map of Asian American Population

Chapter 12: Public Participation and Consultation Efforts

SMATS serves all people, including minority populations, low-income populations, the elderly, persons with disabilities, and those who travel within the Metropolitan Area. SMATS recognizes its responsibility to provide fairness and equity in all of its programs, services, and activities. In keeping with this responsibility, SMATS actively seeks to involve its stakeholders in its planning efforts. The latest version of the SMATS Participation Plan was adopted in December 2015. The Participation Plan is intended to accomplish the following major objectives:

- Create a process that will improve and increase participation in the transportation planning process by all stakeholders.
- Provide for early involvement in the planning process by stakeholders to ensure there are ample opportunities to participate in key decisions.
- Facilitate access to the transportation planning process by populations that typically lack formal access, such as low income, elderly, minorities, and persons with disabilities.
- Encourage involvement in the planning process by non-traditional participants.
- Foster a process that will result in transportation plans and projects that reflect the values of the communities that SMATS serves.

In response to not having the volume of participation desired, SMATS will address strategy to remedy things we could have done that would have created interests such as; creating and implementing a new web page specific to transportation feedback and tracking on the SMATS public website. This will provide us an opportunity for numerous topics through the fiscal cycle we could gain input. SMATS will consult with other small MPO's regarding this topic to gain any valuable advice they may have prior to meeting with Saginaw County's Information System Department staff to formulate the product. We will provide quarterly reports to FHWA and MDOT regarding this new activity.

12.1 Compliance with Federal Requirements

MPO's such as SMATS are required to develop and utilize a proactive public participation process that provides complete information, timely public notice, full public access to key decisions, and that supports continuing public involvement in the development of metropolitan transportation plans and transportation improvement programs. These requirements were first established by Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, and continued by its successor, the Transportation Equity Act for the 21st Century (TEA-21), in 1998. In 2006, the Safe, Affordable, Flexible and Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU) further expanded public participation provisions by requiring MPO's to develop enhanced participation plans. These enhanced requirements included the following additional areas of emphasis:

- Conduct public meetings at convenient times and accessible locations.
- Make long range transportation plans and improvement plans available in electronic formats and means (such as on the Internet) as appropriate.
- Implement visualization techniques to describe metropolitan transportation plans and improvement programs.

12.2 Public Transit Program of Projects

The public participation program described in this document is used to satisfy the public participation process for the Program of Projects (POP), as prescribed in accordance with Chapter 53 of Title 49, United States Code (FTA requirements), and the metropolitan and statewide planning regulations under MAP-21, for the Saginaw Transit Authority Regional Services (STARS).

12.3 Participation Process

The components of this Participation Plan are included in the development, adoption, and amendment of SMATS Transportation plans and programs. The participation process pertains specifically to the SMATS Transportation Improvement Program (TIP) and the SMATS Metropolitan Transportation Plan (MTP). The Participation Plan will be monitored and reviewed on a bi-annual basis to evaluate its effectiveness. The strategies identified in this plan are intended to result in well attended public meetings, local news coverage of programs, and more public interest in transportation issues within the region. A public comment period of 45 days is provided prior to the adoption or amendment of the Participation Plan in accordance with federal guidelines.

12.3.1 Consultation Efforts

As part of the plan's development, SMATS has consulted with a number of agencies. Much of this consultation and coordination takes place on a frequent, ongoing basis, such as the interaction that occurs with MDOT Bay Region staff, STARS public transit staff, and the staffs of the Saginaw County Road Commission and the City of Saginaw Traffic Engineering. Other specific consultation activities that have occurred to date during the development of the MTP are described in the rest of this section.

Travel Demand Model Development Activities

During the development of the Great Lakes Bay Region Travel Demand Model for the 2045 MTP, SMATS staff consulted with representatives of the communities both within and outside the urbanized area to review the updated socio-economic data for the base year and forecast years. Most of this consultation took place during 2015. These discussions focused on projected residential development and population changes, employment changes, and general transportation issues. SMATS and MDOT staff held a county-wide workshop on January 21, 2015 at the Freeland SportsZone to facilitate review of the SE data by local representatives.

12.4 Ongoing Consultation

Consultation efforts will continue during the review of the draft 2045 MTP. MPO staff will make additional outreach efforts with appropriate agencies, including the offering the opportunity to arrange individual meetings with stakeholder organizations if desired. The results of these further consultation activities will be reported in the final plan document. A complete list of stakeholders contacted during the MTP review process will be included in an appendix.

SMATS staff also held 3 Open House meetings during the development of the MTP. These were held on December 20, 2016; February 21, 2017; and March 21, 2017. These informal open houses provided opportunities to review and discuss the draft t MTP.

All of the stakeholders identified in the Participation Plan will be contacted regarding the availability of the draft Metropolitan Transportation Plan, and encouraged to review the full document and submit comments during the public review period. All written and verbal comments received will be included in an appendix in the final plan document.

12.5 SAGINAW URBAN HISTORY

The name Saginaw is derived from the language of the Chippewa Indians and it means land of the Sauks. The entire Saginaw Valley was inhabited by the Warlike Sauks. However, around the year 1520, the Chippewa's invaded the territory in great force and in the series of battles, the Sauks were virtually annihilated. The bloodiest of the battles was fought on what has since been known as Skull Island in the Saginaw River and on a bluff on the Flint River about a mile from the present village of Flushing.

Treaty of Saginaw -General Lewis Cass, Representing the President of the United States, concluded the treaty of the Saginaw with the Chippewa Indians. In it the Indians ceded to the United States Government thousands of acres of land, included all the land encompassed by the boundaries of the County of Saginaw.

The site on which the council was held is what is known the corner of Throop and north Hamilton Streets, in the City of Saginaw. The spot is now marked by boulder and plaque erected in 1916 by the daughters of the American Revolution and the City Federation of Women's Clubs.

12.6 Last Thoughts on Public Involvement

This is a new day with bringing the message of Transportation Planning activities to the front of the communities' attention. With the energy and focus that performance measures will bring, the SMATS public involvement activities must reflect the new day.

It is important to note, SMATS does have solid building blocks to move forward. Among them are:

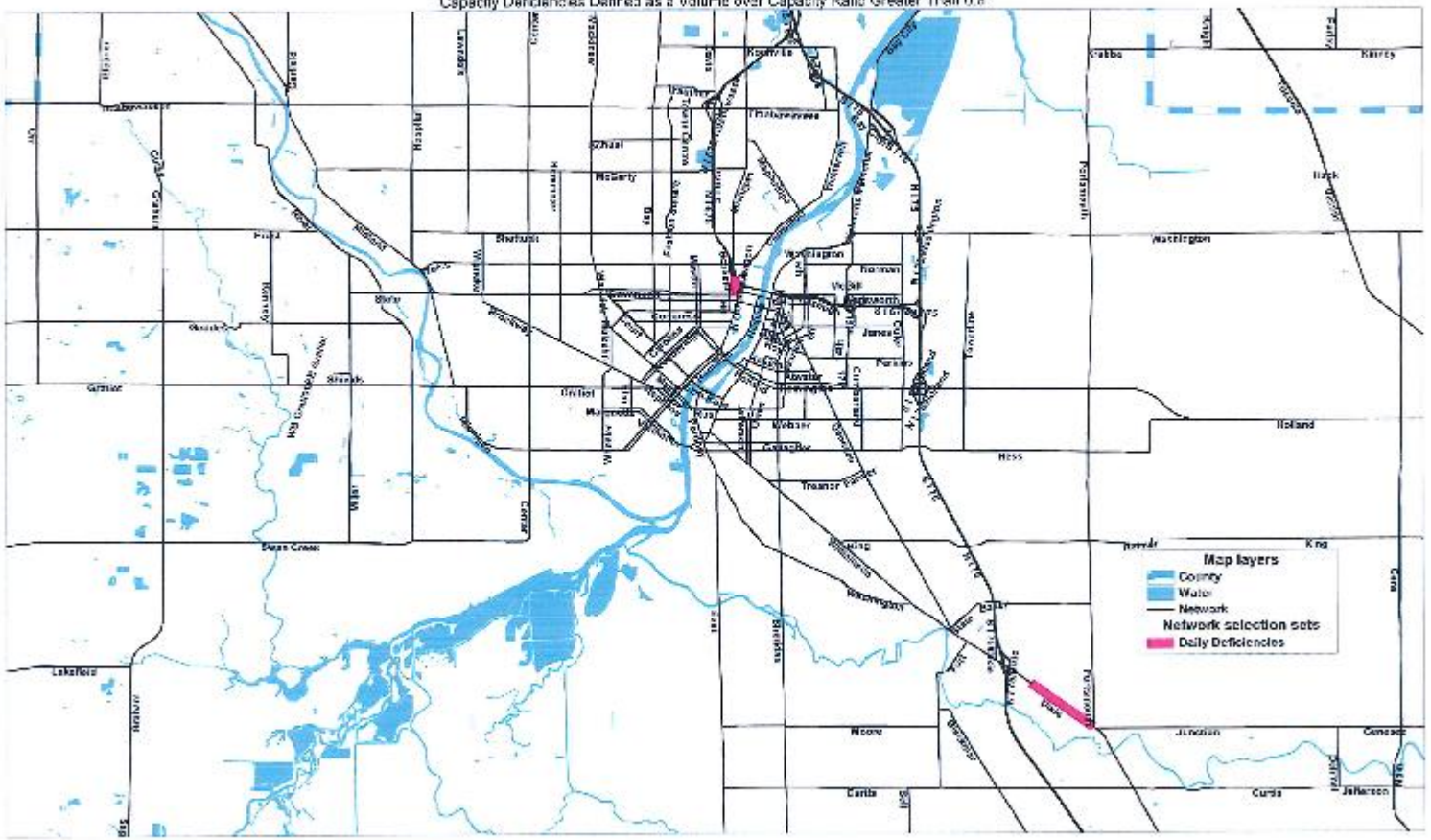
- Create a plan that will enable SMATS to improve & increase participation into the transportation planning process.
- Develop measures to prevent the denial of, reduction in, or significant delay in the receipt of transportation benefits by low-income and minority population.
- Past relationship with Saginaw Spirit Hockey on the I-675 expansion regarding traffic volume patterns.
- Restart relationships several times per year during hockey season to inform attendees of planning and projects information to obtain feedback.
- Conduct similar dialog with Saginaw Valley State University which would as a result of the schools physical location well serve our partner in the Bay City and Midland MPO's.
- Will move forward to enhance the MPO website to maximize easy and frequent feedback and communication opportunities with MPO staff to utilize in our planning dialog at meetings and in planning projects. This alone would increase by a large amount public participation/input to all planning projects and annual documents.
- SMATS stands to continue to benefit by a long established relationship with EPA staff located in Saginaw to deal with local issue pertaining to the Tibbawassee River area.
- Facilitate participation of non-traditional participants in the planning process.
- To provide and encourage timely and early participation to ensure the opportunity for comment (by stakeholders and the public) on transportation decisions.
- Develop transportation plans and projects that reflect SMATS communities' values.

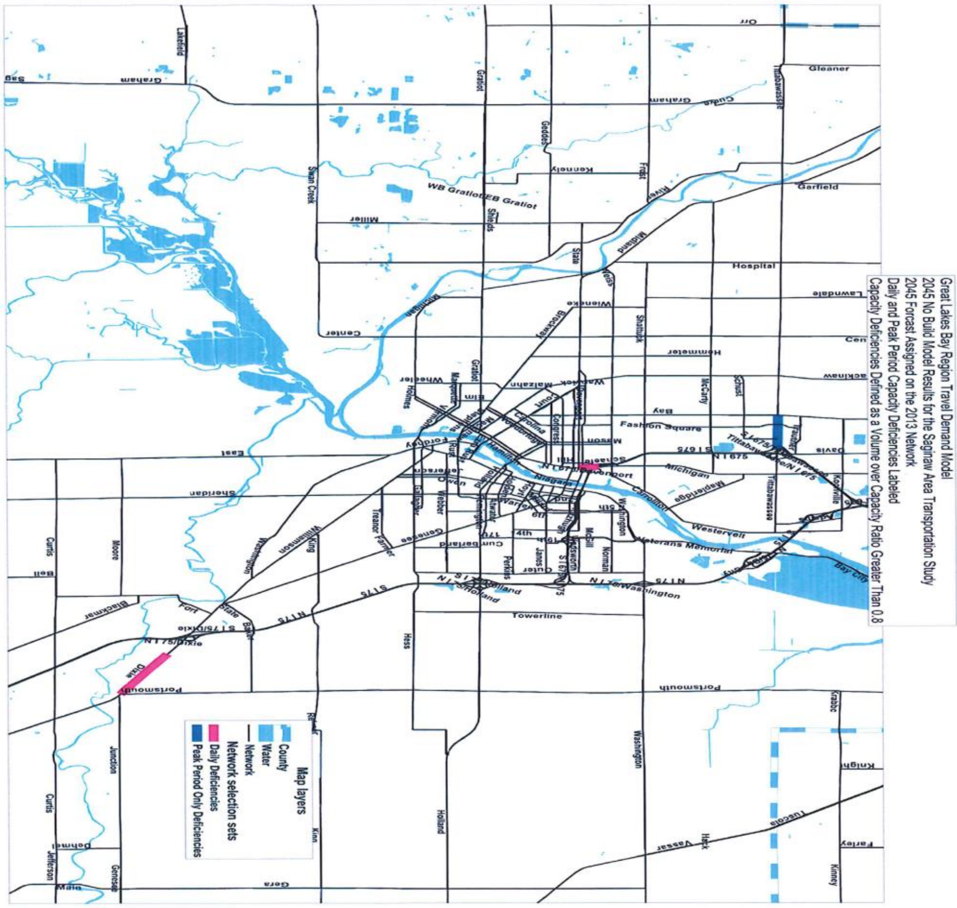
Appendix

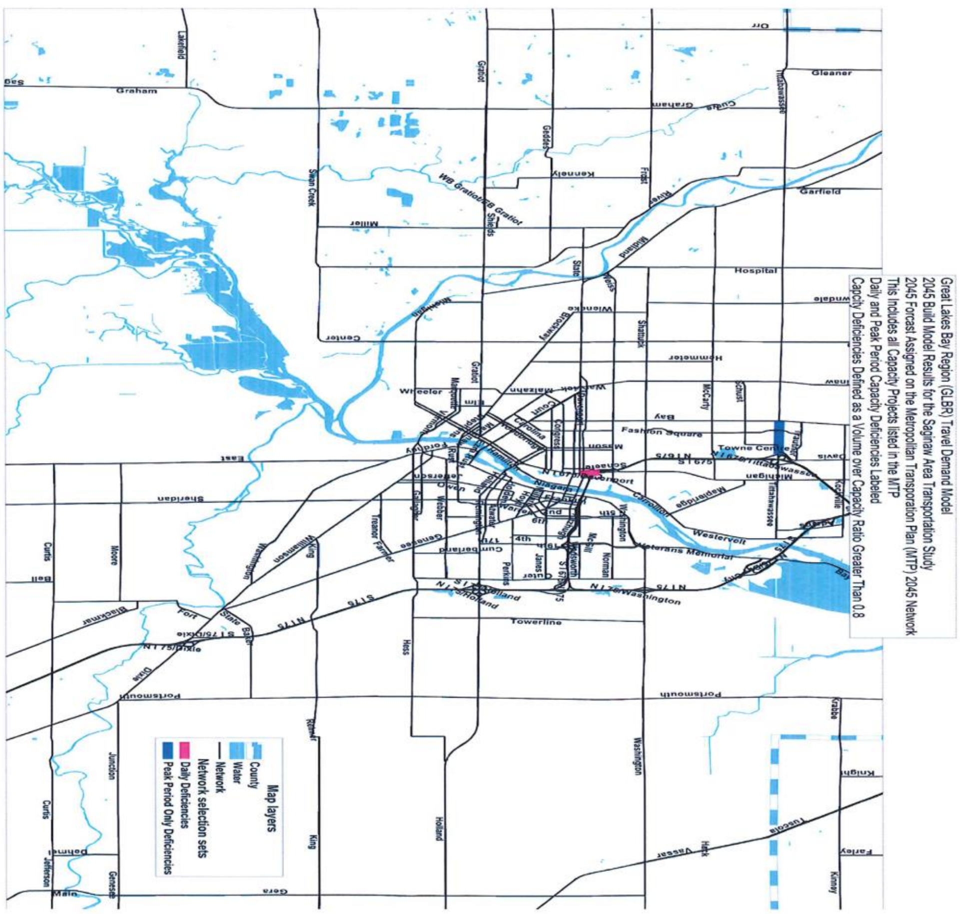
13.1 Appendix A - Travel Demand Model Maps

Here is a link to the Travel Demand Model Maps for SMATS

Great Lakes Bay Region Travel Demand Model
2013 Model Results for the Saginaw Area Transportation Study
Daily and Peak Period Capacity Deficiencies Labeled
Capacity Deficiencies Defined as a Volume over Capacity Ratio Greater Than 0.8




Great Lakes Bay Region Travel Demand Model
2045 No Build Model Results for the Saginaw Area Transportation Study
2045 Forcast Assigned on the 2013 Network
Daily and Peak Period Capacity Deficiencies Labeled
Capacity Deficiencies Defined as a Volume over Capacity Ratio Greater Than 0.8
Map layers
County
Water
Network
Network selection sets
Daily Deficiencies
Peak Period Only Deficiencies


Great Lakes Bay Region (GLBR) Travel Demand Model
2045 Build Model Results for the Saginaw Area Transportation Study
2045 Forcast Assigned on the Metropolitan Transporation Plan (MTP) 2045 Network
This Includes all Capacity Projects listed in the MTP
Daily and Peak Period Capacity Deficiencies Labeled
Capcity Deficiencies Defined as a Volume over Capacity Ratio Greater Than 0.8
Map layers
County
Water
Network
Network selection sets
Daily Deficiencies
Peak Period Only Deficiencies

13.2 Appendix B - Public Notice and Comment Solicitation

- Contact List
- Public Open House Sign-in Sheet
- Comments received
- FHWA Comments
- FHWA Approval Letter
- Public Notice Letter
- MLIVE Public Notice

13.3 Appendix C - Document References

- 2016 Comprehensive Economic Development Strategy document prepared by the East Michigan Council of Governments (EMCOG).
- MDOT Bicycle Plan- The Economic Benefits of Bicycling
- MDOT 2040 Long Range Plan
- US Codes- TITLE 23 - HIGHWAYS CHAPTER 1 - FEDERAL-AID HIGHWAYS
- SMATS Safety Resolution-
- SMATS Meeting Minutes- Adopting State safety targets
- EMCOG regional Safety Plan
- MDOT Safety Plan

13.4 Appendix D - List of Available Federal-Aid Highway and Transit Resources

- US Department of Transportation (USDOT)
  http://www.dot.gov
- Bureau of Transportation Statistics (BTS)
  http://www.bts.gov
- Federal Highway Administration (FHWA)
  http://www.fhwa.dot.gov
- Office of Transportation Technologies
  http://www.ott.doe.gov
- Federal Transit Administration (FTA)
  http://www.fta.dot.gov
- ITS Electronic Document Library (FHWA)
  http://www.its.dot.gov
- Federal Aviation Administration (FAA)
  http://www.faa.gov
- Federal Railroad Administration (FRA)
  http://www.fra.dot.gov
- Transportation Equity Act for the 21st Century (TEA-21)
  http://www.fhwa.dot.gov/tea21/
- National Highway Traffic Safety Administration (NHTSA)
  http://www.nhtsa.dot.gov
- National Safety Council
  http://www.nsc.org
- Local Technical Assistance Program (LTAP)
  http://www.ltap.org
- National Scenic Byways Program
  http://www.byways.org
- US Department of Agriculture – Rural Development
  http://www.rurdev.usda.gov/nrdp
- Safe Communities Services
  http://www.nhtsa.dot.gov/safecommunities
- US Department of Commerce
  http://www.doc.gov
- USDOT & USDA Transportation Toolbox for Rural Areas & Small Communities
  http://ntl.bts.gov/ruraltransport/toolbox/
- American Association of State Highway and Transportation Officials (AASHTO)
  http://www.aashto.org
- American Planning Association (APA)
  http://www.planning.org
- American Public Transit Association (APTA)
  http://www.apta.org
- Association of American Railroads (AAR)
  http://www.aar.org

- American Traffic Safety Services Association (ATSSA)
  http://www.atssa.com
- Intelligent Transportation Society of America (ITSA)
  http://www.itsa.org
- American Public Transportation Association (APTA)
  http://www.apta.com
- The National Associations Working Group for ITS
  http://www.nawgits.com
- National Association of Towns & Townships
  http://www.natat.org
- Michigan- Department of Transportation
  http://www.mdot.state.mi.us

13.5 Endangered Species List

ID	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
1	Alasmidonta marginata	Elktoe		SC	G4	S3?
2	Alasmidonta viridis	Slippershell		T	G4G5	S2S3
3	Ammodramus henslowii	Henslow's sparrow		E	G4	S3
4	Ammodramus savannarum	Grasshopper sparrow	PS	SC	G5	S4
5	Botaurus lentiginosus	American bittern		SC	G5	S3
6	Chlidonias niger	Black tern		SC	G4G5	S2
7	Circus cyaneus	Northern harrier		SC	G5	S4
8	Cistothorus palustris	Marsh wren		SC	G5	S3
9	Clemmys guttata	Spotted turtle		T	G5	S2
10	Emydoidea blandingii	Blanding's turtle		SC	G4	S2S3
11	Epioblasma triquetra	Snuffbox	LE	E	G3	S1S2
12	Falco peregrinus	Peregrine falcon	PS:LE	E	G4	S3
13	Galearis spectabilis	Showy orchis		T	G5	S2
14	Gallinula galeata	Common gallinule	PS	T	G5	S3
15	Glyptemys insculpta	Wood turtle		SC	G3	S2
16	Haliaeetus leucocephalus	Bald eagle		SC	G5	S4
17	Hetaerina titia	Smokey rubyspot		SC	G5	S4
18	Isotria verticillata	Whorled pogonia		T	G5	S2
19	Jeffersonia diphylla	Twinleaf		SC	G5	S3
20	Ligumia nasuta	Eastern pondmussel		E	G4	S2
21	Ligumia recta	Black sandshell		E	G4G5	S1?
22	Notropis texanus	Weed shiner		X	G5	S1

ID	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
23	Obliquaria reflexa	Threehorn wartyback		E	G5	S1
24	Obovaria olivaria	Hickorynut		E	G4	S1
25	Pantherophis gloydi	Eastern fox snake		T	G3	S2
26	Pantherophis spiloides	Gray ratsnake		SC	G4G5	S2S3
27	Percina copelandi	Channel darter		E	G4	S1
28	Percina shumardi	River darter		**2019**	**STARS**	
29	Platanthera leucophaea	Prairie white-fringed orchid	LT	**2019**	**STARS**	
30	Pleurobema sintoxia	Round pigtoe		**2020**	**STARS**	
31	Potamilus ohiensis	Pink papershell		**2020**	**STARS**	
32	Protonotaria citrea	Prothonotary warbler		**2018**	**STARS**	
33	Ptychobranchus fasciolaris	Kidney shell		**2019**	**STARS**	
34	Pycnanthemum pilosum	Hairy mountain mint	mint	**2020**	**STARS**	
35	Rallus elegans	King rail		**2018**	**STARS**	
36	Sistrurus catenatus	Eastern massasauga	LT	**2019**	**STARS**	
37	Toxolasma parvum	Lilliput		**2019**	**STARS**	
38	Truncilla truncata	Deertoe		**2020**	**STARS**	
39	Utterbackia imbecillis	Paper pondshell		**2020**	**STARS**	
40	Venustaconcha ellipsiformis	Ellipse		**2018**	**STARS**	
41	Villosa iris	Rainbow				
42	Xanthocephalus xanthocephalus	Yellow-headed blackbird				

Explanation of Federal Status, State Status, Global Rank, and State Rank
FEDERAL LEGAL STATUS

Legal status information provided for information only. For official definitions and lists of protected species, consult the relevant federal agency.
Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3.
LE = Listed Endangered
LT = Listed Threatened
PE = Proposed endangered
PT = Proposed Threatened
C = Candidate
PDL = Proposed for delisting
E (S/A) or T (S/A) = Listed endangered or threatened because of similarity of appeaance
XE = Essential experimental population
XN = Nonessential experimental population
No Rank = Usually indicates that the taxon does not have any federal status. However, because of potential lag time between publication in the Federal Register and entry in the central databases and state databases, some taxa may have a status which does not yet appear.
(Rank, Rank) = Combination values in parenthesis = The taxon itself is not named in the Federal Register as having U.S. ESA status; however, all of its infraspecific taxa (worldwide) do have official status. The statuses shown in parentheses indicate the statuses that apply to infraspecific taxa or populations within this taxon.
(PS) = partial status= Status in only a portion of the species' range. Typically indicated in a "full" species record where an infraspecific taxon or population has U.S. ESA status, but the entire species does not.
(PS: Rank) = partial status= Status in only a portion of the species' range. The value of that status appears because the entity with status does not have an individual entry in Natureserve.

STATE STATUS

E= Endangered T=Threatened SC=Special Concern

GLOBAL RANK

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
G4 = Apparently secure globally (may be rare in parts of range).
G5 = Demonstrably secure globally.
GH = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker).
GX = Believed to be extinct throughout range.
GXC = Extirpated from the wild but still known from captivity or cultivation.
G#? = Tentative rank (e.g., G2?).

G#G# = Range of rank; insufficient data to assign specific global rank (e.g., G2G3).
G#T# = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1).
G#Q = Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q).
G#T#Q = Same as above, but validity as subspecies or variety is questioned.

STATE RANK

The priority assigned by the Michigan Natural Features Inventory for data collection and protection based upon the element's status within the state. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.
S1 = critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.
S2 = imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.
S3 = rare or uncommon in state (on the order of 21 to 100 occurrences).
S4 = apparently secure in state, with many occurrences.
S5 = demonstrably secure in state and essentially ineradicable under present conditions