Twin Cities Area Transportation Study (TwinCATS)

>>>

2045 LONG RANGE TRANSPORTATION PLAN

Principles in Motion >>>

The preparation of this document has been financed through the Federal Highway Administration (FHWA), the Federal Transportation Administration (FTA), the Michigan Department of Transportation (MDOT) and TwinCATS member communities under provisions of the FAST (Fixing America's Surface Transportation) Act.

November 2018

Southwest Michigan Planning Commission

376 W. Main Street

Suite 130

Benton Harbor, Michigan 49022

MPO Organization

The Southwest Michigan Planning Commission (SWMPC) is one of fourteen regional planning and development regions in the state of Michigan. In 1981 SWMPC was designated by the Governor of Michigan to be the Metropolitan Planning Organization (MPO) for the Benton Harbor-St. Joseph urbanized area. The SWMPC relies on this committee of the TwinCities Area Transportation Study (TwinCATS) to provide local, state , and federal input toward the development of essential MPO work products

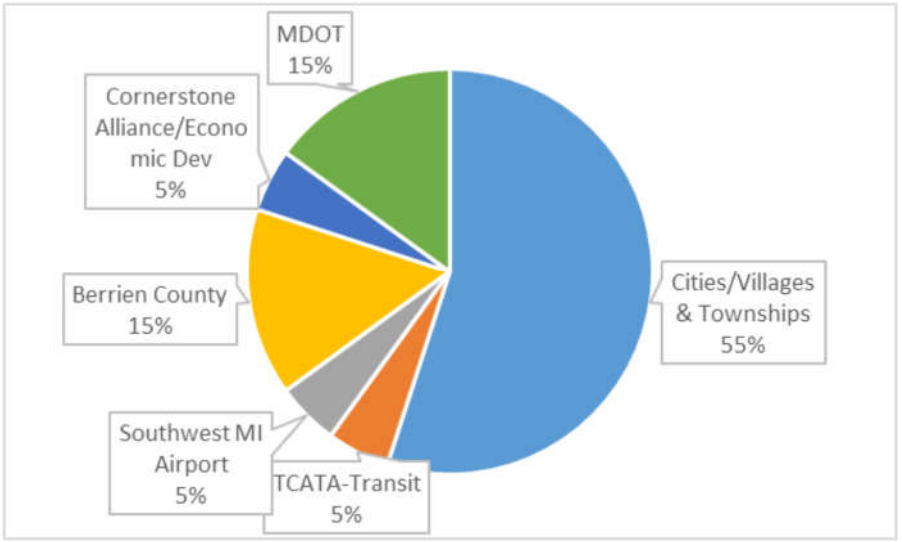
The staff at SWMPC provides transportation planning services for TwinCATS and is guided by the advice of members from the TwinCATS Policy Committee and Technical Advisory Committee. Members, such as cities, townships, villages, counties, public transit agencies, the airport authority, and the road department appoint representatives to serve on the following TwinCATS committees:

1. The Technical Advisory Committee is comprised of planners, engineers, transit operators, and local units of government. This committee provides technical assistance to SWMPC staff and makes recommendations to the Policy Committee on potential actions.
2. The Policy Committee is comprised of representatives from similar agencies as the Technical Advisory Committee and is responsible for establishing transportation policies, overseeing the planning process, and providing a forum for cooperative decision-making.

TwinCATS Policy Committee

TwinCATS Policy Committee is organized to conform with federal requirements for an MPO. TwinCATS Policy Committee is composed of 17 voting members from member communities, transportation and economic development agencies. The Policy Committee also has three non-voting members that include Federal Highway Administration, Federal Transit Administration, and Northwest Indiana Regional Planning Commission.

TwinCATS Policy Committee Membership



The SWMPC Governing Board is composed of appointed representatives from the counties of Berrien, Cass and Van Buren and affirms the decisions of the TwinCATS Committee for various federally required plans and documents that include:

- Long Range Transportation Plan
- Unified Work Program
- Transportation Improvement Program
- Public Participation Plan

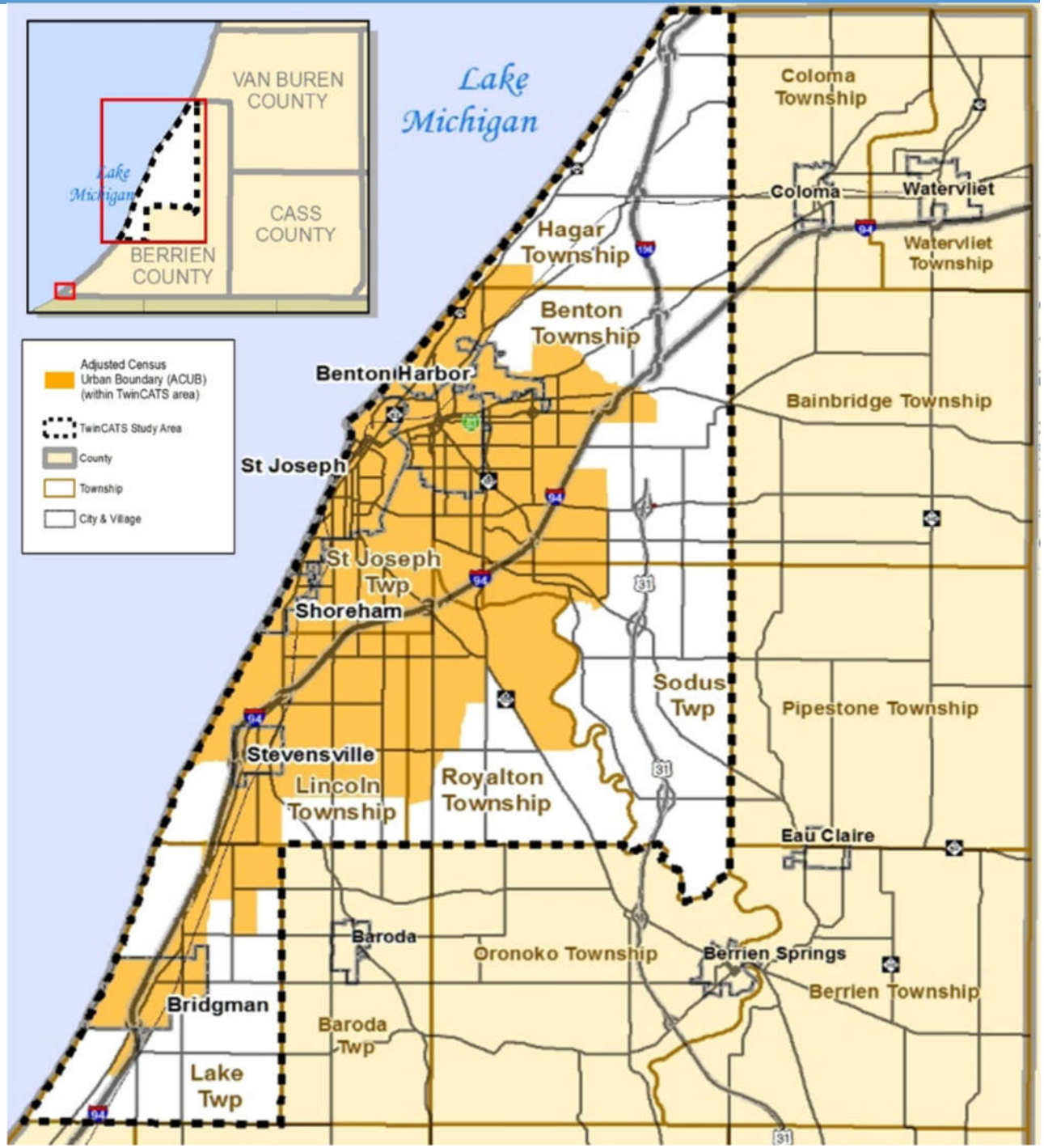
Metropolitan Area Boundaries

The U.S. Census Bureau designated Benton Harbor-St. Joseph as an urbanized area in 1981 following benchmarks for concentrations of population that comprise one or more central places and adjacent developed areas that together have a minimum of 50,000 people. Today, the Benton Harbor-St. Joseph urbanized area is home to approximately 63,000 people.

The TwinCATS study area encompasses each community that contains a portion of the Benton Harbor-St. Joseph urbanized area. This area covers approximately 146 square miles and makes up the locations where the transportation planning process is carried out. The 12 local units of government that make up the TwinCATS study area are the cities of Benton Harbor, St. Joseph, Bridgman, the townships of, Benton, Hagar, Lake, Lincoln, Royalton, Sodus, St. Joseph, and the villages of Shoreham and Stevensville. Only projects located within the TwinCATS study area are eligible for federal funding through the MPO.

MPO SATELLITE

The Villages of Grand Beach and Michiana and part of New Buffalo Township are considered a satellite of the Twin Cities Urbanized Area, but they are actually part of the Michigan City-La Porte Urbanized Area. This satellite does not have federal aid eligible roads. Therefore, this Long Range Transportation Plan does not cover the satellite. The map inset marks the relative position of the satellite.)



2045 Long Range Transportation Plan

The development and adoption of a Long Range Transportation Plan is required by the U.S. Department of Transportation in order to receive federal funding under the Fixing America's Surface Transportation Act (FAST Act). The FAST Act is the most current federal legislation (adopted in 2015) that establishes transportation funding programs for all surface transportation modes.

The plan must have no less than a 20-year horizon date, represent all municipalities within the designated urbanized planning area and consider all modes of transportation. The plan must also address the ten planning factors to ensure the plan is consistent with national goals for transportation planning.

The Long Range Transportation Plan is the transportation vision for urbanized area just like a master plan can be the land use vision for a community.

Principles in Motion >>>

TwinCATS 2045 Long Range Transportation Plan Vision

To ensure public investments and policies are strategically used for the optimization of a safe, reliable and equitable transportation network that enhances economic opportunity, growth, and quality of life while preserving our environment.

FAST Act Planning Factors

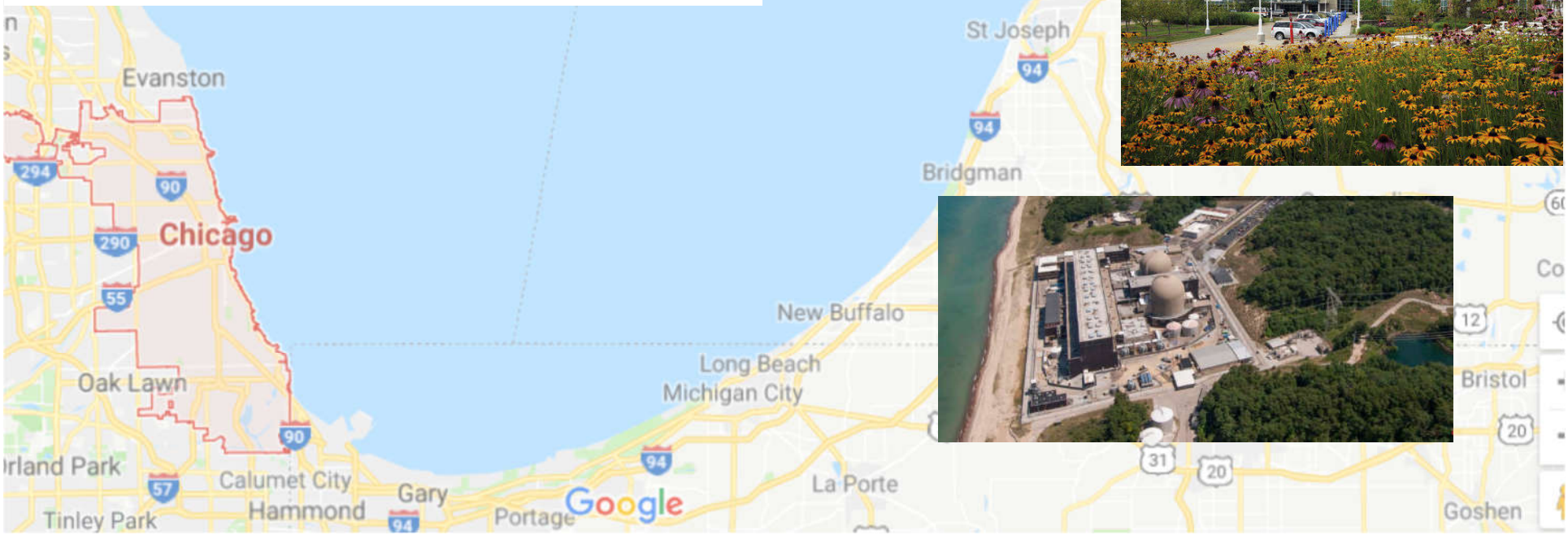
- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
- Increase the safety of the transportation system for motorized and non-motorized users.
- Increase the security of the transportation system for motorized and non-motorized users
- Increase the accessibility and mobility options available to people and for freight.
- Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements.
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
- Promote efficient system management and operation.
- Emphasize the preservation of the existing transportation system.
- Improve the resiliency and reliability of the transportation system and reduce or mitigate storm water impacts to surface transportation.
- Enhance travel and tourism.

REGIONAL CONTEXT

Metropolitan Planning Area

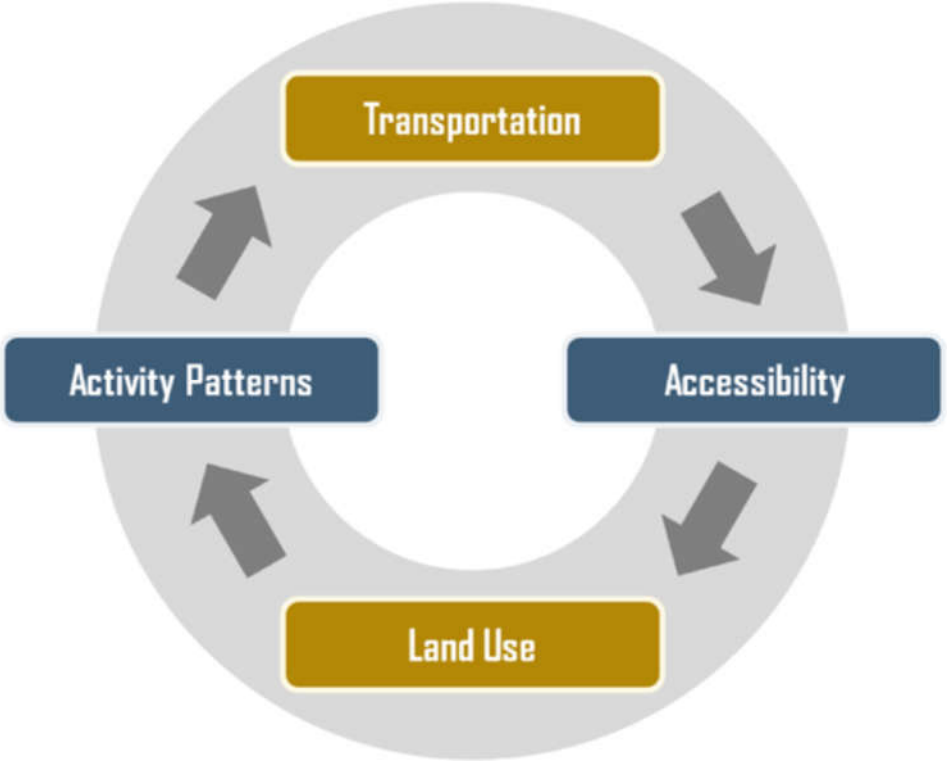
The St. Joseph-Benton Harbor Urbanized Area is located in Berrien County, Michigan. The southern border of the County abuts the northern Indiana state line. The cities in the southern portion of the County are strongly influenced by the population and economics of the Indiana cities that lie in close proximity including South Bend, Mishawaka, and Michigan City. Chicago is also a powerful influence on many aspects of life in southwest Michigan.
Benton Harbor and St. Joseph are home to Whirlpool, the world's largest appliance manufacturer, and LECO, who manufactures scientific instrumentation. Other large employers include Lakeland Hospital and the Cook Nuclear Power Plant.

The St. Joseph-Benton Harbor Urbanized Area regional transportation assets include: a deep water port, freight and passenger rail service, I-94, and I-196.



Transportation and Land Use

Transportation and land use considered together can respond better to community needs by combining economic vitality and mobility with quality-of-life and environmental issues. A municipality's land is perhaps its greatest resource. Changes to the way it is used can permanently shape the community's future.



The Importance of Transportation as Part of Local Land Use

Every local land use decision has a transportation consequence:

Residential developments may require modifications to existing roadway networks to ensure adequate access for motorists, pedestrians and bicyclists.

Industrial or commercial facilities may require parking and possible accommodations for public transportation and bicyclists in addition to roadway access enhancements.

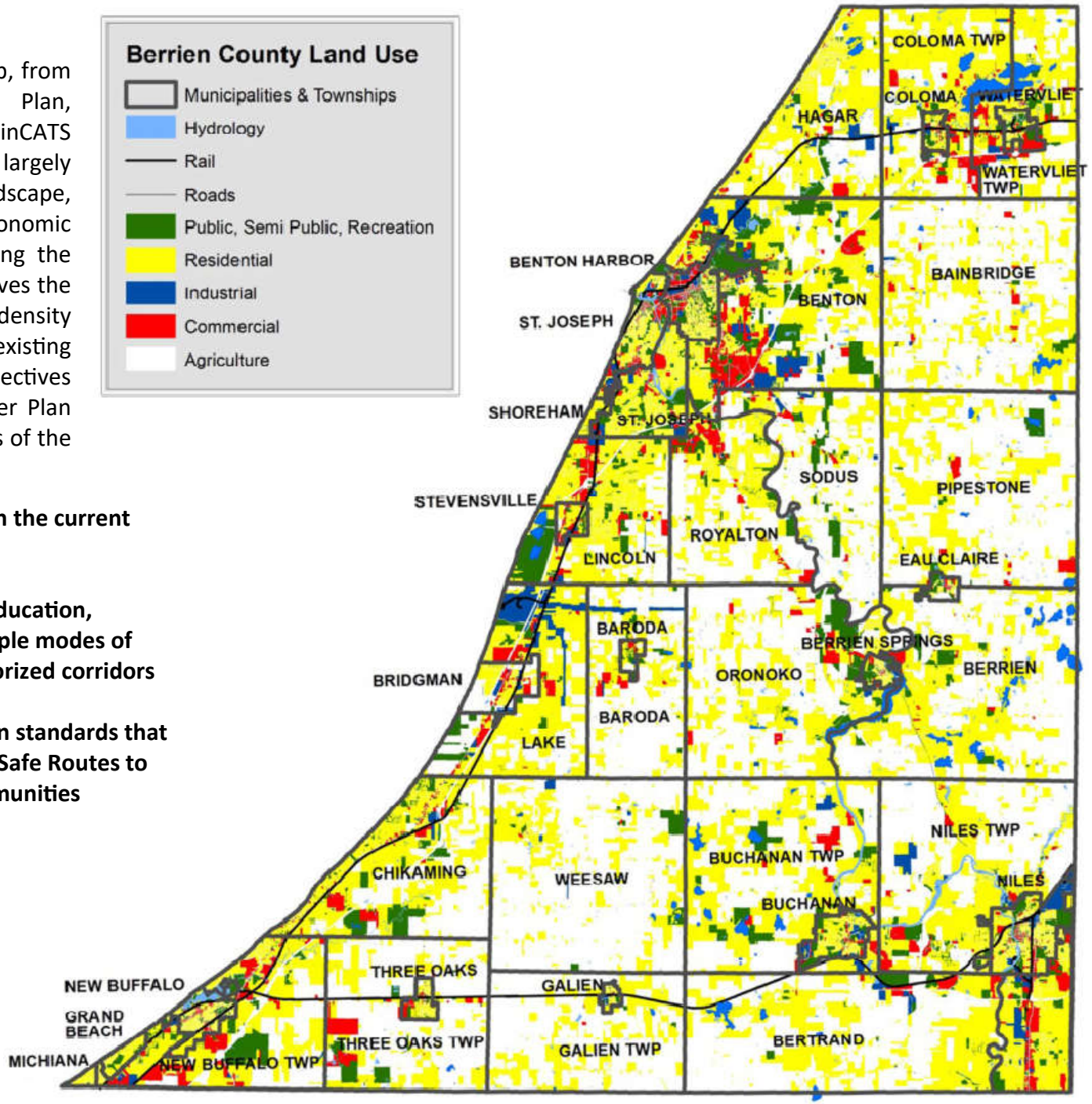
Commercial, industrial, retail or residential uses may have a variety of transportation impacts, including the need for turning lanes and traffic signal installations, and trip generation impacts that extend beyond municipal borders.

Link Land Use and Transportation Planning

- Tax dollars to infrastructure costs necessary to support development, such as roads and sewers.
- Costs of emergency services, roadway maintenance and other municipal services.
- Lack of coordinated land use and transportation can result in worsening air and water pollution resulting from additional roadway traffic and storm water runoff into our streams, rivers and lakes.
- Uncoordinated land use and transportation decision-making can result in park and ride facilities with no transit access, greater pedestrian injuries and deaths, and more time spent in the car per day away from our families.
- The conversion of open space or farmland to large residential subdivisions or big box retail or distribution centers can result in decreased air quality and a loss of community character.

Berrien County Master Plan

As shown on the existing land use map, from the 2015 Berrien County Master Plan, residential areas dominate in the TwinCATS Area, whereas the surrounding area is largely agricultural. Agriculture, the rural landscape, plays an important cultural and economic value of the whole region. Recognizing the significance of the rural community drives the Plan's objective to promote higher density infill and redevelopment within the existing urbanized areas. Similarly, other objectives proposed in the Berrien County Master Plan are in direct alignment to address goals of the TwinCATS Long Range Plan.



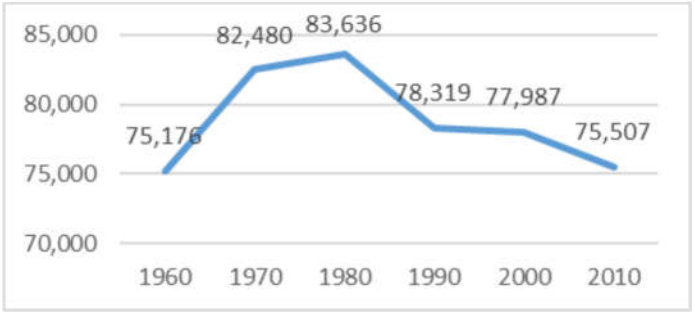
- ◊ **Maintain and provide efficiencies in the current transportation system**
- ◊ **Connect centers of employment, education, commerce, and housing with multiple modes of transportation, including non-motorized corridors**
- ◊ **Advocate "complete streets" design standards that correlate with state initiatives like Safe Routes to Schools and Building Healthy Communities**

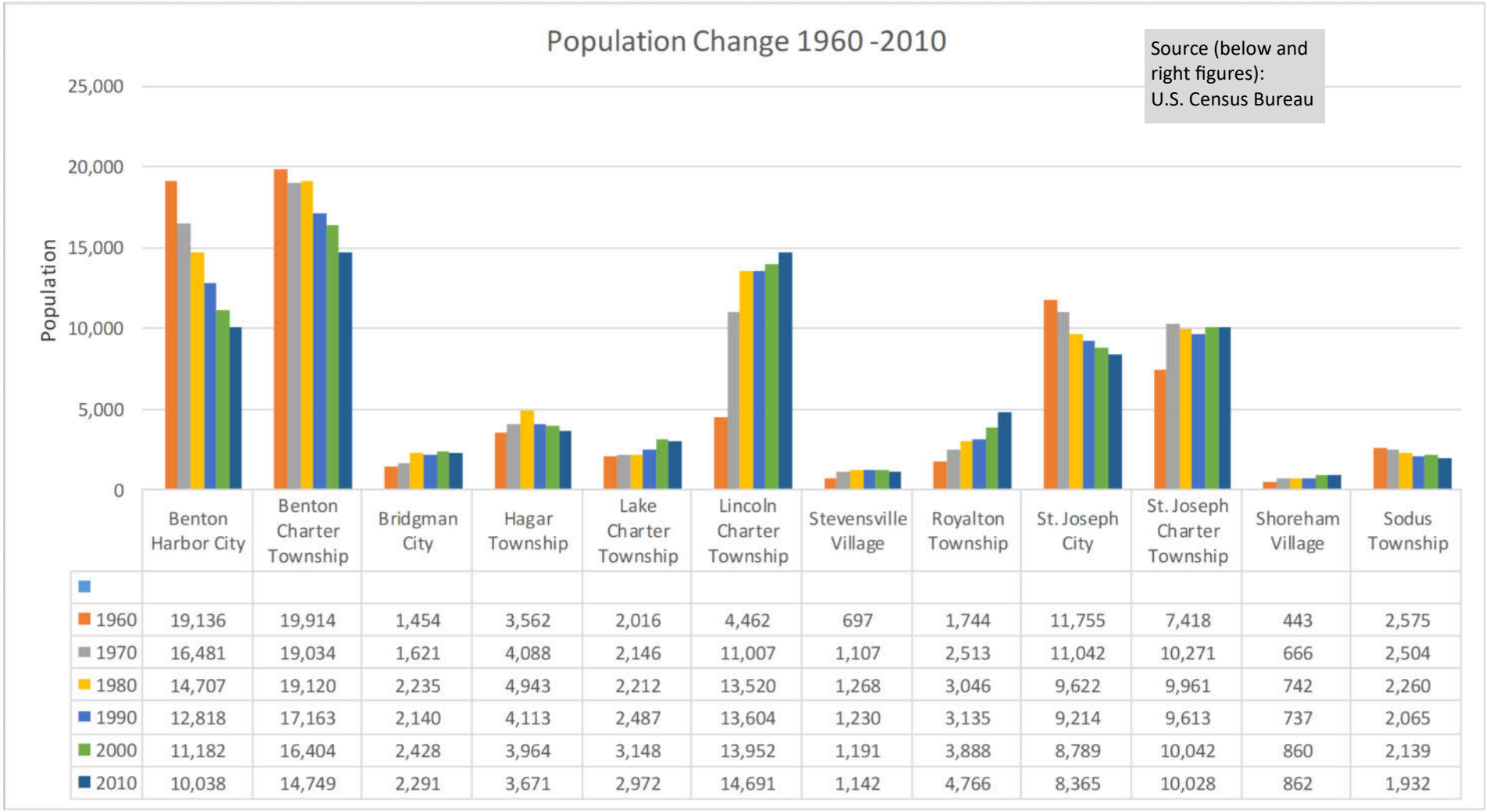
Land Use *	Acres	Percent
Residential	132,573	36.1%
Commercial	14,202	3.9%
Industrial	6,870	1.9%
Public/ Semi-public	23,611	6.4%
Agricultural	176,265	47.9%
Roads	14,082	3.8%

Population

From the late 19th century until early 1970s, Michigan's population grew more rapidly than the nation's. The nationwide recession of the early 1980s hit Michigan harder than most other states because of its effect on the auto industry and the related smaller businesses associated with the auto industry. Since then, Michigan has grown more slowly than the rest of the nation. The population in TwinCATS experienced a similar trend from 1960 to 1980 with an 11% increase in population. As in the entire state, from 1980-1990 there was a substantial decrease in population. Since the 1990 the population is decreasing, yet at a lower rate, where it remains today.

TwinCATS Planning Area Population Over Time

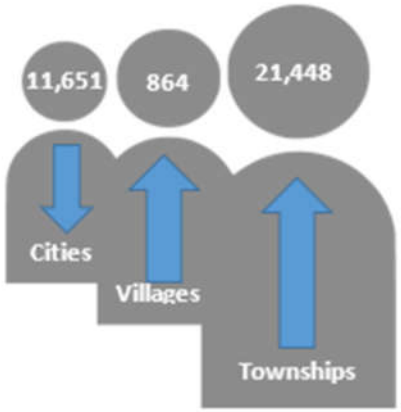




	Benton Harbor City	Benton Charter Township	Bridgman City	Hagar Township	Lake Charter Township	Lincoln Charter Township	Stevensville Village	Royalton Township	St. Joseph City	St. Joseph Charter Township	Shoreham Village	Sodus Township
1960	19,136	19,914	1,454	3,562	2,016	4,462	697	1,744	11,755	7,418	443	2,575
1970	16,481	19,034	1,621	4,088	2,146	11,007	1,107	2,513	11,042	10,271	666	2,504
1980	14,707	19,120	2,235	4,943	2,212	13,520	1,268	3,046	9,622	9,961	742	2,260
1990	12,818	17,163	2,140	4,113	2,487	13,604	1,230	3,135	9,214	9,613	737	2,065
2000	11,182	16,404	2,428	3,964	3,148	13,952	1,191	3,888	8,789	10,042	860	2,139
2010	10,038	14,749	2,291	3,671	2,972	14,691	1,142	4,766	8,365	10,028	862	1,932

Population Shift

Comparing 1960 to 2010, the total population has not increased dramatically; however, there has been a shift in population numbers between townships, villages and cities. The largest increase in population has occurred in Lincoln Charter Township, which has grown more than three times larger in the last fifty years. The greatest decrease in population has occurred in the City of Benton Harbor, which has lost almost half of its population in the last fifty years.



Jurisdiction	1960	2010	Change
Benton Harbor, City of	19,136	10,038	**-9,098**
Benton Charter Township	19,914	14,749	**-5,165**
Bridgman, City of	1,454	2,291	**837**
Hagar Township	3,562	3,671	**109**
Lake Charter Township	2,016	2,972	**956**
Lincoln Charter Township	4,462	14,691	**10,229**
Stevensville, Village of	697	1,142	**445**
Royalton Township	1,744	4,766	**3,022**
St. Joseph, City of	11,755	8,365	**-3,390**
St. Joseph Charter Township	7,418	10,028	**2,610**
Shoreham, Village of	443	862	**419**
Sodus Township	2,575	1,932	**-643**

Source: U.S. Census Bureau

Population Forecast: 2015-2045

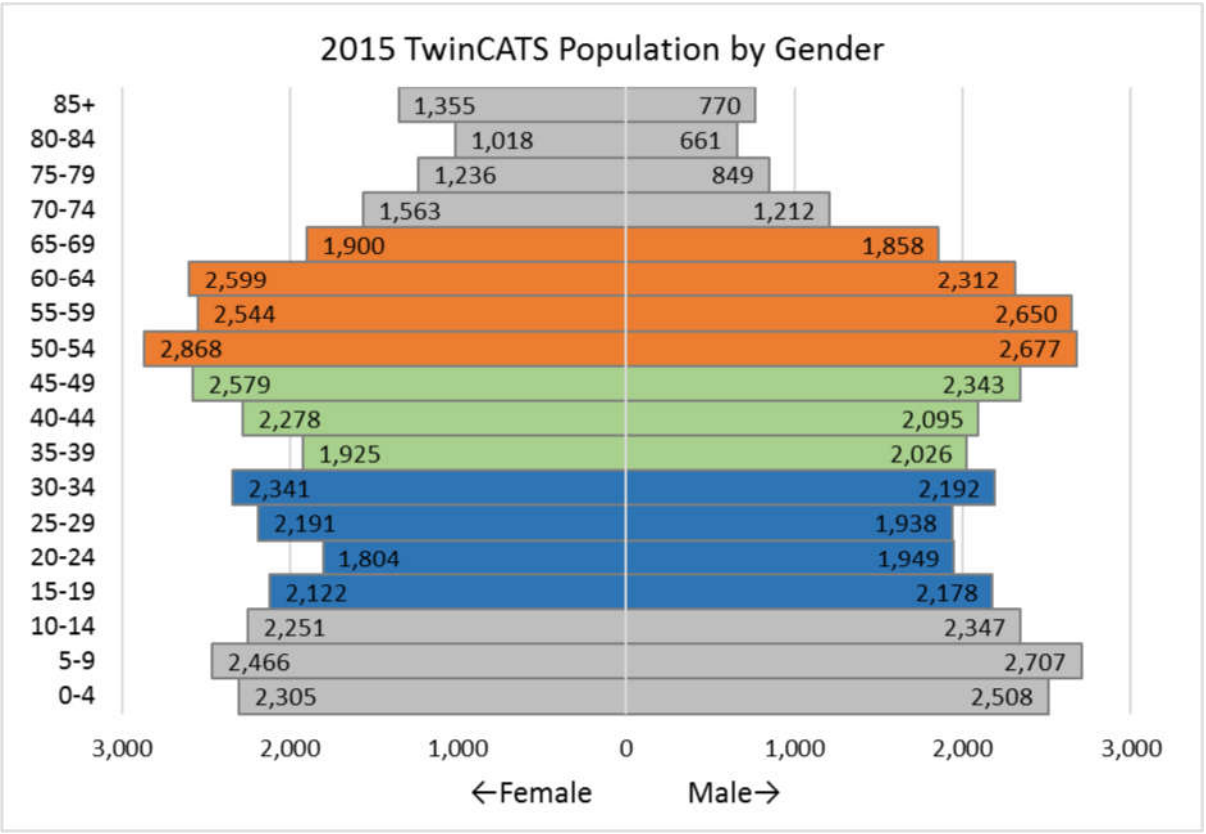
Population forecasts for the TwinCATS planning area show that the majority of jurisdictions are expected to grow. Exceptions to this population growth are the Village of Shoreham, Hagar Township, and Sodus Township.

Jurisdiction	2015	2045
City of Benton Harbor	9,998	10,003
City of Bridgman	2,258	2,295
City of St. Joseph	8,286	8,354
Village of Shoreham	853	847
Village of Stevensville	1,130	1,203
Benton Charter Township	14,459	14,565
Hagar Township	3,671	3,593
Lake Charter Township	2,939	3,112
Lincoln Charter Township	13,398	14,255
Royalton Township	4,759	5,308
St. Joseph Charter Township	9,013	9,105
Sodus Township	1,935	1,869
TwinCATS Total	72,699	74,509

Source: REMI

Generations

Changing cultural preferences for transportation are evident from both younger (millennials) and older generations (baby boomers). A large portion of these populations express a desire to live in communities that are bikeable, walkable and have transit.



Generation	Percent
Generation Y (2000-2015)	20%
Millennials (1980-2000)	22%
Gen X (1965-1979)	19%
Baby Boomers (1945-1964)	28%
Silent/Greatest (born before 1945)	11%

The U.S. population age 65 and older is growing at a faster rate than the population under age 65. Lower birth rates and increased longevity have led to this rapid growth not just in the United States but across the world.

The Millennials and Boomers are the two largest age cohorts alive today nationwide and within the TwinCATS planning area. Millennials between 15 and 34 years of age in 2015 will be age 45 to 64 by 2045. Baby Boomers, ages of 50-69 in 2015 will be 80 years and older by 2045. The Gen X population that in 2015 represented 19 percent of the TwinCATS area population, in 2045 will be age 64-79.

Household Size

Jurisdiction	Year	Number of Households	1-Person	2-Person	3-Person	4+ Person
Cities						
City of Benton Harbor	2010	3,650	34.3%	24.4%	19.0%	22.3%
	2015	3,902	37.7%	24.3%	16.4%	21.7%
City of Bridgman	2010	978	28.4%	25.2%	17.3%	29.1%
	2015	872	37.2%	36.7%	12.3%	13.9%
City of St. Joseph	2010	4,053	46.1%	31.6%	12.1%	10.1%
	2015	4,013	41.8%	38.0%	9.3%	10.9%
Villages						
Village of Shoreham	2010	374	25.4%	44.9%	15.2%	14.4%
	2015	379	27.4%	42.2%	11.3%	19.0%
Village of Stevensville	2010	501	32.5%	40.9%	8.0%	18.6%
	2015	592	33.4%	38.5%	11.3%	16.7%
Townships						
Benton Charter Township	2010	6,291	36.9%	34.1%	13.1%	15.9%
	2015	5,606	33.6%	31.0%	14.3%	21.0%
Hagar Township	2010	1,549	28.7%	37.0%	15.0%	19.3%
	2015	1,535	31.7%	35.2%	16.5%	16.7%
Lake Charter Township	2010	1,293	29.1%	43.0%	7.3%	20.6%
	2015	1,218	24.5%	40.8%	18.3%	16.3%
Lincoln Charter Township	2010	5,748	25.2%	36.5%	13.1%	25.2%
	2015	6,006	29.0%	36.5%	12.9%	21.6%
Royalton Township	2010	1,738	24.7%	34.4%	11.9%	28.9%
	2015	1,548	17.8%	38.3%	9.2%	34.8%
St. Joseph Charter Townsh	2010	4,117	25.5%	41.7%	13.4%	19.4%
	2015	4,094	26.2%	38.6%	17.8%	17.4%
Sodus Township	2010	879	27.3%	40.6%	14.7%	17.4%
	2015	833	31.3%	45.6%	12.5%	10.6%

Largest Increases

Lincoln Township
258 Households

City of Benton Harbor
252 Households

2015

Largest Decline

Benton Charter Twp.
685 Households

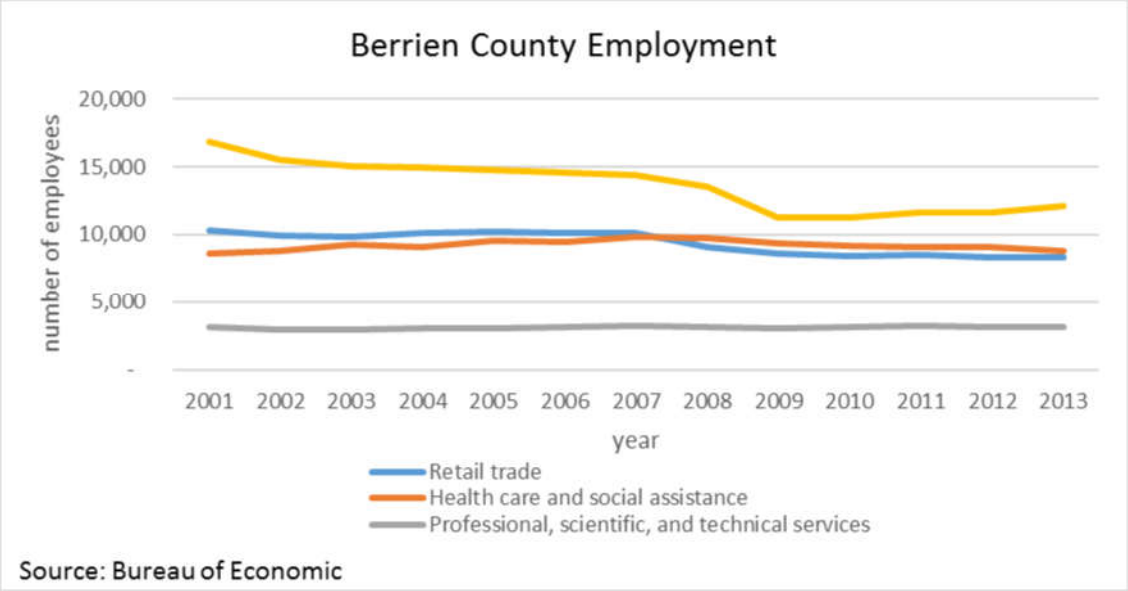
Households

The number of households and their size is an indicator of how the population is distributed over the TwinCATS area. Overall, the number of households by jurisdiction remained relatively steady between 2010 and 2015. The majority of jurisdictions had a significant increase in the percent of one-person households.

There is a growing preference for attached and smaller detached homes. Nationwide, research shows that about 40 percent of respondents would choose to own or rent an apartment or townhouse if it had an easy walk to shops and restaurants and offered a shorter commute to work. About 60 percent of those preferring detached options would choose smaller lots if they had the same attributes.

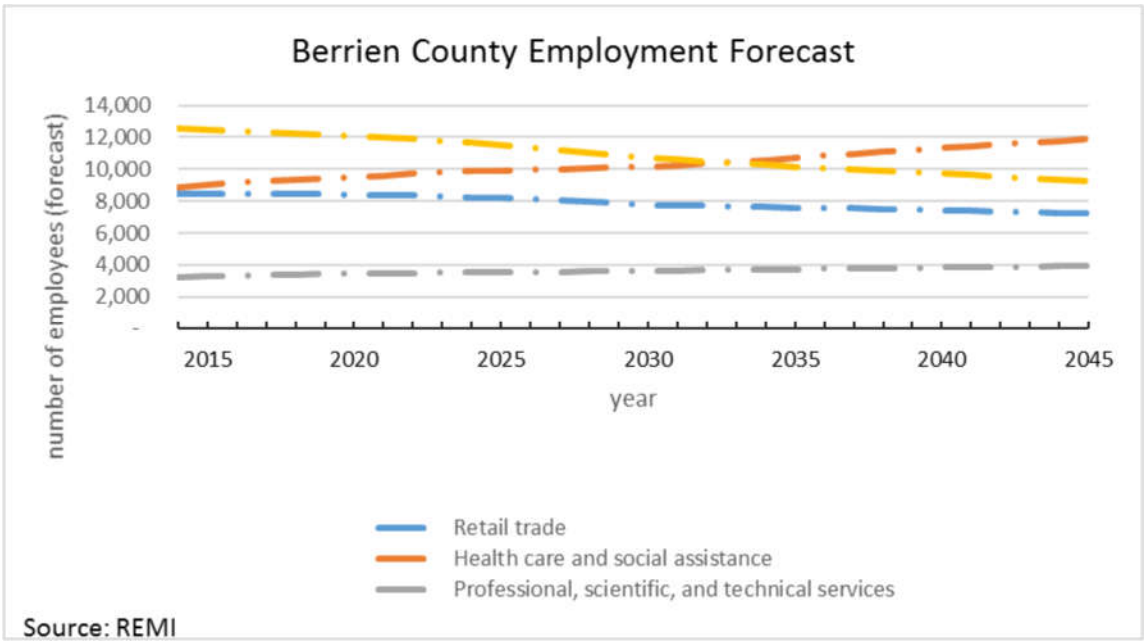
Nelson, Arthur. (2009). Reshaping America's built environment. Metropolitan Research Center, University of Utah

Employment



Source: Bureau of Economic

For transportation planning, it is helpful to anticipate large changes in the employer/ employment market. For example, a strong retail market requires a different capacity in a transportation network than that of a strong manufacturing economy. All-season roads, designed for truck traffic are likely of greater importance on a continuing basis to manufacturers than retailers.



Source: REMI

In Berrien County, it is forecasted that employment in health care and social assistance will overtake manufacturing in the 2030s.

Retail trade and manufacturing employment are projected to decrease over the next twenty -five years whereas employment in professional, science, and technical services and health care and social assistance are expected to increase.

Employment Density & Household Income

Median household income serves as an important indicator of transportation options available for the residents of the region. Lower household incomes usually correlate with lower vehicle ownership and thus a greater reliance on other modes of transportation such as public transit to reach employment opportunities.

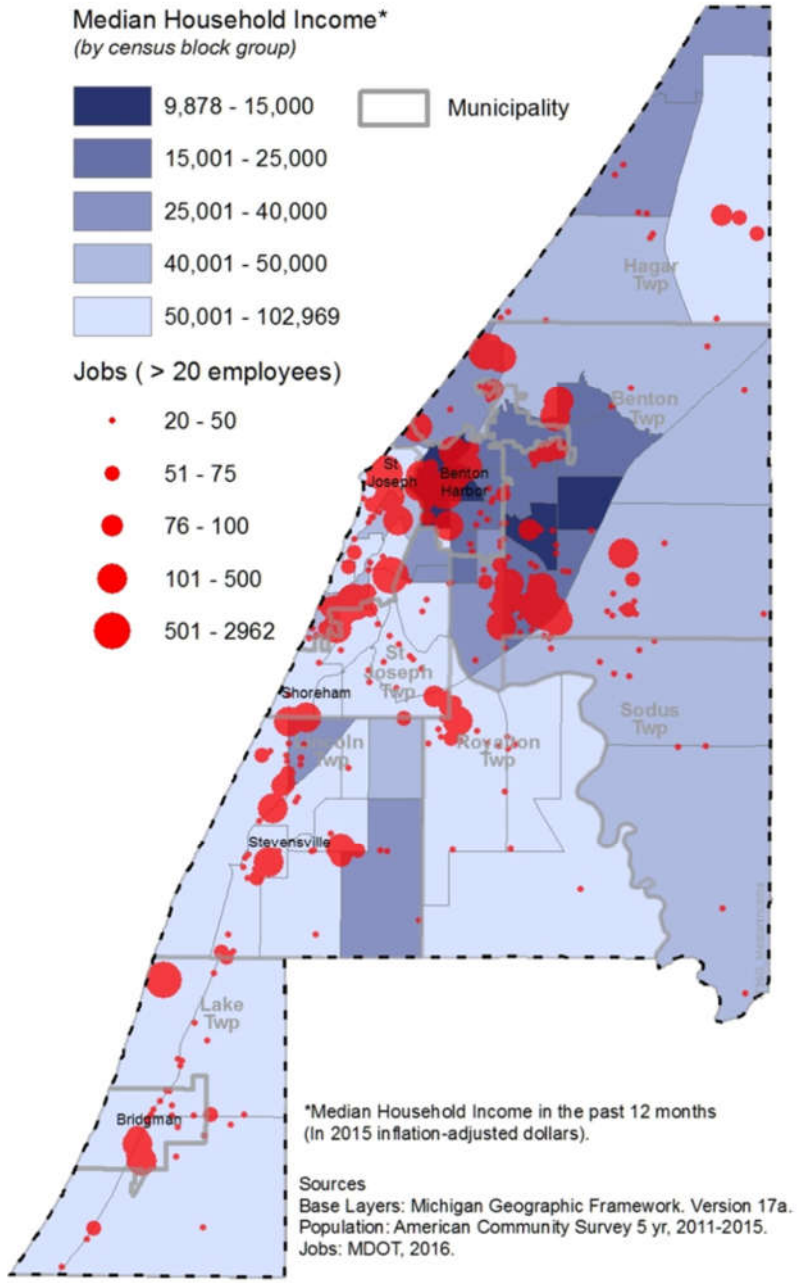
In the TwinCATS area approximately 35 percent of jobs are located in areas outside of public transit service areas. Those without access to cars—including low-income workers and people with disabilities—lose out on employment opportunities. Low-income people who do have access to cars spend a large percentage of their household resources on transportation at the expense of other necessities.

Jurisdiction	Year	Median Household Income
Cities		
City of Benton Harbor	2010	$ 17,301
	2015	$ 18,085
City of Bridgman	2010	$ 50,909
	2015	$ 42,903
City of St. Joseph	2010	$ 49,982
	2015	$ 55,012
Villages		
Village of Grand Beach	2010	$ 95,000
	2015	$ 83,750
Village of Michiana	2010	$ 104,583
	2015	$ 62,321
Village of Shoreham	2010	$ 76,818
	2015	$ 78,194
Village of Stevensville	2010	$ 46,012
	2015	$ 51,667
Townships		
Benton Charter Township	2010	$ 24,804
	2015	$ 28,446
Hagar Township	2010	$ 41,854
	2015	$ 53,087
Lake Charter Township	2010	$ 46,384
	2015	$ 67,120
Lincoln Charter Township	2010	$ 64,701
	2015	$ 69,069
Royalton Township	2010	$ 69,280
	2015	$ 87,900
St. Joseph Charter Township	2010	$ 57,370
	2015	$ 63,566
Sodus Township	2010	$ 41,025
	2015	$ 44,757

Highest Rates of Poverty

Benton Harbor: 50.3%
Benton Charter Township: 33.6 %

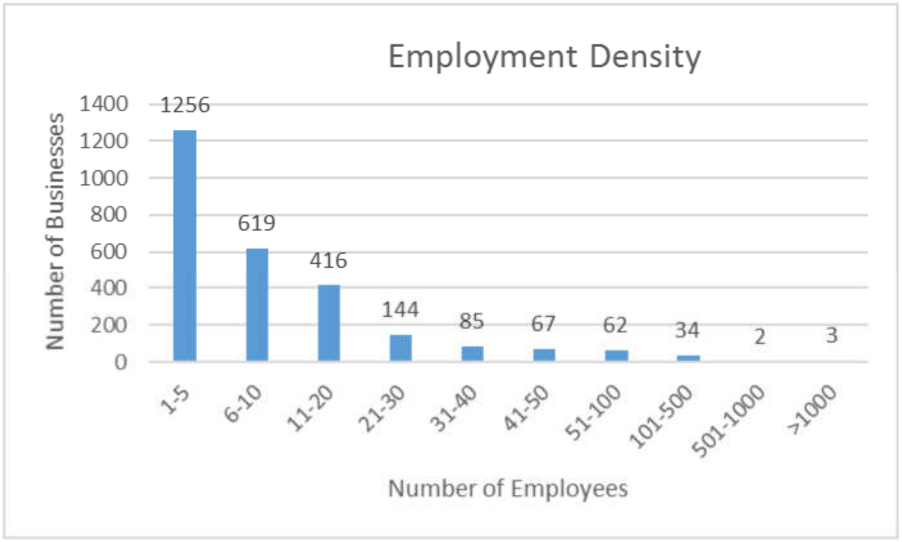
Jurisdiction	% Below Poverty Level
Cities	
City of Benton Harbor	50.3%
City of Bridgman	11.8%
City of St. Joseph	8.7%
Villages	
Village of Grand Beach	3.9%
Village of Michiana	4.5%
Village of Shoreham	7.4%
Village of Stevensville	6.2%
Townships	
Benton Charter Township	33.6%
Hagar Township	15.4%
Lake Charter Township	4.1%
Lincoln Charter Township	5.7%
Royalton Township	6.1%
St. Joseph Charter Township	4.8%
Sodus Township	7.0%

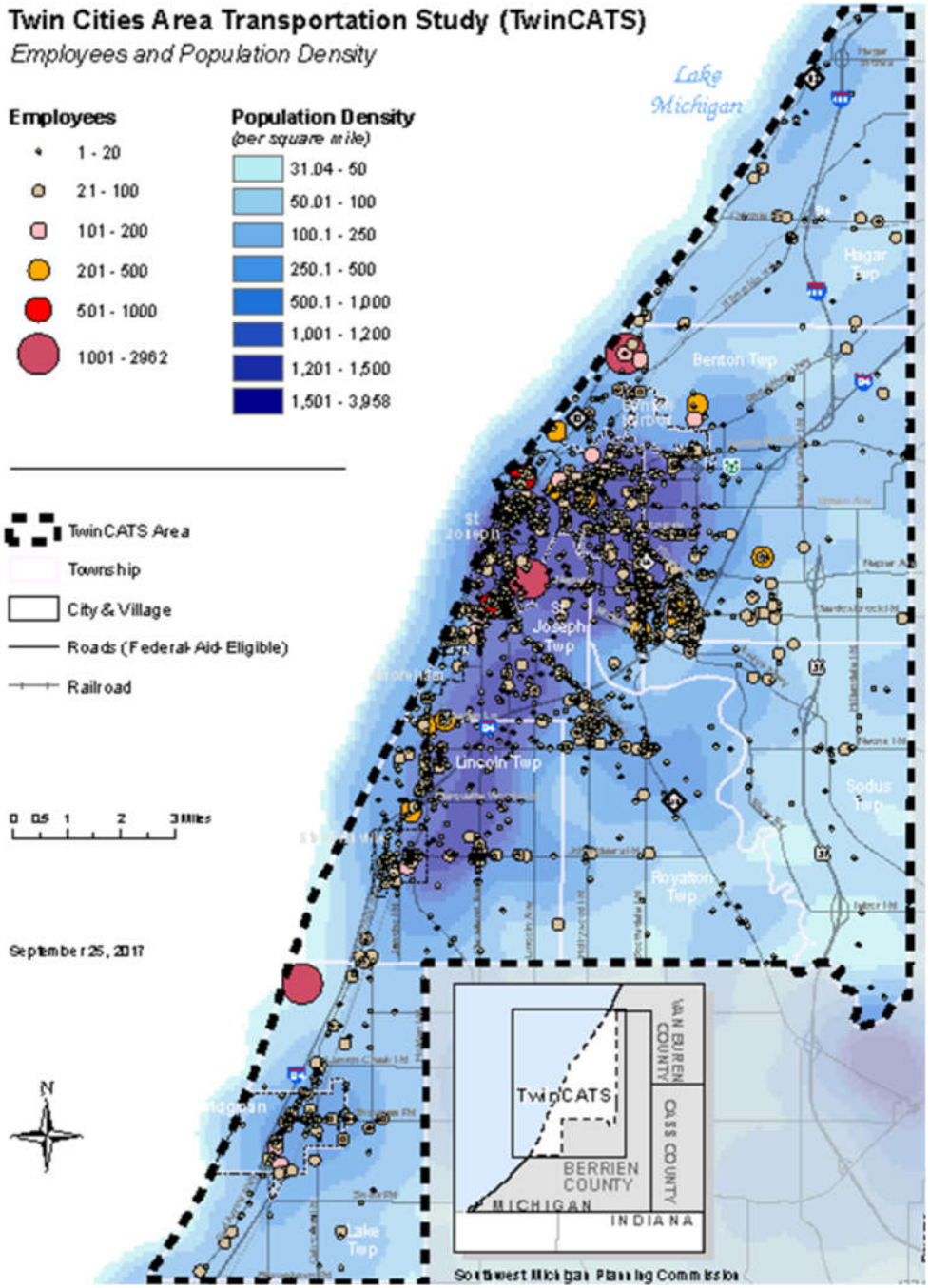


Employment and Population Density

Many communities across the U.S. have experienced a decline in traditional downtown employment centers in favor of office parks and retail in outer suburbs. Such dispersion of employment to the suburbs can result in reduced accessibility by workers due to longer average trip distances, and lack of public transit. The movement of jobs to areas outside of the core cities has been most pronounced in industries that offer low- and middle-skill jobs. The National Research Council reported that while half of people on welfare live in the core city, 70 percent of jobs available to them are located outside of the core city. The City of Benton Harbor is a good example of this. In the 1970s most of the jobs moved out of the City and into Benton Township.

53% of the businesses within the TwinCATS planning area employ five people or less.





Commuting to Work

According to the American Community Survey 85 percent of workers who live in the metro area commuted by personal vehicle. Of those, 78 percent drove alone while 7 percent carpooled. Only about 2 percent of the workers within the TwinCATS area commute using active transportation such as walking, biking or taking transit. This rate is about half of the state average rate.

Highest rates of pedestrian and bicycle commuters:
City of Benton Harbor, 9% and
City of St. Joseph 3%

	Drove Alone	Car-pool	Bus	Bike	Walk	Other
City of Benton Harbor	72%	13%	3%	2%	7%	1%
City of Bridgman	83%	9%	0%	0%	0%	4%
City of St. Joseph	86%	7%	0%	0%	3%	0%
Benton Charter Township	85%	8%	1%	0%	0%	3%
Hagar Township	87%	7%	0%	0%	1%	1%
Lake Charter Township	87%	8%	0%	0%	0%	0%
Lincoln Charter Township	90%	5%	0%	0%	0%	1%
Royalton Township	89%	4%	1%	0%	0%	1%
St. Joseph Charter Township	86%	6%	0%	1%	1%	1%
Sodus Township	87%	9%	0%	0%	1%	0%
TwinCATS Total	**85%**	**7%**	**1%**	**0%**	**1%**	**1%**
Berrien County	83%	8%	2%	0%	0%	0%
Michigan	83%	9%	1%	1%	2%	1%

Highest rates of commuting by automobile: Lincoln Twp. 95%
Sodus Twp. 96%

Reliance on automobiles for work trips increase as the distance from high-density employment areas increases.

2010-2015

Average Commute Time Within the TwinCATS Planning Area:

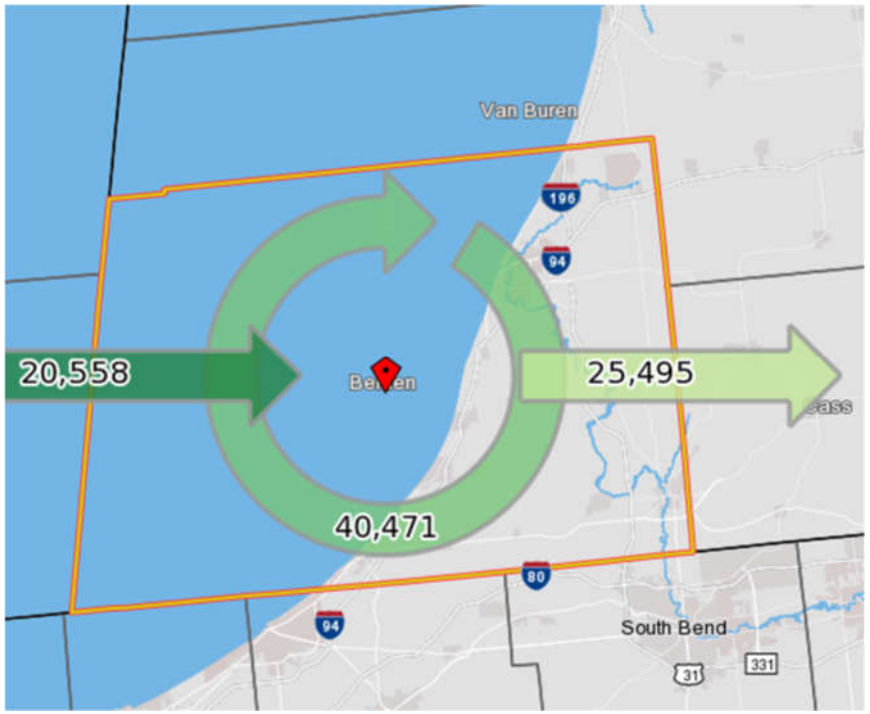
17 Minutes

Michigan: 24 Minutes

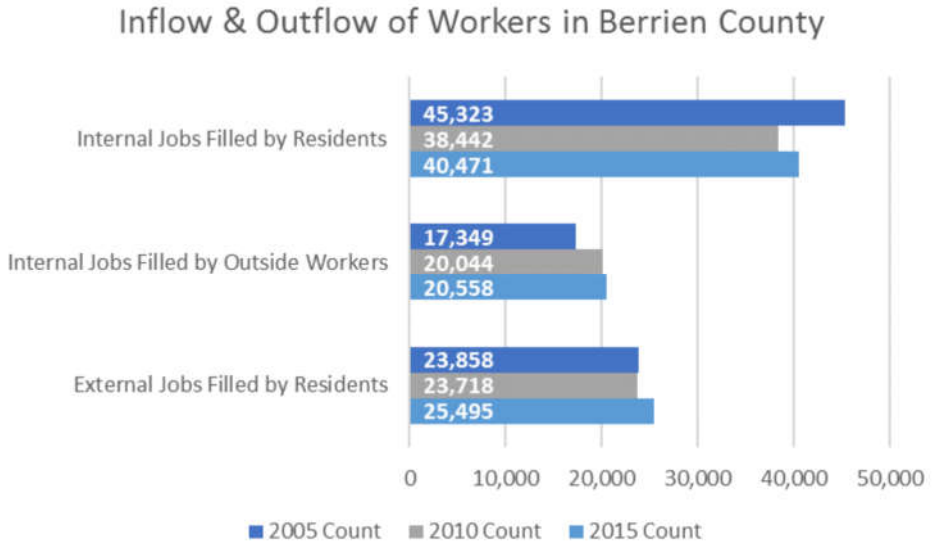
United States: 26 Minutes

Commuting Patterns of Workers within Berrien County

U.S. Census Bureau's Longitudinal Employer-Household Dynamics Origin-Destination Employment data measures the inflow and outflow of Berrien County's workers and employed residents. Today, 37 percent of commuters who reside in Berrien County work outside of the County. From 2005 to 2015, there has been a 12 percent increase in the number of jobs filled by residents within the County.



2015 U.S. Census Bureau's Longitudinal Employer-Household Dynamics Origin-Destination Employment data



20,558 commuters ENTER Berrien County every day for work.

25,495 commuters LIVE in Berrien County and LEAVE every day for work.

40,471 commuters LIVE and WORK in Berrien County.

Potential Future Impacts

COMMUTER TRAVEL PREFERENCES

Younger generations are increasingly looking for more transportation options, especially for their trips to work. Frequent transit routes and bicycling facilities are in higher demand.

Choosing to live closer to where you work provides opportunities to walk. As desire to walk more increases, demand for better sidewalk conditions also increases.

E-COMMERCE

For many decades, consumers traveled to retail stores to purchase goods. As online retail companies grow their services, a new pattern of e-commerce is emerging. Instead of delivering a large quantity of goods by truck to stores, internet purchases create a demand for more distribution centers nationally, and the use of many smaller delivery vehicles traveling directly to the home of each customer.

CLIMATE CHANGE

Environmental changes could challenge the resiliency of the transportation network. Roadways, bridges, and other transportation infrastructure are susceptible to environmental impacts including a higher frequency of flash flooding and unpredictability of pavement freeze-thaw cycles, which could lead to uncertainty of material lifecycles.

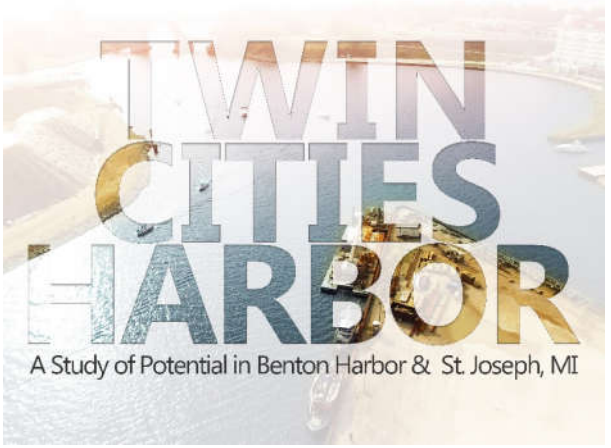
These impacts have the potential to effect daily regional transportation operations.

AUTONOMOUS VEHICLES

Fully autonomous vehicles are currently rare and primarily still in prototype stages. In order to operate in the real world, they will require significant infrastructure support, like consistent roadway paint and signage, as well as sophisticated on-board communication software. Autonomous vehicles have the potential to significantly disrupt transportation networks in the future, occurring faster in some regions of the country than in others.

Regional Development Impacts

- The continuing growth of the Lakeland Medical Center and associated developments in Royalton Township.
- The continuing residential, commercial and light industrial developments in Royalton, Lincoln, St. Joseph and Lake Townships.
- The accelerating deterioration of M-139 (I-94 to Britain Ave) and BL 94 through downtown St. Joseph.
- The proposed completion of US-31 and connection to I-94, east of Business Loop I-94.
- The growth of the Lake Michigan College complex along Napier Avenue.
- The locally-driven interests in providing pedestrian and bicycle routes and connections among the various jurisdictions in and around the Benton Harbor-St. Joseph Urban Area.
- Locally driven interests in securing the local, state and federal funds necessary to the St. Joseph River Harbor's development both commercially and for recreational use.



GUIDING PRINCIPLES & STRATEGIES

Economic Opportunity

Supports growth, innovation, job creation and productivity.

Environment

Protects and preserves our natural resources, including land, water and air.

System Preservation

Maintains existing facilities in good and reliable condition.

Choice

Offers multi-modal transportation options that are affordable and accessible.

Safety & Security

Enhances the safety and security of all users.

Health

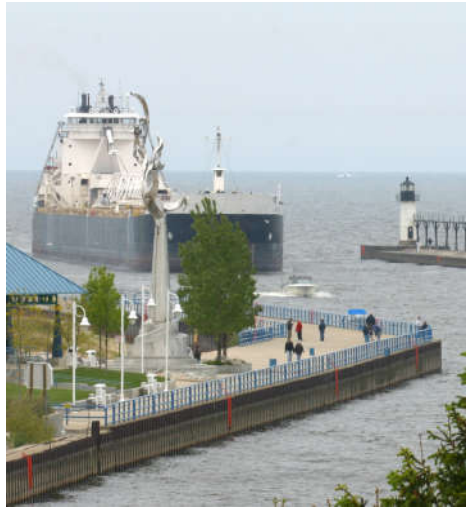
Invites and enhances healthy and active lifestyles.

Equity

Provides access and opportunity for all people and all neighborhoods.

Resiliency & Reliability

Improves the ability to prepare, plan for, absorb, and recover from actual or potential adverse events.



Economic Opportunity

Supports growth, innovation, job creation and productivity

An efficient, reliable, and accessible transportation network is an essential component for fostering economic opportunity – one that connects suppliers with producers; businesses with workers and customers; and people with employment centers, education, and services.

A modern transportation system is indispensable for our region's future prosperity. To sustain our economy and quality of life, residents must be able to travel quickly and easily around our region so they can choose from a wide variety of jobs, and communities in which to live. Businesses must be able to count on timely delivery of their goods.

Proximity

Proximity to major markets of Chicago, Detroit (90 miles to Chicago, 180 miles to Detroit)

- 3 Class 1 & 2 short rail providers, deep freight ports in St. Joseph MI, Burns Harbor, IN and Chicago IL.
- Convergence of I-94, I-196, I-80, I-90
- 12 Interchanges off I-94
- 37 % of the US population can be reached in one day.
- More than 78% of the U.S. population can be reached within two days by roadway.

Labor Force and Talent

Proximity greatly impacts the quality of the labor shed. The TwinCats planning area is positioned to pull labor not only from within the planning area, but also Michigan City, South Bend Mishawaka, and Kalamazoo.

Distribution and Logistics Cluster

"Michigan's Great Southwest's proximity to major thoroughfares and strategic positioning between Chicago and Detroit, make it a natural fit for focusing on the targeted industry of logistics and warehousing. Positioned along the North American Free Trade Agreement (NAFTA) Corridor, businesses can connect regionally, nationally and across the globe." —*Cornerstone Alliance*

2012 Study conducted for Cornerstone Alliance by Whitaker and Associates

The efficiency of Michigan's transportation system, particularly its highways, is critical to the health of the state's economy. Businesses rely on an efficient and dependable transportation system to move products and services. A key component in business efficiency and success is the level and ease of access to customers, markets, materials and workers.

TRIP National Transportation Research Group

Strategies to Enhance Economic Opportunity

- Encourage use of intelligent transportation technologies to improve corridor efficiency.
- Sustain funding for port operations including annual dredging of inner and outer harbor.
- Encourage integrated corridor management by engaging critical stakeholder groups that include: MDOT, local road agencies, public transit, freight haulers, emergency management , law enforcement.)
- Complete US 31 to a achieve free flow freeway traffic movement between US 31 and I-94 & I-196

Performance Measure	Description	Base Data - 2017		State Target 2021	Data Source
		SWMPC *	State		
Percentage of the person-miles traveled on the Interstate that are reliable.	The percentage of miles traveled by a person on the Interstate that are reliable.	NA	85%	75%	INRIX/ NPMRDS
Percentage of the person-miles traveled on the non-Interstate NHS that are reliable.	The percentage of miles traveled by a person on the non-Interstate NHS that are reliable.	94.3%	86.10%	70%	INRIX/ NPMRDS
Truck Travel Time Reliability (TTTR) Index	The sum of maximum TTTR for each reporting segment, divided by the total Interstate system miles	1.11	1.38	1.75	INRIX/ NPMRDS

Environment

Protects and preserves our natural resources, including land, water and air.

Air Quality

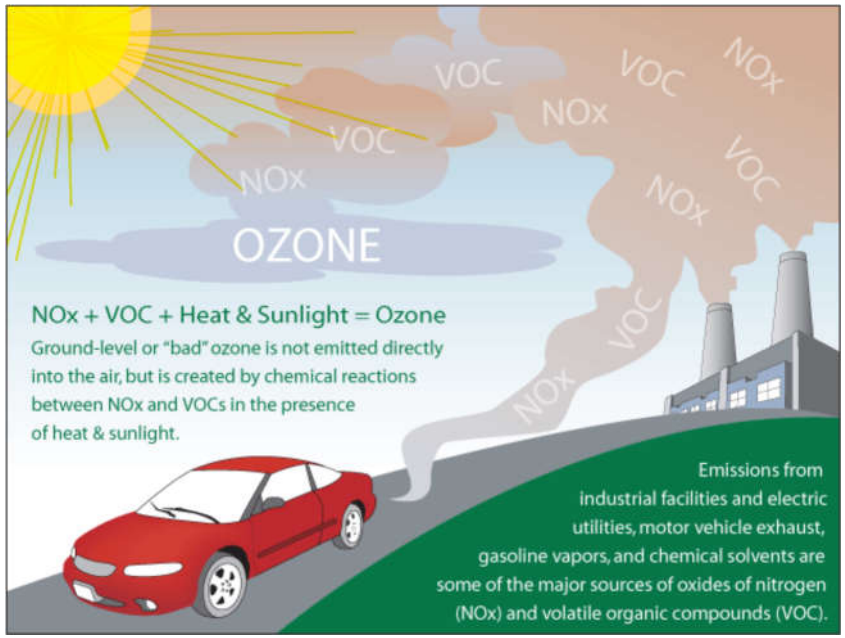
The Air Quality Clean Air Act requires the United States Environmental Protection Agency to set limits on how much of a particular pollutant can be in the air anywhere in the United States. National Ambient Air Quality Standards are the pollutant limits set by the Environmental Protection Agency; they define the allowable concentration of pollution in the air for six different pollutants:

- Carbon Monoxide
- Lead
- Nitrogen Oxides
- Particulate Matter
- Ozone
- Sulfur Dioxide

The Clean Air Act specifies how areas within the country are designated as either "attainment" or "nonattainment" for an air quality standard and provides the Environmental Protection Agency the authority to define the boundaries of nonattainment areas. On August 3rd 2018 Berrien County was designated in nonattainment status for the 8-Hour Ozone 2015 National Ambient Air Quality Standard (NAAQS) and therefore is subject to air quality conformity requirements. In addition, Berrien county must also still separately show conformity for the 1997 Ozone standards.

For areas designated as nonattainment for one or more National Ambient Air Quality Standards, the Clean Air Act defines a specific timetable to attain the standard and requires that nonattainment areas demonstrate reasonable and steady progress in reducing air pollution emissions until such time that an area can demonstrate attainment. Each state must develop and submit a State Implementation Plan that addresses each pollutant for which it fails to meet the National Ambient Air Quality Standards. Individual state air quality agencies are responsible for defining the overall regional plan to reduce air pollution emissions to levels that will enable attainment and maintenance of the National Ambient Air Quality Standards.

This strategy is articulated through the State Implementation Plan. Regions, which do not meet air quality standards, are required to develop transportation plans in conformance with the State Implementation Plan (SIP), including more frequent updates to plans such the Long Range Transportation Plan.



As a result of nonattainment status all transportation projects were reviewed to ensure they will not worsen the violation.

The Berrien County Air Quality Conformity Analysis can be found at: www.swmpc.org/iawg.asp

Transportation and Land Cover

Looking at both the land use and land cover provides a comprehensive picture of the area. Land use, refers to **how** people are using the land, while land cover is defined by **what** is on the surface of the land, whether vegetation, urban infrastructure, water, bare soil or other. For example, a *land use* of residential may have the *land cover* of developed or if vacant, the *land cover* of forest.

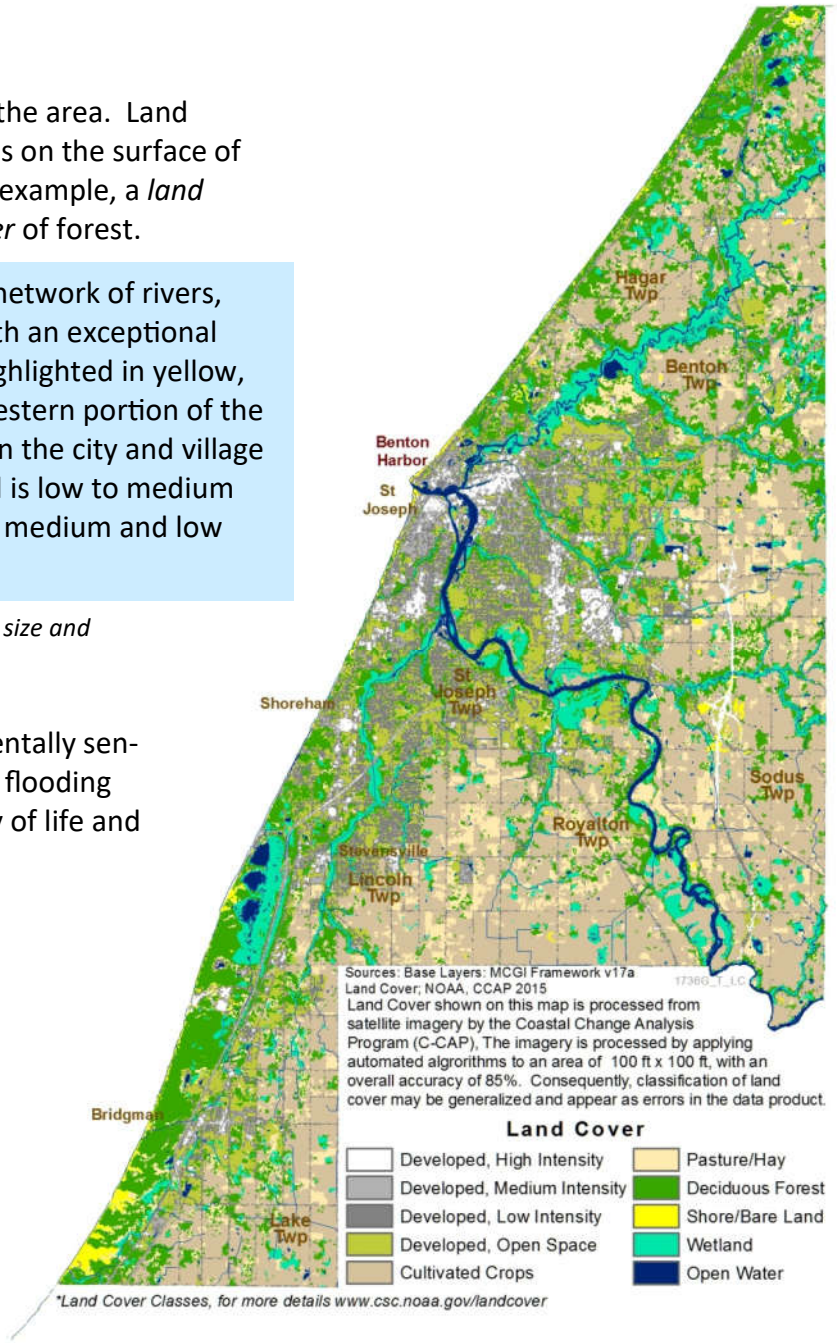
In TwinCATS, an invaluable natural resource is the water, shown on the map as a network of rivers, streams and open water. Wetlands are found along most of these waterways, with an exceptional green infrastructure core* along the Paw Paw River. Two state parks are seen, highlighted in yellow, showing the unique sand dunes along Lake Michigan. Farmland dominates the western portion of the area reaching into Hagar Township. The highest intensity of development is within the city and village limits, in addition to areas in Benton Township. Surrounding these areas, the land is low to medium developed. The transportation network can be seen across TwinCATS classified as medium and low developed.

**Green infrastructure core is a natural, relatively undisturbed, intact area, larger than 100 acres in size and 650 feet wide that can provides good quality habitat for native species.*

Overall, using land efficiently conserves farmland, water resources and environmentally sensitive areas such as wetland that absorb and filter storm water, reducing localized flooding and its impacts, and provide opportunities for recreation and enhance the quality of life and economic development in our communities.

LAND USE – Residential, Commercial, Agriculture
HOW THE LAND IS USED

LAND COVER – Developed, Wetlands, Crops
PHYSICAL AND BIOLOGICAL FEATURES

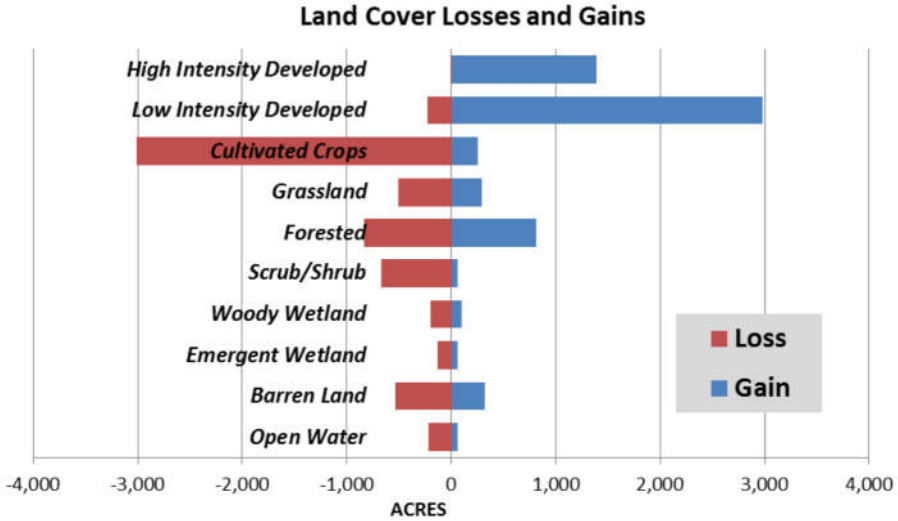


Land Cover Change 1975-2016

In TwinCATS, the largest change in land cover is the increase in development. In 2016, the combined area of low and high intensity developed is 27 percent of the land cover (25,279 acres). This is an increase of 4,139 acres since 1975.

Land Cover Class	1975	Loss	Gain	2016	Net Change	Percent Change	2016 Percent Land Cover
High Intensity Developed	4,099.40	-7.56	1,388.19	5,480.03	1,380.63	33.7%	5.92%
Low Intensity Developed	17,039.90	-222.84	2,981.65	19,798.70	2,758.81	16.2%	21.39%
Cultivated Crops	37,910.77	-3,006.11	253.75	35,158.41	-2,752.36	-7.3%	37.98%
Grassland	3,260.31	-507.73	296.45	3,049.03	-211.28	-6.5%	3.29%
Forested	16,439.65	-831.53	812.41	16,420.53	-19.13	-0.1%	17.74%
Scrub/Shrub	1,612.36	-668.96	62.27	1,005.67	-606.69	-37.6%	1.09%
Woody Wetland	8,257.74	-201.71	95.85	8,151.88	-105.86	-1.3%	8.81%
Emergent Wetland	1,201.60	-130.32	62.05	1,133.32	-68.28	-5.7%	1.22%
Barren Land	1,353.72	-538.20	320.47	1,135.99	-217.72	-16.1%	1.23%
Open Water	1,397.31	-217.95	59.82	1,239.18	-158.12	-11.3%	1.34%

**Land Cover Classes, for more details www.csc.noaa.gov/landcover*



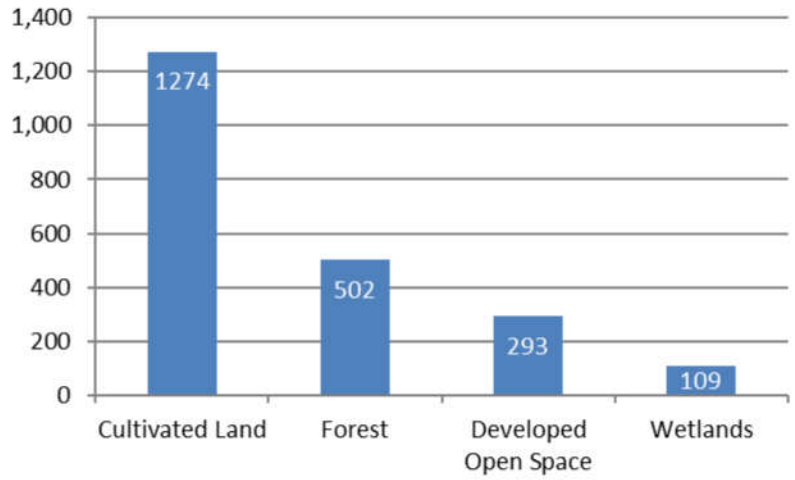
Source: NOAA's Coastal Change Analysis Program (C-CAP) 1975 to 2016 Regional Land Cover Change Data

The largest decrease in land cover is cultivated crops with a loss of 2,750 acres; this is comparable to the size of the City of Benton Harbor at 2,830 acres.

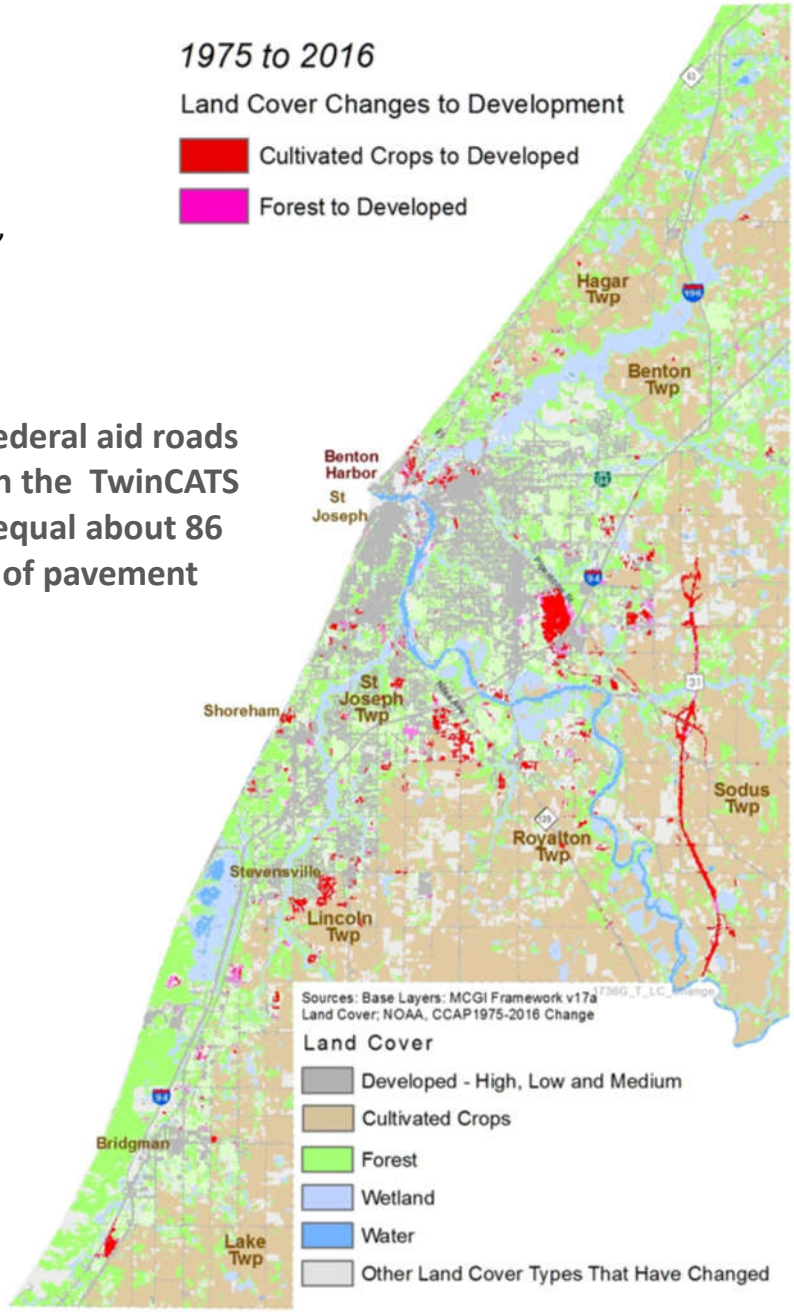
Land Cover Change 1975-2016: Trends in Detail

In the TwinCATS area, the trend over the last 40 years has been an increase in development and a loss of cultivated crop land. The main transformation in the region is shown on the map with US 31, running north to south, a large tract of land at I-94 and Pipestone Street and the I -94/Niles Ave exit. In various locations, smaller tracts of forest land cover have been transformed into developed areas. Highlights of the land cover types that were converted into developed areas are shown in the table below.

Land Cover Type Converted to Developed (acres)
High, Medium and Low Intensity Developed



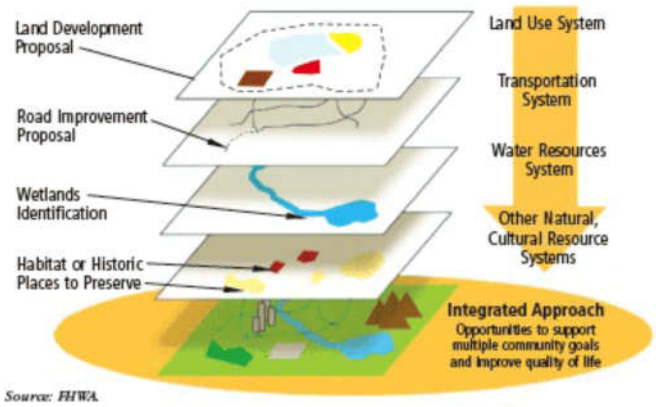
The federal aid roads within the TwinCATS area equal about 86 acres of pavement



Agricultural areas being converted to development would be an undesirable future trend in the area. This trend leads to an increased pressure on the transportation infrastructure, creates issues of mobility accessibility and increases impermeable surfaces. Given this past trend of increase in impermeable surfaces, the loss of any wetlands should be closely monitored. Wetlands function to lessen storm water run-off and diminish the impacts of flooding events. The total loss of wetlands was 173 acres during this time period.

How we use our land impacts the type of design of transportation infrastructure and feasibility of travel modes. While it is important to recognize differences in local and regional land use and economic development objectives, coordinating land use with transportation is an essential step in addressing many environmental concerns.

Planning and Environment Linkages



Strategies to Protect or Preserve the Environment

- Avoid impacts to environmentally sensitive features, such as woodlands and wetlands, early in the planning process when planning for and designing and building new infrastructure.
- Integrate land use and economic development goals with transportation planning. Encourage and support land use plans and policies to enhance overall transportation efficiency, including compact and mixed use development.
- Establish communication and an informational process with municipalities to emphasize the land use-transportation connection.
- Promote ridesharing through the Go Rideshare program to reduce single occupancy trips.
- Program CMAQ projects utilizing cost-effective clean air strategies that implement the transportation and motor vehicle provisions of the State Implementation Plan (SIP)

Performance Measure	Description	Baseline Data	Target	Data Source
Total nitrogen oxides (NOx) emission reduction (Berrien County)	The amount of NOx emitted through mobile sources. (Tons per day)	5.29	Decrease	FHWA/MDOT Emission Forms
Total volatile organic compounds (VOC) emission reduction (Berrien County)	The amount of VOC emitted through mobile source (Tons per day)	3.26	Decrease	FHWA/MDOT Emission Forms
Percent of Single Occupancy Vehicles	The percentage change in single occupancy vehicles	85%	Decrease	American Community

System Preservation

Maintains existing facilities in good and reliable condition.

Maintenance and modernization of highways, bridges and transit infrastructure is a central focus at the federal and state level. Going forward the state of good repair will be a local priority as well.

Asset Management:

Systematic way of maintaining, upgrading, and operating physical assets cost effectively.

State and local agencies have made strides toward building effective asset management systems:

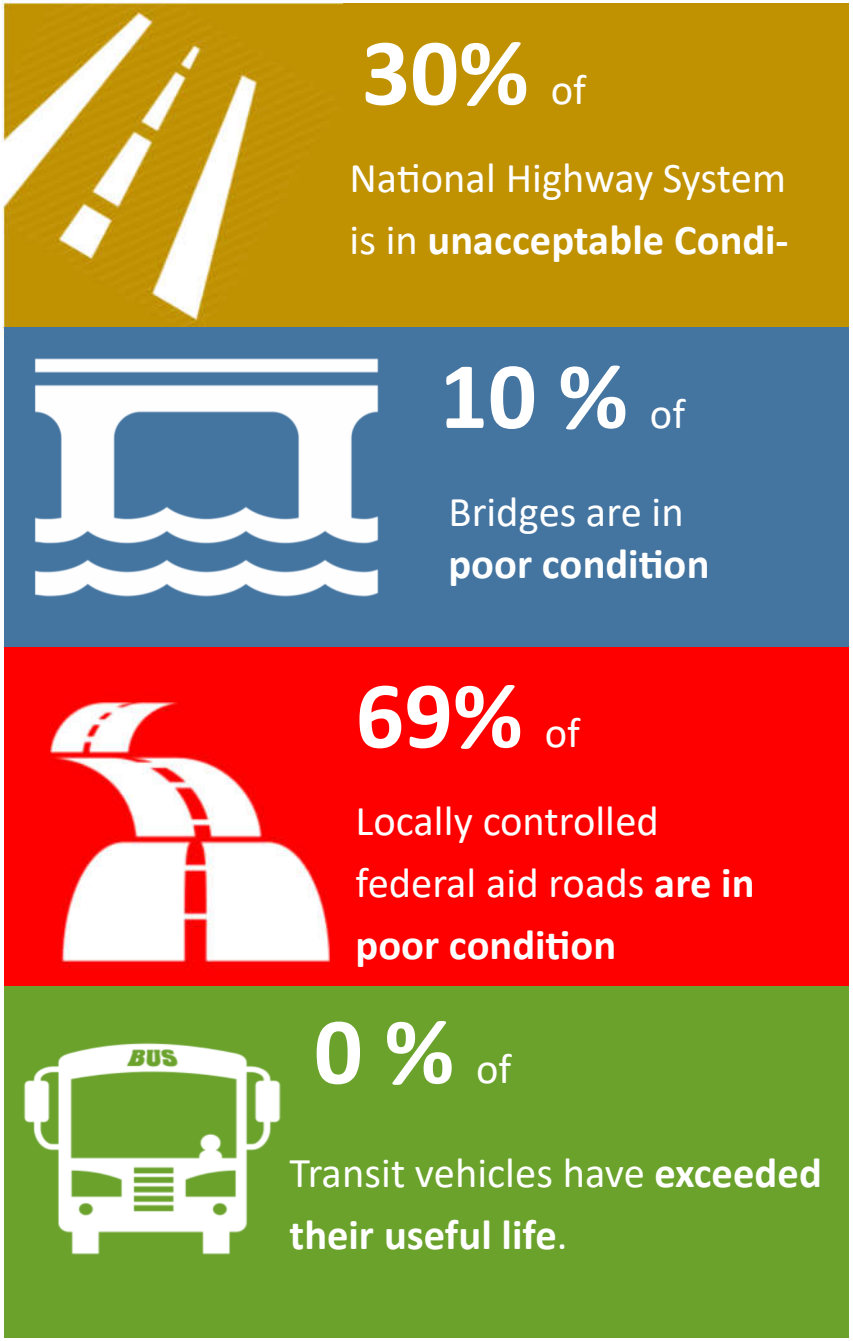
⇒ State of Michigan piloted Regional Infrastructure Pilot that will standardize the way data is collected across all infrastructure types and jurisdictions.

⇒ Transportation Asset Management Council piloted a culvert assessment program to assess condition within municipalities and counties.

⇒ TCATA public transit has been actively assessing and building an inventory of assets including vehicles and facilities.

⇒ Some local communities have invested in a pavement management system to help them decide the type and timing of pavement management.

TwinCATS Planning Area



Strategies to Ensure System Preservation

- Effectively manage and maximize existing transportation assets by prioritizing preservation treatments, rehabilitation and replacement of aging infrastructure.
- Focus investments on roadways with the highest traffic volumes.
- Establish achievable pavement condition targets.
- Ensure investments are adequate to improve bridge and pavement conditions, keep transit fleet in a state of good repair, and maintain bicycle and pedestrian facilities.

Performance Measure	Description	Base Data - 2017		State Target 2021	Data Source
		TwinCATS	State		
Pavement condition of the Interstate System	Percentage of pavement in good condition Percentage of pavement in poor condition	34.7% 8.2%	56.8% 5.2%	47.8% 10.0%	International Roughness Index
Pavement condition of the non-interstate National Highway System	Percentage of pavement in good condition Percentage of pavement in poor condition	39.6% 25.2%	49.7% 18.6%	43.7% 24.9%	International Roughness Index
National Highway System (NHS) bridge Condition	Percentage of deck area in good condition Percentage of deck area in poor condition	17.5% 11.3%	32.7%` 9.8%	26.2% 7.0%	National Bridge Inventory

Performance Measure	Description	Asset	Base Data - 2018	Target 2019-2020	Data Source
Rolling stock in a state of good repair	Percent of rolling stock transit vehicles that have exceeded useful life	25 Cutaway Buses 1 Passenger Van	0% 0%	0% 0%	PTMS
Non-Revenue Vehicles in a state of good repair	Percent of non-revenue vehicles that have exceeded useful life	2 Staff Cars 1 Wrecker	100% 100%	0% 0%	PTMS
Facilities in a state of good repair	Percent of facilities within an asset class rated 3 or below on the FTA TERM scale.	Administration Building	0%	0%	PTMS

Choice

Develop a transportation system that expands transportation options and connectivity.

CHOICE

Transportation that meets the diverse needs of individuals as they move through their lives.

It takes me **where** I want to go.

It takes me **when** I want to go.

It is a good use of my **time**.

It is a good use of my **money**.

I can **trust** it.

It **respects** me.

It gives me **freedom** to change my plans.

Source *Jarrett Walker "*Human Transit: How Clearer Thinking About Public Transit Can Enrich Our Communities and Our Lives"

A variety of safe, affordable, dependable and user-friendly travel options enables people of all ages to stay active and engaged in their communities. A community that provides easy transportation access to its citizens is a community that works… better. It is about connecting people to the jobs, schools, stores, doctors, and social activities they use every day. Without public transit, bike lanes, sidewalks, and walking paths that encourage outdoor exercise, many residents risk being cut off from opportunities to work, socialize, and maintain a daily routine.

The benefits of improved transportation choices are cross-generational, young people have more options to get to school and recreational activities, older residents stay independent, workers of all ages can commute to their jobs and the opportunity to connect to places outside of the region increases, when people have choices.

Complete Streets Policy

"Complete Streets" are right of way sdesigned and operated to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. In 2014 TwinCATS adopted a "Complete Streets" policy with the aim of :

1. Ensuring that the safety and convenience of all users of the transportation system is accommodated, including pedestrians, bicyclists, users of mass transit, people with disabilities, older adults and young children, motorists, freight providers, emergency responders, and adjacent land users;

2. Ensuring that all area residents have access to vital destinations regardless of their ability to drive, and to recognize the diverse needs of different transportation users;

3. Incorporating Complete Streets principles into all aspects of the transportation project development process;

4. Creating an integrated, and connected transportation network that promotes integrated, sustainable development and attractive and economically vibrant communities;

5. Ensuring the use of the latest and best design standards;

6. Designing solutions that are flexible enough to meet the needs of all users while fitting within their local contexts.

An integrated and comprehensive network of pedestrian and bicycle facilities helps to expand transportation choice and complement transit services. Though a majority of residents may choose private motor vehicles for most of their daily trips, nearly everyone relies on other modes to meet some of their needs, whether it is walking to a bus stop or neighborhood park; catching a bus to school, work, or special events. For individuals who do not own or have limited access to a private vehicle, these facilities are invaluable.

A One-Stop Shop for Transportation Options

In 2010 the Southwest Michigan Planning Commission created and housed a Mobility Management program until 2018 when the Twin Cities Transportation Authority took over the program. The goal of the program was to organize and foster a full range of transportation options for all users and to provide person-centered transportation plans for people with disabilities, low income people and seniors. The My Way There website is a product of the program and contains information on a full range of transportation options for Berrien, Cass and Van Buren Counties. Also through the program, one on one information was provided to the people to solve transportation hurdles, outreach to work sites and overall communication to the area on transportation opportunities.

Mobility Management

Mobility management involves creating partnerships with transportation providers in a community or region to enhance travel options, and then developing the means to effectively communicate those options to the public through both traditional and state-of-the-art channels. It requires moving beyond the usual patterns of doing business. Through innovation and multi-agency activity, resources can be coordinated efficiently, customers can make better decisions, and customer service and satisfaction is enhanced.

Components of a good mobility management program:

- Multi-agency partnerships that can reduce costs through efficient and effective coordination; potential partners might include social service agencies, senior programs, non-emergency medical providers, and taxi companies.
- A customer-driven, market-based approach to transportation delivery that offers a variety of individualized travel options.
- Greater use of information technology systems in real time, which includes the development and implementation of one-stop travel information and trip planning systems.

Mobility management is an overarching approach to transportation that is focused on individual customer travel needs rather than a "one size fits all" solution. It improves awareness of transportation options and reduces customer confusion, expands travel options and access for consumers, and provides more cost-effective and efficient service delivery through improved coordination and partnerships.

Transportation Modes and the Roles They Play

To be efficient and fair, a transportation system must be diverse or multimodal, in order to serve diverse demands and allowing the traveler **to choose the** best option for each trip.

Mode	*Non-Drivers*	*Low Income*	Disabled	Seniors	Limitations	Most Appropriate Uses
Walking	Yes	Yes	Varies	Yes	Requires physical ability. Limited distance and carrying capacity. Can be difficult if pavement is uneven, crossing times are not long enough or sidewalks are not continuous along route.	Short trips by physically able people.
Wheelchair	Yes	Yes	Yes	Yes	Requires sidewalk or path. Limited distance and carrying capacity.	Short urban trips by people with physical disability
Bicycle	Yes	Yes	Varies	Yes	Requires bicycle and physical ability. Limited distance and carrying capacity. Infrastructure needs to accommodate different types of bicycles.	Short to medium length trips by physically able people on suitable routes. Seasonal use
Taxi	Yes	Limited	Yes	Yes	Relatively high cost per mile.	Infrequent trips, short and medium distance trips
Fixed Route Transit	Yes	Yes	Yes	Yes	Destinations and times limited. Limited carrying capacity	Short to medium distance trips along busy corridors.
Dial A Ride / Demand Response	Yes	Yes	Yes	Yes	Can require up to 24 hour reservation. Wait times can vary depending number of requests for service. Higher cost than fixed route service. Limited carrying capacity.	Short to medium distance trips, last mile of service to connect to fixed route. Service to lower density areas.
Paratransit	Yes	Yes	Yes	Yes	High cost and limited service area.	Travel for people who have a qualified disability and live along a fixed transit route.
Door thru Door	Yes	Limited	Yes	Yes	High cost service, not covered by most insurance.	Travel for people who require assistance at origin and destination.
Auto Driver	No	Limited	Varies	Yes	Requires driving ability and automobile/insurance. High fixed costs.	Travel by people who can drive and afford an automobile/insurance
Car Rental or Car Share/	Yes	Limited	Varies	Yes	Uber/Lyft requires use of smart phone/internet. Both services require a credit card.	Occasional use by people who don't own or have a reliable automobile.
Carpooling	Yes	Yes	Limited	Yes	Requires one person to have a car and share the ride with people traveling to the same destination during the same time of day. Limited to drivers car reliability, person ability to connect to meeting spot.	Suitable for people commuting in the same direction at the same time of day, towards a predetermined destination, Best for shift work.
Telecommute	Yes	Varies	Varies	Limited	Requires equipment, technology & skill	Alternative to some types of trips
Intercity Bus	Yes	Yes	Varies	Yes	Single stop in city, requires connection to fixed route transit, taxi service, walking	Long distance trips between cities.
Amtrak	Yes	Limited	Yes	Yes	Single stop in city, lower frequency of service, requires connection to final destination by transit, light rail, taxi, walking or car share. Higher cost.	Long distance trips between cities.

Transportation Modes and the Roles They Play - TwinCATS Current Conditions

Mode	State of Current Conditions	Available
Walking	Connected walking network is limited to City of Benton Harbor and City of St. Joseph. Walking after snowfall can be dangerous or impossible because of spotty or no ice or snow removal. Outside the city limits, there is no connected walking network forcing people into streets.	24 hours/7days Seasonal
Wheelchair	Connected travel by wheelchair is limited to City of Benton Harbor and City of St. Joseph. Travel by wheelchair after snowfall is impossible because of spotty or no ice or snow removal. Outside the city limits, there is no connected network, forcing people into streets.	24 hours/7days Seasonal
Bicycle	Bike lanes and wide shoulders are available; however, there is very little connectivity for commuting by bike. Most bike lanes and shoulders are clear of snow when roadway is plowed. Chip seal preservation treatments can make bike lanes and wide shoulders dangerous for cyclists because of rough surface and loose stone.	24 hours/7days
Taxi	Taxi service is limited and can be unreliable. No handicap accessible service is available.	24 Hours/7 days
Fixed Route Transit	Two routes that serve three group housing developments and service employment areas that include Lakeland Hospital, Fairplain Mall area, Red Arrow corridor in Stevensville, Niles Ave corridor in City of St. Joseph. Each bus has room for two bikes. Access to stops is limited because of the absence of sidewalks and bike lanes – especially in the townships.	Mon- Fri 6am-10pm Sat. 8am-9pm
Dial A Ride/ Demand Response	TCATA Dial a Ride (DAR) service is provided in approximately 52% of the TwinCATS Planning Area. The remaining 48% of the urbanized has very little or no service. Lake Michigan College is served by DAR and represents a large portion of TCATA ridership. Waits can vary between 15 minutes and 90 minutes depending on demand. Because of this, utilizing the service for employment trips can be unreliable because wait times vary.	Mon-Fri 6am-6pm Sat: 8am-3pm
Paratransit	Service is limited to people who have a qualifying disability and live within ¾ miles of fixed route service. Paratransit service is only available along a portion of the TCATA Red Route within the City of Benton Harbor, Benton Twp. and City of St. Joseph. Service is not promoted.	Same as fixed route.
Door thru Door	Service is expensive – Trips can range from $75.00 up. Many times this service is needed by people who live alone and need assistance getting ready for non-emergency medical trips.	By appointment
Auto Driver	85% of people are commuting alone by automobile within the TwinCATS Planning Area.	24 Hours/7 days
Car Rental	Within TwinCATS, there are two rental car agencies. Avis can be accessed from the Red fixed route, while Enterprise is not located on a fixed route. Rates can be high because of demand and lack of competition. Rentals require a credit card and require the driver to be 25 years of age.	Mon-Fri 7am-6pm Sat: 8am-noon
Car Share/ Uber	Lyft and Uber operate in portions of Berrien County. Short distance trips within the TwinCATS planning area are possible seven days a week- wait times can vary due to demand.	24 hours/7 days
Rideshare	The regional Go Rideshare program offers an online matching service through the MyWayThere.org website. There are three park and ride lots located in the TwinCATS area. I—94 Exit 23, I-94 Exit 30, US-31 Napier Ave. The Red Route will flex to Exit 23 and 30 park and ride lots.	24 hours/7 days
Intercity Bus	Service several times a day to Kalamazoo, Chicago, Detroit and Grand Rapids where people can connect to trains or intercity bus system for longer distance trips. Same day round trip service is limited by schedule.	Varies
Amtrak	Amtrak service to Chicago is available once daily with same day return service in the evening. Service to Grand Rapids is available once daily with evening service requiring an overnight stay in Grand Rapids.	1x per day

Higher-risk people drive even if they should, and want to use alternatives. Many traffic safety strategies, such as graduated licenses, special senior driving tests, anti-impaired and anti-distracted driving campaigns and laws are intended to reduce high risk driving. Their effectiveness depends, in part, on these groups having viable alternatives to driving.

For low-income residents, affordable and efficient transportation options are a stepping stone to economic opportunity.

Transportation options also expand the pool of lower-wage workers available to employers, many are limited in their ability to drive and so must rely on alternative modes, at least occasionally.

Strategies to Expand Transportation Options

- Increase last mile service transportation options to increase access to public transit for all users.
- Increase the number of wide shoulders or bike lanes to improve conditions for commuting by bike.
- Enhance access to activity centers (e.g. commercial areas, schools, parks and recreation, and employment centers) by ensuring transit service and safe, low-stress pedestrian routes and bike facilities are available.
- Utilize travel demand data collected by University of Michigan to evaluate travel conditions of lower wage workers and people with disabilities.

PERFORMANCE MEASURE	DEFINITION	DESIRED TREND	BASELINE	DATA
Jobs accessible by public transit within the TwinCATS planning area.	Percentage of jobs accessible by public transit within the TwinCATS planning area.	Increase	In Dev.	LEHD Data
Miles of suitable sidewalks/multiuse paths. on federal aid eligible roads within the TwinCATS planning area.	Miles of suitable sidewalks/multiuse paths on federal aid eligible roads within the TwinCATS planning area.	Increase	48 Miles	Roadsoft
Miles of wide shoulders or bike lanes.	Miles of wide shoulders or bike lanes on federal aid eligible roads within the TwinCATS planning area.	Increase	34 Miles	Roadsoft
Number of wheelchair accessible taxis or Uber/Lyft vehicles .	Number of wheelchair accessible taxis or Uber/Lyft vehicles available in the TwinCATS planning area.	Increase	0 Vehicles	Roadsoft

Safety & Security

Designs and maintains transportation network to enhance the safety and security of all users.

The safety of motorists, bicyclists, and pedestrians is a top priority in transportation planning. Motor vehicle collisions result in premature deaths, serious injuries, and are a cause of major economic losses and disruptions to the transportation system. Safety concerns can discourage people from utilizing active transportation such as bicycling, walking and transit.

Planning for transportation safety should be a comprehensive, system-wide, multi-modal process that integrates safety into surface transportation decision making.

Serious and Fatal Crashes – TwinCATS Planning Area

Year	Total Crashes	Fatalities	Serious Injuries
2006	2,180	12	47
2007	2,439	12	77
2008	2,740	11	67
2009	2,306	5	36
2010	2,027	15	57
2011	2,015	9	32
2012	1,917	4	45
2013	2,150	16	44
2014	2,253	7	36
2015	2,308	9	37
Total	22,335	100	478

ECONOMIC COSTS

The U.S. Department of Transportation's most recent estimate of the annual economic cost of crashes was

$242 billion

Years of experience with safety projects and strategies have shown that benefits far outweigh the resources consumed.
The most critical safety benefit is in decreasing the number of fatal and serious injury crashes that occur each year.

The Michigan Strategic Highway Safety Plan (SHSP) provides a comprehensive framework for reducing traffic fatalities and serious injuries on public roads. The purpose of the SHSP is to identify Michigan's key safety needs and guide investment decisions to achieve significant reductions in traffic fatalities and serious injuries on public roads.

Michigan Strategic Highway Plan Emphasis Areas:

At Risk Road Users

Prior research and crash statistics illustrate that there are specific groups of road users who are overrepresented in traffic crashes, injuries, and fatalities. As such, understanding the contributing factors that lead to this overrepresentation allow for the identification of appropriate strategies and countermeasures to address these at-risk road users. The action teams that fall under this emphasis area are:

- Commercial Motor Vehicle Safety
- Motorcycle Safety
- Pedestrian and Bicycle Safety
- Senior Mobility and Safety
- Drivers Age 24 and Younger

High Risk Behaviors

Despite continuous efforts that have improved the safety of roadways, that safety is ultimately reliant upon road-user behavior. Research has shown that the vast majority of crashes are due to errors by these users. Fortunately, many of these errors are ultimately preventable and strategies to encourage the safe behavior of road users are integral to highway safety improvement efforts. At the statewide level, implementation strategies are guided by three action teams:

- Distracted Driving
- Impaired Driving
- Occupant Protection

Together we are Moving Michigan

TZD Toward Zero Deaths™ National Strategy on Highway Safety

Engineering Infrastructure

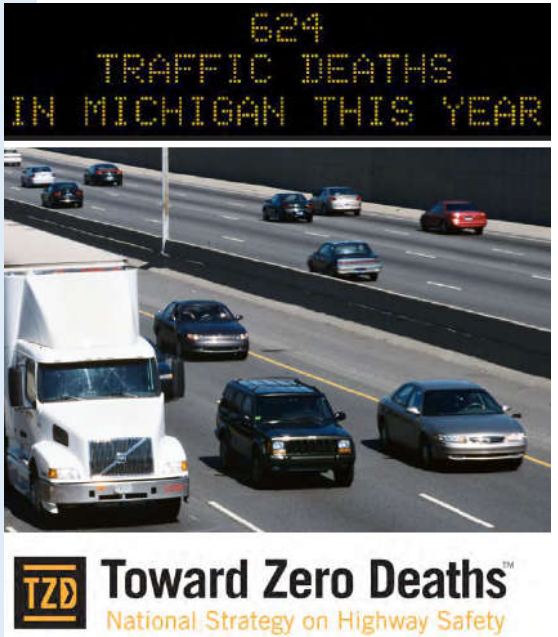
Geometric design elements, traffic control devices, and targeted policies and program countermeasures aimed at encouraging or discouraging specific behaviors among road users.

System Administration

Effective system administration is critical to improving traffic safety. To identify, diagnose, and treat safety concerns in an efficient manner, a well-integrated framework is required. This framework includes an ability to monitor system performance in near-real time, as well as close collaboration among a network of safety stakeholders from the engineering, education, enforcement, and EMS communities. Statewide efforts in this emphasis area are tasked to two action teams:

- Traffic Incident Management
- Traffic Records and Information Systems

The success of Michigan's Strategic Highway Safety Plan is dependent on all highway agencies working together to align and leverage resource to collectively address Michigan's safety challenges.



HIGH RISK DRIVER BEHAVIORS

Alcohol & Drug Use

Statewide alcohol-involved fatalities increased 28 percent, from 236 in 2014 to 303 in 2015. Drug-involved fatal crashes spiked up 19 percent, from 150 in 2014 to 179 in 2015. Impaired driving crashes were most prevalent among young male drivers, including underage males as well as in crashes occurring during the weekend.

Michigan has responded to these issues through a combination of prevention, education, enforcement, and adjudication countermeasure programs.

Local Initiatives

In 2017 the Lincoln Township, Berrien County and Michigan law enforcement agencies began a one-year oral fluid roadside drug testing pilot program to combat the dangers of drugged driving. The pilot program will establish policies for the administration of roadside drug testing to determine whether an individual is operating a vehicle while under the influence of a controlled substance in violation of Michigan law.

Seatbelt Use

Research has found that lap/shoulder seat belts, when used, reduce the risk of fatal injury to front-seat passenger car occupants by 45 percent and the risk of moderate-to-critical injury by 50 percent. (National Center for Statistics and Analysis—2016)

Texting While Driving

The National Highway Traffic Safety Administration (NHTSA) estimates that more than 660,000 drivers are texting or manipulating an electronic device at any given daylight moment across the nation. A 2015 Erie Insurance distracted driving survey reported one-third of all drivers admitted to texting while driving, and three-quarters said they have observed others do it. Five seconds is the average time your eyes are off the road while texting. At 55 mph, that's enough time to travel the length of a football field.

Snapshot of TwinCATS Planning Area

53 % of Fatal Crashes Involved Drugs or Alcohol Use

Michigan Crash Facts TwinCATS 2007-2015

No Seatbelt Was in Use in 24% of Fatal crashes

Michigan Crash Facts TwinCATS 2007-2015

2016

102 Crashes Involved **Distracted Driving**

Michigan Crash Facts TwinCATS 2016

HIGH RISK ROAD USERS

Young Driver Behaviors

In Michigan winter weather crashes constituted 25 percent of 16- to 24-year -old driver-involved crashes. Over 10 percent of crashes with a 16- to 24-year-old driver occurred in January. Among the most prevalent hazardous actions attributed to young drivers are speeding, unable to stop in assured clear distance, and failure to yield, which also can be attributed to inexperience or poor risk assessment.

Pedestrian and Bicyclist Behaviors

Pedestrians: Failing to yield and disregarding traffic control (for both motorists and pedestrians) accounted for over half of all crashes. This was followed by the risk behaviors of pedestrians being in the roadway and then pedestrians being near a vehicle.

Bicyclists: The same failure to yield and disregarding traffic control (both motorists and bicyclists) followed by overtaking, loss of control/turning error, and bicyclists riding in the wrong direction.

Senior Behaviors

Numerous studies have found that senior drivers' crashes are much more likely than crashes of younger drivers to occur at intersections. Senior drivers have particularly high rates of involvement in intersection crashes when they are turning, and even more so when they are turning left. Senior drivers are more likely than younger drivers to have been at fault in these situations, typically because they failed to yield the right-of-way, disregarded the traffic signal, or committed some other traffic violation. Studies also suggest that the extent of over involvement of senior drivers in certain types of crashes generally increases with advancing age. https://doi.org/10.1080/15389580600636724

Snapshot of TwinCATS Planning Area

31 % of **Fatal Crashes**

Involved Driver

24 & Under

Michigan Crash Facts TwinCATS 2007-2015

Pedestrians or Bicycles Were Involved in

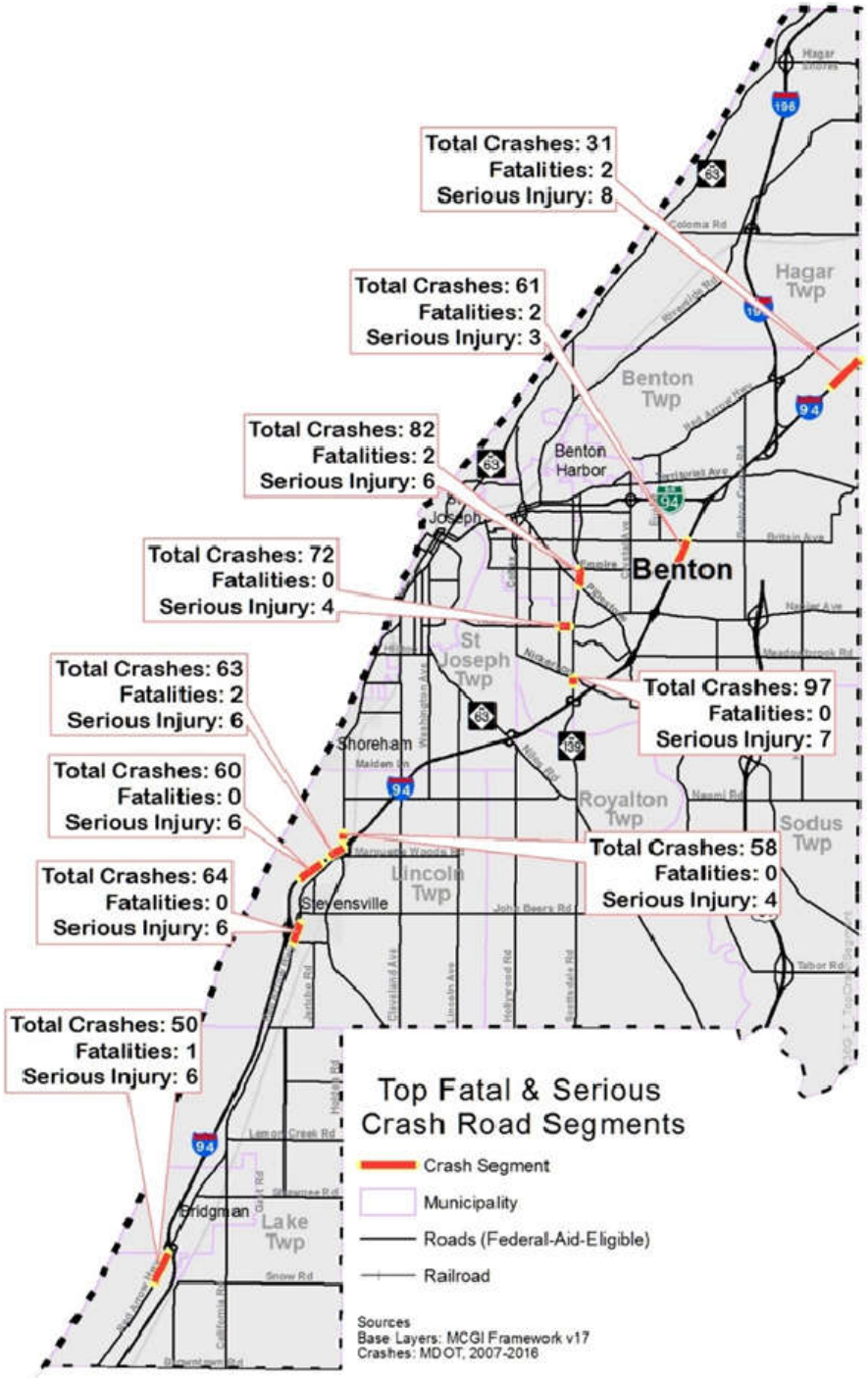
16 % of Fatal Crashes

Michigan Crash Facts TwinCATS 2007-2015

Drivers 65 and older were involved in

25 % of Fatal Crashes.

Michigan Crash Facts TwinCATS 2016



Fatal and Serious Injury Crash Segments

23 % of crashes that involved a pedestrian or bicyclist resulted in a serious or fatal injury.

– 2007-2015 MI Crash Facts

2.6% of vehicular crashes resulted in a serious or fatal injury. – 2007-2015 MI Crash Facts

Year	Total Crashes	Fatalities	Serious Injuries
2006	2,180	12	47
2007	2,439	12	77
2008	2,740	11	67
2009	2,306	5	36
2010	2,027	15	57
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2013	2,150	16	44
2014	2,253	7	36
2015	2,308	9	37
Total	**22,335**	**100**	**478**

2006-2015

18% Crashes

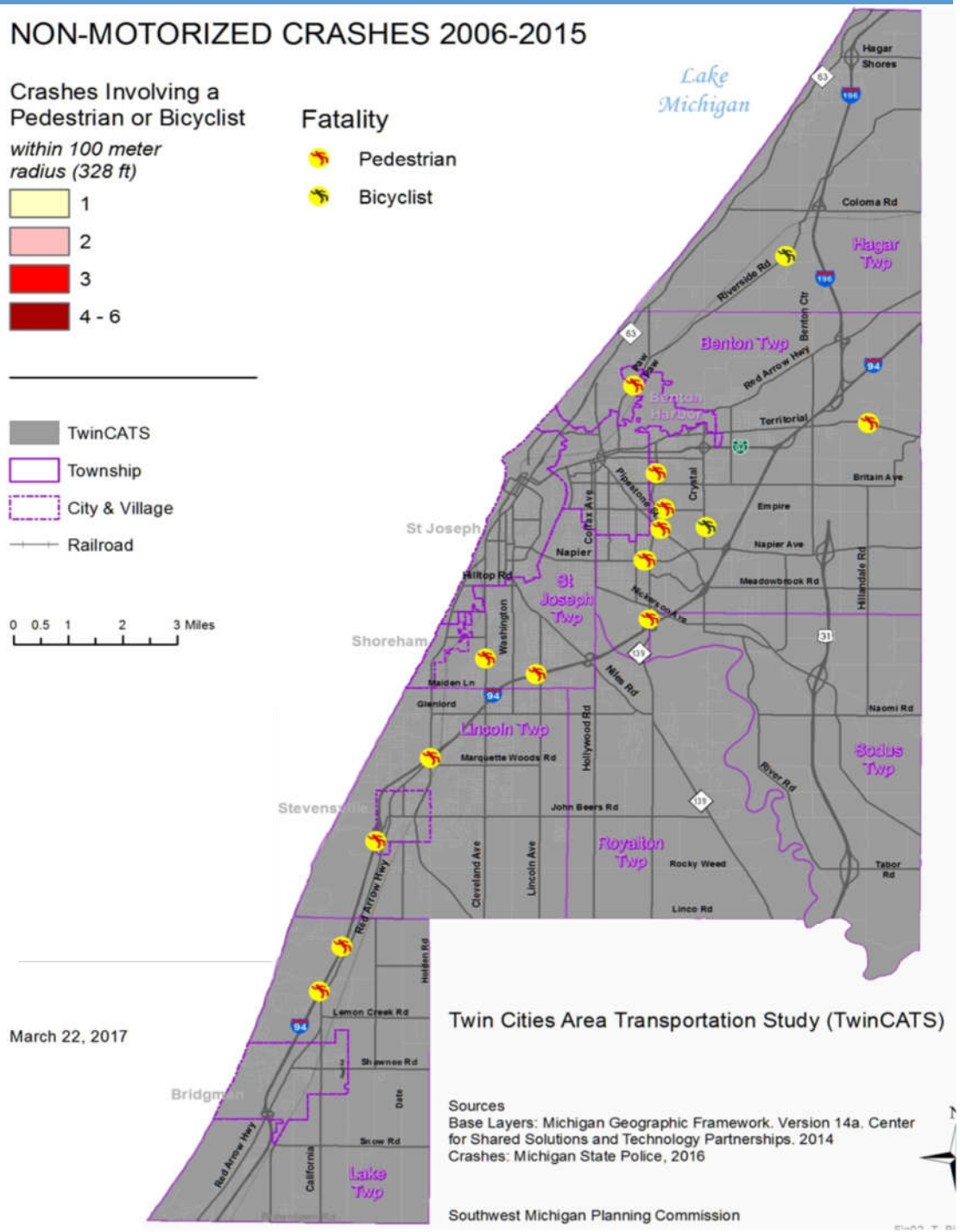
Involving a

Pedestrian or Bicyclist

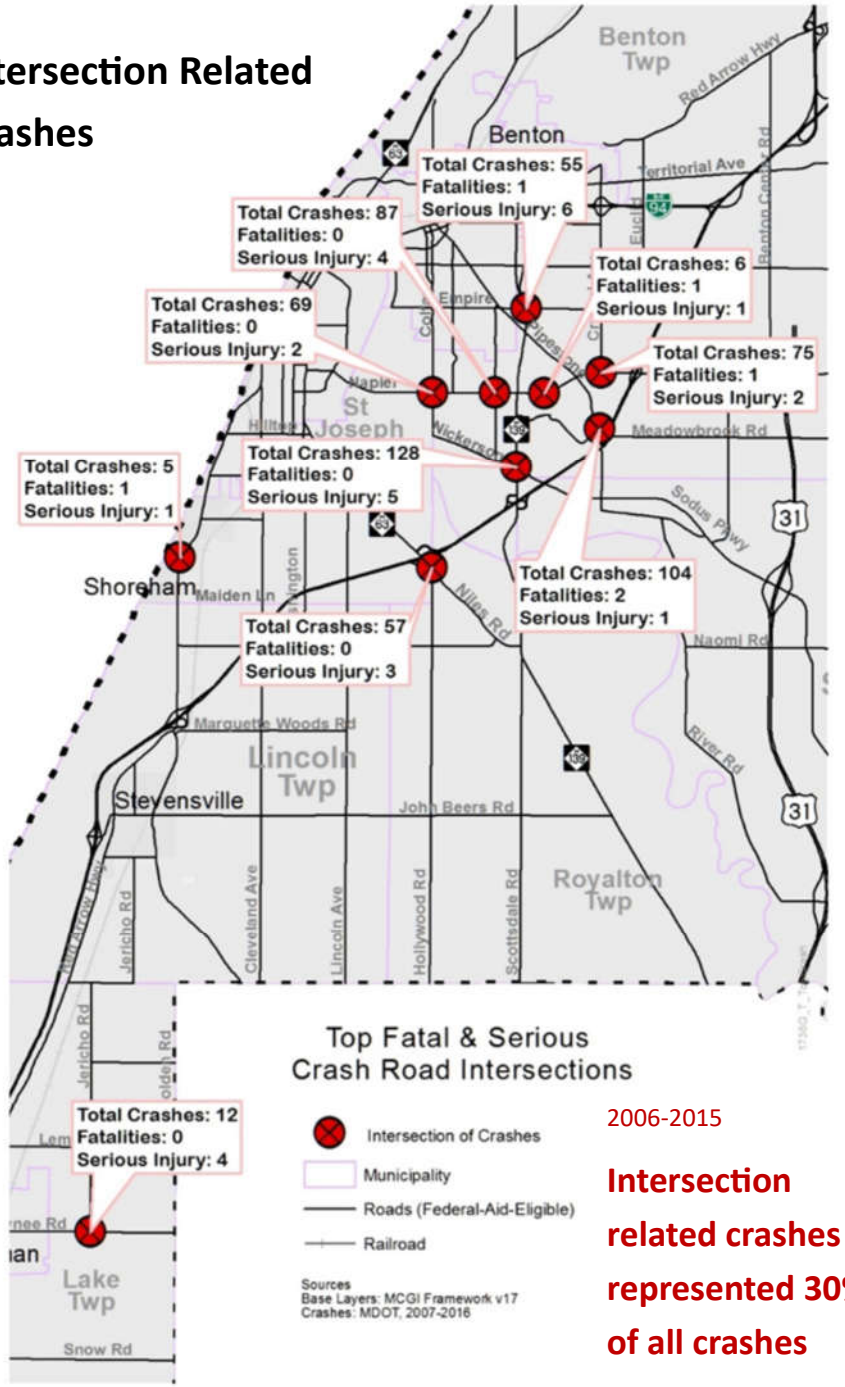
Took Place on

Napier Avenue

Road Name	Non-Motorized Crashes	Fatalities & Serious Injuries
Napier Avenue	19	6
Empire Avenue	13	3
Main Street	11	2
Pipestone Road	11	2
I-94	10	9
Crystal Avenue	10	5
Broadway Street	9	3
Niles Avenue	8	2
Ogden Street	8	2
Lakeshore Drive	8	1



Intersection Related Crashes



2006-2015

Intersection related crashes represented 30% of all crashes

There were 6,758 Intersection-related crashes between 2007-2016, representing 30 percent of all crashes. Such crashes resulted in 23 fatalities (25 percentof total fatalities) and 149 incapacitating injuries (32 percent of total incapacitating injuries).

The identification and analysis of high-risk intersections statewide is a safety priority. At the local level we will use various software tools, including Safety Analyst and Roadsoft, to help identify the most problematic intersections.

Nickerson/M-139

128 crashes

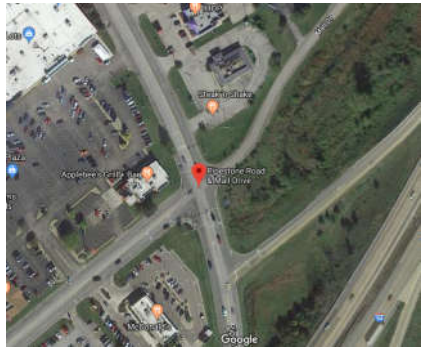
5 serious injuries

Pipestone/Mall Drive

104 crashes

2 fatalities

1 serious injury



Napier/Union

87 crashes

4 serious injury

Strategies to Improve Safety & Security

- Transportation partners will incorporate safety considerations for all modes and users throughout the processes of planning, funding, construction, and operation.
- Transportation partners will support the state's vision of moving toward zero traffic fatalities and serious injuries, which includes addressing the state emphasis areas.
- Transportation partners will use best practices to provide and improve facilities for safe walking and bicycling, since pedestrians and bicyclists are the most vulnerable users of the transportation system.
- Provide information on top collision trends such as distracted or impaired driving, and incidents involving bicycles and pedestrians.
- Provide recommendations for facilities based on FHWA, NACTO and AASHTO best practices and design principles that have proven to be safe and reliable.
- Assist the TwinCATS Policy Committee in evaluating safety considerations during Transportation Improvement Program (TIP) call for projects.
- Conduct road safety audits (MDOT).
- Produce and distribute an annual report of crash data that includes vehicle, pedestrian and bicycle total crashes, total serious injury crashes, total fatal crashes.
- Broaden the use of currently accepted and proven countermeasures.
- Identify cost-effective strategies that reduce unintentional lane departure, as well as alert the driver should a departure event occur.

Performance Measure	Description	Base Data - 2016		State Target 2018	Data Source
		TwinCATS	State		
Number of fatalities.	The number of fatalities due to a vehicular crash.	8.2	963	1,003	Michigan Crash Facts
Fatalities per 100 million vehicle miles traveled (VMT).	The rate of serious injuries based on the total miles driven in the area.	0.81	1.0	1.0	Michigan Crash Facts & HPMS
Number of serious injuries.	The number of serious injuries due to a vehicular crash.	40.6	52734	5,136	Michigan Crash Facts
Serious injuries per 100 million vehicle miles traveled (VMT).	The rate of serious injuries based on the total miles driven in the area.	4.04	5.47	5.0	Michigan Crash Facts & HPMS
Non-motorized fatalities, serious injuries.	The number of pedestrians and bicyclists seriously injured or killed due to a vehicular crash.	6.4	721.8	744	Michigan Crash Facts

Health

To plan and promote transportation systems that protects the health and safety of all people, and enhance the quality of life in communities.

The Transportation system influences public health through five primary pathways:

Active transportation — Transportation agencies and their partners can help people lead more active lifestyles by giving them options for getting to places they need to go without driving. They can also reduce the distance between destinations people travel to satisfy daily needs.

Safety — Motor vehicle crashes are one of the leading causes of death in the United States. By providing transportation options and improving roadway facilities, transportation agencies can reduce the incidence of motor vehicle crashes.

Cleaner air — Air pollution has been linked with heart disease and respiratory illnesses, including asthma. Improving transportation system efficiency and supporting cleaner vehicles and fuels can improve air quality.

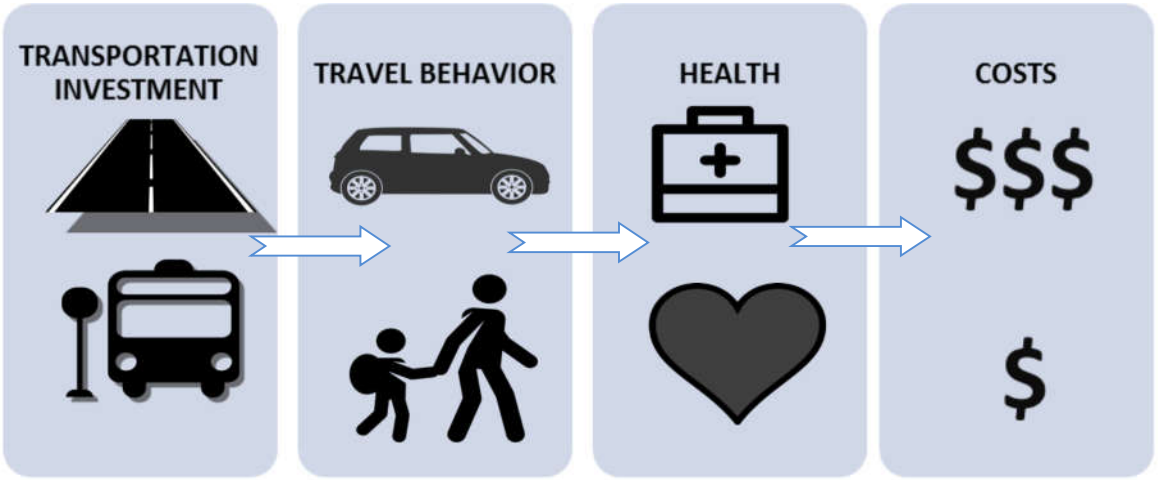
Connectivity — Providing a well-connected, multi-modal transportation network increases people's ability to access destinations that can influence their health and well-being, such as jobs, health care services, and parks.

Equity — Negative health effects related to the transportation system often fall hardest on more vulnerable members of the community, such as low -income residents, communities of color, children, and older adults.

Walking and bicycling are key ways in which people can get sufficient physical activity as part of their daily lives. For example, in some communities almost one-third of transit users get their entire recommended amount of physical activity just by walking to and from transit stops, conversely, people who travel by car are more sedentary, which is associated with chronic disease and premature death.

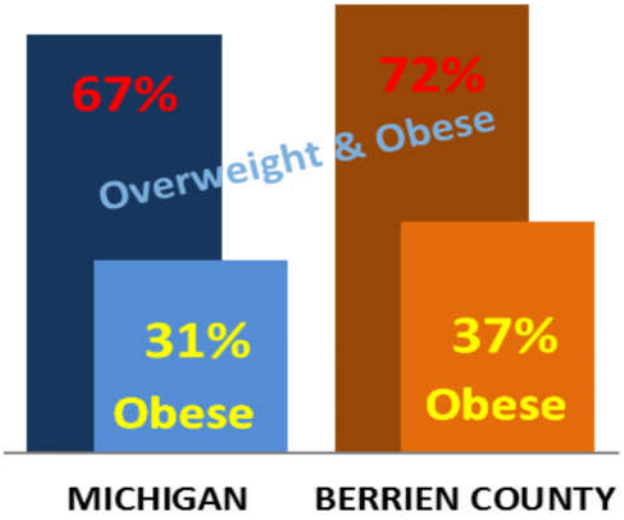
The cost of our transportation system on health is often hidden while the impact of traffic crashes, air pollution, and physical inactivity alone add hundreds of billions of dollars in costs.

Source: The Hidden Health Costs of Transportation, APHA, 2010.



Berrien County ranks poorly compared to the other counties in the state in regards to the physical environment, 67 (of 83 counties).

Source: County Health Rankings and Roadmaps, Robert Wood Johnson Foundation, 2018.



Community Health Needs Assessment: 2016-2019, Lakeland Health, 2016.

*Weight that is higher than what is considered as a healthy weight for a given height is described as overweight or obese. Body Mass Index (BMI) is a screening tool used to calculate this relationship. BMI > 30 is considered obese

PHYSICAL ENVIRONMENT	BERRIEN COUNTY	MICHIGAN	Top U.S. Performers
Severe housing problems	14%	16%	9%
Driving alone to work	82%	83%	72%
Long commute - driving alone	19%	33%	15%

According to the 2014 Berrien County Behavioral Risk Factor Survey, 33.5 percent of Berrien County respondents met the amount of aerobic activity (150 minutes per week).

The lack of physical activity among residents may be attributed to results found in the TwinCATS Bike Survey (2018). Over 50 percent of respondents found lack of bike lanes, feeling unsafe, and the poor conditions of roads as a barrier to commuting by bicycle.

Transportation & Health Partnerships

What Works?

Collaborating with public health partners to achieve common goals can lead to new resources and project opportunities.

Metropolitan Area Transportation Planning for Healthy Communities. FHWA, 2012.

The SWMPC actively engages partners across the study area on topics related to health in transportation planning. The MPO planning process is now understood by partners in this sphere as a place where important decisions are made that have long-term impacts on public health.

The Healthy Berrien Consortium

The Healthy Berrien Consortium (HBC) is a network of key health care organizations and leaders formed to jointly undertake improving the health and well-being of Berrien County Residents. Organizations represented include Lakeland Health (the major hospital and health network in the region), Riverwood Center (mental health services), Berrien County Cancer Service, Berrien County Health Department, Intercare Community Health Network, United Way of Southwest Michigan, Area Agency on Aging, and the SWMPC. They have a long history of driving change through resource allocation into areas where their research dictates the needs are the greatest. The SWMPC has been included because of the HBC's collective recognition that mobility is a major driver in the ability our residents to access health care and other important determinants to healthy lives like healthy food, social interaction, and fitness options.

Be Healthy Berrien

One of the most recent calls to action by the HBC was driven by alarming rates of obesity in Berrien County. Michigan is regularly ranked among the states with the highest rates of obesity with Berrien County well above the state's average. The linkage between high rates of obesity and chronic disease is powerful enough that the HBC recognized that focused action was necessary. In 2011 Be Healthy Berrien (BHB) was formed. The group is a collaborative that includes five organizations: the Berrien County Health Department, Lakeland Health, SWMPC, the United Way of Southwest Michigan, and the YMCA. BHB proceeded to develop a strategic plan and has since, systematically driven actions dictated by that plan. Those actions include advocacy for complete streets, concerted support for improved public transportation, and for targeted improvements to specific corridors that are vital to improved mobility.

Michigan's Great Southwest Strategic Leadership Council

An initiative has grown over the last several years to connect leaders from across Berrien County. The purpose is to seek out ways that collective action can drive positive change. Michigan's Great Southwest Strategic Leadership Council (MGSSLC) now has a membership list of over 150 leaders. Transportation issues fall within the Council as does a range of other health-related topics. On a monthly basis the SWMPC meets with leaders whose work intersects in public health. From the Council local funding was generated to match a Federal Transit Administration grant to produce a county-wide plan for transportation service improvement in Berrien County. The vital role that mobility plays in Berrien County has been significantly raised by this group.

Equity

Provides access and opportunity for all people and all neighborhoods.

Equity (also called justice and fairness) refers to the distribution of impacts (benefits and costs) and whether that distribution is considered fair and appropriate. Transportation planning decisions can have significant and diverse equity impacts:

- The quality of transportation available affects people's economic and social opportunities.
- Transport expenditures represent a major share of most household, business and government expenditures.
- Transport facilities require significant public resources (tax funding and road rights of way), the allocation of which can favor some people over others.
- Transport planning decisions can affect development location and type, and therefore accessibility, land values and local economic activity.
- Transport planning decisions can affect employment and economic development which have distributional impacts.

Source: Guidance For Incorporating Distributional Impacts in Transportation Planning
Todd Litman Victoria Transport Policy Institute

As someone without driving privileges, getting around to just get by, with dignity and a fulfilling lifestyle, is nearly impossible.

2018 TwinCATS Transportation Survey

Challenges to Mobility & Access

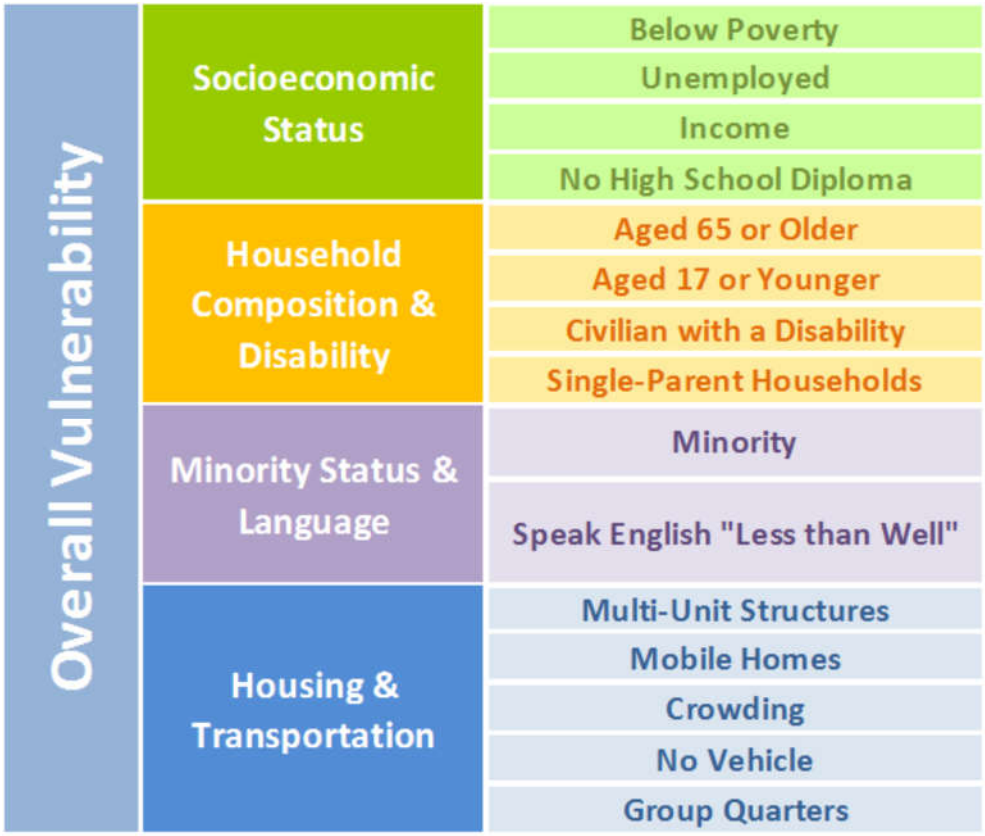
- 24% of Americans living in poverty do not own an automobile.
- Because low-income individuals are less likely to own a car, they are more likely to walk, wheel, or bike, even when conditions are not ideal.
- Low income and minority populations are less likely to live near or travel along roads with safe, accessible, and high-quality pedestrian and bicycle facilities.
- Low-income, minority, or immigrant individuals are more likely to have jobs that require them to commute outside of traditional '9 to 5' business hours, often in the dark and when or where transit services are not operating.
- Adults with disabilities are more than twice as likely as those without disabilities to have inadequate transportation (31% versus 13%).
- Children, older adults, and individuals with physical or cognitive disabilities may be unable to drive and are more reliant on non-motorized travel modes.
- As individuals age, they are increasingly likely to depend on public transit for their primary transportation.

2009 National Household Travel Survey

Social Vulnerability Index

The Social Vulnerability Index (SVI) was created for communities to identify populations at greater risks in the event of human-made or natural disasters. At the same time, the data directly relates to current conditions that make these same communities in need of transportation alternatives.
The merging of different social factors gives greater weight to the overall conditions that impact a person's ability to travel to jobs, medical services, educational resources, grocery stores and other places that offer means of survival.

Social Vulnerability Index (SVI) uses U.S. Census data to determine the social vulnerability of every Census tract. Census tracts are subdivisions of counties for which the Census collects statistical data. The SVI ranks each tract on 14 social factors, including poverty, lack of vehicle access, and crowded housing, and groups them into four related themes. Maps of the four themes are shown in the next pages. Each tract receives a separate ranking for each of the four themes, as well as an overall ranking. *For more information about the SVI, visit: http://svi.cdc.gov*



The transportation network exerts a profound influence on people's economic and social opportunities. At a broad level, transportation is necessary for individuals to access employment, education, housing, health care, recreation, and other daily activities. Individuals who are low-income, minority, elderly, limited English proficiency, youth, and persons with disabilities often face transportation challenges.

Social Vulnerability Index (SVI)

The index assigns a flag of one, to the top 10 percent, at the 90th percentile using the entire state's population.

The table shows the specific variable that was flagged as 1, to rate an overall vulnerability score (per census tract).

The census tract number in the table can be used to find the location on the map.

Colors in table correspond the category of vulnerability

Green: Socioeconomic
Orange: Households & Disability

CENSUS TRACT #	BELOW POVERY (>53%)	UNEMPLOYED (>25%)	INCOME (<$12,000)	NO HIGH SCHOOL DIPLOMA (>24%)	AGE 65 OVER (>22.5%)	AGE 17 & UNDER (>28%)	DISABILITY (>22.5%)	SINGLE PARENT (>20%)*	MINORITY (>90%)	LESS ENGLISH (>3.2%)	MULTI-UNIT (>24%)	MOBILE HOME (>15%)	CROWDING (>4%)*	NO VEHICLE (>24%)	GROUP QUARTERS (>4.4%)*	TOTAL FLAGS
4	1		1	1		1		1	1		1			1		8
22	1	1	1	1		1		1	1					1		8
3		1	1	1		1		1	1					1		7
21	1		1	1		1				1		1		1		7
5		1	1	1				1	1					1		6
6		1	1				1	1	1				1			6
23	1		1	1		1		1		1						6
9					1						1				1	3
20											1		1			2
8															1	1
13					1											1
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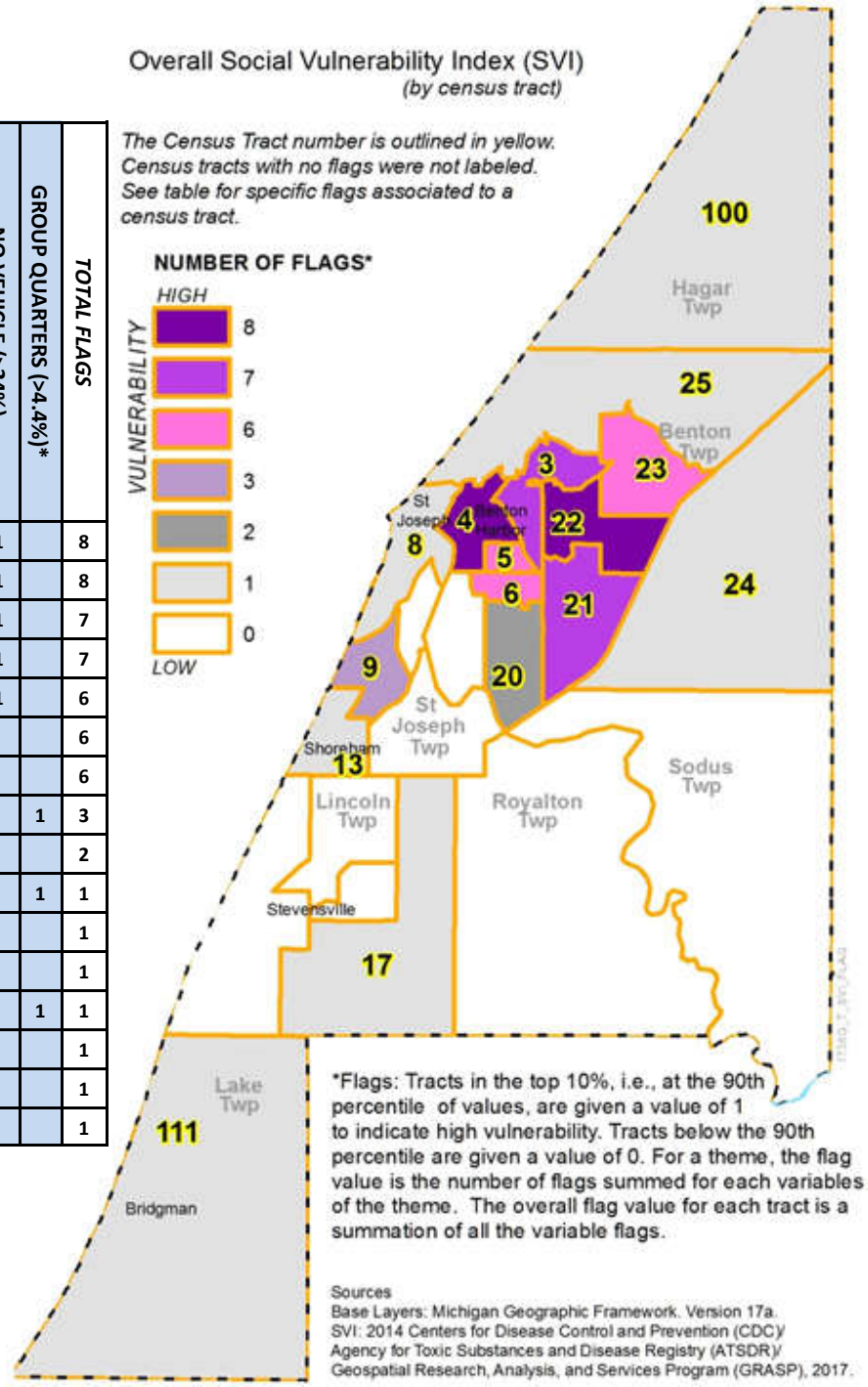
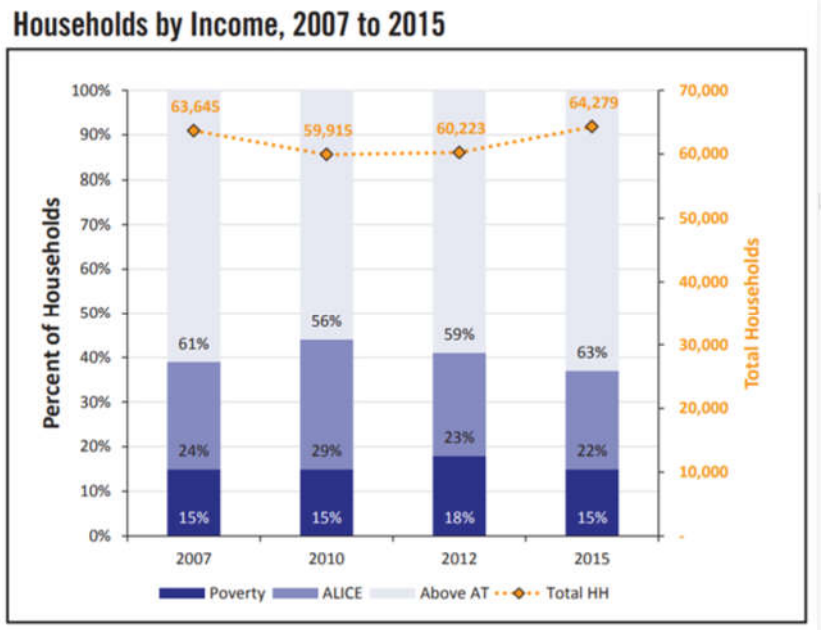
24															1	1
25					1											1
100							1									1
111					1											1



For the complete explanation of the methods used to assign flags, see SVI 2014 Documentation

Asset Limited, Income Constrained & Employed Populations

ALICE is an acronym for **A**sset **L**imited, **I**ncome **C**onstrained, **E**mployed – households that earn more than the Federal Poverty Level, but less than the basic cost of living for the county (the ALICE Threshold, or AT). Combined, the number of poverty and ALICE households equals the total population struggling to afford basic needs. The number of households below the ALICE Threshold changes over time; households move in and out of poverty and ALICE as circumstances improve or worsen. The Great Recession, from 2007 to 2010, caused hardship for many families. Conditions started to improve in 2010 and 2012 for some, but not for all.



Asset Limited, Income Constrained, Employed – households that earn more than the Federal Poverty Level of $11,770 for a single adult and $24,250 for a family of four, but less than the basic cost of living for the county.

In the City of Benton Harbor

77% of Households Are Struggling to Afford Basic Needs.

Statewide 25% of households are struggling to afford basic needs.

Community	Total Households	% ALICE & Poverty
Benton Charter Township	5,606	58%
Benton Harbor City	3,902	77%
Bridgman City	872	41%
Hagar Township	1,535	37%
Lake Charter Township	1,218	27%
Lincoln Charter Township	6,006	24%
Royalton Township	1,548	15%
Sodus Township	833	32%
St. Joseph Charter Township	4,094	21%
St. Joseph City	4,013	34%

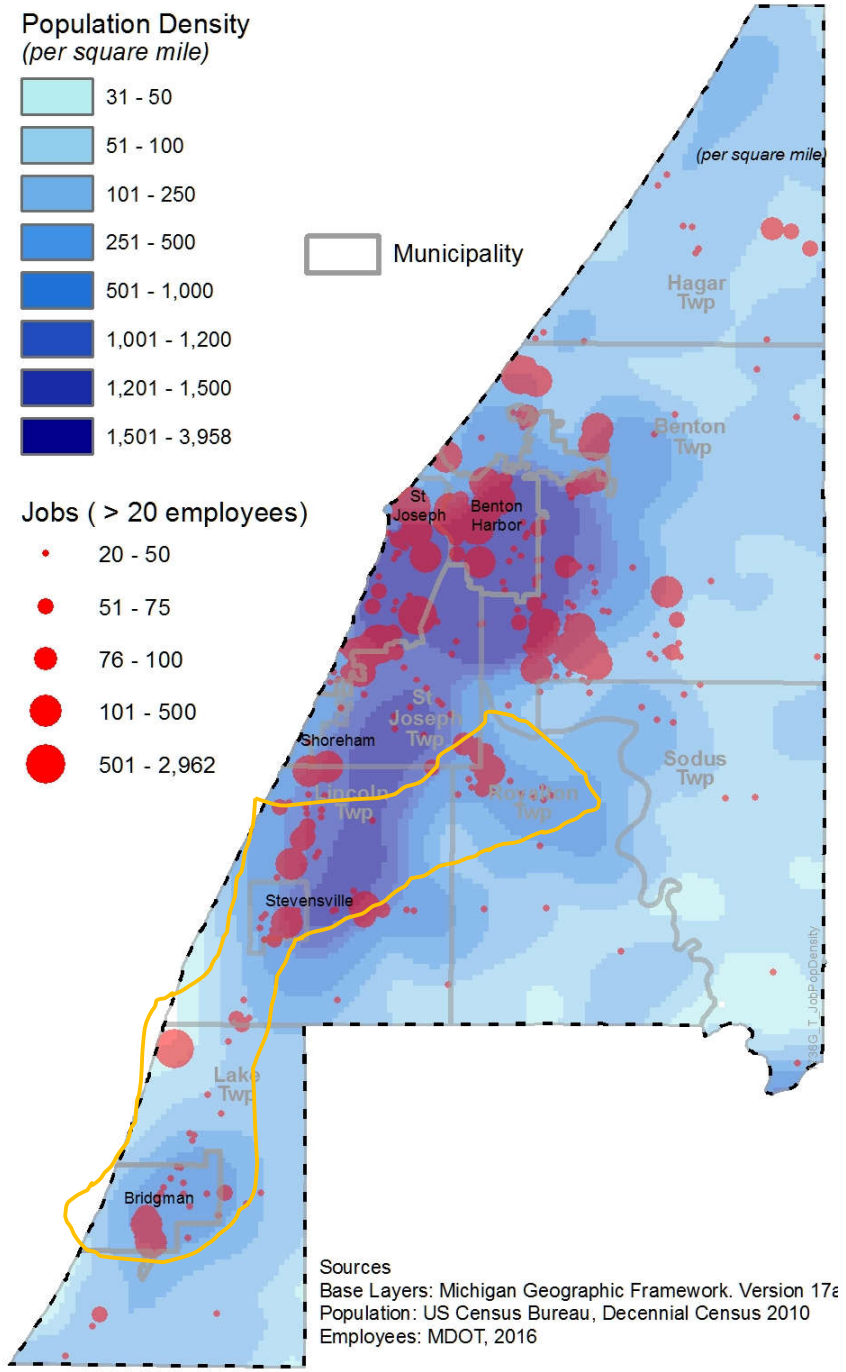
Spatial Mismatch Between the Residential Location of Low Income Households and the Location of Jobs.

Disadvantaged workers often find themselves in a double bind. They may be qualified for many entry-level jobs, but have no way of reaching employment centers outside of their community; they may also be easily able to reach many jobs nearby, but lack the qualifications for them. These two statements describe the interconnected problems of spatial mismatch and skills mismatch.

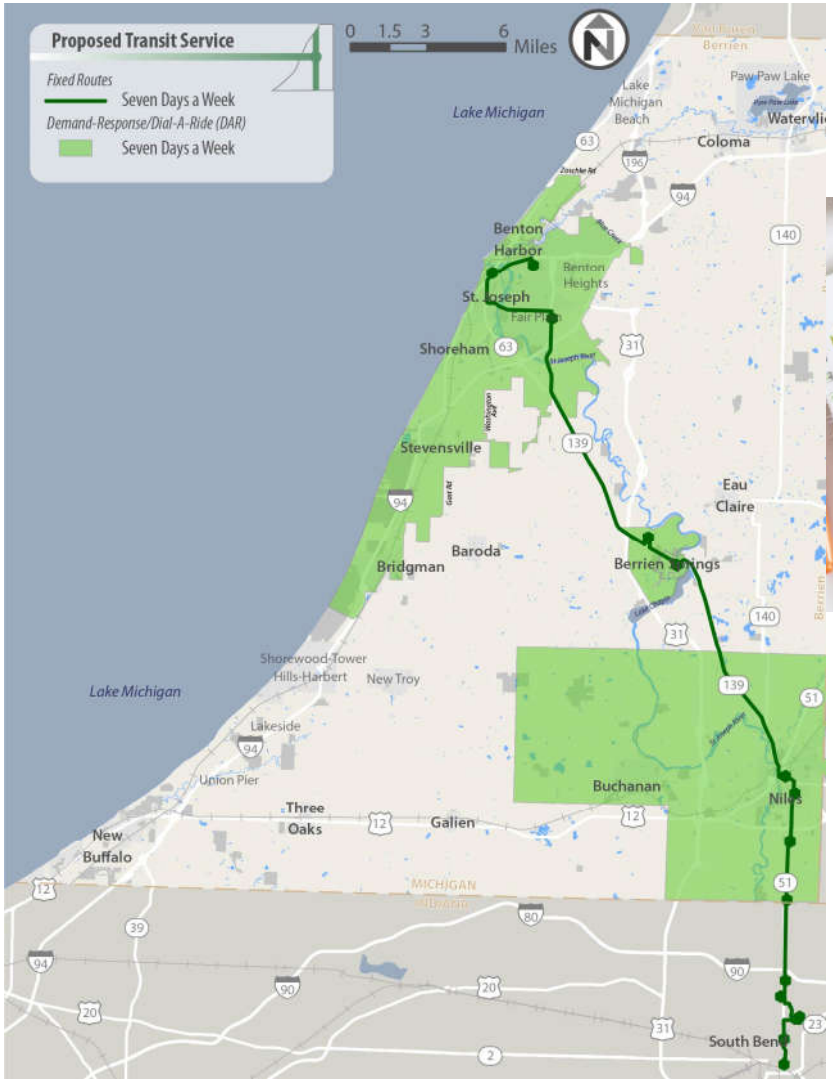
- Access to job vacancies via transit varies greatly by industry and location within the TwinCATS Planning Area. While transit access is generally good for travel within the communities of Benton Harbor, Benton Charter Township and the City of St. Joseph. Employment located in Lincoln Township and the City of Bridgman have relatively poor access.

- In high-demand sectors, there are a significant number of occupations in which most job vacancies do not require postsecondary education and offer a livable median hourly wage. Examples include machinists in the manufacturing sector, nursing assistants in the healthcare sector and truck drivers in the transportation and warehousing sector. Several of these sectors are located in the City of Bridgman, St. Joseph Charter Township and Lincoln Charter Township which are not served by regular public transit service.

- There also is broad agreement about the need to connect workers with jobs outside of the current public transit service area.



With a growing economy juxtaposed against persistent disadvantage in the City of Benton Harbor and Benton Charter Township, and with an active countywide public transit service planning effort, now is an opportune time to study the relationships between spatial mismatch and skills mismatch. The current situation also offers an opportunity to influence the course of both for decades to come.



Strategies to Increase Access to Jobs

⇒ Redefine “accessible jobs" based on access by transit, not geography.

⇒ Consider the entire pipeline linking workers with jobs: individuals' skills and interests, available training, jobs reachable by transit, and employers interested in hiring workers for those jobs.

⇒ Identify employers who stand to benefit from engaging with workforce development and transit planning efforts. The employers may include those facing labor supply problems in inaccessible locations as well as those with ambitious goals for diverse hiring.

⇒ Redefine flexible transportation to take into account disadvantaged workers’ often complex lives and nontraditional schedules.

⇒ Pursue diverse first-mile/last-mile solutions to connect workplaces with transit lines.

⇒ Engage transportation management organizations and also consider employer or district shuttles, car or bicycle sharing, or partnerships with transportation networking technologies.

Source: Opportunities for Integrated Transit Planning and Workforce Development Yingling Fan Andrew Guthrie Kirti Vardhan May 2016.

Resiliency & Reliability

Improve the ability to prepare and plan for, absorb, recover from, or more successfully adapt to actual or potential adverse events.

Berrien County communities identified winter weather and infrastructure failure as one of the top 5 hazards in the County.

Citizens are dependent on the public and private utility infrastructure to provide essential life supporting services such as electric power, water, sewage disposal and treatment, storm drainage, communications, and transportation for the movement of people and goods. When one or more of these independent yet interrelated systems fail for even a short period of time, due to disaster or other cause, it can have devastating consequences.

During the planning process for the 2005 Berrien County Hazard Mitigation Plan municipalities identified and ranked the hazards to determine which hazards were of greatest concern. Of the 24 identified and ranked, winter weather and infrastructure failure were ranked in the top 5 hazards utilizing the following criteria:

- Likelihood of Occurrence
- Percent of Population Affected
- Potential for Causing Casualties
- Potentials for Negative Economic Effects

The plan also noted that communities need to continue to push for greater system reliability through mitigation efforts. Although the problem of infrastructure failure will never be completely eliminated, it can certainly be greatly diminished through proper planning, design, construction, and maintenance practices.

As part of the Long Range Transportation planning process MPOs are required to assess assets and other strategies that could reduce the vulnerability of existing transportation infrastructure to natural or other disasters.

Emergency Planning

Under the guidance of the Federal and State Department of Homeland Security and the Federal and State Emergency Management Agencies, The Berrien County Sheriff Department serves as the Emergency Management Agency for the TwinCATS planning area. In coordination with all government agencies, Berrien County Emergency Services is responsible for the Countywide Emergency Plan. (CEMP). The CEMP documents the county level emergency planning process that establishes policies and procedures needed to prepare for, respond to, recover from, and mitigate the impacts of all types of natural, technical and criminal/hostile disasters.

The transportation system has been identified as a key infrastructure for carrying out the emergency response activities in the county. Various federal, state and local government agencies provide day-to-day security for all five modes of transportation in the planning area.

Transportation System	Agency
Road Network	Michigan State Police, Berrien County Sheriff Department City/Township Police/Fire
Rail	Michigan State Police, Berrien County Sheriff Department City/Township Police/Fire
Port/Lake Michigan	U.S. Coast Guard, Cities of Benton Harbor St. Joseph Police and Fire, Berrien County Sheriff
Airport	Transportation Security Administration, Michigan State Police, Berrien County Sheriff, City of Benton Harbor, Benton Charter Township Police & Fire
Public Transit	Michigan State Police, Berrien County Sheriff, Department City/Township Police/Fire

The definition of an emergency, in the "emergency management world", is summarized as an event that overwhelms or challenges the ability of those normal on-duty responders to control the impact of that emergency.

A car crash would likely be resolved effectively by law enforcement on-duty staff.

A 93-car pile up in the winter, involving hazardous materials leaks, would challenge the on-duty responders in that they would likely need to call for additional outside help.

Incident Management

The Statewide Transportation Operations Center (STOC) focuses on MDOT's goals of incident management, crash reduction, traveler information, and congestion reduction. STOC provides motorists with real-time travel information and partners with emergency responders to provide response services to traffic crashes, saving lives, time, and money.
STOC serves motorists in MDOT's Southwest Region which includes Berrien, Cass and Van Buren Counties. This center oversees a traffic monitoring system along, I-94 and I-196 The STOC operates 24 hours a day, 7 days a week, 365 days a year.

Transportation Incident Management Infrastructure in the TwinCATS area includes:

Traffic Cameras - 8
Dynamic Message Signs - 1
Truck Parking Availability Signs - 2
Vehicle Detectors - 1

The Berrien County Emergency Management Division is an entity that helps in coordinating the management of the incident, and our local emergency responders are responsible for executing the work that will resolve the incident. The Berrien County Emergency Management Division has incorporated the National Incident Management System (NIMS) as the system to be used in Berrien County.

Incident Management		
Agency	**Role**	**Local /State Agency/Business**
Law Enforcement	Often first responder on scene, LE personnel will secure the incident scene; provide initial emergency response if there are injuries; direct traffic around the incident; conduct accident investigation.	Michigan State Police Berrien County Sherriff City & Township Law Enforcement
Fire and Rescue	Protect the incident scene; provide emergency aid to injured motorists; suppress fires; address any initial hazardous materials release.	City & Township Law Enforcement. Several have reciprocal agreements in place to aid.
Emergency Medical Services	Treat injuries; prepare and transport more seriously injured motorists to hospital.	Medic One, Pride Care
Towing & Recovery	Removal of damaged vehicles and debris; incident scene clean-up.	Hasse Towing, Jeff's Towing & Recovery
Transportation DOT	Secure the incident scene; establish traffic control around incident; provide motorist assistance; incident clearance; restore traffic flow after incident cleared.	Michigan State Police

Asset Management & Resiliency

Asset Management is not a complete answer to addressing the threats to physical transportation assets but it can serve as an important component of the Three R's, particularly in making assets robust and agencies' asset-repair practices resilient in times of crisis.

Redundancy can be defined as duplicative or excess capacity that can be used in times of emergency. Adding redundant highway capacity generally falls outside the practice of asset management. However, sound management of the assets on detour and emergency evacuation routes increases a highway system's redundancy.

Robustness can be defined as the capacity to cope with stress or uncertainty. asset management focuses upon optimizing the conditions of assets with available revenues. Well-maintained assets generally are better able to withstand the stresses of storm events and other disasters better than weakened and poorly maintained ones.

Resiliency has been defined as the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events. Enhanced resilience allows better anticipation of disasters, better planning to reduce disaster losses and faster recovery after an event.

"Where recurring severe damage and system failures occur, due to natural or technological hazard events, it makes sense to explore enhancing infrastructure design, construction, and operational codes and standards."
—2005 Berrien County Hazard Mitigation Plan

Each cell of the "honeycomb" represents some facet of resilience but is not, by itself, the whole. For example, while emergency management is an essential component of resilience, its conceptual framework is ill-suited for the kinds of actions necessary to mitigate or adapt to slow disruptors such as climate change. Some disruptions are known well in advance and can be planned for in great detail; others occur with no warning and require a great deal of resourcefulness to restore service. Resilience, much like safety, affects every major business function within a transportation agency, not just operations. Planning, design engineering, maintenance, and business management divisions all play significant roles.

Strategies to Improve Resiliency & Reliability

- Develop, promote and encourage effective working relationships among local and regional officials and other stakeholders responsible for various aspects of transportation infrastructure protection, emergency management, and system operations.
- Update inventories of assets and their condition and life cycle to assist in identifying which assets are at risk for given types of events such as winter weather, power failures and large rain events.
- Identify and update assets that are vulnerable to extreme weather events and prioritize future investments through the use of a lifeline network that defines critical facilities, corridors, systems, or routes that must remain functional during a crisis or be restored most rapidly.
- Research and provide MPO members information about new studies, forecasts or environmental risks that could affect the future condition of transportation assets.
- Encourage sound inspection and maintenance practice regimes for transportation-related infrastructure that includes but is not limited to bridges, culverts, underdrains, catch basins, transit facilities and buses.

FUTURE TRANSPORTATION FUNDING

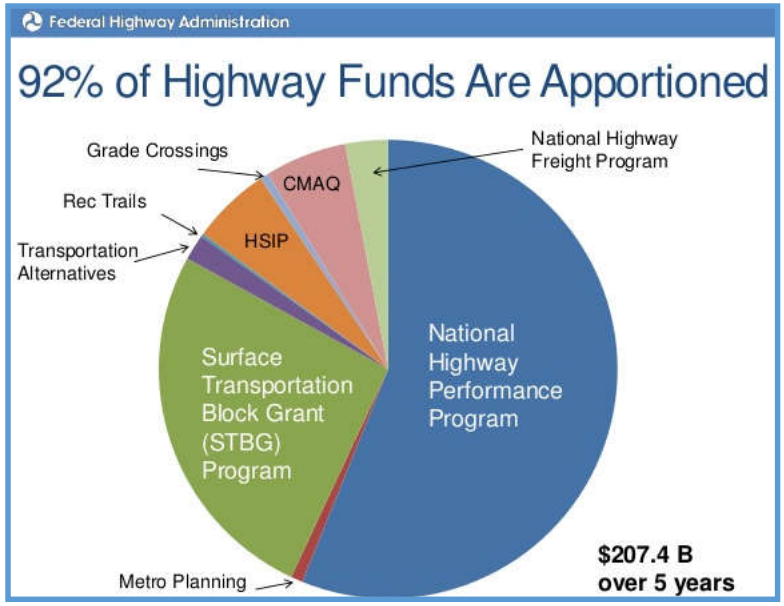
Future Transportation Funding

Financial Planning Overview

A sound financial plan, which demonstrates how the unified vision for the regional transportation system can be achieved is a critical element of Principles in Motion 2045. While this Long Range Transportation Plan is not a programming document, FHWA regulations require that the Plan be "fiscally constrained." This means that the Plan should include strategies and projects which we reasonably believe can be funded. To accomplish this, an analysis of fiscal constraint was undertaken for the life of the Plan (2018-2045). This means comparing the estimates for future revenue against any known projects. This ensures that there is adequate funding in place.

Following are brief descriptions of the primary funding sources used to forecast future funding targets. While there are many additional State and Federal funding sources available, this list includes only those that the TwinCATS urbanized area has been successful in obtaining through either direct apportionment or through competitive grant processes.

Fiscal constraint is a required component of long-range planning. Transportation expenditures included in this Plan do not exceed revenue estimates during the life of the Plan. Simply put, this Plan includes only those transportation improvements that can be realistically completed based on anticipated revenues.



Federal Funding Programs in the FAST Act

National Highway Performance Program (NHPP): Funding for resurfacing, restoring, and rehabilitating, the National Highway System. The NHPP is a primary funding category that MDOT uses for projects, especially for the interstate. Currently, MDOT controls how the NHPP is distributed to MPOs in the state, and they only assign the funds to MPOs with a population over 200,000.

Surface Transportation Block Grant (STBG): Funding for improvement to roads and bridges on the federal-aid system, transit capital projects, bicycle and pedestrian facilities, and enhancement projects. STBG funds are given to MDOT, who then appropriates the funds to TwinCATS. STBG funds are programed by the TwinCATS Policy Committee using a competitive grant process.

Transportation Alternatives Program (TAP): Funding for enhancement activities that have a direct relationship to surface transportation facilities, including: facilities for bicycles and pedestrians (including safety and educational activities), landscaping and other scenic beautification, historic preservation, and the preservation of abandoned railway corridors for bicycle and pedestrian uses. TAP funds are awarded through a statewide competitive grant process.

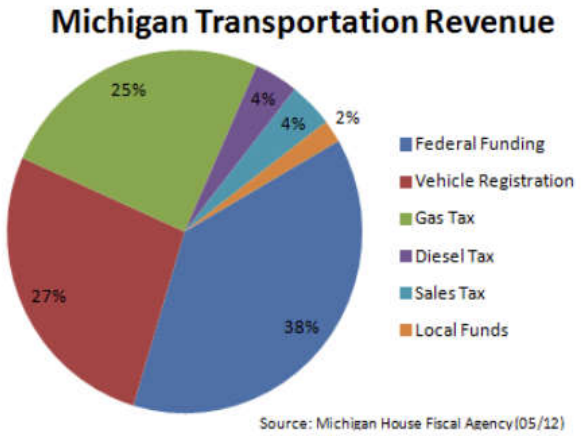
Local Bridge Program: Federal funding for locally controlled bridges that is apportioned to multi-county regions by MDOT. Projects are chosen by a competitive process by a multi-county bridge committee.

Congestion Mitigation and Air Quality Improvement Program (CMAQ): Flexible funding for transportation projects and programs tasked with helping to meet the requirements of the Clean Air Act. These projects can include those that reduce congestion and improve air quality. CMAQ funds are formula funds that are provided at a countywide level, with projects chosen by the road agencies in those counties.

Highway Safety Improvement Program (HSIP): Funding for projects that achieve a significant reduction in traffic fatalities and serious injuries on all public roads, (includes non-federal aid roads). Projects are chosen by a data driven statewide competitive grant process.

State & Local Transportation Revenue Funding Sources

- Historically, approximately two-thirds of the state transportation funding comes from state restricted revenue, with approximately one-third from federal sources.
- Federal transportation revenue is collected from gasoline and diesel fuel sales taxes.
- State transportation revenue is collected from a variety of sources including fuel, sales and income tax, and vehicle registration fees.
- The revenue that is collected is credited to the Michigan Transportation Fund (MTF) which is constitutionally restricted for use on the transportation system by Michigan Public Act 51 of 1951.
- The State of Michigan allocates up to 10% of the MTF to the Comprehensive Transportation Fund (CTF) which was established to fund public transit improvements.
- 90% of the MTF funding is distributed to county road agencies, cities, and villages using a formula that includes population and roadway miles in each jurisdiction.
- County and city MTF allocations have generally accounted for over half of locally available transportation revenues.
- Local funding sources for transportation improvements include:
  - ⇒ General fund dollars
  - ⇒ Property tax millage
  - ⇒ Obligation bonds
  - ⇒ Contributions from other units of government
  - ⇒ Tax increment financing and special assessments
  - ⇒ Interest on accumulated MTF funding
  - ⇒ Public -private partnerships



Increase in State Road Funding

In 2015, Michigan passed a road funding package that redirected certain income tax revenue that had previously been credited to the state general fund to the MTF.

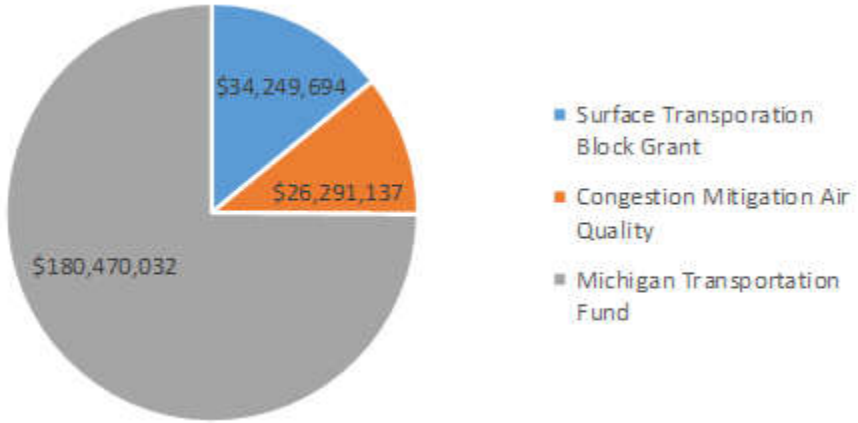
2018 - 2019 **$150 million**

2020 Forward **$600 million**

State and Federal Funds for Locally Controlled Roads

Program	Description	2018-2025 Funding	2026-2035 Funding	2036-2045 Funding	2018-2045 Funding
Federal Surface Transportation Block Grant	Funding for improvement to roads and bridges on the federal-aid system, transit capital projects, bicycle and pedestrian facilities, and enhancement projects.	$7,715,188	$11,703,620	$14,830,886	**$34,249,674**
Federal Congestion Mitigation Air Quality	Flexible funding for transportation projects and programs tasked with helping to meet the requirements of the Clean Air Act.	$5,655,400	$9,101,840	$11,533,897	**$26,291,137**
Michigan Transportation Fund	Distributed to county road agencies, cities and villages using a formula that includes population and roadway miles in each jurisdiction.	$40,653,216	$61,669,243	$78,147,573	**$180,470,032**

STBG and CMAQ is estimated to grow by 2.0% annually between 2018 and 2027 followed by a 2.4% annually-growth rate between 2028 and 2045. The State funding (Act 51) is estimated to grow by 3.7% annual between 2018 and 2027 followed by a 2.3% annual growth rate between 2028 and 2045.



State and Federal Funds for MDOT Controlled Roads

Program	Description	2018-2025 Funding	2026-2035 Funding	2036-2045 Funding	2018-2045 Funding
Preservation	Repairs to the trunkline system	$262,047,330	$141,868,9367	$202,175,487	$646,091,754
New Roads/Capacity	Building new roads or expanding roadway capacity	$52,575,211	$0	$0	$52,575,211

MDOT's revenue estimates include funding for preservation of the state controlled roadway system. The funds represent the full amount available for preservation activities which has a broad definition that includes anything that does not expand or create a new roadway. MDOT has a pavement preservation formula that allocates funding to its seven regions. The formula weighs four overall factors: pavement condition, eligible lane miles for pavement reconstruction and repair work, usage (average daily traffic volumes), and regional cost. These factors form the basis for how pavement preservation funds are distributed to each region. The formula is updated annually with current pavement condition, traffic, cost and eligible lane miles. Revenue for operations and maintenance are not included in these figures. In 2018-2025 the MDOT region is allocating a larger portion of their region budget to projects in the TwinCATS area. This is mainly for a major reconstruction along I-94 and reconstruction of the I-94 and I-94 Business Loop interchange. These projects are in support of the eventual extension of US-31.

The New Road/Capacity budget is a special allocation awarded for projects which build new roads or add additional capacity. In 2018-2025 New Roads/Capacity revenues will fund the US-31 extension.

Activities Covered by the Preservation Budget

- **Rehabilitation and Reconstruction**
- **Capital Preventive Maintenance**
- **Freeway Lighting**
- **Freeway Resurfacing Program**
- **Non-Freeway Resurfacing Program**

Sources for Funding Local Roads

To ensure federal projects will have adequate local match it is necessary to estimate future local funding. The state funding inflation rate of 3.7 percent for the first 10 years is being applied. For the next 20 years of the plan an annual inflation rate of 2.3 percent is applied

The Michigan Transportation Fund (MTF) is the funding road agencies receive from the state gas tax and vehicle registration fees. This represents the majority of funding for most road agencies. Unlike federal funding which typically has a restriction on where it can be used, MTF funds are able to be used on a broad variety of transportation projects. While STBG is restricted to roads designated as federal aid eligible, it is local funding, mainly through the MTF that funds repairs on the local (non-federal aid) streets. Local funds are also used to endue operation and maintenance of the road system including agency salaries other overhead costs. To use federal funds, a local match is required. The STBG will fund 81.85 percent of a project with the remaining 18.15 percent required from the local match.

MTF (Act 51) Distribution 2016	
Benton Harbor	$814,033
Benton Twp.	$839,899
Bridgman	$266,665
Hagar Twp.	$164,847
Lake Twp.	$195,237
Lincoln Twp.	$613,459
Royalton Twp.	$251,656
Shoreham	$59,277
Sodus Twp.	$161,118
St Joseph	$687,554
St Joseph Twp.	$366,873
Stevensville	$131,955
TwinCATS Total	$4,552,574

The table on ACT 51 distribution shows what each community received from the MTF in 2016. For the townships, the funding is distributed to the Berrien County Road Department. The Road Department receives funding based on all townships in Berrien County. Funding is not allocated for any single township specifically.

Michigan Transportation Fund Allocation (Act 51)

	2018-2025	2026-2035	2036-2045
Annual Growth Rate	2.0%	2.7%	2.9%
Funding (in Millions of $)	$39.1	$60.4	$80.3

State and Local Operations and Maintenance

Construction, reconstruction, repair, and rehabilitation of roads and bridges are only part of the total cost of the highway system. It must also be operated and maintained. *Operations and maintenance* is defined as those items necessary to keep the highway infrastructure functional for vehicle travel, other than the construction, reconstruction, repair, and rehabilitation of the infrastructure. These activities are vital to the smooth functioning of the highways

Federal transportation funds cannot be used for operations and maintenance of the highway system. However, federal regulations require an estimate of the amount of state and local funding that will be spent operating and maintaining the federal-aid eligible highway system over the period of the long range plan.

Operations and Maintenance Activities

- Snow and ice removal
- Pothole patching
- Rubbish removal
- Maintaining the right-of way
- Maintaining traffic signs and signals
- Clearing highway storm drains
- Electrical bills for street lights and traffic signals,
- Personnel and direct administrative costs necessary to implement these projects

Operations and Maintenance Cost (millions of dollars)

Horizon Year	2018-2025	2026-2035	2036-2045
Annual Growth Rate	2.0	2.7%	2.9%
MDOT Roads	$73.2	$113.1	$150.5
Locally Controlled Federal Aid Roads	$22.1	$34.1	$45.4
Total	$82.4	$147.3	$195.9

OPERATIONS & MAINTENANCE REVENUE FORECAST

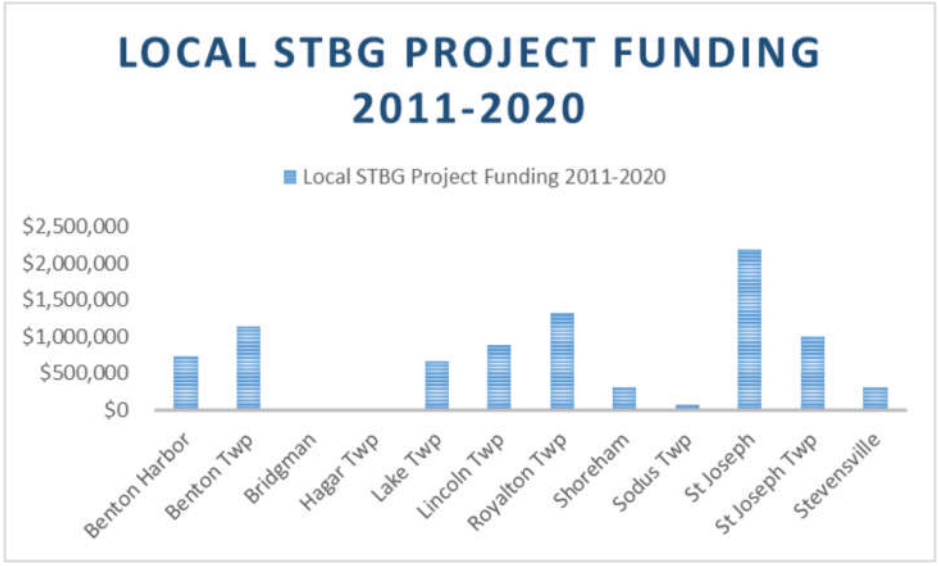
MDOT has supplied forecasted operations and maintenance costs for the entire MDOT trunkline system from 2018 through 2045. In 2018, MDOT expects to spend $315.5 million for O&M, which will cover all 27,504 lane miles of trunkline in Michigan. This equates to an average cost of $11,471 per lane mile. In 2018 MDOT is expected to spend approximately $8.5 million on maintenance in the TwinCATS area. Based on values from the Transportation Asset Management Council the cost per lane mile for locally controlled road maintenance is $6,500 per lane mile. Based on this figure it is estimated that local agencies will spend approximately $2.6 million on O&M in 2018.

Funding Allocation Process for Local Surface Transportation Block Grant Funds (STBG)

TwinCATS entities and other stakeholders work cooperatively through committees which includes officials from each community, to make decisions regarding which transportation projects will receive funding.

Road agencies submit project requests to the TwinCATS staff for review. These projects are based partially on the agencies' local knowledge and partially on issues identified in the Long Range Plan. Projects are reviewed and scored based on criteria that includes how the project will contribute to meet performance targets.

It is then up to the Technical Advisory Committee to discuss the projects and scores to make final recommendations before the projects are selected by the Policy Committee.



Public Input

Project Identification: TwinCATS member communities choose projects to submit.

PROJECT SUBMISSION: Local road agency engineers submit project applications to SWMPC staff.

QUALIFICATION: SWMPC staff verify that project application meets federal guidelines.

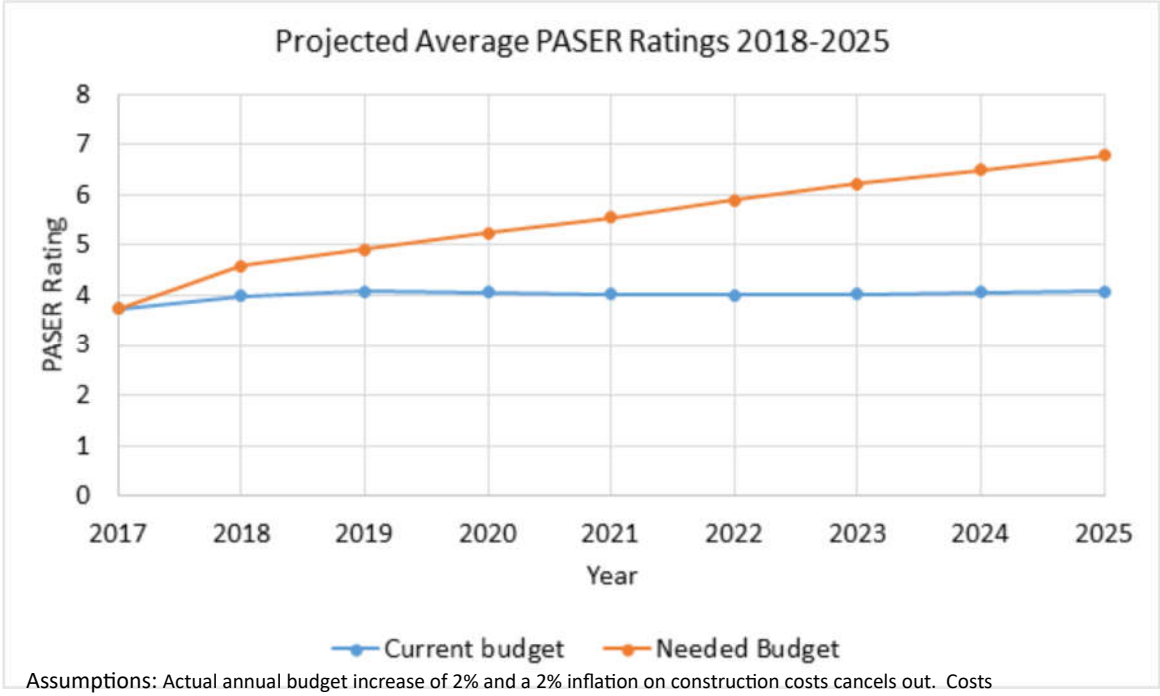
PROJECT SCORING: SWMPC staff score applications based on criteria approved by the TwinCATS TAC and Policy Committee.

Public Input

RECOMMENDATION: TAC reviews staff scoring and makes funding recommendations to TwinCATS Policy Committee.

Public Input

SELECTION: The TwinCATS Policy Committee reviews TwinCATS Technical Advisory Committee recommendations and chooses which projects to fund.



Assumptions: Actual annual budget increase of 2% and a 2% inflation on construction costs cancels out. Costs estimated based on report by MDOT, Asset Management Council, and Michigan Tech.

Local Federal Aid Roads

Will remain unchanged (Poor)

with the current

annual budget of

$1 Million

We need to invest an additional

$2 Million

annually within our MPO for the next 7 years to bring our locally controlled federal aid roads back to 80% good or fair.

Demonstration of Fiscal Constraint

Fiscal constraint is a required component of long-range planning. Transportation expenditures included in this Plan do not exceed revenue estimates during the life of the Plan. Simply put, this Plan includes only those transportation improvements that can be realistically completed based on anticipated revenues.

Based on the results of the travel demand model, no significant congestion on local roads was identified, and local agencies agree that preservation of the existing roadway system is the top priority. Therefore local road agencies decided not to program any specific projects in the long range transportation plan outside of the timeframe of the 2017-2020 Transportation Improvement Program (TIP). State and federal revenue allocated to local agencies in 2020-2045 is being allocated to system preservation. The general use of the funds has been identified but specific locations will be determined based on future needs.

MDOT's budget is divided into two major categories, preservation and capacity. The preservation budget is the annual amount the MDOT region is allocated to maintain and repair trunkline roads. This budget includes numerous state and federal sources. MDOT programs projects based on need and then allocates the applicable fund source to the project. Only the total amount of MDOT funding is estimated. There is no estimates of specific federal or state amounts. In addition to the preservation budget a capacity budget is awarded to build new roads.
The US-31 extension is the only capacity project in this plan and was awarded a new roads/capacity budget.

Details about transit funding can be found in the Passenger Transportation section (Page 121).

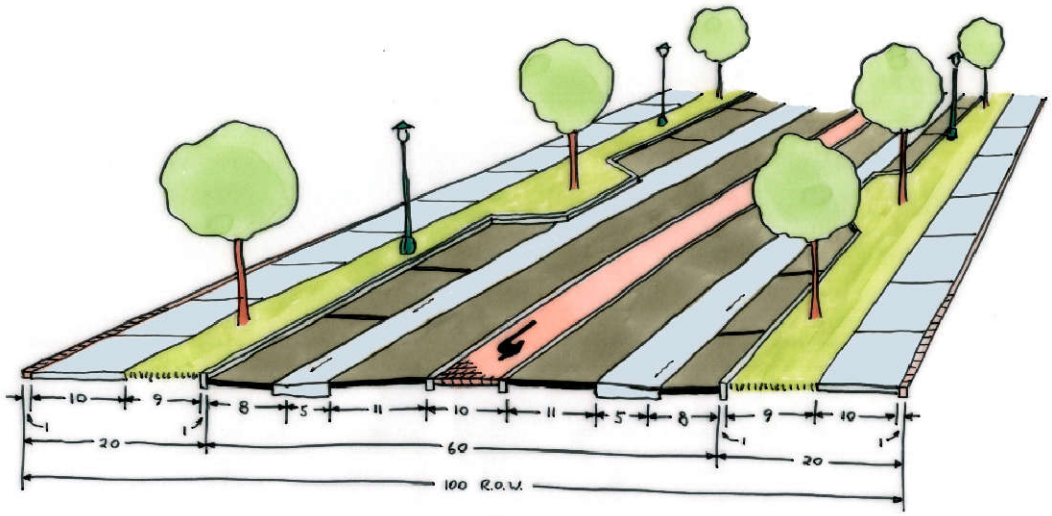
Funding Category	Revenue	Expenditures	Balance
2018-2025			
STBG	$7,715,188	$7,715,188	$0
CMAQ	$5,655,400	$5,655,400	$0
MTF	$40,653,216	$40,653,216	$0
MDOT Preservation	$262,047,330	$262,047,330	$0
MDOT Capacity	$52,575,211	$52,575,211	$0
5307	$9,952,727	$9,952,727	$0
5310	$514,978	$514,978	$0
5339	$906,548	$906,548	$0
CTF	$7,321,573	$7,321,573	$0
2018-2025 Total	$387,342,171	$387,342,171	$0
2026-2035			
STBG	$11,703,620	$11,703,620	$0
CMAQ	$9,101,840	$9,101,840	$0
MTF	$61,669,243	$61,669,243	$0
MDOT Preservation	$141,868,937	$141,868,937	$0
MDOT Capacity	$0	$0	$0
5307	$14,586,133	$14,586,133	$0
5310	$769,761	$769,761	$0
5339	$1,328,584	$1,328,584	$0
CTF	$9,065,593	$9,065,593	$0
2026-2035 Total	$250,093,711	$250,093,711	$0
2036-2045			
STBG	$14,830,886	$14,830,886	$0
CMAQ	$11,533,897	$11,533,897	$0
MTF	$78,147,573	$78,147,573	$0
MDOT Preservation	$202,175,487	$202,175,487	$0
MDOT Capacity	$0	$0	$0
5307	$19,507,593	$19,507,593	$0
5310	$938,334	$938,334	$0
5339	$1,776,857	$1,776,857	$0
CTF	$10,191,876	$10,191,876	$0
2036-2045 Total	$339,102,503	$339,102,503	$0
2018-2045 Plan Total	$976,538,385	$976,538,385	$0

ROAD & BRIDGE NETWORK

ROAD & BRIDGE NETWORK

Within the TwinCATS planning area there are 767 miles of public roads. Road agencies in TwinCATS, which include cities, villages, and the Berrien County Road Department, are responsible for the maintenance of 624 miles of theses roads. The other 143 miles are owned and maintained by MDOT, including the interstate (I-94, I-196), US-31, BL-94, and all routes with an "M" designation (M-63, M-139). Three hundred ten miles of road are part of the federal aid highway system, which enables these roads to use federal surface transportation block grant funds for maintenance. This road network is the main transportation system carrying automobiles, buses, pedestrians, cyclists, and freight throughout the region and beyond.

The road network includes a variety of road types that serve various trip purposes. The local non-federal eligible roads are mainly designed to serve as residential streets or to provide access to individual properties. The federal aid network is the backbone for cross-jurisdictional and region-wide trips. Within this category is the National Highway System (NHS) which are not just important regional roads, but they are vital to the movement of people and goods across the state and the nation.



TwinCATS Planning Area Road Network:

78 Miles
Interstate Highway

62 Miles
National Highway System
(Non-Interstate portion)

172 Miles
Federal Aid Eligible Roads
Not part of the NHS

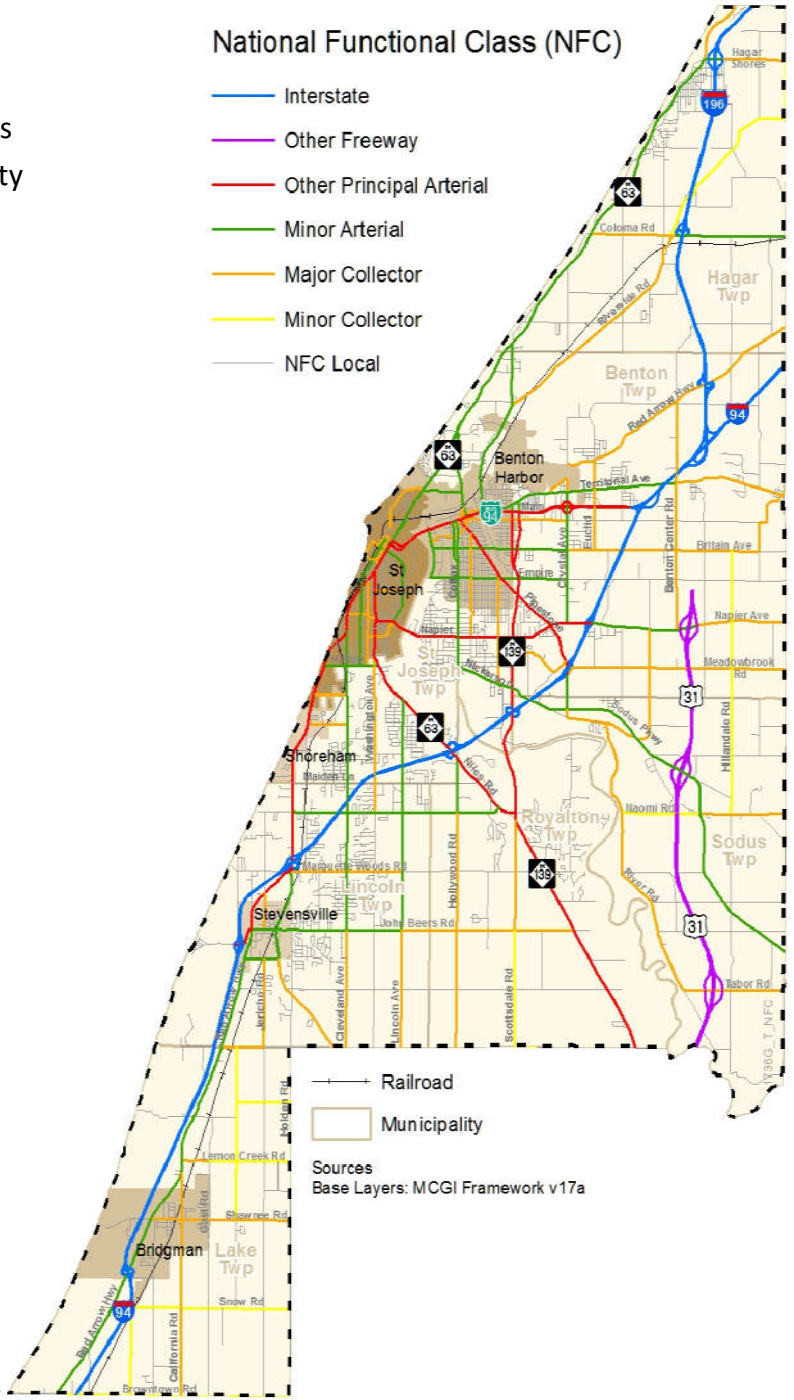
460 Miles
Non-Federal Aid Eligible Roads

767 Miles Total

National Functional Classification

The National Functional Classification (NFC) is the system by which the FHWA classifies roads into categories according to the function, speed, and amount of traffic the facility carries. NFC is used to determine design standards of roads and is a consideration in determining eligibility for federal aid funding. NFC classification is determined though cooperation between the road agency, MPO, MDOT, and FHWA. There are seven NFC categories, they are grouped into four major categories.

Miles	Principal Arterials
31	**Interstate**: Also know as the Eisenhower Interstate System, they are designated with an "I" prefix. These roads are high speed divided highways that cover multiple states. While funded by the federal government, they are maintained by the state DOTs
7	**Other Freeways & Expressways (OF&E):** All other high-speed, limited access divided highways, which are not designated as interstate (in TwinCATS, the 7.4 miles of US-31 south of Napier Ave.) In Michigan all OF&E routes are maintained by MDOT.
40	**Other Principal Arterial (OPA**): These routes are typically designed for high volumes of through traffic as well as commercial traffic. Unlike freeways, OPA often have direct access to adjacent properties. In TwinCATS, OPA includes 39 miles: 30 miles are maintained by MDOT (BL-94, M-139, and M63 between M-139 and BL-94). 9 miles are locally maintained roads: Red Arrow Highway and Grand Mere Road between Exits 22 and 23 of I-94, Napier Ave between M-63 and I-94, and Pipestone between BL-94 and I-94.



National Functional Classification - cont.

Miles

78 **Minor Arterial (NFC 4):** A major thoroughfare, typically used for shorter trip distances and carriess less traffic than principal arterials

88

⇒ **Major Collector:** These routes funnel traffic from local and minor collector routes to the arterials. These may directly serve schools, business districts, and important public functions.

⇒ **Minor Collector:** Carries more through traffic than a local road but not as heavy as a major collector.

26

◊ ***Urban minor collectors*** were created recently by the 2010 Highway Performance Monitoring System (HPMS) re-assessment and have federal-aid eligibility—TwinCATS: 6 mi.

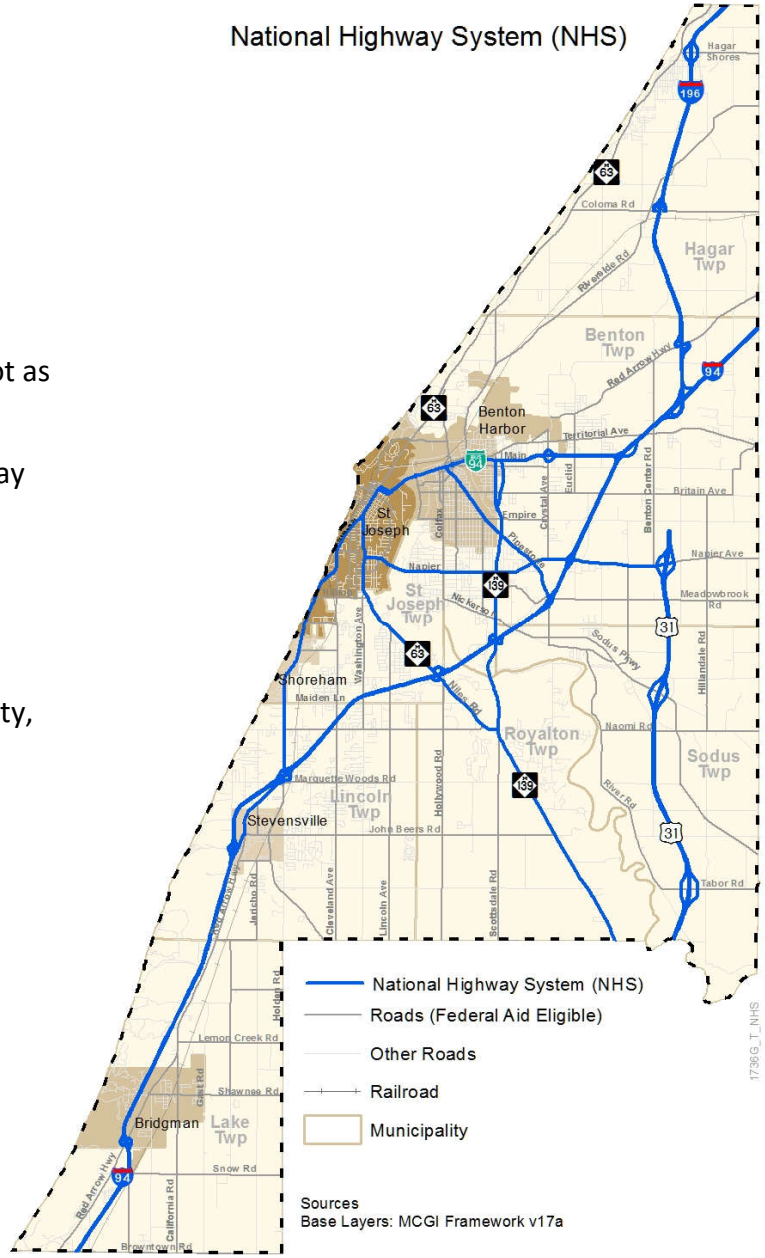
◊ ***Rural minor collectors*** are not federal-aid highways but do have limited STBG federal-aid eligibility—TwinCATS: 20 mi.

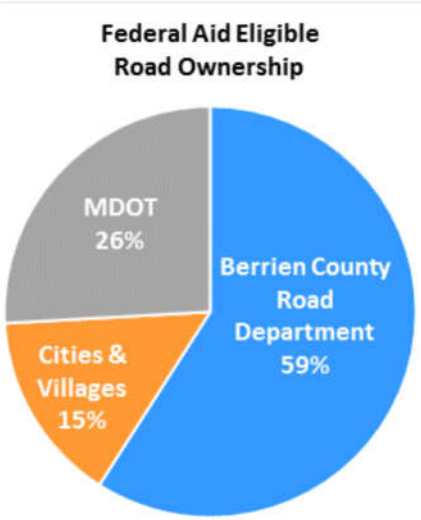
436 **Local Roads (NFC 7):** Predominately traveled by those accessing their property, rural farm roads and residential neighborhood roads. This is the majority of public road mileage.

TwinCATS NHS: 80 miles

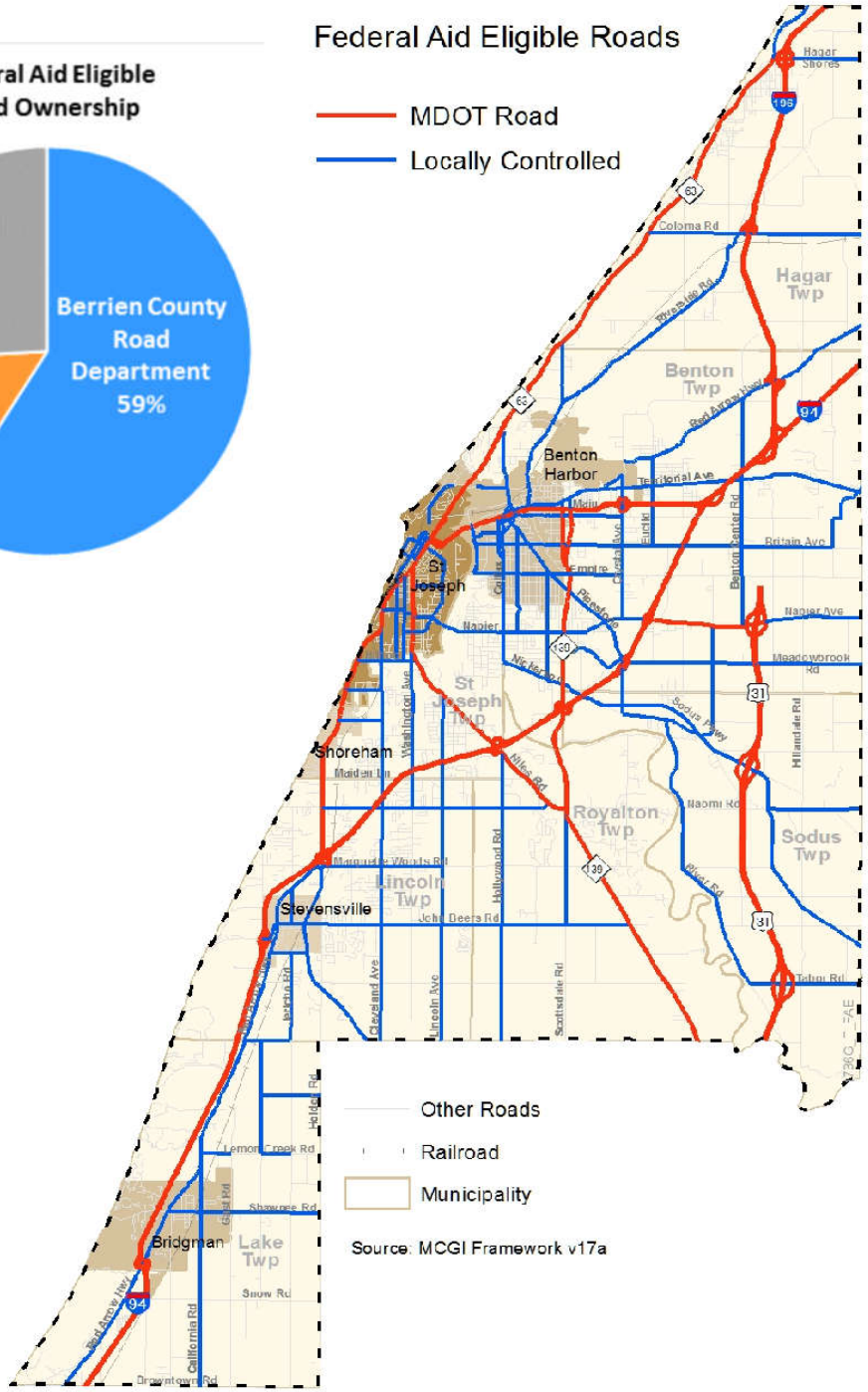
National Highway System (NHS)

The NHS is a category for the most important roads for the nation's economy, defense, and mobility. The NHS includes all interstates, freeways and other principle arterials. It also includes Napier between US 31 and I-94. MDOT maintains 71 miles and nine miles are locally controlled.





Jurisdiction	Total Local Miles	Non Fed Aid	Federal Aid Eligible		Total Miles
		Local		MDOT	
City of Benton Harbor	57	40	17	2	60
City of Bridgman	20	10	10	2	21
City of St. Joseph	45	31	14	7	52
Village of Shoreham	4	2	2	1	5
Village of Stevensville	10	5	5	1	11
Benton Township	157	100	57	28	185
Hagar Township	66	52	14	13	79
Lake Township	66	33	32	5	71
Lincoln Township	105	68	37	6	111
Royalton Township	52	35	16	7	59
Sodus Township	51	31	20	7	58
St Joseph Township	58	47	11	4	62
TwinCATS Total	691	455	236	84	775



Vehicle Miles Traveled

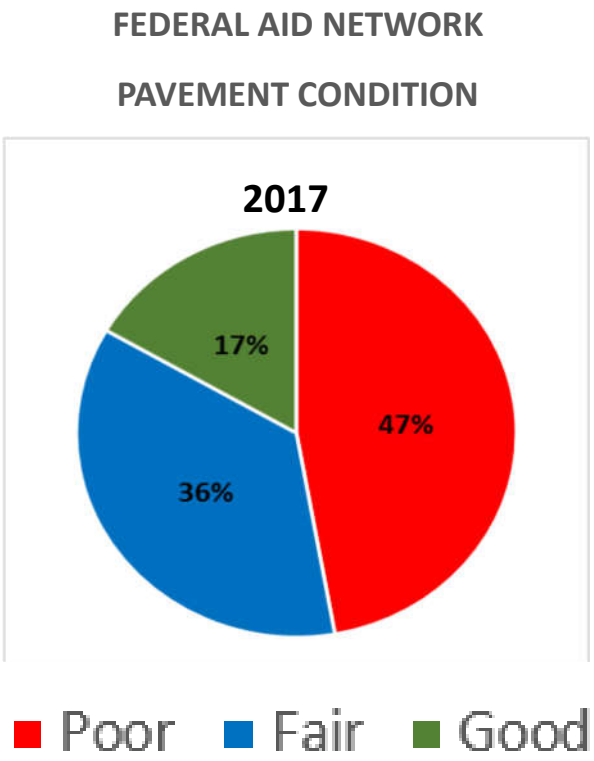
Vehicle Miles Traveled (VMT) represents an estimate of all of the combined miles that were driven by all vehicles within the Benton Harbor-St. Joseph urbanized area. VMT is calculated based on traffic counts and travel models through the Highway Performance Monitoring System (HPMS). Traffic on local roads is based solely on estimates because HPMS currently doesn't collect traffic counts on non-federal aid eligible roads. VMT helps us understand generally how trends in vehicle use and congestion change over time. There was a 14 percent reduction in the VMT along roads classified as Major Collector Roads in 2017. These roads are primarily used by people commuting within the TwinCATS area. VMT is also used to calculate the environmental effect of the transportation system, such as deriving greenhouse gas emission estimates.

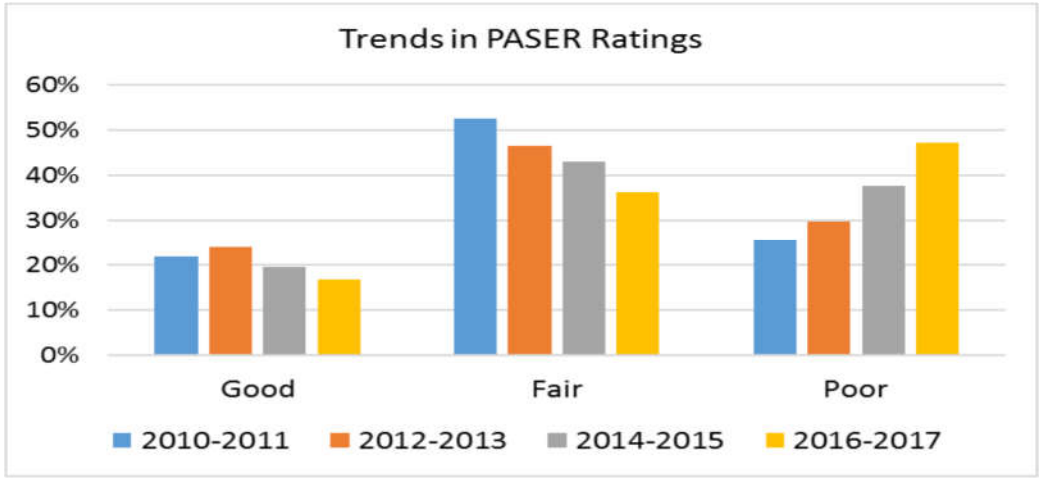
VMT is very dependent on the overall economy and gas prices. When the economy is doing well it means more people are commuting to work and generally means more money to take trips or do other activities outside of the home.

DAILY VEHICLE MILES TRAVELED			
NFC	2016	2017	Percent Change
Interstate	962,647.89	930,547.30	3.4%
Other Principle Arterial	391,950.84	403,541.50	2.96%
Minor Arterial	362,230.47	378,503.66	4.48%
Major Collector	160,852.39	137,806.15	-14.33%
Minor Collector	18,227.67	13,952.38	-23.45%
Local	207,041.00	209,314.00	1.10%
TOTAL	**210,5765.6**	**207,090.7**	**1.68%**

MDOT HPMS Data 2018

Pavement Condition—TwinCATS Federal Aid Network



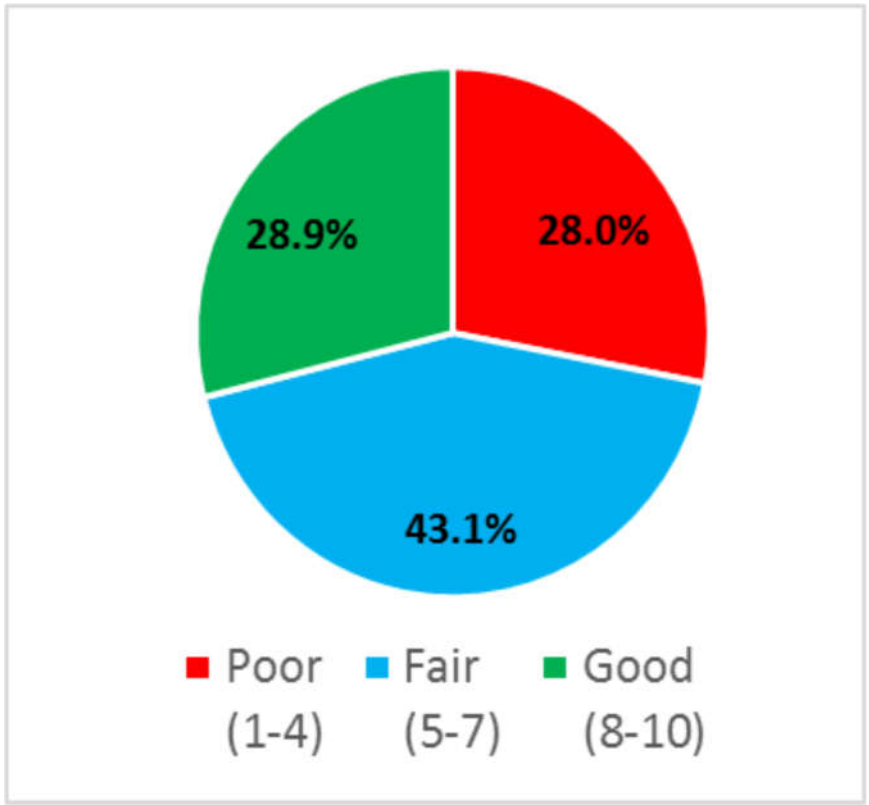


All Federal Aid Roads (includes MDOT roads)				
2017	**Miles Rated**	**Poor**	**Fair**	**Good**
Benton Harbor	17.4	49.7%	44.3%	6.1%
Benton Twp.	93.9	52.9%	36.8%	10.3%
Bridgman	8.1	0.9%	48.9%	50.2%
Hagar Twp.	31.5	45.9%	53.1%	1.0%
Lake Twp.	24.0	42.5%	27.5%	30.1%
Lincoln Twp.	35.7	67.4%	17.4%	15.2%
Royalton Twp.	18.4	51.7%	35.8%	12.6%
Shoreham	1.8	66.5%	7.8%	25.7%
Sodus Twp.	35.4	37.9%	14.1%	45.3%
St Joseph	18.3	47.6%	46.9%	5.4%
St Joseph Twp.	15.4	50.6%	46.6%	2.8%
Stevensville	7.2	68.3%	10.9%	20.9%
TwinCATS Total	**307.1**	**49.8%**	**33.9 %**	**16.3%**

Pavement Condition – Federal Aid MDOT Network

Pavement condition is gathered using the Pavement Surface Evaluation and Rating system (PASER) which give every road a rating score from 1-10 with 10 being a new or newly reconstructed road and 1 being a complete failure. Ratings for all federal aid routes are gathered every year by a team compromised of SWMPC staff, a Berrien County Road Department engineer, and an MDOT staff member.

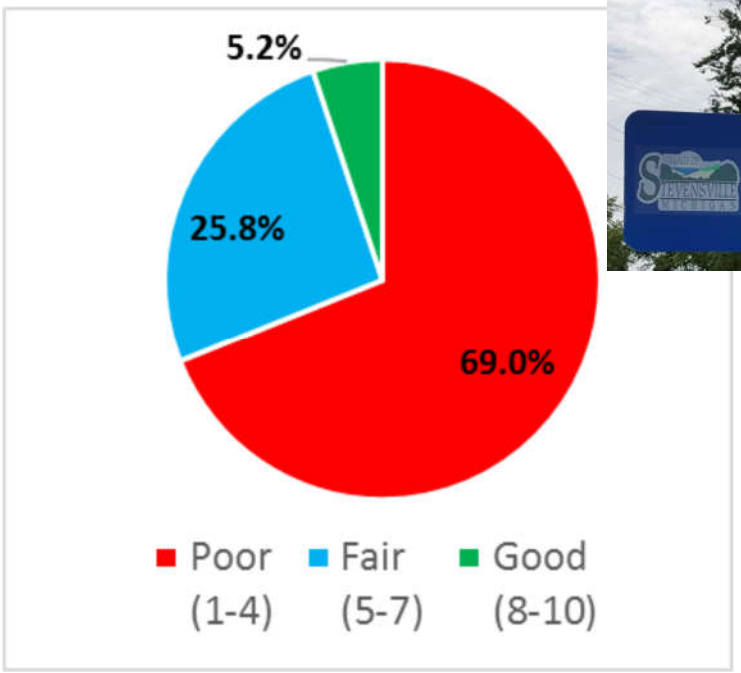
The condition for roads owned by MDOT is relatively good. MDOT owns roughly 143 miles of road in the TwinCATS area. Of this 38 miles were rated in good condition, while 61 miles were rated fair. On the other hand, only 40 miles were rated poor. MDOT owned roads are overall in far better condition than the locally owned roads. This is due mainly to the fact that far more funding is allocated to the maintenance of the Interstate and other highways.

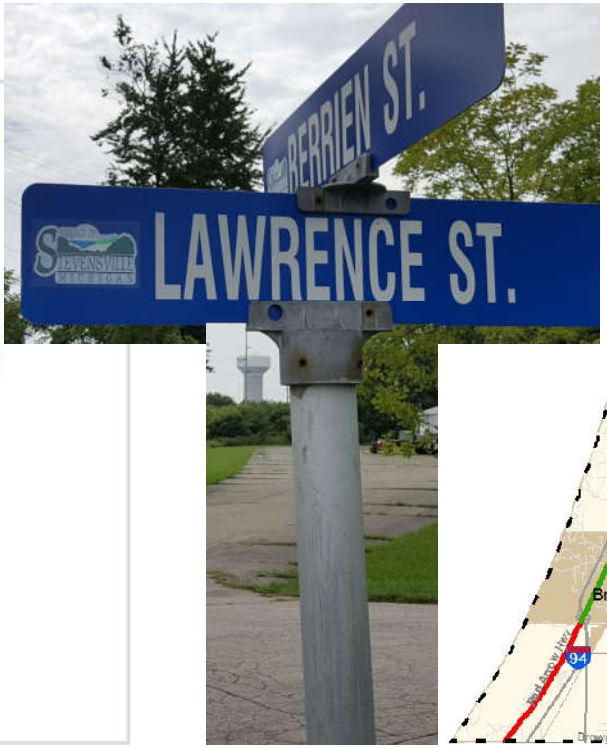


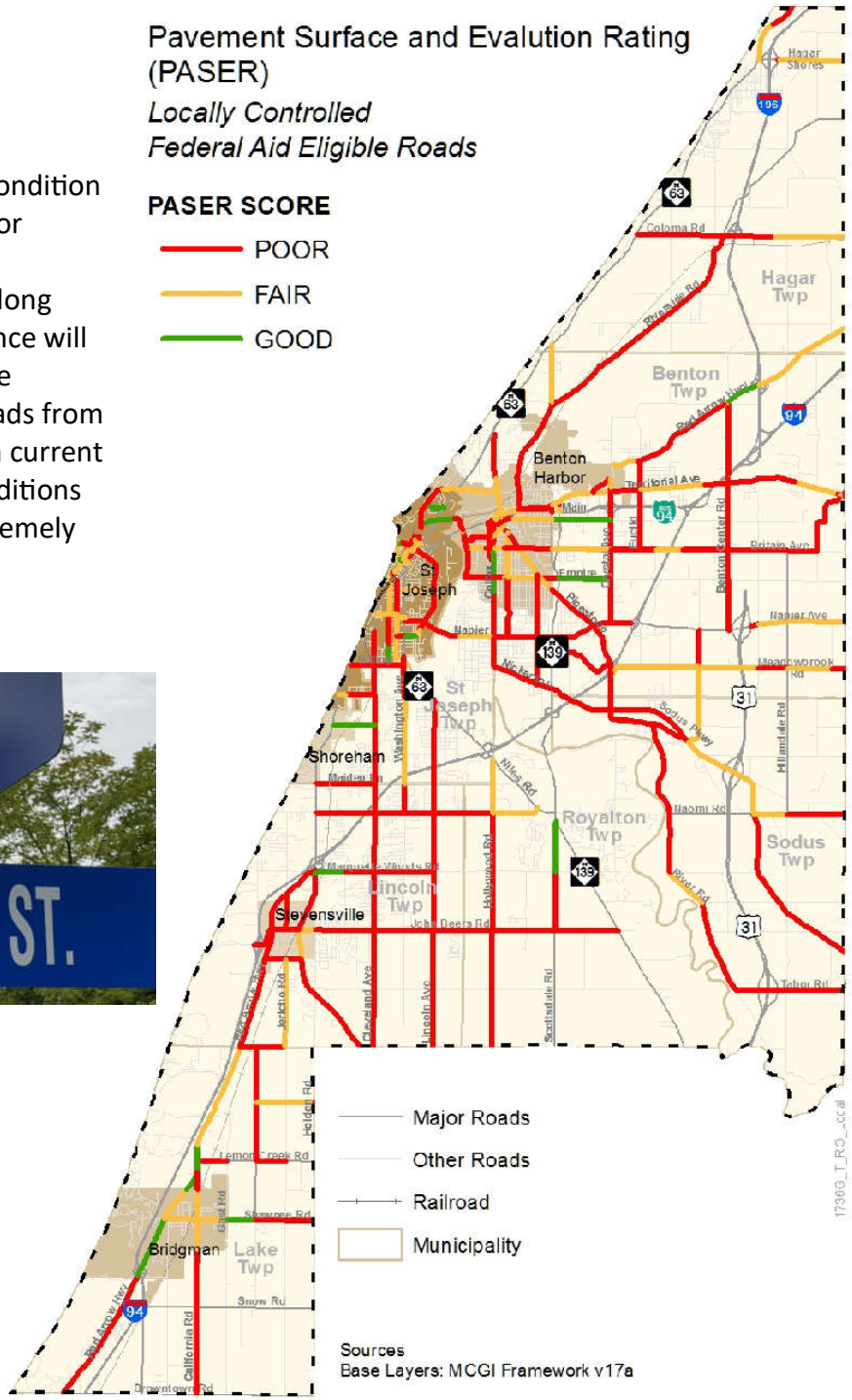
Pavement Condition – Federal Aid Locally Owned

While MDOT roads are generally in fair or good condition, the locally owned roads are in far worse condition. There are 161 miles of locally controlled federal aid eligible roads in the TwinCATS area. Out of this number, 112 miles are rated poor. Only 8.5 miles are rated in good condition. About 70 miles (or a third of the locally owned federal aid miles) have a PASER of 4. What this means is that while roads are in the poor category, most have not reached a point where a complete reconstruction is the only option.

Maintaining roads in good or fair condition is far cheaper than reconstruction or resurfacing to bring roads in poor condition up to good condition. A long term strategy of routine maintenance will be required. But currently the more expensive fixes to prevent poor roads from completely failing is required. With current funding levels, improving road conditions from poor to good or fair is an extremely challenging task.



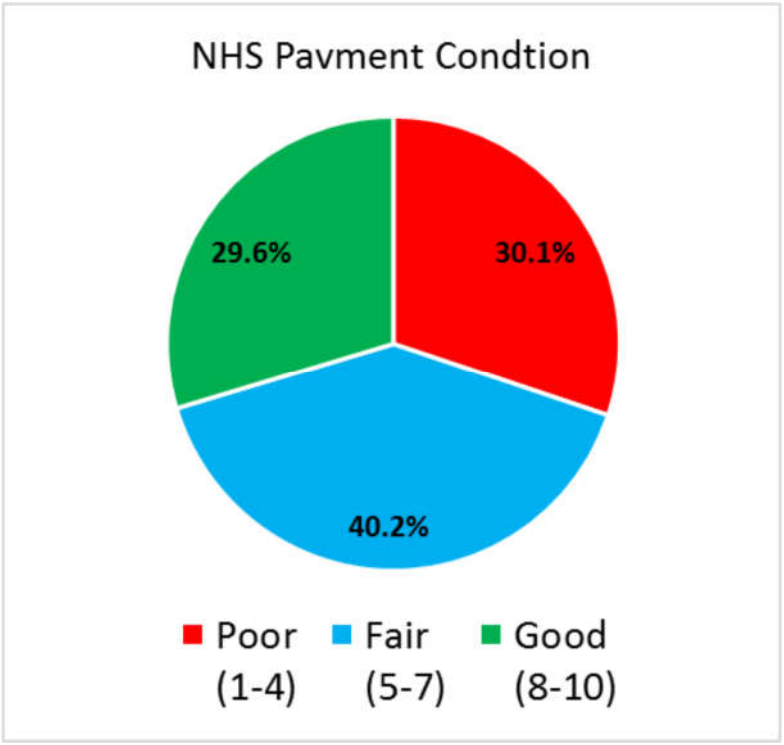




Pavement Condition – National Highway System

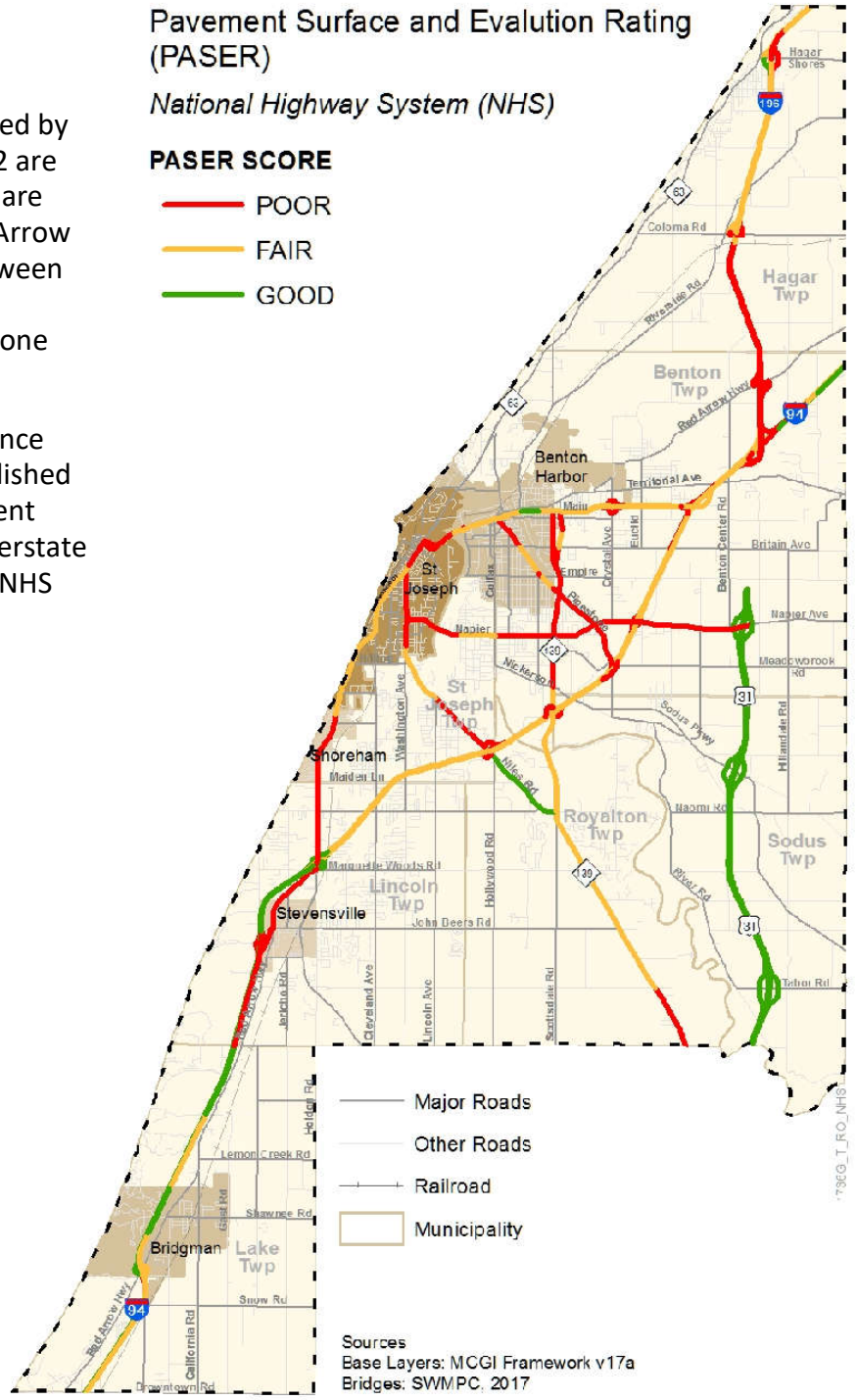
Due to the importance of the National Highway system to the nation's economy and defense, there are more stringent requirements for maintaining this network. The Interstate is especially critical for national travel, thus the FHWA has placed requirements on MDOT to prioritize Interstate maintenance.

The vast majority of the NHS is owned by MDOT. Of the 141 miles of NHS, 132 are owned by MDOT while only 9 miles are owned by local road agencies: Red Arrow Highway and Grand Mere Road between Exits 22 and 23 of I-94, Napier Ave. between M-63 and I-94, and Pipestone between BL-94 and I-94.



A specific performance measure was established to track the pavement condition of the Interstate and non-Interstate NHS routes.

Interstate Condition:	
22% Good	27% Poor
Non-Interstate NHS:	
40% Good	33% Poor



Bridge Condition

MDOT owns most of the bridges in the TwinCATS area. Of this number a significant portion are on the Interstate. Every overpass on the Interstate is a bridge.

Approximately one third of the bridges in the TwinCATS area are less than 100 feet long.

Most of these bridges cross streams or creeks, many of which flow through a pipe known as a culvert.

Another one third of bridges in the TwinCATS area are between 100 and 250 feet long. Final third of the bridges are over 250 feet long. These bridges tend to cross the St. Joseph River and are highway overpasses.

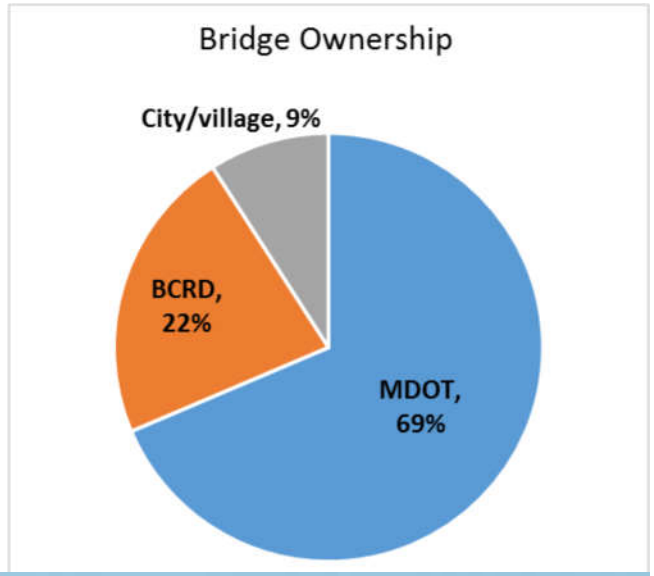
TwinCATS

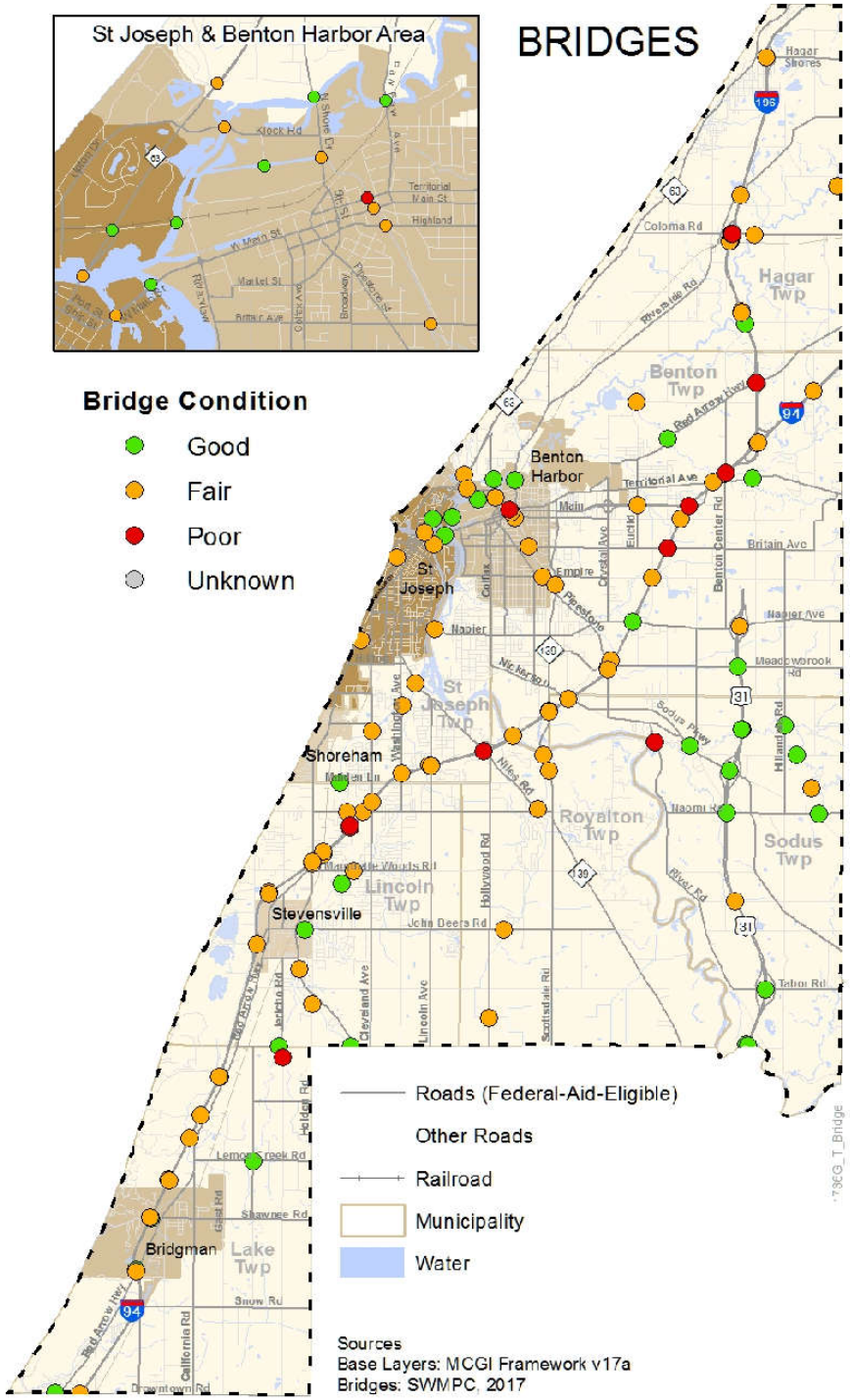
122 Bridges:

51 Over Roads

9 Over Railroad

61 Over Water





Bridge Condition

Inspectors rate Michigan's bridges using the National Bridge Inventory (NBI) 0 to 9 rating scale where they rate each of a bridge's primary elements: deck, superstructure, substructure, and culvert. The lowest rated element is used for the overall bridge rating.

The ratings are divided into the following categories:

7-9 Good Condition: This indicates a completely new bridge or has only minor problems

5-6 Fair Condition: All structural elements are sound but may have minor corrosion, cracking or chipping.

0-4 Poor Condition: Previously known as structurally deficient. There is advanced corrosion, deterioration, cracking or chipping. This does not necessary mean the bridge is unsafe.

Within the poor category a value of 2 to 3 is serious or critical.

A value of 0-1 means the bridge is closed or is in imminent danger of failure.

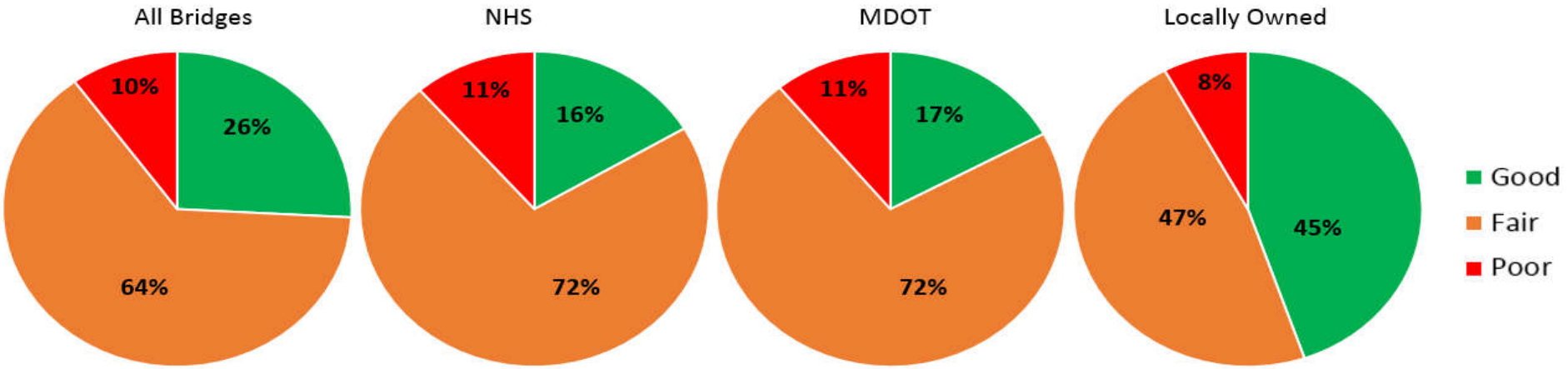
As of 2017, two bridges in the TwinCATS area have a rating of a 3: M-63 over I-196 and River Road over Pipestone Creek.

No bridge was rated lower than a 3.

TwinCATS NHS Bridges:

17.5% Good	11.3% Poor

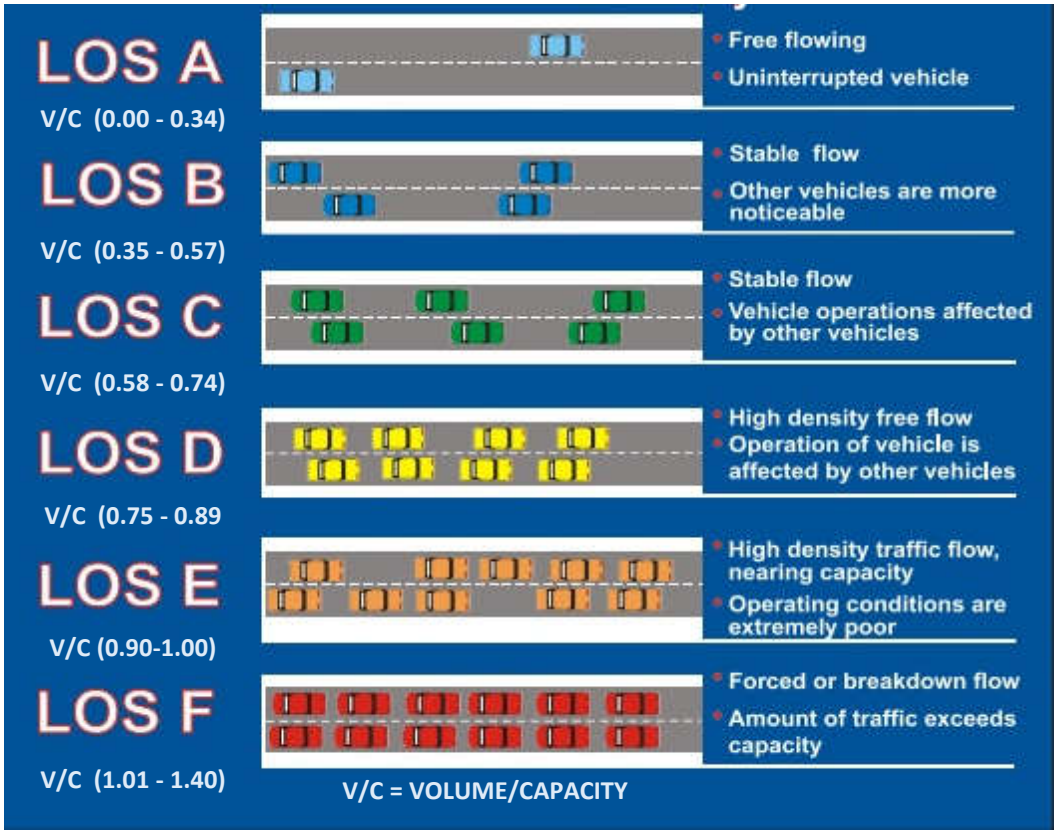
Based on number of structures



Source: Michigan Transportation Asset Management Council (TAMC)

Level of Service (LOS)

Level of service (LOS) is a qualitative measure used to relate the quality of motor vehicle traffic service. Six LOS letters are used, namely A, B, C, D, E, and F, where A denote the best quality of service and F denote the worst. MDOT and TwinCATS have adopted the measure of LOS "E" as the design capacity for the purposes of vehicular traffic modeling and planning. LOS E represents the "ultimate theoretical capacity" of roadways. As traffic approaches LOS E, drivers experience congestion and delays. LOS on the roads in TwinCATS are derived from the Travel Demand Model.



Travel Demand Model

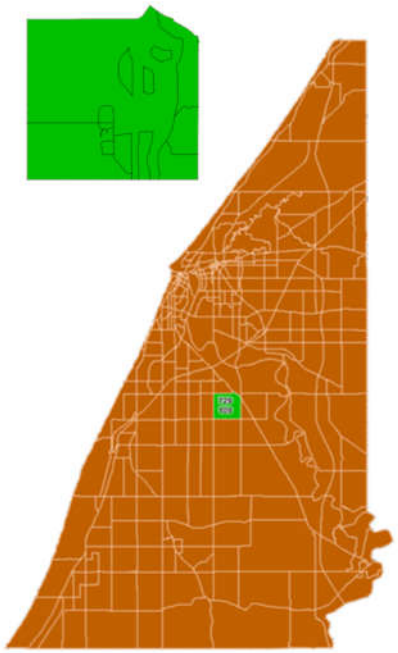
A travel demand model is a computer estimation of current and future traffic conditions for use in system-level transportation planning. The model is a forecasting tool that inputs existing road networks and socio-economic data to determine: where trips are generated from, how they are distributed, what the mode choice will be, and what routes are used. The maps on page 83 and 84 show LOS for current conditions, build scenarios and no-build scenarios.

The travel demand modeling process was a collaborative effort between the SWMPC, MPO committee members, and the MDOT Statewide and Urban Travel Analysis Section. MDOT has taken the lead role in the travel demand modeling for "small MPO" areas throughout the state. Both entities collectively reach consensus on critical decisions in the development of the model with data largely generated and validated by the SWMPC.

Components of the Travel Demand Model

Traffic Analysis Zone (TAZ)

The Traffic Analysis Zone (TAZ) is the primary geographical unit of analysis of the travel demand model – a TAZ represents the origins and destinations of the travel activity within the model area. TAZs are determined based upon several criteria including similarity of land use, compatibility with jurisdictional boundaries, presence of physical boundaries, and compatibility with the road system. Streets and natural features such as rivers are generally utilized as zone boundary edges. TAZs vary in size depending on population, employment, and road network density. The TwinCATS region is divided into 343 TAZ. Each TAZ includes population and employment data (often aggregated from Census blocks) which is fed into the Travel Demand Model.



Road Network

A computerized traffic assignment network is built to represent the existing road system. The TwinCATS Model network is based on the Michigan Geographic Framework and includes most roads 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 and traffic counts (where available). The network attributes were provided by MDOT staff and reviewed by the Technical Advisory and Policy Committees. Link capacities and free flow speeds are determined based on network attributes such as National Functional Classification, facility type, and area type. These features of the road network are used in the traffic assignment process and in determining deficient traffic conditions (a Volume-to-Capacity Ratio of 0.75 or greater or LOS D).

Travel demand models are driven, in part, by the relationship of land use activities and characteristics of the transportation network. Inputs to the modeling process include the number of households, population-in households, vehicles, and employment located in a given TAZ. These characteristics are generally referred to as socioeconomic data. The modeling process translates this data into vehicle trips on the modeled transportation network.

Socioeconomic data collection and verification was a collaborative effort between SWMPC, MPO Committee members, and MDOT. Household, population, and employment data from the 2010 U.S. Census, the 2015 American Community Survey, Claritas and Hoovers employment databases was presented to the Technical Advisory and Policy Committees. They were asked to provide detailed information about new development and where employers or population had been lost. The revised data was included in the travel demand model.

Travel Demand Model 2045 Scenarios

2015 Base Scenario
The Base Year 2015 Scenario analysis looked at existing conditions of the area-wide transportation system as it was in 2015. Recent road projects and socio-economic data changes are not included in this scenario.

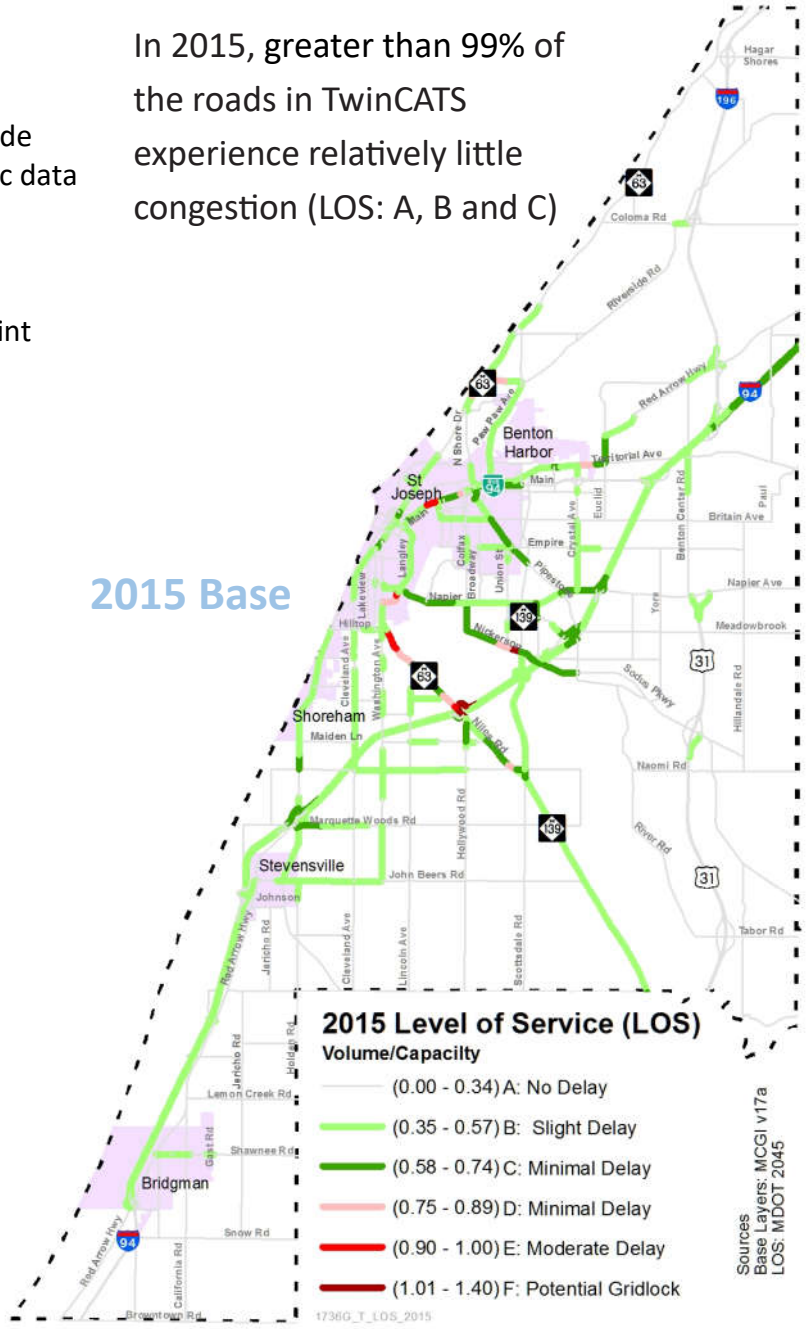
2045 Build Scenario
The Horizon Year 2045 with the committed projects found in the Fiscally Constraint Road and Bridge Projects section (page 97) . This scenario includes the projected changes in socio-economic data through 2045. Traffic volume results were also compared to the expected capacities for the road system in 2045.

2045 No Build Scenario
The Horizon 2045 No Build Scenario utilized the same data and projects as the "Build Scenario," but does not include the US-31/I-94 connection project. This scenario was run as a way to illustrate the effects of the US-31 connection.

Road Name	Section Description	Level of Service (LOS)	2015 Volume/ Capacity
Niles Ave.	Crossing I-94	F	1.37
W I-94/Niles Ave Ramp	Ramp	F	1.06
Nickerson Ave.	Union to Michigan	F	1.04
Niles Ave.	Hilltop to Lincoln	E	0.96
West Main St.	Riverview traffic circle	E	0.93

In 2015 Base Scenario, the vast majority of roads experienced little or no congestion with 87 percent of road miles at a LOS A and 12 percent at a LOS of B or C. About 0.6 percent of roads are at a LOS D, E or F. The roads that regularly experience congestion at peak hours are listed above.

In 2015, greater than 99% of the roads in TwinCATS experience relatively little congestion (LOS: A, B and C)

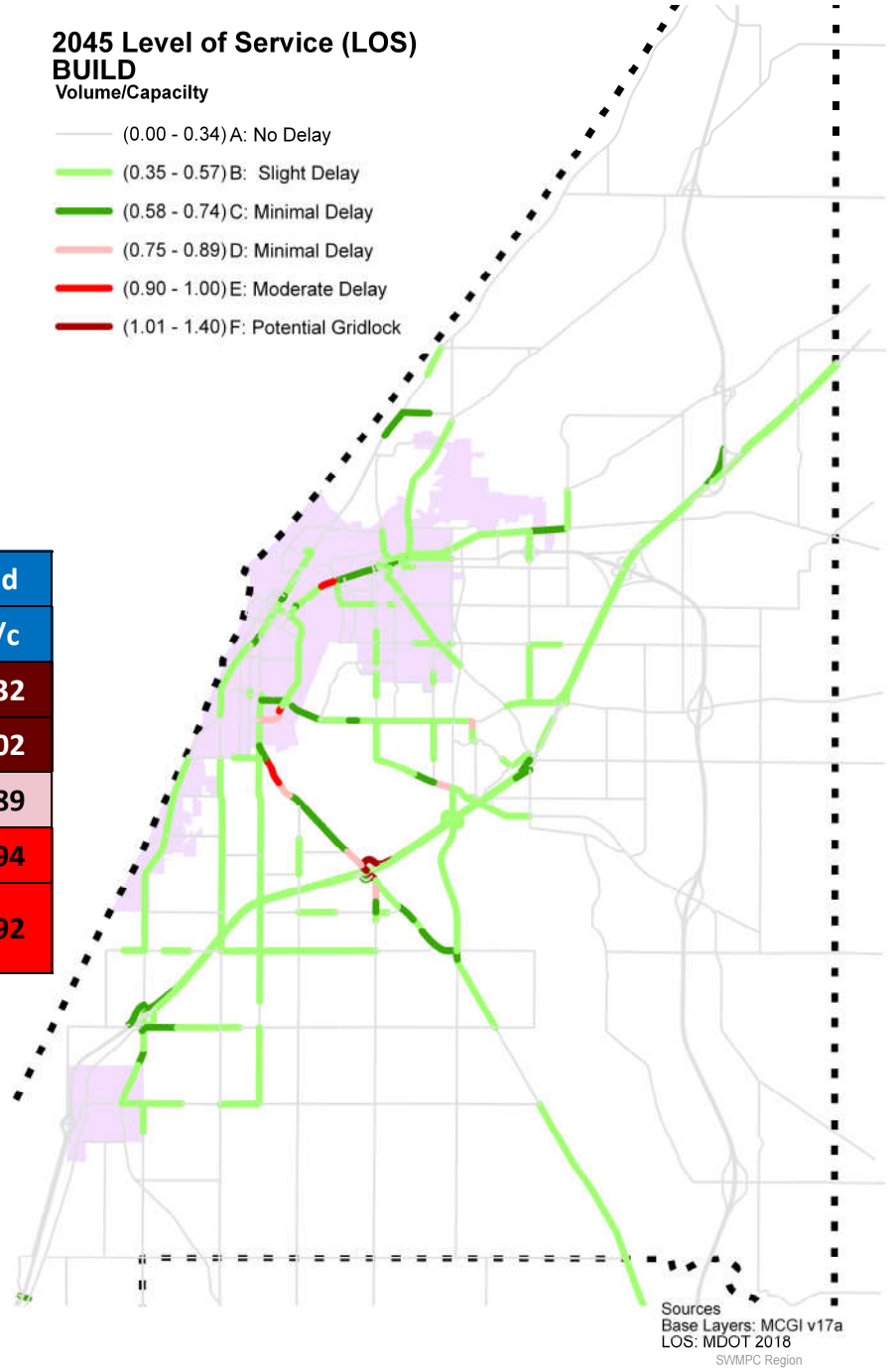


Travel Demand Model 2045 Scenarios

2045 No Build Scenario: Congestion is expected to be similar to the base year, with 90 percent of the road miles at a LOS of A and another 9 percent at a level of B or C. By 2045 the vehicle miles travelled (VMT) is expected to decrease by 14 percent across the entire TwinCATS area.

Proposed US 31 Interchange Connection: when US-31 is extended, (**Build**), a minor reduction in the levels of congestion is predicted. While congestion will be reduced, VMT is predicted to be 1.7 percent higher than the **No Build Scenario** (but still approximately 12 percent less than the base year). The increase in VMT over the No Build Scenario is based on the prediction that some drivers will travel further to use US-31 because the higher speeds on US-31 create a shorter travel time overall.

Road Name	Section Description	2045 No Build		2045 Build	
		LOS	V/c	LOS	V/c
Niles Ave.	Crossing I-94	F	1.32	F	1.32
W I-94/Niles Ave Ramp	Ramp	F	1.01	F	1.02
Nickerson Ave.	Union to Michigan	E	0.93	D	0.89
Niles Ave.	Hilltop to Lincoln	E	0.96	E	0.94
West Main St.	Riverview traffic	E	0.92	E	0.92



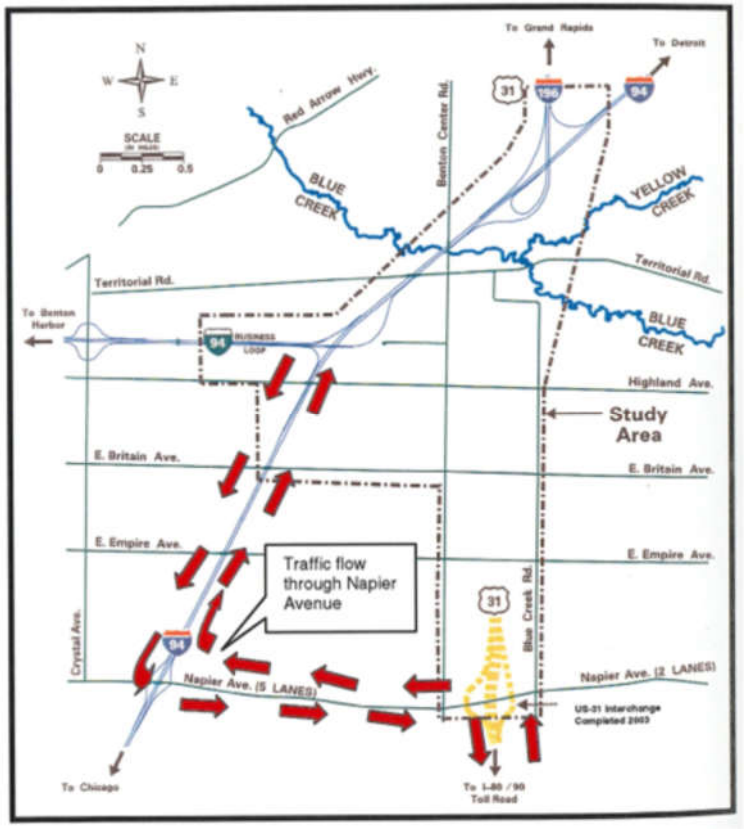
Addressing areas of congestion

New traffic signals are programed for the Niles and Hilltop intersection which will include intelligent transportation systems (ITS) features, to improve safety and traffic flow.

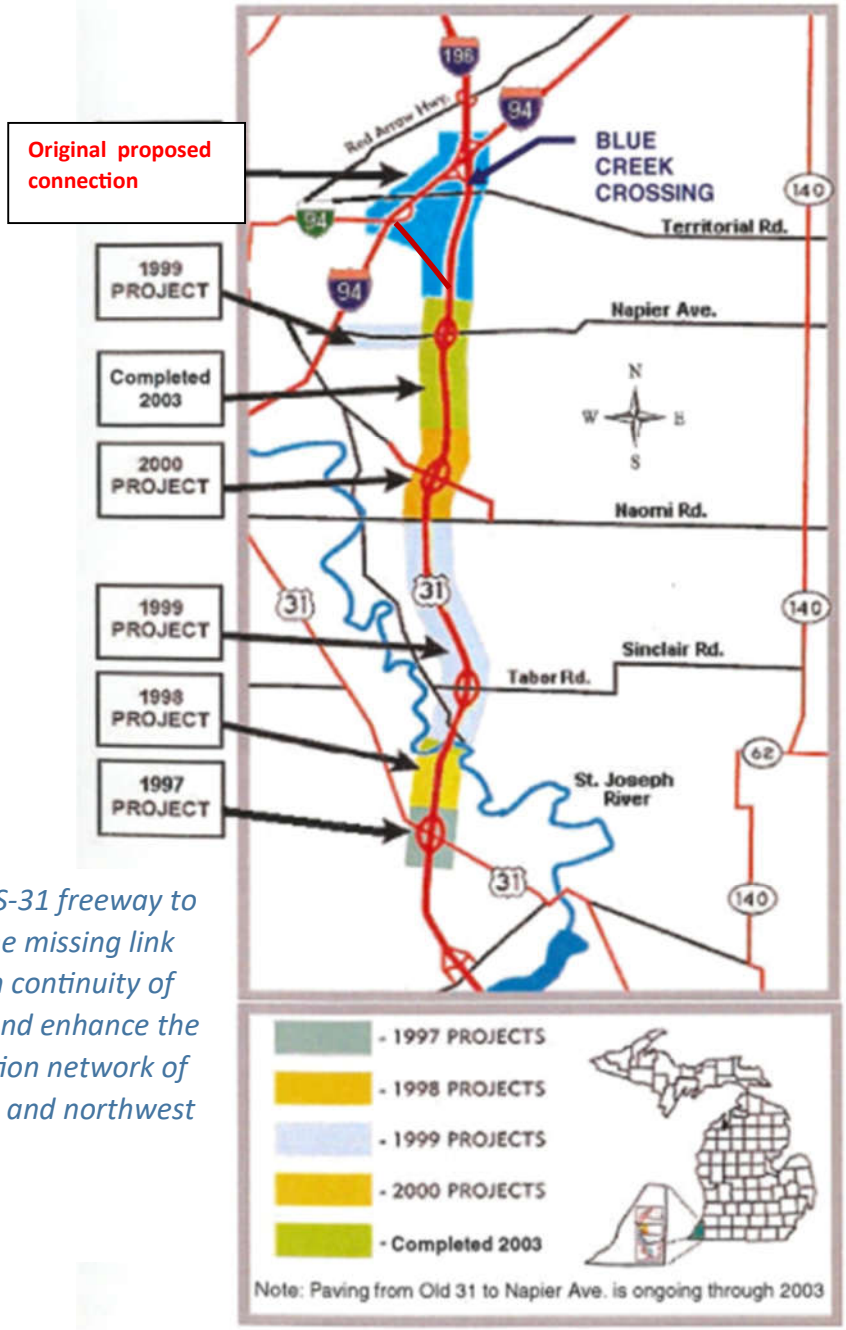
No other actions are being planned to address capacity issues. Overall congestion is minimal and does not significantly affect travel in the TwinCATS area. Given the condition of roads and a limited budget, this Plan prioritizes fixing existing roads above addressing the few congested locations.

US-31 Interchange Connection

The US-31 freeway project in Berrien County has been in development for more than 40 years. The goal is to provide a freeway connection from the I-80/90 toll road in Indiana to the US-31/I-196/I-94 connection in Michigan. Construction completed in 2003 extended the US-31 freeway from the Indiana Toll Road to Napier Avenue. Currently, US-31 traffic must utilize Napier Avenue to continue on I-94 or I-196/US-31 as illustrated below. The primary purpose of the connection is to achieve free flow system connectivity on US-31 from Napier Avenue to I-94. This portion of US-31 is expected to be completed and open to traffic in 2023.



Connection of the US-31 freeway to I-94 will complete the missing link in the overall system continuity of the US-31 freeway and enhance the regional transportation network of southwest Michigan and northwest Indiana.



US-31 Interchange Connection

In 2003 a new alignment connecting US-31 to I-94 was identified and approved in a supplemental Final Environmental Impact Statement (*FEIS*). The new alignment follows the existing MDOT right-of-way north, then swings west to intersect I-94 at the existing Highland Avenue bridge. The bridge structure will be removed and the BL-94 interchange will be realigned south from its existing location; providing a direct connection between BL-94 and US-31. Auxiliary lanes will be added on I-94, eliminating the need for vehicles to merge when traveling between US-31 and I-196/US-31.

Proposed Design Alternative Meets the Purpose and Need of the 1981 Environmental Impact Statement for US-31

- Provides a free flow US-31 freeway link to I-94 and connects the US-31 freeway from south of Napier Avenue to the I-196 freeway to the north.
- Improves local access to the Benton Harbor/ St. Joseph area from the south because it provides a direct link from US-31 to BL-94.
- Reduces the environmental impacts and costs when compared to the approved 1981 FEIS alignment.
- Improves existing traffic safety and level of service along I-94.
- Minimizes environmental impacts.
- Provides for improved access to St. Joseph/Benton Harbor area.

STRATEGIES:

IMPROVING THE ROAD AND BRIDGE NETWORK

Strategy	Guiding Principles Met
Preserve and maintain existing road & bridge network	✓ ✓ ✓ ✓

Keep records on the condition for pavements, culverts, and bridges.
Use PASER condition as a tool to help select projects.
Encourage use of local asset management plans to identify the most appropriate treatment strategies.
Monitor the effectiveness of fixes to ensure investments meet expected useful life.
Encourage the use of preventative maintenance to extend pavement lifespan.

Implement Complete Streets Policy	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓

Ensure all projects meet the TwinCATS Complete Streets Policy.
Provide educational and planning assistance to local governments on implementing Complete Streets principles.
Consider reallocation of extra space in the right of way for other modes.

Analyze safety issues and potential solutions	✓ ✓ ✓ ✓

Distribute TwinCATS safety reports which show trends in collisions, common crash causes, and high crash locations.
Provide education on and raise awareness of safety issues for all users.
Incorporate safety considerations for all modes and users throughout the processes of planning, funding, construction, and operation.
Provide recommendations for safety countermeasures based on FHWA, NACTO and AASHTO best practices and design principles.

Resiliency & Reliability	✓ ✓ ✓ ✓

Maintain inventories of assets, condition, and life cycle to assist in identifying which assets are at risk for failure.
Encourage sound inspection and maintenance practice regimes for transportation related infrastructure that includes but is not limited to bridges, culverts, underdrains, catch basins, transit facilities and buses.
Consider potential hazards in project design, selection, and construction.
Ensure redundancy in transportation networks to ensure critical services can be delivered during road closures.

NON-MOTORIZED NETWORK

TwinCATS MPO

NON-MOTORIZED NETWORK

48 miles

Federal Aid Roads with Sidewalks

34 Miles

Federal Aid Roads with Wide Shoulders

65% Federal Aid Eligible Roads

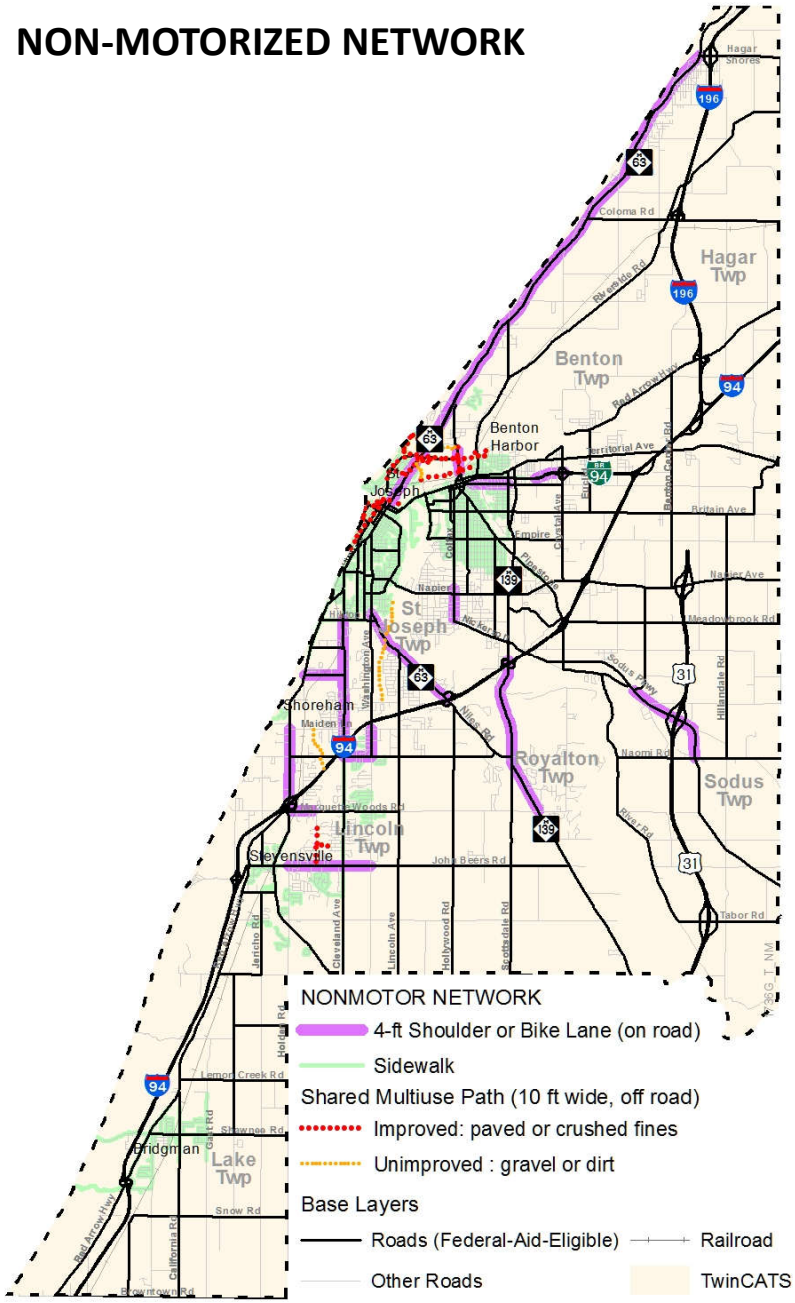
Have No Accommodations

For Pedestrians or Cyclists.

2.5% TwinCATS Commuters

Walk or Bike

Source: U.S. Census Bureau, 2015 5yr American Community Survey



Considering the Needs of All Users

Part of the TwinCATS mandate is to consider the needs of all users; this includes walking, or bicycling by people of all ages and ability levels, including people with disabilities.

TwinCATS considers walking and cycling priorities because they produce a variety of benefits include improved health, attraction of new residents who desire walkable communities, and a decrease in vehicle miles traveled. Yet despite its benefits few residents in the TwinCATS area walk other than for recreation, likely because conditions for walking and cycling are overall poor. The majority of employment, shopping, and other tasks are difficult to accomplish without a car. Yet despite sometimes challenging conditions, there are residents who must walk or bike because they lack other means of travel. Furthermore, those who use transit must begin and end their journey on foot or bicycle.

USDOT 2010 Policy Statement on Bicycle & Pedestrian Accommodations

"Because of the numerous individual and community benefits that walking and bicycling provide—including health, safety, environmental, transportation and quality of life—transportation agencies are encouraged to go beyond the minimum standards to provide safe and convenient facilities for these modes."

2018 TwinCATS Transportation Survey

WALK

89% rarely/never commute by walking to work or school.

BIKE

66% rarely commute by bike to work or school.

Maintaining Pedestrian and Bicycle Facilities

Poorly maintained roads have been cited as a major concern for motorists, but well maintained facilities are just as important a need for pedestrians and bicyclists.

Cyclists encounter the following on a frequent basis:
72% Poor Roadway Surface
41% Worn out pavement markings
2018 TwinCATS Transportation Survey

- Bicyclists are especially vulnerable to poor pavement condition because bicycles are more likely to have an accident if they encounter obstacles like large cracks or potholes.
- Bicyclists will sometimes have to avoid dangers which means they may have to leave the shoulders and enter the automobile travel lanes or stop abruptly. This can be unpredictable for drivers and lead to crashes.

Any break in the pedestrian network or disrepair can potentially eliminate walking or transit option for people or force a choice to drive instead of walk.

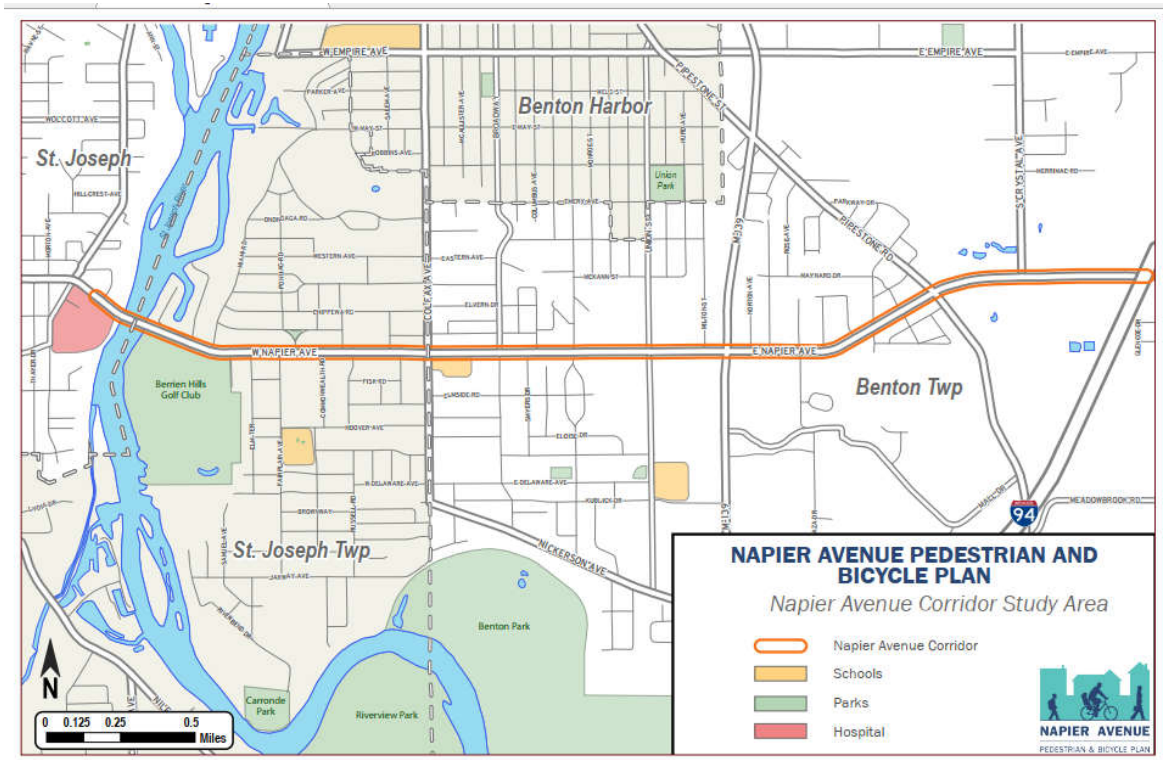
65% of pedestrians encountered a missing sidewalk or no sidewalks at all.
2018 TwinCATS Transportation Survey

Common challenges to pedestrian travel after a snowfall

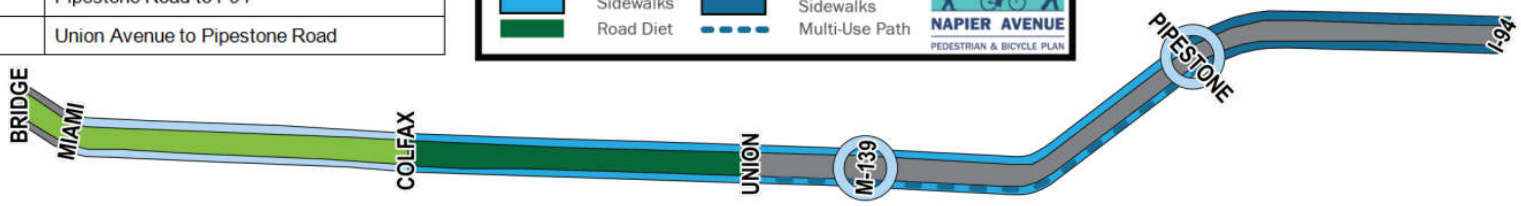
- Street and parking lot plowing that pushes the snow onto sidewalks or blocks crosswalks.
- Clogged or obstructed drains that create puddles at curb ramps
- Patches of ice that create slip hazards.
- Long stretches of snow or ice covering sidewalks

High Priority Pedestrian and Bicycle Transportation Link Proposal

The Napier Avenue Corridor is an important east-west transportation corridor in the Benton Harbor – St. Joseph metro area, providing connectivity from the expressway into the core cities, providing access to major shopping and medical destinations, and serving a number of neighborhoods and community businesses. While it may function well for vehicular travel, it is not ideal for pedestrians or bicyclists. The existing condition of Napier Avenue is simply not comfortable and safe for all users, and in many places is lacking basic pedestrian infrastructure such as sidewalks and crosswalks. The Corridor is heavily traveled and has a variety of land uses that serve essential functions including healthcare (Lakeland Hospital) at its west end and employment, education, and retail on its east end (Fairplain Plaza, Orchards Mall, businesses along M- 139). The Napier Avenue Pedestrian and Bicycle Plan was initiated in 2017 to document the need for pedestrian and bicycle uses, examine options for how to better meet those needs, and develop a design and implementation strategy.



Phase	Implementation Step	Where
Near Term	Road diet and bike lanes	Bridge to Colfax Avenue
	Sidewalks and pedestrian crossings	Miami Road to Colfax Avenue
	Enhanced crossings	At M-139 and Pipestone Road
Medium Term	Road diet and sidewalks	Colfax Avenue to Union Avenue
	Sidewalks	Colfax Avenue to Pipestone Road
Long Term	Sidewalks	Pipestone Road to I-94
	Multi-use path	Union Avenue to Pipestone Road

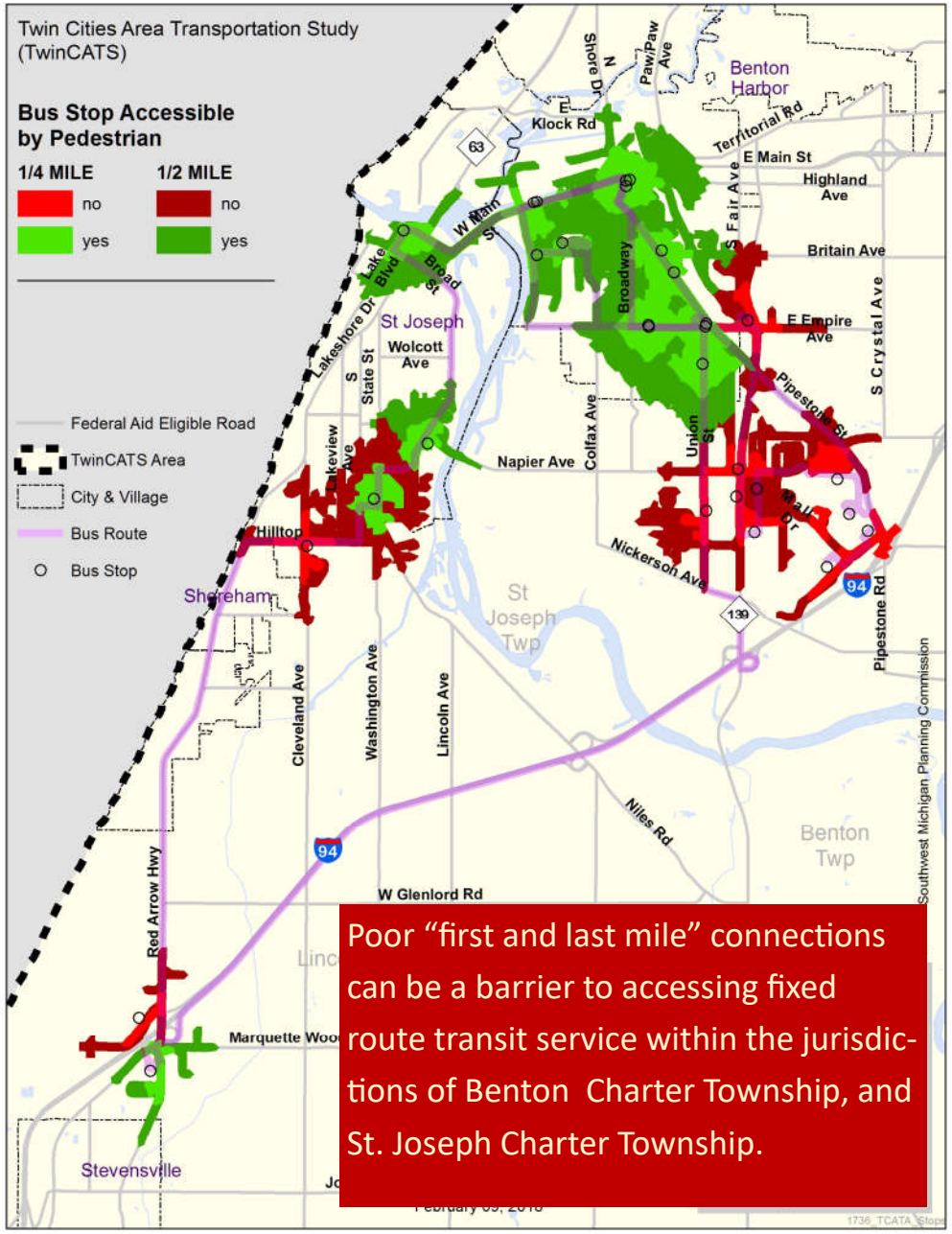


WALK.
BIKE.
RIDE.

For Twin Cities Transportation Area (TCATA) routes and any planned future routes, a network of sidewalks and bike lanes or shared use paths could connect transit stops to neighborhoods and popular destinations and improve the efficiency of the fixed routes. Today the majority of the fixed route stops within the townships of Benton Charter and St. Joseph Charter require the bus to pull off the route onto private property to pick up passengers. This lack of infrastructure increases the routed length and time of the route.

The table below identifies corridors within the TwinCATS study area that exhibit strong indicators of need and opportunity for fixed route transit service. These indicators include population density, employment density, activity centers, demographic characteristics associated with transit dependency and a large volume of existing riders.

Corridor	From	To	Jurisdiction	Responsible Agency
Mall Drive	M-139	Pipestone Ave	Benton Township	Berrien Road Commission
Napier Ave.	Miami Rd	Pipestone Ave	City of St. Joseph, St. Joseph Twp., & Benton Twp.	Berrien Road Commission
M 139	Britain Ave.	Nickerson Ave.	Benton Township	MDOT
Fair Ave.	Britain Ave.	Territorial Rd	Benton Twp. & City of Benton Harbor	MDOT
Martin Luther King	Britain Ave.	Territorial Rd	Benton Twp. & City of Benton Harbor	MDOT



Intercity Travel By Bike

The U.S. Bicycle Route System is a national network of regionally and nationally significant bicycling routes spanning multiple states. The purpose of the U.S. Bicycle Route (USBR) numbering system is to facilitate travel between states on routes identified as suitable for long-distance cycling. To date, over 13,000 miles of U.S. Bicycle Routes have been approved in 26 states and D.C. When complete, the USBRS will encompass 50,000 miles of routes and create new opportunities for cross-country travel, regional touring, and commuting by bicycle.

U.S. Bicycle Route 35 is a 500-mile route that runs from Indiana through Michigan to Sault Ste. Marie, Canada, generally following the Lake Michigan shoreline and through the eastern Upper Peninsula.

Who Are Touring Cyclists?

82% have a college education

58% make over $75,000 per year

8.1% are international tourists

52 years old is the average age

US Bike Route 35 traverses the coastline along US 12, Red Arrow Highway, on rural roads, Lake Shore Drive and M-63 for approximately 25 miles within the TwinCATS planning area. Much of the route, south of St. Joseph, takes advantage of less busy roads and north of St. Joseph on M-63, the route has wide shoulders.

STRATEGIES:

IMPROVING BICYCLE AND PEDESTRIAN TRANSPORTATION

Strategy	Guiding Principles Met

Build Connected Networks

- Develop networks for non-motorized facilities along appropriate roadways.
- Improve integration of bicycle and pedestrian transportation with transit.
- Prioritize enhancement of pedestrian & bicycle travel in areas with a high potential for trips that can be accomplished by walking & biking.
- Research and improve links between shared use paths and on-road facilities and address key gaps in transportation trail systems.

Improve Safety

- Improve education and training of the public regarding safe driving, walking, and biking.
- Use best practices to analyze bicycle and pedestrian crashes and identify effective countermeasures.
- Ensure maintenance of non-motorized facilities to provide safe access for pedestrians and cyclists.

Plan and Design for Everyone

- Ensure design of non-motorized facilities is appropriate for the conditions by following best practices in ASHTO, NACTO, and FHWA design guides.
- Ensure facilities that work for users with different abilities, comfort levels, and experience.
- Ensure that road features, like rumble strips and chip seal, safely accommodate bicycle use.
- Leverage funding opportunities to improve bicycle and pedestrian networks.
- Adhere to the TwinCATS Complete Streets Policy in project selection.

Promote Walking and Biking

- Promote current facilities where people can bike and walk
- Promote the bicycle amenities and services offered through local website, social media, etc.

FISCALLY CONSTRAINED ROAD & BRIDGE PROJECTS

Principles in Motion >>> **FISCALLY CONSTRAINED ROAD & BRIDGE PROJECTS—Local Agency Projects**

Fiscal Year	Project Name	Responsible Agency	Limits	Primary Work Type	Project Description	Federal Cost	Total Cost	Federal Fund Source	Performance Measures				NHS
									Pavement	Bridge	Safety	Reliability	
2018	Pipestone St	Benton Harbor	At Jefferson St	Traffic Safety	Traffic signal modernization	$264,254	$264,254	CMAQ			x		
2018	Territorial Road	BCRD	4th Street to 1.3 miles west	Road Rehabilitation	HMA resurfacing, paved shoulders, tree removal, signing	$385,316	$428,129	Safety	X		x		
2018	Red Arrow Highway	BCRD	Bridgman city limits to Browntown Road	Road Rehabilitation	Resurface	$591,779	$1,284,790	Rural/ STBG	x				
2018	Shawnee Rd	BCRD	Jericho to Holden Road	Reconstruction	Construct 5 ft. wide shoulders and resurface	$268,925	$409,925	STBG	x				
2018	Nickerson Ave	BCRD	M-139 to 700 ft. E of Woodley	Road Rehabilitation	Mill and Fill 2 inches	$143,000	$175,000	STBG	x				
2018	Wallace Avenue	St. Joseph	Lakeshore Drive (BL 94) to South State Street	Reconstruction	Full reconstruction	$785,760	$1,460,000	STBG	x				
2019	S. Roosevelt Rd	BCRD	Hidden Pines Trail to Marquette Woods	New Facilities	Non-motorized trail	$318,601	$398,251	CMAQ					
2019	John Beers Rd	BCRD	Hollywood to Scottsdale	Road Rehabilitation	Construct 5 ft. paved shoulders and resurface	$350,000	$479,000	STBG	x				
2019	Napier Ave	BCRD	St. Joseph River to 3700 ft. East	Road Rehabilitation	Mill and Fill. ADA ramps as required.	$355,000	$429,000	STBG	x				x

Fiscal Year	Project Name	Responsible Agency	Limits	Primary Work Type	Project Description	Federal Cost	Total Cost	Federal Fund Source	Performance Measures				NHS
									Pavement	Bridge	Safety	Reliability	
2020	Leeds Ave	BCRD	Napier Avenue at Leeds Avenue	Traffic Safety	Traffic signal modernization	$240,000	$240,000	CMAQ			x		
2020	Marquette Woods Rd	BCRD	Roosevelt to Cleveland	Road Rehabilitation	Resurface, widen shoulders	$400,000	$500,000	STBG	x				
2020	Napier Ave	BCRD	I-94 to 4300 feet west	Resurface	Mill and fill with ADA ramps as required	$471,000	$575,100	STBG	x				x
2021-2025	System Preservation	Local Agencies	Various	Repair federal aid road network		$3,687,163	$4,369,288	STBG	x				
2021-2025	Air Quality	Local Agencies	Various	Non-motorized facilities , traffic flow improvements, and transit vehicle replacements		$4,712,895	$5,655,474	CMAQ			x	x	

STBG Funding Summary 2018-2025

Total estimated TwinCATS STBG allocation: $7,715,188
Total STBG Expended: $7,715,188
Balance: $0

CMAQ Funding Summary 2018-2025

Total estimated CMAQ allocation : $5,655,400
Total CMAQ Expended $5,655,400
Balance $0
Includes funding in 2021-2025 outside of the TwinCATS area

The above list includes all federally funded transportation projects programed between 2018 and 2020. This includes four funding sources: TwinCATS allocation of STBG funds, CMAQ, rural STBG funds, and safety funds. The rural funds are being used on a portion of Red Arrow Highway which is outside of the census designated urban area but within the TwinCATS planning area. The safety funds come from a statewide competitive grant. Because rural STBG funds and safety funds are not allocated to TwinCATS directly they are not included in the financial section

Fiscal Year	Project Name	Responsible Agency	Limits	Primary Work Type	Project Description	Federal Cost	Total Cost	Federal Fund Source	Performance Measures				NHS
									Pavement	Bridge	Safety	Reliability	
2026-2035	System Preservation	Local Agencies	Various	Repair federal aid road network		$11,703,620	$13,868,789	STBG	x				
2026-2035	Air Quality	Local Agencies	Various	Non-motorized facilities , traffic flow improvements, and transit vehicle replacements		9,101,840	$10,922,208	CMAQ			x	x	

STBG Funding Summary 2026-2035

Total estimated STBG allocation: $11,703,620
Total STBG expended : $11,703,620
Balance: $0

CMAQ Funding Summary 2026-2035

CMAQ allocation : $9,101,840
Total CMAQ Expended: $9,101,840
Remaining Balance: $0

Fiscal Year	Project Name	Responsible Agency	Limits	Primary Work Type	Project Description	Federal Cost	Total Cost	Federal Fund Source	Performance Measures				NHS
									Pavement	Bridge	Safety	Reliability	
2036-2045	System Preservation	Local Agencies	Various	Repair federal aid road network		$14,830,886	$17,574,600	STBG	x				
2036-2045	Air Quality	Local Agencies	Various	Non-motorized facilities , traffic flow improvements, and transit vehicle replacements		$11,533,897	$13,840,676	CMAQ			x	x	

STBG Funding Summary 2036-2045

Total estimated STBG allocation: $14,830,886
Total STBG expended : $14,830,886
Balance: $0

CMAQ Funding Summary 2036-2045

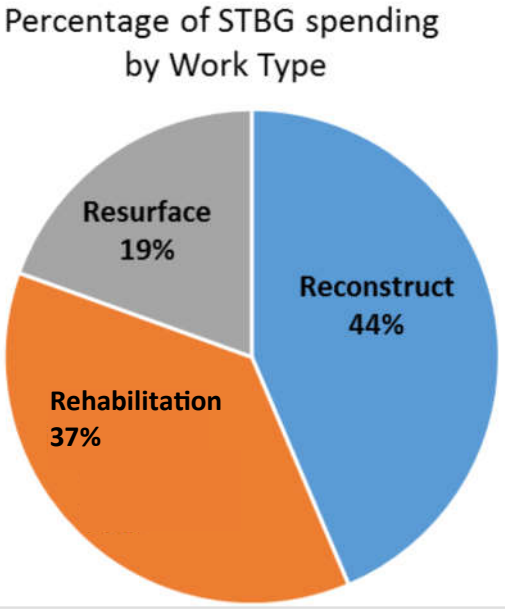
CMAQ allocation : $11,533,897
Total CMAQ Expended: $11,533,897
Remaining Balance: $0

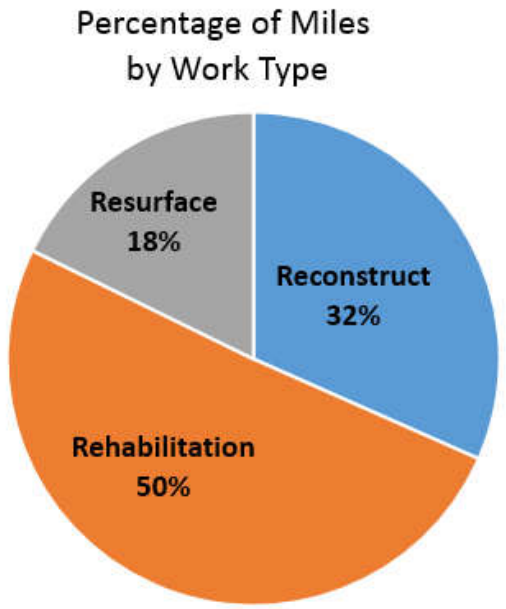
Based on the results of the travel demand model, no significant congestion on local roads was identified, and local agencies agree that preservation of the existing roads system is the top priority. Therefore for the years of 2021-2045 federal funds are being allocated to system preservation and air quality. System preservation includes preventative maintenance, resurfacing , or reconstruction of roads to bring the road to good condition. Exact locations and road treatments will be determined based on the future road conditions, local agency asset management plans, and how the project meets the goals laid out in this Long Range Plan. System preservation can include safety improvements as warranted. It will also include improvements to bicycle or pedestrian facilities needed for to comply with the TwinCATS Complete Streets Policy. It will not include any capacity increases.

Summary of Outcomes from STBG Funded Local Road Projects 2018-2020

STBG Funded Local Road Projects

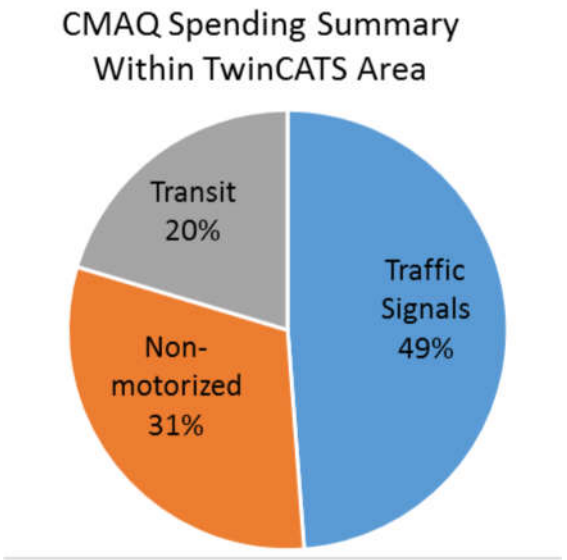
Primary Work Type	Miles	Federal Funding
Reconstruct	1.375	$1,054,685
Rehabilitation	2.2	$893,000
Resurface	0.772	$471,000
Total	4.347	$2,418,685





Summary of Outcomes From CMAQ Funded Local Projects 2018-2020

Description	CMAQ Funding	Emissions Reduction (kg/day)	
		NOx	VOC
Traffic signal modernization	$264,254	0.183	0.255
Multi Use Non-motorized path	$318,601	0.046	0.021
Traffic signal modernization	$240,000	0.022	0.063
Replace three 2013 gasoline buses with 2020 gasoline buses	$210,400	0.085	0.223
Total	$1,033,255	0.336	0.562



Principles in Motion >>> **FISCALLY CONSTRAINED ROAD & BRIDGE PROJECTS—MDOT Projects**

Fiscal Year	Project Name	Limits	Primary Work Type	Project Description	Phase	Federal Cost	Total Cost	Performance Measures				NHS
								Pavement	Bridge	Safety	reliability	
2018	I-196	I-94 to North of M-63 (Exit 7)	Road Rehabilitation	Mill Existing & Multiple Course HMA Overlay	ROW	$22,500	$25,000	x				x
2018	I-196	I-94 to North of M-63 (Exit 7)	Road Rehabilitation	Mill Existing & Multiple Course HMA Overlay	CON	$14,490,000	$16,100,000	X				x
2018	I-196	under M-63	Bridge Replacement	Bridge Replacement	CON	$4,135,701	$4,595,223		X			x
2018	I-196	Exit 1, SW quadrant of interchange.	Roadside Facilities - Preserve	Resurface existing carpool lot.	CON	$32,740	$40,000					x
2018	I-94	Britain Avenue to I-196	Reconstruction	Reconstruction of I-94 and partial interchange.	ROW	$135,000	$150,000	x			x	x
2018	M-139	Tanglewood Trail to Anna Lane	Minor Widening	Install passing flares.	ROW	$10,250	$25,000			x	x	x
2018	Regional	Various roads	Preventative Maintenance	Crack seal	CON	$1,213,017	$1,482,000	x				
2019	I-94 BL	Over St. Joseph River in Benton Harbor	Bridge Maintenance	Epoxy overlay, joints, mechanical, electrical	CON	$3,136,519	$3,832,032		x			x
2019	I-94 E	Under Glenlord Road and Cleveland Avenue over I-94	Bridge Rehabilitation	Deep Overlay, Substructure Repair, Beam Repair,	CON	$2,727,000	$3,030,000		x			x
2019	M-139	Tanglewood Trail to Anna Lane	Minor Widening	Install passing flares.	CON	$243,802	$594,640			x	x	x
2019	M-139	Hinchman Road to north of the St. Joseph River	Preventative Maintenance	Mill and One Course Hot Mix Asphalt Overlay	CON	$1,795,617	$2,193,789	x				x
2019	M-63	over St. Joseph River	Bridge Maintenance	Epoxy overlay, scour, mechanical & electrical	CON	$3,216,667	$3,929,953		x			x

Fiscal Year	Project Name	Limits	Primary Work Type	Project Description	Phase	Federal Cost	Total Cost	Performance Measures				NHS
								Pavement	Bridge	Safety	reliability	
2019	Signage	Signing Update	Traffic Safety	Cantilevers Replacement Project	PE	$50,000	$150,000			x		
2019	US-31	Napier Ave to I-94	New Road	Construct New Highway	PE	$2,451,203	$2,994,750	x		x	x	
2019	US-31	Napier Ave to I-94	New Road	Construct New Highway	PE-S	$1,139,977	$1,392,764	x		x	x	
2019	US-31	Napier Ave to I-94	New Road	Construct New Highway	UTL	$7,539,340	$9,211,167	x		x	x	
2020	US-31	Napier Ave to I-94	New Road	Construct New Highway	CON	$31,902,290	$38,976,530	x		x	x	
2020	I-94BL	I-94 to Glenlord Road	Preventative Maintenance	Mill and One Course Hot Mix Asphalt Overlay	CON	$434,439	$530,775	x				x
2020	I-94BL	St. Joseph River to Fair Avenue	Preventative Maintenance	Single Course Micro-Surfacing	CON	$296,733	$362,533	X				x
2020	M-139	Over Buckhorn Creek, north of Rocky Weed Rd.	Reconstruction	Culvert Replacement and Road Reconstruction	ROW	$25,046	$30,600	X				x
2020	M-139	Various Crack Seal Locations	Preventative Maintenance	Overband Crack Fill	CON	$64,452	$392,986	X				x
2021	I-94	Britain Avenue to I-196	Reconstruction	Reconstruction of I-94 and partial interchange.	CON	$66,431,475	$73,812,750	X				x
2022	I-94	St. Joseph River to Britain Avenue.	Reconstruction	Reconstruction and Hot Mix Asphalt Resurfacing	CON	$43,015,666	$47,795,184	X				x
2022	I-94 EB	I-94 BL (Exit 23) to the St. Joseph River	Reconstruction	Reconstruction	ROW	$22,500	$25,000	x				x
2022	I-94 WB	Pipestone Road (Exit 29)	Major Widening	Ramp Reconstruction	CON	$1,473,300	$1,800,000	x		x	x	x

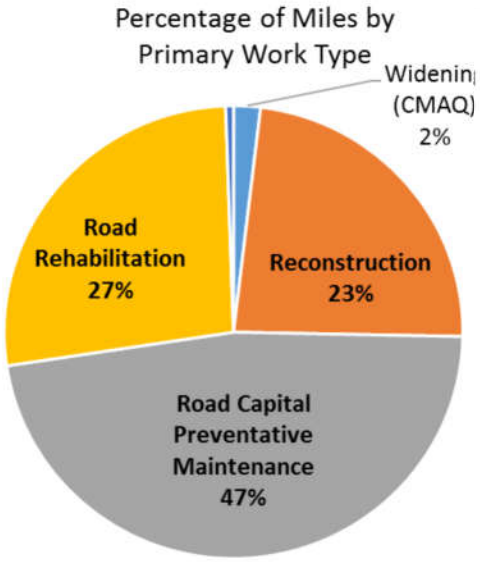
Fiscal Year	Project Name	Limits	Primary Work Type	Project Description	Phase	Federal Cost	Total Cost	Performance Measures				NHS
								Pavement	Bridge	Safety	reliability	
2022	M-139	Over Buckhorn Creek, north of Rocky Weed Rd.	Reconstruction	Culvert Replacement and Road Reconstruction	CON	$1,072,502	$1,310,327	X				x
2022	Signage	Signing Update, Signing Updates	Traffic Safety	Cantilevers Replacement Project	CON	$230,000	$730,538			X		
2022	US-31	Exit 24, SW quadrant of interchange.	Roadside Facilities - Preserve	Resurface existing carpool lot.	CON	$36,833	$45,000					
2023	I-94 WB	I-196 to 0.7 miles west of M -140	Road Rehabilitation	Repair Existing & Multiple Course HMA Overlay	CON	$15,750,000	$17,500,000	X				x
2024	I-94	Exit 23 off I-94 BL Stevensville,	Roadside Facilities - Improve	Expand and resurface; car pool parking lot.	CON	$90,036	$110,000					x
2024	I-94 EB	I-94 BL to the St. Joseph River	Reconstruction	Reconstruction	CON	$73,308,600	$81,454,000	X				x

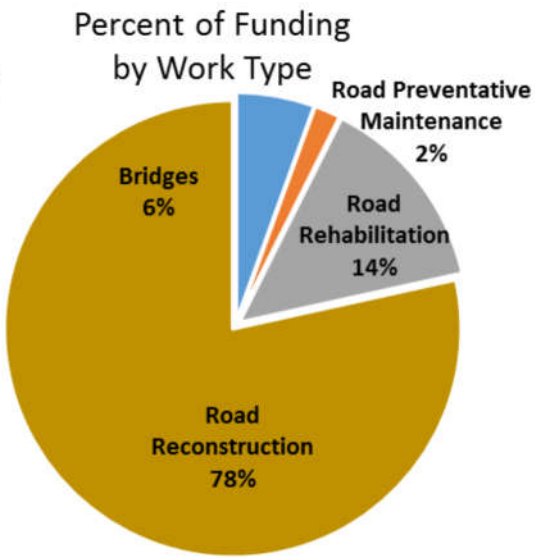
MDOT Funding Summary 2018-2025

Total estimated MDOT funding allocation: $314,622,541
Total MDOT funds expended: $314,622,541
Remaining Balance: $0

Preservation Budget Summary

Work Type	Miles	Expenditures
Bridge Preventative Maintenance	NA	$7,761,985
Bridge Rehabilitation	NA	$3,030,000
Bridge Replacement	NA	$4,595,223
Widening (CMAQ)	1.24	$2,419,640
Road Preventative Maintenance	31.02	$5,170,000
Road Rehabilitation	17.59	$39,375,000
Road Reconstruction	15.35	$216,424,262
Carpool lots	NA	$216,000
Safety	NA	$880,538





Fiscal Year	Project Name	Limits	Primary Work Type	Project Description	Phase	Total Cost	Performance Measures				NHS
							Pavement	Bridge	Safety	reliability	
2026-2035	System Preservation	Various	System Preservation		PE, ROW, & CON	$141,868,937	x	x	x		x
2036-2045	System Preservation	Various	System Preservation		PE, ROW, & CON	$202,175,487	x	x	x		x

MDOT Funding Summary 2026-2035

Total estimated MDOT funding allocation: $141,868,937
Total MDOT funds expended : $141,868,937
Remaining Balance: $0

MDOT Funding Summary 2036-2045

Total estimated MDOT revenue: $202,175,487
Total MDOT funds expended: $202,175,487
Remaining Balance: $0

MDOT programs projects in their five year plan. MDOT has not programed specific projects past 2024. After 2024 MDOT will continue to mainly spend funding on preservation projects. This includes reconstruction, resurfacing, preventative maintenance, safety improvements and other associated roadway upgrades. The preservation budget cannot be used for capacity increases.

PASSENGER TRANSPORTATION

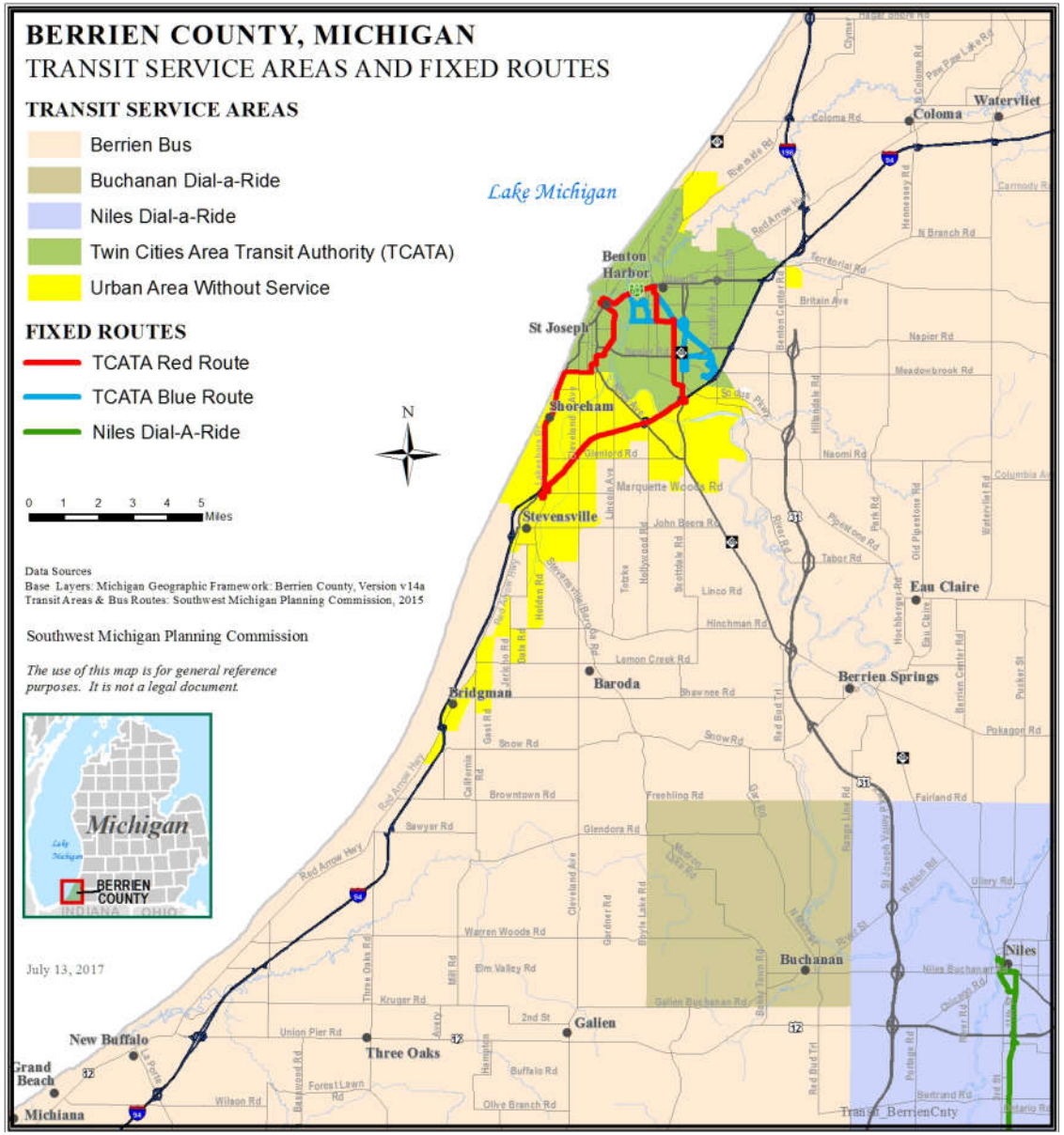
Countywide Overview

There are four independently operated public transit systems spread throughout Berrien County. Twin Cities Area Transportation Authority (TCATA) is the designated transit provider in the St. Joseph Benton Harbor Urbanized area. Berrien Bus is the designated rural provider for areas of the county not served by Niles Dial a Ride and Buchanan Dial a Ride within the Niles Buchanan urbanized area.

The four public transit agencies in Berrien county are largely organized around municipal and county boundaries. As a result, they are not always able to take people where they want and need to go.

A variety of public transit services are offered by the four providers including fixed route service , dial a ride service, 24 hour reservation and contract service to schools and human service agencies. In 2016 the four systems provided approximately 371,000 rides.

There is a need for additional transit coverage and regional north/south linkages within the county and beyond. There are areas that have no services and others the service coverage, hours, and capacity are limited. Basic transportation to medical and social services for those unable to drive is critical to maintaining people in their communities, and improved services are needed to provide access to employment.



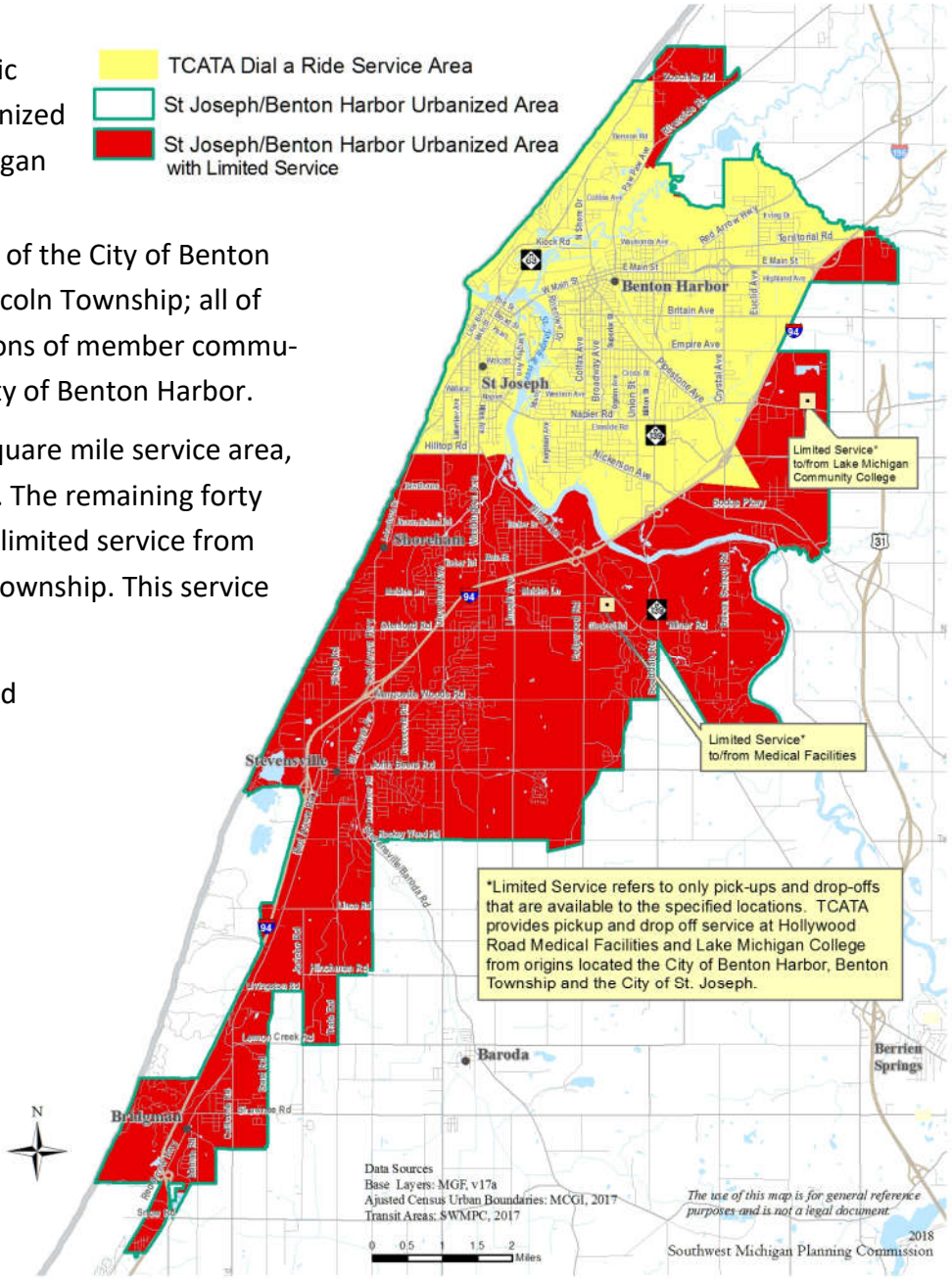
Twin Cities Area Transportation Authority

Twin Cities Area Transportation Authority (TCATA) is the designated public transit provider for people living in the Benton Harbor/Saint Joseph Urbanized Area (approximately 63,000 people). TCATA became an authority and began operations in 1975.

TCATA's original authority and service area consisted of the communities of the City of Benton Harbor, Benton Township, City of St. Joseph, St. Joseph Township and Lincoln Township; all of these communities were members of the authority. Subsequent reductions of member communities in the authority reduced its membership to one community, the City of Benton Harbor.

Today, TCATA serves approximately 33,000 residents within a fourteen square mile service area, about fifty three percent of the St. Joseph-Benton Harbor urbanized area. The remaining forty seven percent of the St. Joseph-Benton Harbor Urbanized Area receives limited service from TCATA in portions of Royalton, St. Joseph Charter Township and Lincoln Township. This service includes:

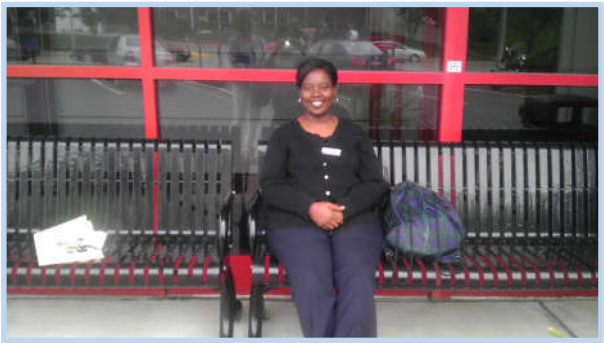
- Drop-off and pick up service to medical facilities along Hollywood Road
- Fixed route service along Red Arrow Highway
- Drop-off and pick up service at Lake Michigan College and Berrien County Health Department.

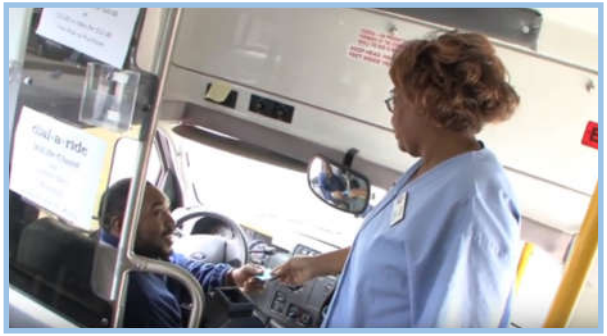


AREA	Population within TCATA	Total Population in Municipality
Benton Twp.	12,160	14,749
Benton Harbor, City	10,060	10,060
St Joseph, City	8,119	8,362
St Joseph, Twp.	2,985	10,028
TOTAL	33,324	43,199

Area	Population
TCATA	33,506
ACUB-Benton Harbor-St Joseph	63,617

Data: 2015 US Census





TCATA By The Numbers

TCATA service area population: **33,000**

Annual Riders: **182,878**

Dial a Ride Passengers: **145,489**

Fixed Route Passengers: **37,389**

Average Expense Per Passenger Mile: **$12.06**

Annual Fare Received, 11% of Operating Expense: **$251,963**

Annual Millage Received, 4.5% of Operating Expense: **$109,129**

Average Boarding Per Hour: **21**

TCATA Current Employees: **40**

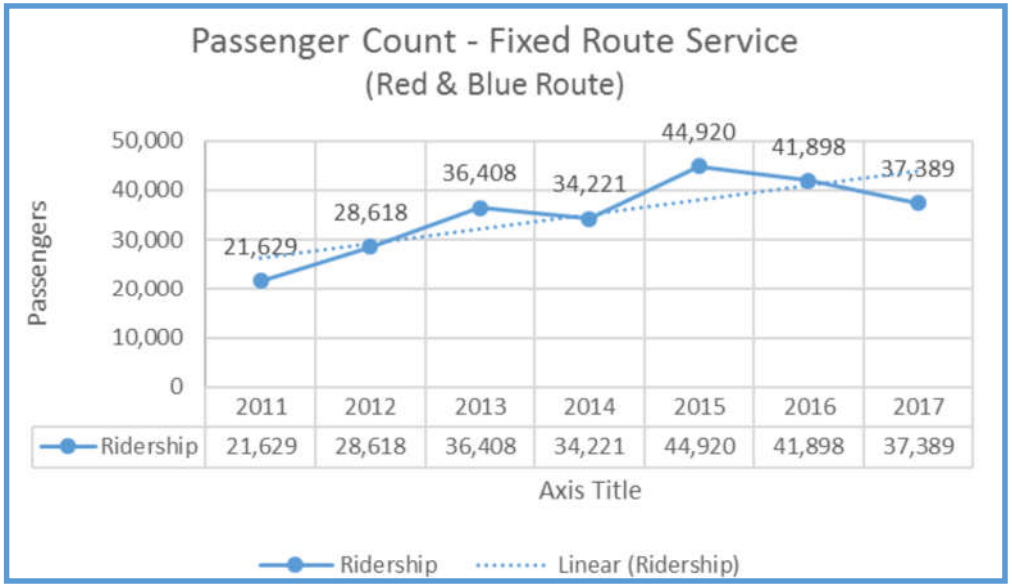
2017 MDOT PTMS Data

Fixed Route Service

TCATA provides fixed route service along the Blue and Red Routes. This transit service runs along an established path at preset times.

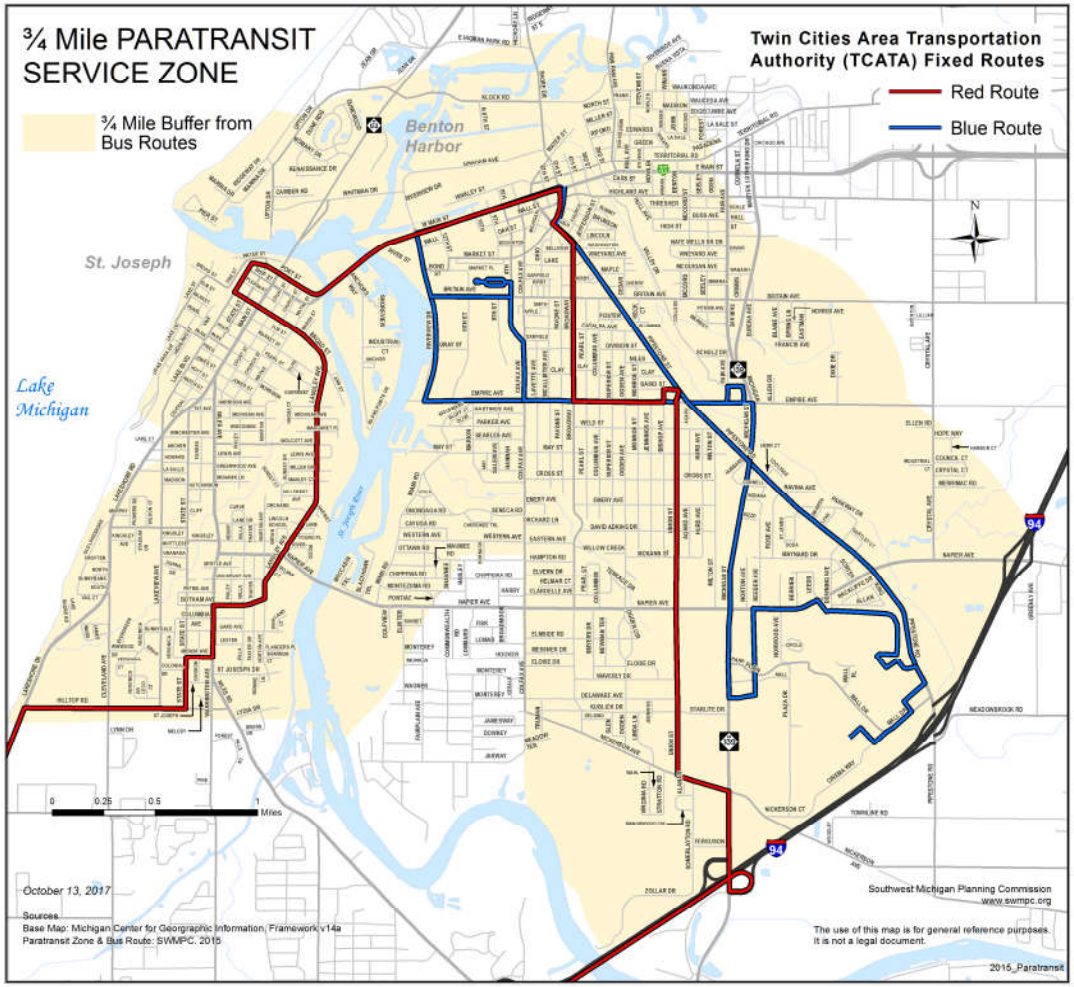
Blue Route The Blue route operates Monday through Friday from 6:00 am – 10:00 pm and on Saturday from 8:00 am – 10:00 pm. This loop route originates at TCATA headquarters and provides service every 30 minutes to several housing developments, social service agencies and retail locations.

Red Route The route operates Monday through Friday from 6:00 am – 10:00 pm and on Saturday from 8:00 am – 10:00 pm. This hourly one way loop route originates in the City of Benton Harbor at Union, an area with higher than average poverty rates, unemployment and no access to a vehicle. Along the route there are several clusters of entry level employment opportunities and life sustaining services including Lakeland Hospital, Berrien County Courthouse, Michigan WORKS, and two large grocery stores. The Red route also offers an option to flex to locations along the route if the route is on schedule. Since its inception the route was funded through a combination of federal and State funding. Beginning in 2014 the federal funding program was omitted and since that time it has been funded entirely with Michigan Comprehensive Transportation funding (CTF).



Complimentary ADA Paratransit Service

This paratransit service is required by the Americans with Disabilities Act and is provided for customers whose disability or health condition prevents them from using TCATA fixed route service for some or all of their travel. Only persons who are certified by TCATA are eligible to ride ADA Paratransit. Trips are provided at the same times and within the same geographic areas as fixed route.

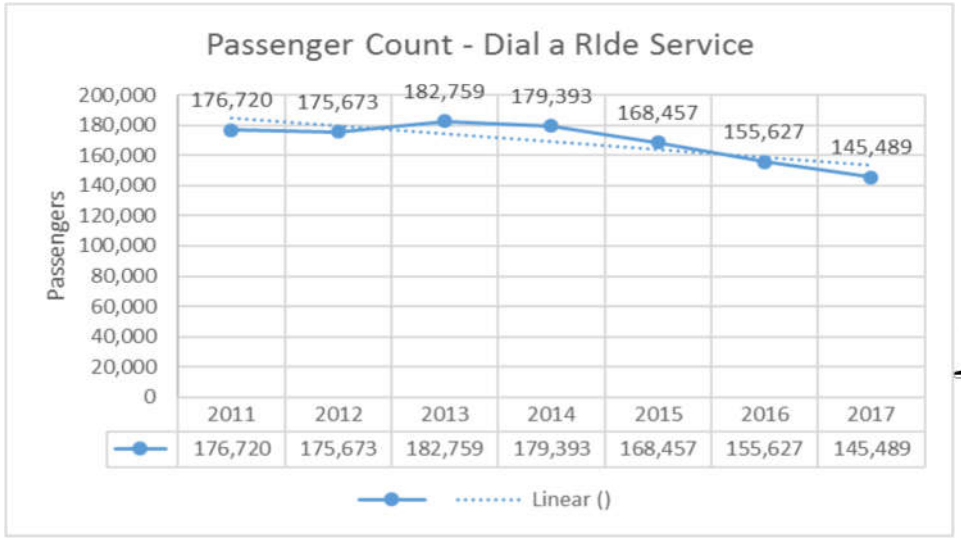


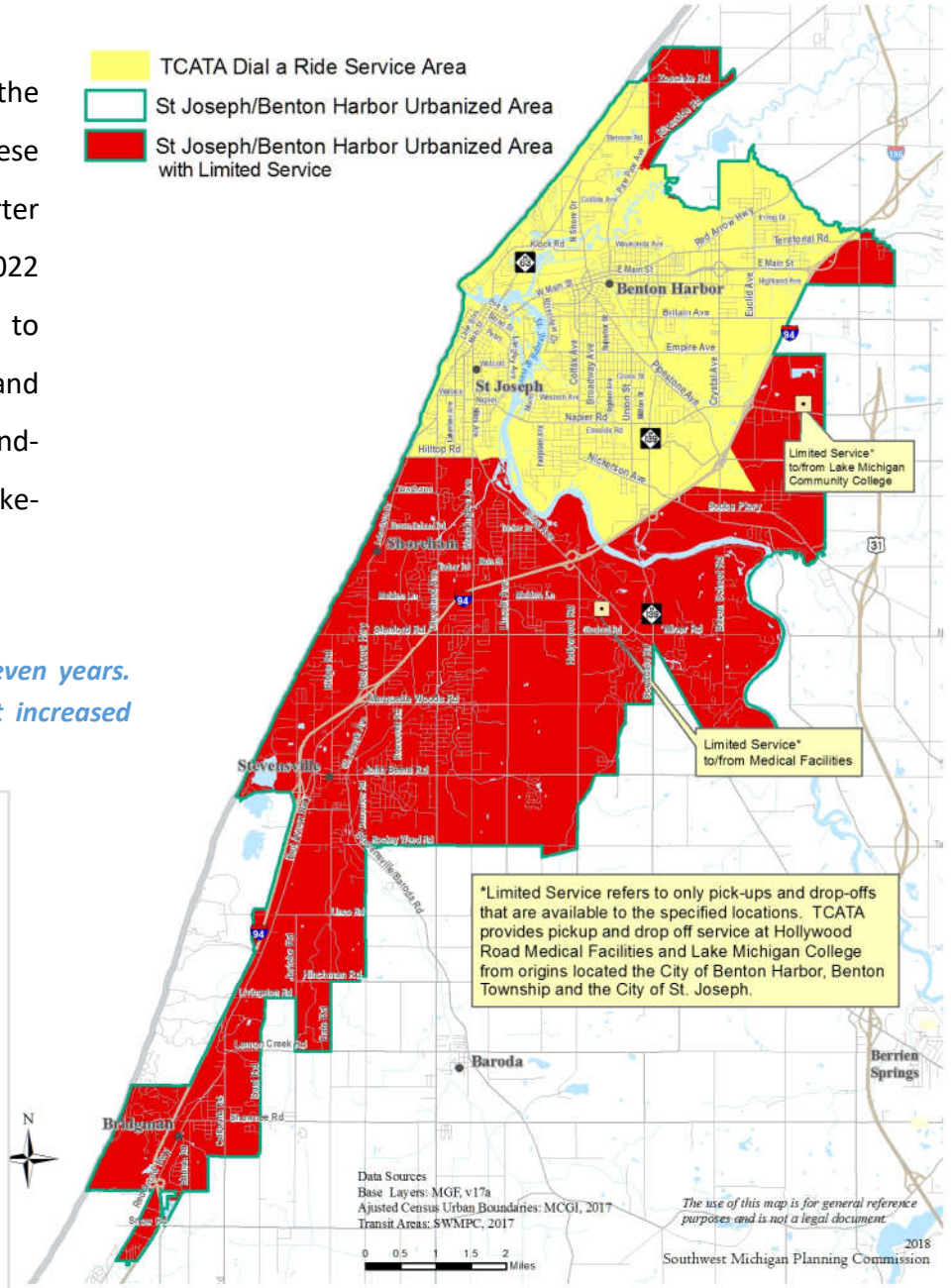
Service Area	Days	Span of Hours
PARATRANSIT SERVICE—BLUE ROUTE: Origins and destinations must be within 3/4 mile of Blue Route between the hours of 6:00 pm -10:00 pm	Monday - Friday	6:00 am - 10:00 pm
	Saturday	8:00 am – 10:00 pm
PARATRANSIT SERVICE—RED ROUTE: Origins and destinations must be within 3/4 mile of Red Route between the hours of 6:00 pm -10:00 pm	Monday - Friday	6:00 am - 10:00 pm
	Saturday	8:00 am – 10:00 pm

Dial a Ride Service

TCATA Dial A Ride offers reservation-based, shared-ride service within the northern portion of the St. Joseph Benton Harbor Urbanized Area. These areas include: City of Benton Harbor, City of St. Joseph, Benton Charter Township and a portions of St. Joseph Charter Township located the 49022 zip code. There is also limited pickup and drop off dial a ride service to Lake Michigan College and to medical facilities along Hollywood Road and Niles Avenue in Royalton Township. Nearly 20% of TCATA's demand-response trips are to and from medical providers including InterCare, Lake-land, and others.

Dial a Ride service has experienced a decrease in ridership over the last seven years. Some of the decrease in ridership can be attributable to a campaign that increased awareness of the Red and Blue fixed route service.





Transit Reliance

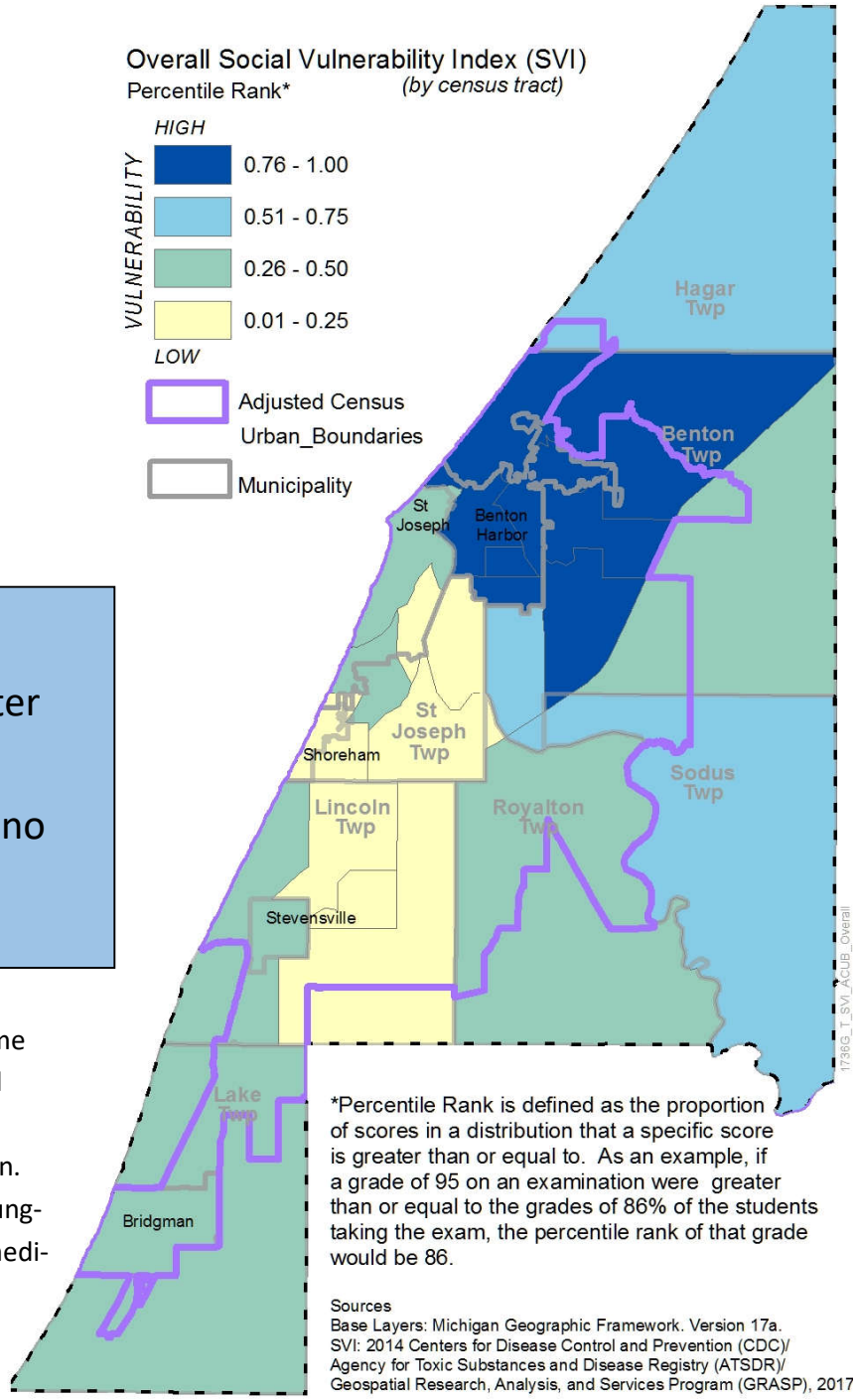
More than half of the population (22,220) within the TCATA service area can be considered transit dependent. Transit dependent populations are individuals considered to be dependent upon public transit based on income, age, or disability. Income along with other factors can prevent this population from driving/or owning a reliable automobile, thus leaving these population characteristics prevent most such individuals from driving and/or owning a reliable automobile, thus leaving ridesharing, public transit, and other community transportation options as the only other motorized forms of transportation available.

The Social Vulnerability Index

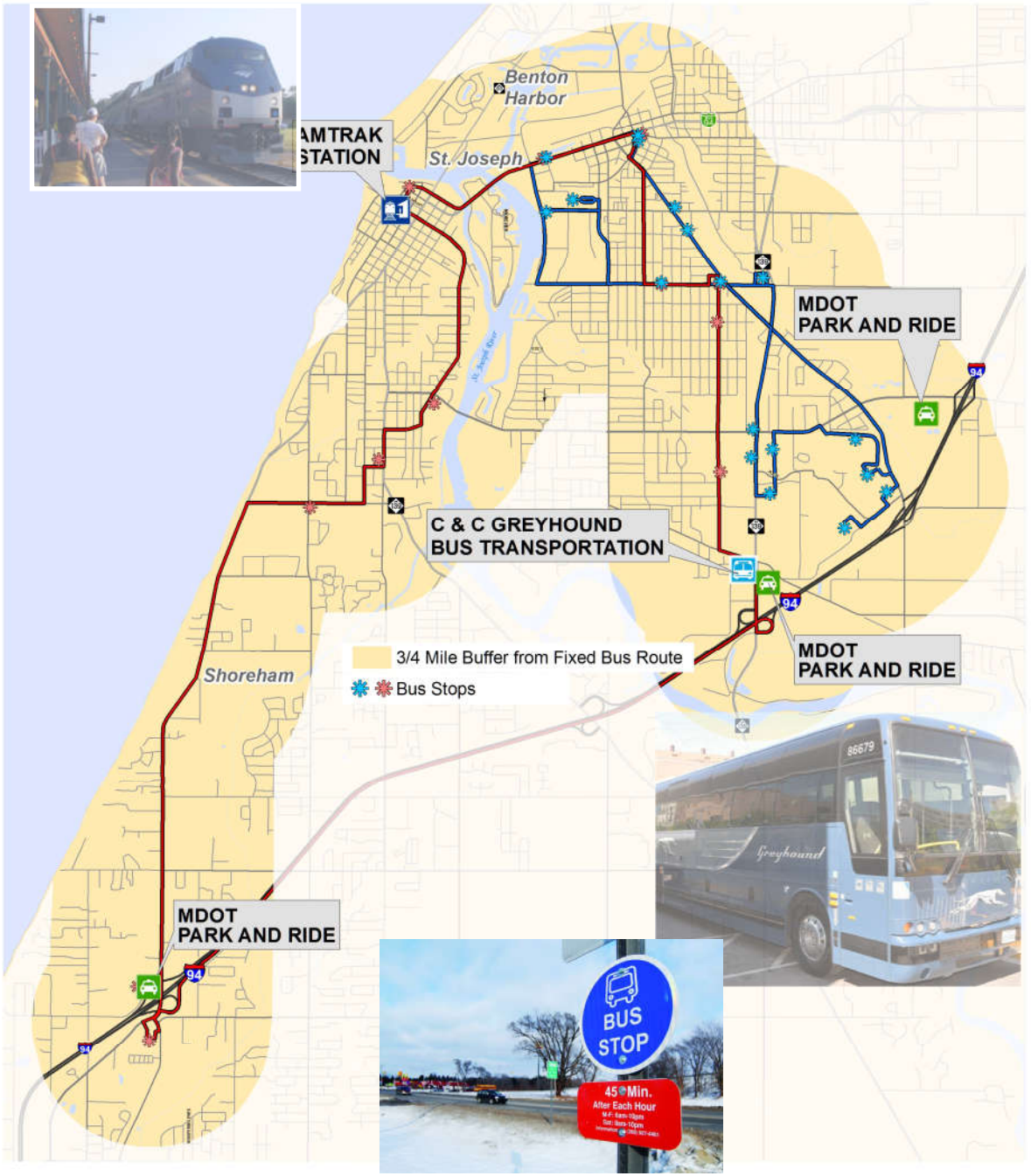
The City of Benton Harbor and portions of Benton Charter Township are in the 99 percentile ranking for extreme vulnerability because of income, disability, housing and no vehicle.

Within the City of Benton Harbor forty-two percent households have a median income of under $15,000, and twenty-nine percent of Benton Charter Township's household income is under $15,000. The income per capita in the City of Benton Harbor is only $9,745, which includes all adults and children and is the lowest per capita in Michigan. The City of Benton Harbor population's median age is twenty eight, considerably younger than the state of Michigan's median age of thirty nine and the City of St. Joseph median age of forty two.

2010 US Census



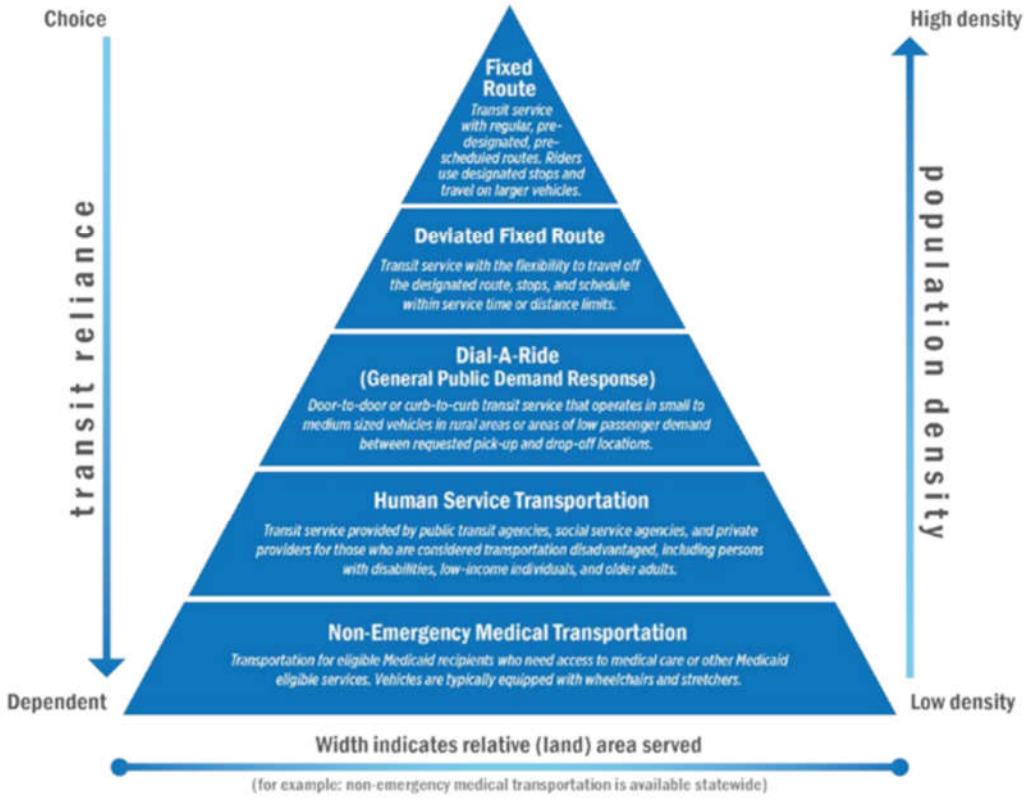
Connecting to Other Modes



TCATA fixed route service connects people to various modes of transportation where they can access out of county destinations .

FIXED ROUTE STOP	MODE
Red Route- Stop at Whitcomb in Downtown St. Joseph— Five minute walk to station	Amtrak
Red Route—Stop at I-94 and Red Arrow Hwy.	Park & Ride Lot
Red Route—Flex by request stop at MDOT Transit Center	Intercity Bus & Park & Ride Lot

Ultimately, transportation connects people to jobs, activities, and basic services like medical appointments and shopping. Every community has people who cannot reach jobs and basic services on their own. For the most part, these individuals use transportation services provided by other federal and state human and medical service programs, like Medicaid. These services are typically mandated by the federal government, and are available statewide, but they are limited to trips to and from specific appointments and activities.



National experience tells us that density and demographics also help determine the type of transit service that will work best in a particular region. There are a wide variety of transit services with different strengths and weaknesses. Each type of service is designed to address a community's transit need based on the type of community and riders.

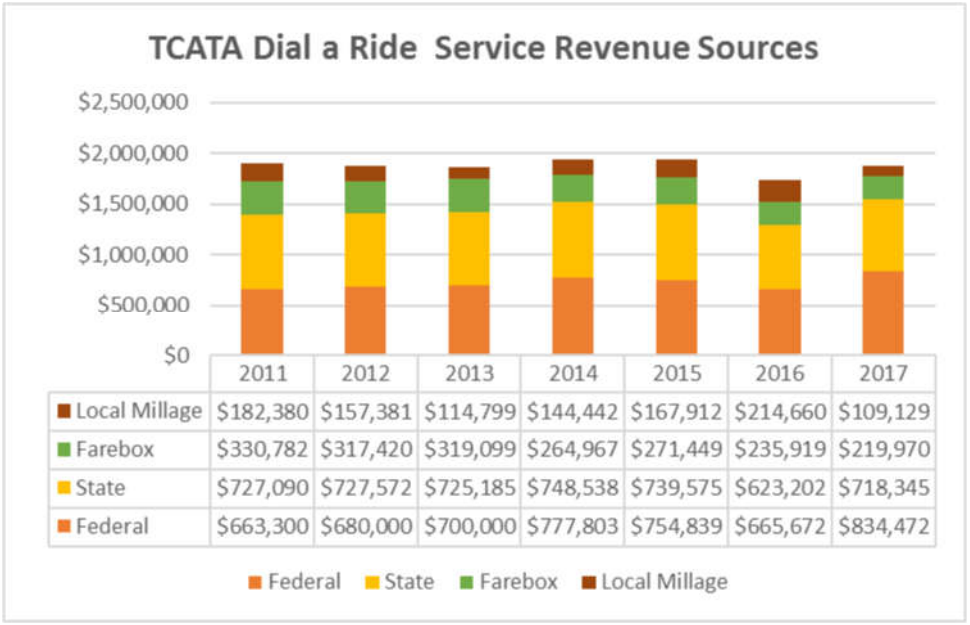
Key Issues, Trends & Opportunities

- Seniors and low income individuals rely more on public transportation, putting more pressure on transit systems to meet this growing demand.
- Health and human services are increasingly focused on serving people in their communities and encouraging people to stay in their homes. Implementing these programs requires a corresponding investment in transportation; this can be coordinated with public transportation services to reduce duplication of service and effort.
- Residents living in the TwinCATS planning area need to travel across municipal and county boundaries to get to work but also for other reasons, such as shopping, school, and to access health care.
- The four public transit agencies in Berrien county are largely organized around municipal and county boundaries. As a result, they are not always able to take people where they want and need to go.

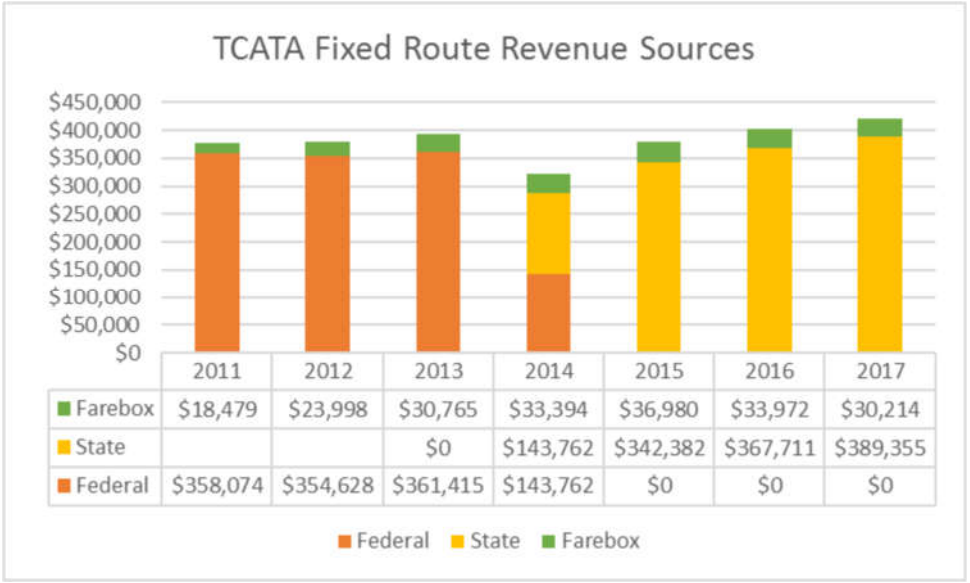
Key Issues & Uncertainties

REVENUE & COST MANAGEMENT
Sustaining a level of service while adapting to the uncertainties in future funding from state and federal funding sources
Managing fluctuations in taxable values and fares that facilitates a sustainable source of match needed for federal funds.
Examining appropriate funding options needed to meet the transportation needs of the urbanized area.
Monitoring fuel volatility and cost trends to determine the best balance of new technology.

WORKFORCE DEVELOPMENT
Obtaining the skill sets needed to handle advancements in technologies associated with the operation and maintenance of transit vehicles.
Recruitment and retention of drivers with CDL.
Regulatory mandates such as physical examinations and drug tests that determine who is employable in safety-sensitive positions.



	2011	2012	2013	2014	2015	2016	2017
Local Millage	$182,380	$157,381	$114,799	$144,442	$167,912	$214,660	$109,129
Farebox	$330,782	$317,420	$319,099	$264,967	$271,449	$235,919	$219,970
State	$727,090	$727,572	$725,185	$748,538	$739,575	$623,202	$718,345
Federal	$663,300	$680,000	$700,000	$777,803	$754,839	$665,672	$834,472



	2011	2012	2013	2014	2015	2016	2017
Farebox	$18,479	$23,998	$30,765	$33,394	$36,980	$33,972	$30,214
State			$0	$143,762	$342,382	$367,711	$389,355
Federal	$358,074	$354,628	$361,415	$143,762	$0	$0	$0

Public Transit Planning Initiatives

Countywide Service

The existing public transportation services in Berrien County are not adequately meeting the needs of residents and businesses. Previous studies, outreach conducted for this project, and analysis of data and peer regions all indicated that the services currently provided by the four transit agencies in the County are too complicated, unaffordable for many, and don't sufficiently connect important destinations or operate during the hours needed. Much of Berrien County is effectively not served at all by public transportation. The two largest urban areas – St. Joseph/Benton Harbor and Niles - are not directly connected to each other by transit. There is currently no transit service provided on Sunday by any agency in Berrien County.

In 2017 a countywide public transit service planning effort began for improved transit in Berrien County. The goals of the plan were as follows:

- Make transit more convenient than it is today
- Connect people to more places than they can reach today
- Make transit easier to use than it is today
- Ensure the financial and long-term sustainability of all transit systems

In 2018 the Connect Berrien Transit Service Integration Plan was released and it proposes a true countywide public transportation system that would not only use resources more efficiently, but would also offer a simpler and more useful public transit countywide.

The proposed countywide system would use scheduled fixed route service for longer trips between urban areas within and bordering Berrien County. A demand response system would handle shorter trips either point-to-point or as feeder service to the fixed route network.

Existing Service

- 91,000 residents (58%)
- 40,000 jobs (66%)

Proposed Countywide Service

- 157,000 residents (100%)
- 61,000 jobs (100%)
- Projected 50% increase in ridership
- 99,000 residents (63%) 42,000 jobs (69%)

get service seven days per week

Smart and Connected Communities

The goal of Smart and Connected Communities (S&CC) program is to accelerate the creation of the scientific and engineering foundations that will enable smart and connected communities to bring about new levels of economic opportunity and growth, safety and security, health and wellness, and overall quality of life.

The three year Smart and Connected Communities planning initiative headed by University of Michigan in partnership with the City of Benton Harbor is designed to provide the community with the capacity to define and deploy mobility solutions that give Benton Harbor residents greater access to employment opportunities, education, and healthcare. The project has four major objectives:

Define a cost-effective S&CC data collection strategy that can assess the performance of the Benton Harbor transit system, track the mobility patterns of residents, and acquire resident perceptions of their mobility.

Mobility data will be used to calibrate analytical methods that predict resident demand for mobility services and the performance of these services given changes in user demand. A community-based decision making framework is implemented based on scenario planning methods with S&CC data visualization and predictive analytics used in the process to predict outcomes of considered scenarios.

Interactively implement consensus solutions and assess their impact. The Twin Cities Area Transportation Authority who will lead implementation of the solutions developed.

This $1.4 million dollar project is being funded by the National Science Foundation and will conclude in 2021.

State of Good Repair

With an estimated 40 percent of buses and 25 percent of U.S. rail transit assets considered to be in marginal or poor condition, helping transit agencies maintain bus and rail systems in a state of good repair remains an FTA priority. TCATA has a wide variety of capital assets to maintain, including, but not limited to, buses and facilities. The agency must rehabilitate and replace their existing physical assets to keep them in a state of good repair (SGR) and provide a consistent level of service to their passengers. Absent adequate investment in existing assets, a transit agency may find its equipment becoming increasingly unreliable and difficult to maintain, and in extreme cases may suffer reductions in system reliability resulting in degraded transit service. Transit asset management provides a set of tools and approaches for helping transit agencies manage their physical assets and achieve SGR.

In 2016 FTA published the final rule that requires public transit agencies to establish targets for three asset categories and report annually on progress toward targets.

$900,000

Investment needed to bring TCATA fleet up to 100% State of Good Repair

$282,000

Investment needed to bring TCATA Support Service Fleet up to 100% State of Good Repair

Asset Performance Measures—2019-2020 Targets

Performance Measure	Asset	Description	Base Data 2018	Target 2019-2020	Data Source
Rolling stock in a state of good repair	25 Cutaway Buses 1 Passenger Van	Percent of rolling stock transit vehicles that have exceeded useful life	0% 0%	0% 0%	PTMS
Non-Revenue Vehicles in a state of good repair	2 Staff Cars 1 Wrecker	Percent of non-revenue vehicles that have exceeded useful life	100% 100%	0% 0%	PTMS
Facilities in a state of good repair	Administration Building	Percent of facilities within an asset class rated 3 or below on the FTA TERM scale.	0%	0%	PTMS

Public Transportation Safety

On, July 19, 2018 FTA announced the publication of the Public Transportation Agency Safety Plan (PTASP) final rule, which requires certain operators of public transportation systems to develop and certify an agency safety plan rooted in Safety Management System (SMS) principles and methods. Transit operators subject to the rule must have an agency safety plan in place no later than July 20, 2020. Transit operators are required to review, update, and certify their plans annually.

Applicability

The PTASP rule applies to public transportation system operators who are recipients or sub-recipients of financial assistance under the Urbanized Area Formula Funding program (49 U.S.C. § 5307). All transit providers that receive Urbanized Area Formula funds must implement a safety plan. The state of Michigan Passenger Transportation Division will draft and certify safety plans on behalf of bus operators with 100 or fewer vehicles in peak revenue service, unless the operator opts to draft and certify its own plan.

SAFETY PERFORMANCE MEASURES

FATALITIES (total number of reportable fatalities and rate per total vehicle revenue miles by mode) Reducing the number of fatalities is a top priority for the entire Department of Transportation. As an industry, those involved must try to understand the factors involved in each fatality in order to prevent further occurrences.

INJURIES (total number of reportable8 injuries and rate per total vehicle revenue miles by mode) Many transit agencies have never had a fatality, and continued safe operation is exactly what is desired. However, injuries occur much more frequently, and are due to a wide variety of circumstances. Analyzing the factors that relate to injuries is a significant step in developing actions to prevent them.

SAFETY EVENTS (total number of reportable events and rate per total vehicle revenue miles by mode) The safety events measure captures all reported safety events that occur during transit operations and the performance of regular supervisory or maintenance activities. A reduction in safety events will support efforts to reduce fatalities and injuries, as well as damages to transit assets.

SYSTEM RELIABILITY (mean distance between major mechanical failures by mode) The system reliability measure expresses the relationship between safety and asset condition. The rate of vehicle failures in service, defined as mean distance between major mechanical failures, is measured as revenue miles operated divided by the number of major mechanical failures. This is a measure of how well a fleet of transit vehicles is maintained and operated. FTA recognizes the diversity of the transit industry, and that agencies have varied equipment types, with varied rates of performance, so this measure allows agencies to develop safety performance targets that are specific to their own fleet type, age, operating characteristics, and mode of operation.

FUNDING TYPE	DISTRIBUTION	ELIGIBLE PROJECTS
5307 – Urbanized Area Formula Grant <50,000	By formula to transit operators in census defined urbanized area based on population and transit service characteristics	• Capital Projects • Planning • Job Access & Reverse Commute Projects • Operations and Maintenance
5339 – Bus and Bus Facilities Program	By formula to transit operators based on population and service characteristics	• Replace, Rehabilitate, Purchase Buses and Related Equipment. • Construct Bus Related Facilities
5311 – Formula Grant for Rural Systems >50,000	By formula to states, which administer the program	• Planning • Capital and Operating Assistance • Intercity Bus Program
5310 – Enhanced Mobility of Seniors and Individuals with Disabilities	By formula to states, which administer the program	**Capital and Operating to support:** • Mobility needs of seniors and people with disabilities when public transit is insufficient, inappropriate or unavailable • Sub-allocation to private non-profit providers serving seniors and people with disabilities
State and Local Funding		
MI State Operating Assistance	Reimbursement of up to 50% of eligible operating expenses. Reimbursement rates have typically fallen between 29%-36%	
MI State Transit Capital	Provides non-federal match for federal grants to local transit agencies	
Real Estate Property Tax – Millage	Assessed as a percentage of the market value of real property	
Transit Fare Revenue	Fares collected from transit system users that cover a portion of transit operations and maintenance costs	

Summary of Anticipated Federal & State Funding Program Transit Investments

State funds are combined with federal and local dollars, including farebox revenue and local millages, to support operation and maintenance of the local transit network. The state's annual investment strategy for the Local Transit Program is largely determined by detailed requirements set forth in Act 51 of 1951 for annual distribution/use of CTF revenues and the eligible uses of federal formula apportionments and competitive grant awards.

MDOT Passenger Division provided the forecast below to illustrate future state and federal dollars available for future projects and programs. A 10-year historic average of funding was established and then a 2 percent inflation rate was applied for each fiscal year covered by this Plan.

Program	Description	2018-2025 Funding	2026-2035 Funding	2036-2045 Funding	2018-2045 Funding
Urban Area Transportation Program 5307	The Federal Transit Administration Urban Area Program is intended to provide planning, capital, and operation assistance to public transportation providers in urbanized areas. Funds are administered by the transit agency (TCATA) in coordination with the TwinCATS MPO.	$9,952,727	$14,586,133	$19,507,593	**$44,046,453**
Bus and Bus Facilities Program - 5339	The FTA program is intended to provide funding for the acquisition and rehabilitation of vehicles and the construction of transit-related facilities for customer service, administration, or fleet maintenance. Funds are administered by the transit agency (TCATA) in coordination with the TwinCATS MPO	$906,548	$1,328,584	$1,776,857	**$4,011,989**
Enhanced Mobility for Seniors/ ADA-5310	The FTA program is intended to help expand transportation options for the elderly and individuals with disabilities. Discretionary Funds area administered and awarded by the State of Michigan Passenger Division in coordination with the transit agency (TCATA) and the TwinCATS MPO.	$514,978	$769,761	$938,334	**$2,223,073**
Comprehensive Transportation Fund	The programs in this category provide funding for operating and capital support, training, and special projects to local bus operators that service the general public. Assistance also is provided to support transportation services focused on the needs of senior citizens and persons with disabilities, as well as the transportation-to-work needs of low income individuals.	$7,321,573	$9,065,593	$10,191,876	**$26,579,042**

Dedicated Funding for Public Transit

Michigan has a long list of counties and communities that provide a dedicated source of local funding for public transit. Within the TwinCATS urbanized area the only dedicated funding source comes from a millage in the City of Benton Harbor. The funding that is collected is the only reliable source of annual revenue that provides support to transit operations and capital match costs for TCATA. Until there is an additional form of reliable local revenue there will be limited opportunities to expand transit service within the TwinCATS urbanized area.

Local Funding Source	Description	2018-2025	2026-2035	2036-2045	2018-2045
Transit Millage	The City of Benton Harbor levies 0.2436 mills on all real and tangible personal property in the City of Benton Harbor for the exclusive purpose of financing the contractual obligation created by the contract between the City of Benton Harbor and the Twin Cities Area Transportation Authority for a period of 20 years beginning in 2008.	$1,333,076	$1,992,608	$2,428,978	**$5,754,662**
Passenger Fares	All income received directly from passengers, paid either in cash or through pre-paid tickets, passes, etc. It also includes revenue from contracts with human service agencies.	$2,296,164	$3,432,178	$4,183,806	**$9,912,148**

Local Revenue Projections

Because local funding amounts can vary from year-to-year the base funding amount was derived by using a five-year average of reported TCATA passenger fares and millage revenues collected between 2013-2017. A two-percent annual growth rate was applied to years 2019-2045.

Data Source: MDOT Public Transportation Management System.

Passenger Rail

While the private vehicle is the predominant mode of travel to destinations across county and state boundaries, passenger rail options are available to residents in the Twin Cities area. Amtrak provides passenger rail service via three Michigan service lines. All three lines have a western terminus in Chicago where passengers can change trains to get to any passenger rail station in the United States. The St. Joseph-Benton Harbor Amtrak Station serves the *Pere Marquette* line.

Pere Marquette. Amtrak's *Pere Marquette* service provides daily service between Chicago and Grand Rapids, with stops also in Bangor and Holland. The service is limited to one trip daily leaving Grand Rapids in the morning and returning home from Chicago in the evening.

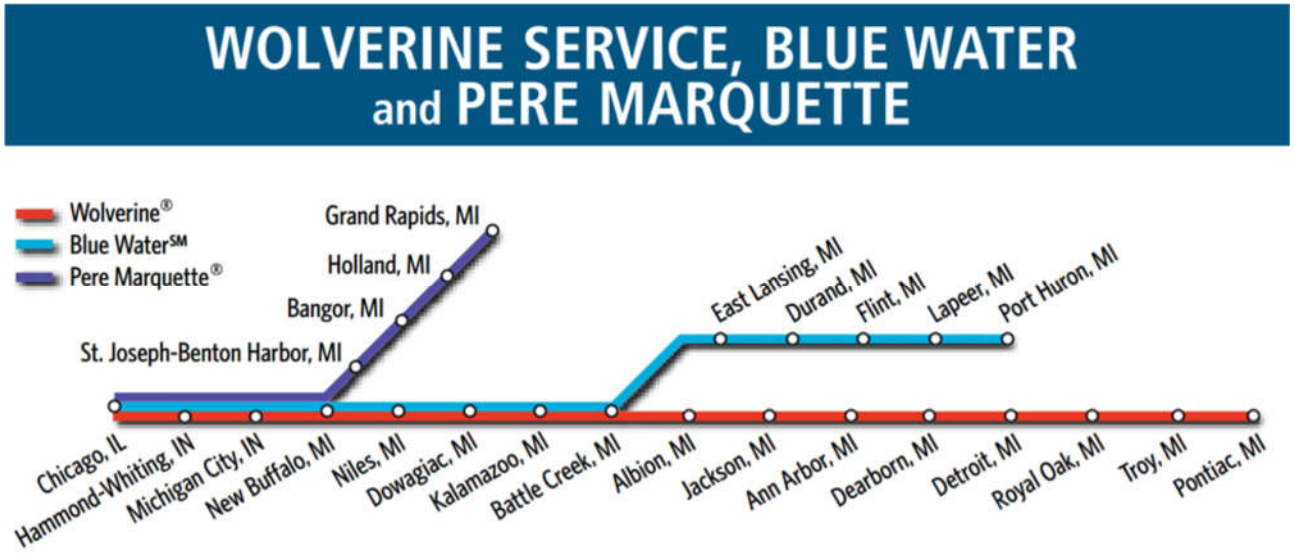
Wolverine. Amtrak's *Wolverine* service is available to Benton Harbor-St. Joseph urbanized area residents who are able to travel to nearby communities with stations that serve that line, such as New Buffalo, Niles, Dowagiac, and Kalamazoo. See the route alignment illustration to the right for a full listing of all of the cities served by the *Wolverine*.

Blue Water. Amtrak's *Blue Water* service has the same stops between Chicago and Battle Creek as the *Wolverine* service (see below). Beyond Battle Creek, the *Blue Water* also service East Lansing, Durand, Flint, Lapeer, and Port Huron.

Amtrak Thruway Bus Connection. Amtrak Thruway Bus Connections are available at several train stations in Michigan and Chicago to offer additional destinations to passengers. See the Amtrak Michigan Services Schedule for additional information.

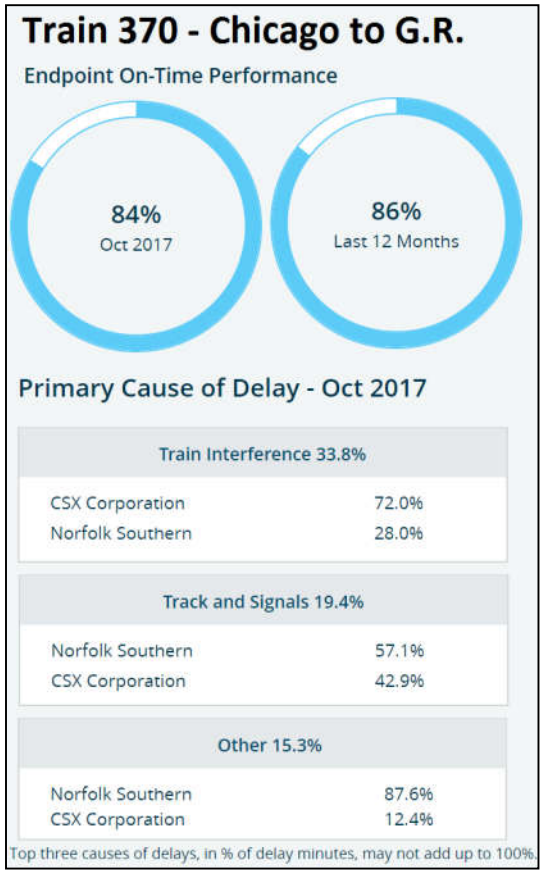
Commuter Rail

The closest interurban commuter rail service for the Twin Cities area is the South Shore Line, an electrically powered line operated by the Northern Indiana Commuter Transportation District, between Millennium Station in downtown Chicago and the South Bend Airport. The closest station is in Michigan City, IN. Residents and visitors can use this option as part of their travel plans to points west as far as downtown Chicago, connecting to Chicago's transit system: Chicago Transit Authority, Metra, and Pace.



Endpoint On-Time Performance

The Amtrak Endpoint On-Time Performance report below for Train 370 (Chicago to Grand Rapids) for October 2017 (the most recent report available on amtrak.com), is a good illustration of the primary causes of delay. Large portions of the *Wolverine* and *Blue Water* services run on Amtrak and MDOT owned tracks. Most of the *Pere Marquette* service runs on CSX owned tracks and the remainder is owned by Norfolk Southern. Track owners get priority for their trains.



Also, because Amtrak/MDOT does not own the tracks, they cannot invest in track and signal improvements which would allow for sections of the route to be upgraded to high-speed service (110 mph), like sections of the *Wolverine* and *Blue Water*. Poor on-time performance makes passenger rail service a less viable option for potential passengers. And not being able to upgrade tracks means not being able to reduce travel time for passengers, which also reduces operating costs for the service and potentially ticket prices.

Amtrak Ridership

Over the last six years annual ridership on Michigan's *Wolverine* and *Blue Water* services have fluctuated as the cost for gas, demand for travel and other variables have fluctuated (see table, top right). But during that same period the *Pere Marquette* has mostly only seen drops in ridership, except 2017, but it is too early to know if this is a change in pattern or if some of the factors that increased ridership on the *Wolverine* also affected the *Pere Marquette*.

Annual Ridership (Year)	*Wolverine* (Detroit-Chicago)	*Pere Marquette* (G.R.-Chi.)	*Blue Water* (P. Huron-Chicago)	Ridership Grand Total
2012	495,643	109,501	187,991	793,135
2013	498,288	102,932	194,776	795,996
2014	486,463	102,626	188,374	777,463
2015	458,710	91,011	179,716	729,437
2016	401,585	90,922	186,189	678,696
2017	474,751	94,276	186,156	755,183

Corridor Station Activity

The table below for *Pere Marquette* stations shows that boarding and deboarding activity has increased the most at Benton Harbor-St. Joseph and Bangor Stations compared to other stations on that service during each of the last two years.

Corridor Station Activity — *Pere Marquette* Stations	Boarded 2017	Deboarded 2017	Total 2017	Total 2016	Change (%) 2016-2017	Total 2015	Change (%) 2015-2017
Chicago	46,208	45,636	91,844	88,545	3.7%	88,877	3.3%
Benton Harbor-St. Joseph	7,045	6,947	13,992	12,847	8.9%	11,793	18.6%
Bangor	2,263	2,213	4,476	4,001	11.9%	3,778	18.5%
Holland	17,955	17,963	35,918	35,348	1.6%	35,093	2.4%
Grand Rapids	19,241	19,953	39,194	38,485	1.8%	40,379	-2.9%
Total	**94,276**	**94,276**	**188,552**	**181,844**	**3.7%**	**182,022**	**3.6%**

Midwest Regional Rail Planning Study

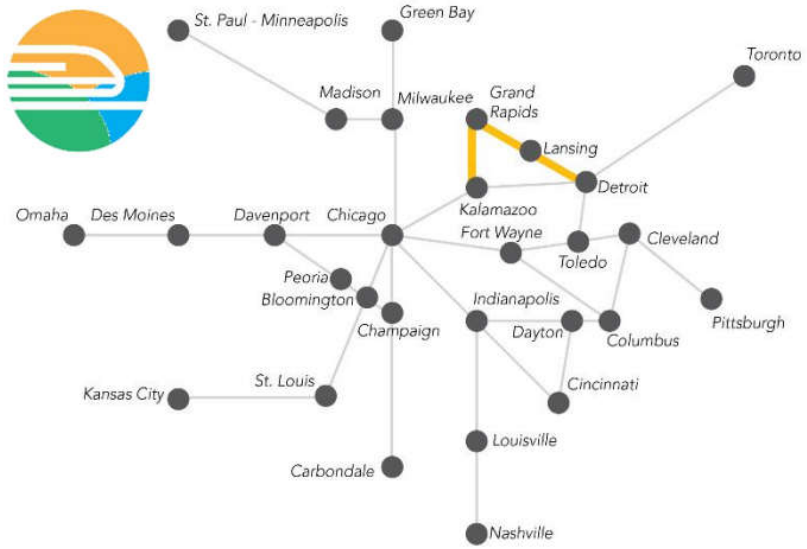
The Federal Railroad Administration (FRA) is studying ways to improve current Midwest passenger rail service into a high-performance, multi-state intercity passenger rail network through a planning initiative called the Midwest Regional Rail Planning Study (MRRP).

The MRRP identifies several opportunities to improve overall service throughout the Midwest. Part of those improvements include adding new service to currently unconnected communities.

In West Michigan, the MRRP contemplates changing the *Pere Marquette* service. Currently, the *Pere Marquette* runs to-from Chicago and Grand Rapids through Benton Harbor-St. Joseph, Bangor, and Holland. The proposed change would eliminate Amtrak passenger rail service in Benton Harbor-St. Joseph and Bangor in favor of a new *Pere Marquette* service that would run from Chicago to Kalamazoo, then Grand Rapids. The train could go from Grand Rapids to Holland. Or it could head to Lansing and onward to Ann Arbor and Detroit—this is called the Michigan Coast-to-Coast emerging service option (see map below). According to the MRRP there are currently 200,000 riders on the corridor, but with the proposed change ridership could increase to 1.5 million. Under this plan Benton Harbor-St. Joseph would get Amtrak Thruway bus service to Niles, where people may board the train. Bangor would not have a rail nor Thruway connection.

Westrain

Westrain is a coalition of stakeholders along the *Pere Marquette* Amtrak passenger rail line (GVMC in Grand Rapids, Macatawa Area Coordinating Council in Holland, City of Bangor, Cornerstone Chamber of Commerce, the Michigan Association of Rail Passengers, and the Southwest Michigan Planning Commission, together with Amtrak and the Michigan Department of Transportation Office of Rail) that promote passenger rail service in West Michigan, including improved Amtrak service and marketing for special events such as for the Senior PGA Tour in Benton Harbor. This coalition also discusses the changes to the *Pere Marquette* proposed in the MRRP, and they contemplate ways to counter this loss of service.



Midwest Regional Rail Plan - Stakeholder Workshop #4 Presentation: Michigan Coast-to-Coast Emerging Service

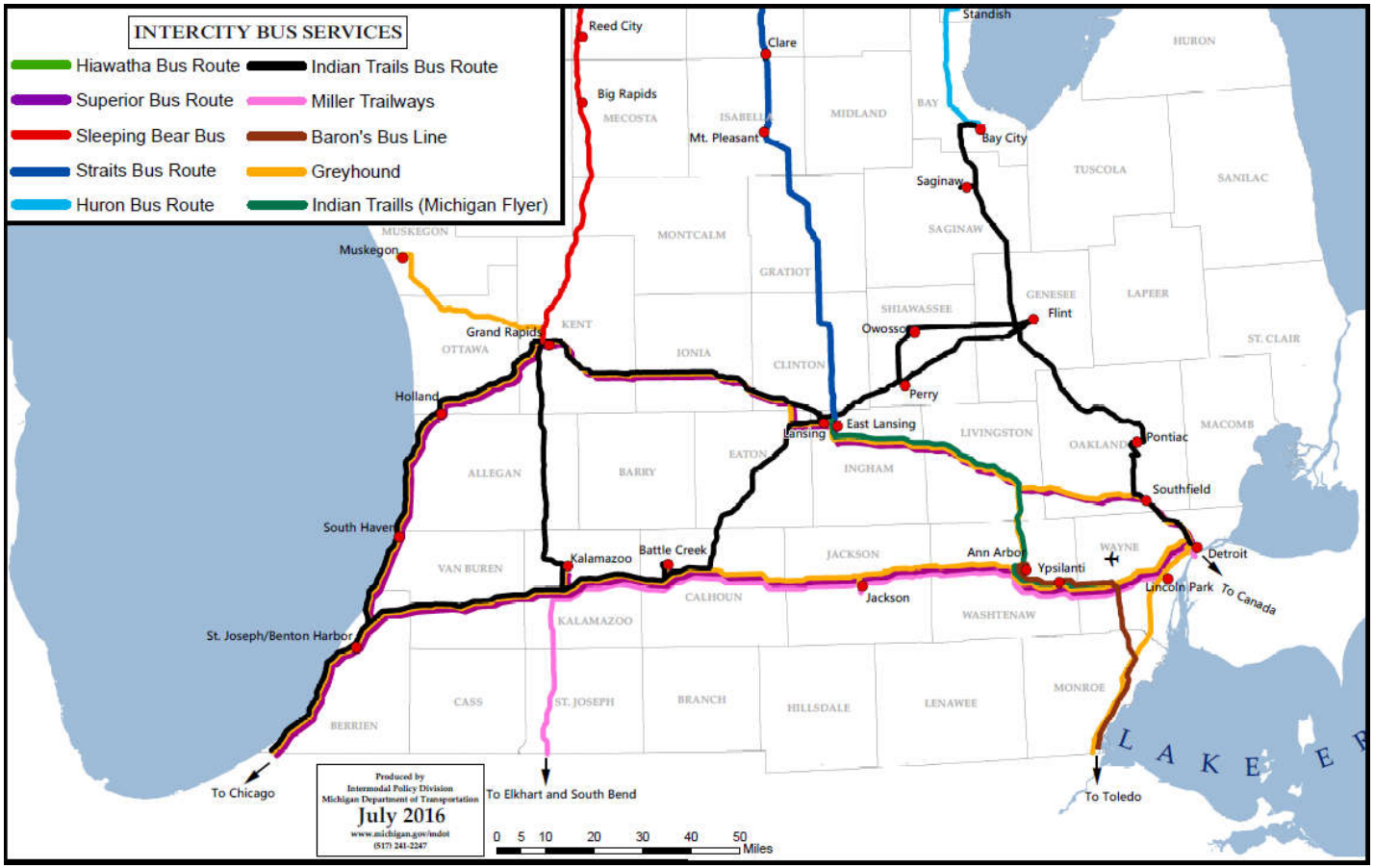
Intercity Bus

Intercity bus service provides scheduled service to cities over much longer distances than local transit agencies. Greyhound and Indian Trails carriers provide direct service from the Benton Harbor Transportation Center (BHTC) to various destinations that include Battle Creek, Kalamazoo, Holland, Grand Rapids, Elkhart, and Chicago (see map below).

Benton Harbor Transportation Center

The BHTC, on M-139 at Nickerson Avenue, is an MDOT owned and operated facility. MDOT subsidizes intercity bus services such as Greyhound Indian Trails. Subsidized bus service in Michigan has emerged in response to carrier service reductions. MDOT's Intercity Bus Service White Paper (2012) notes; "As carrier decisions are made, the Michigan Department of Transportation (MDOT) reviews the affected routes and determines whether to provide a subsidy for the service, based on the state's objective to maintain community access to the national intercity bus network, and subject to the availability of federal and state resources."

Intercity bus passengers may arrive at or depart from the BHTC using the Twin Cities Area Transportation Authority Red Route by calling to request the bus to flex. The St. Joseph-Benton Harbor Amtrak Station is also served by Red Route, with a fixed route stop at Ship St./Lakeview Blvd. The BHTC does not have pedestrian nor bicycle infrastructure that connects to it.



STRATEGIES:

IMPROVING PASSENGER TRANSPORTATION

Strategy	Guiding Principles Met
Improve Transit Facilities and Equipment	✓ ✓ ✓ ✓ ✓
Support fixed route stops with bicycle infrastructure and end-of-trip facilities, such as bicycle parking and on-board bicycle racks.	
Collaborate with the mall area developers to determine the best location for a future transit center.	
Extend/Create New Transportation Services	✓ ✓ ✓ ✓ ✓ ✓ ✓
Increase service coverage to places within the urbanized area, especially to destinations that provide employment or medical services.	
Increase service hours to support service sector employment trips.	
Continue to support increased rail service for large regional events and holidays (Thanksgiving, Christmas, PGA Event).	
Continue to be involved with Michigan Coast to Coast Emerging service option.	
Safety	✓ ✓ ✓ ✓
Ensure safety and security training is available for transit staff.	
Monitor operations to identify any safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended.	
Communicate safety and safety performance information throughout the organization.	
Funding	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
Foster public-private partnerships and partner with the municipalities within the urbanized area to actively increase local funding sources.	

FISCALLY CONSTRAINED PUBLIC TRANSIT PROJECTS

Principles in Motion >>> **FISCALLY CONSTRAINED PASSENGER TRANSPORTATION PROJECTS**

Fiscal Year	Project Name	Primary Work Type	Project Description	Federal Cost	Total Cost	Federal Fund Source	Performance Measures
							Transit Asset Management
2018	Bus Purchase	Transit vehicle replacements	Partial funding to purchase four (4) new buses	$43,594	$54,492	5307	x
2018	Regular Operating Expenses	Transit operations	Regular Operation Expenses	$929,797	$2,012,167	5307	
2018	Lift van	Transit vehicle replacements	Purchase lift van	$60,000	$75,000	5307	x
2018	Mobility Manager	Transit capital	Mobility Manager to coordinate transportation	$60,000	$75,000	5310	
2018	Facilities improvement	Transit facility	Facilities Improvements	$36,800	$46,000	5339	x
2018	Electronic Sign	Transit facility	Signs at fixed route stop	$17,600	$22,000	5339	
2018	Tablets	Transit operations equipment	Tablet for drivers to allow electronic dispatching and rider data collection	$25,600	$32,000	5339	
2018	Bus Purchase	Transit vehicle replacements	Partial funding to purchase four (4) new buses	$230,000	$287,500	CMAQ	x
2018	JARC	Transit operations	This grant is to provide transportation for low income Benton Harbor residents to I-94 and Red Arrow.		$430,347		
2018	Indian Trails Inc. Terminal Improvements	Facilities	Provide terminal improvements to Benton Harbor Indian Trails Terminal		$200,000		X
2019	Regular Operating Expenses	Transit operations	Regular Operation Expenses	$890,000	$1,992,419	5307	
2019	Electronic Informational Signs	Transit facility	Two electronic signs to inform customers about bus current location and estimated time of arrival and departure.	$19,200	$24,000	5307	
2019	Fence	Transit facility	A fence for TCATA owned property for bus and equipment storage.	$32,000	$40,000	5307	
2019	Staff Vehicles	Transit operations equipment	Replacing two 2010 staff cars that have met and exceeded their useful life for years of service	$32,000	$40,000	5307	x
2019	Wrecker	Transit maintenance equipment and parts	Replace a 2001 wrecker that has met and exceeded its useful life	$200,000	$250,000	5307	x

Principles in Motion >>> **FISCALLY CONSTRAINED PASSENGER TRANSPORTATION PROJECTS**

Fiscal Year	Project Name	Primary Work Type	Project Description	Federal Cost	Total Cost	Federal Fund Source	Performance Measures
							Transit Asset Management
2019	Mobility Manager	Transit capital	Mobility Manager to coordinate transportation	$60,000	$75,000	5310	
2019	Replace One Bus	Transit vehicle replacements	Replace One Bus	$72,000	$90,000	5339	x
2019	JARC	Transit operations	Transportation for low income Benton Harbor residents to I-94 and Red Arrow.		$386,040		
2020	Regular Operating Expenses	Transit operations	Regular Operation Expenses	$857,061	$1,989,326	5307	
2020	Mobility Manager	Transit capital	Mobility Manager to coordinate transportation	$60,000	$75,000	5310	
2020	Replace Two Buses	Transit vehicle replacements	Replace 2 Buses	$144,000	$180,000	5339	x
2020	Replace Three Buses	Transit vehicle replacements	Replace 3 Buses	$210,000	$262,500	CMAQ	x
2020	Replace Two Buses	Transit vehicle replacements	Replace 2 Buses	$144,000	$180,000	5307	x
2020	JARC	Transit operations	Transportation for low income Benton Harbor residents to I-94 and Red Arrow.		$386,040		
2021-2025	Operating	Transit operations	Regular Operation Expenses	$4,500,000	$9,500,000	5307	
2021-2025	Capital	Transit capital	Bus Replacements, support equipment, or facilities	$2,855,623	$3,426,747	5307/5339	X
2021-2025	JARC	Transit operations	Transportation for low income Benton Harbor residents to I-94 and Red Arrow.		1,930,200		
2021-2025	Mobility Manager	Transit capital	Mobility Manager to coordinate transportation	$334,978	$401,974	5310	

<u>5307 funding Summary</u>

Total estimated 5307 allocation for 2018-2025: $9,952,727

Total 5307 programed for 2018 –2020: $9,952,727

Remaining Balance: $0

<u>5339 funding Summary</u>

Total estimated 5339 allocation for 2018-2025: $906,548

Total 5339 programed for 2018 –2020: $906,548

Remaining Balance: $0

<u>5310 funding Summary</u>

Total estimated 5310 allocation for 2018-2025: $514,978

Total 5310 programed for 2018 –2020: $514,978

Remaining Balance: $0

<u>State CTF funding Summary</u>

Total estimated CTF allocation for 2018-2025: $7,321,573

Total CTF programed for 2018 –2020: $7,321,573

Remaining Balance: $0

FREIGHT TRANSPORTATION

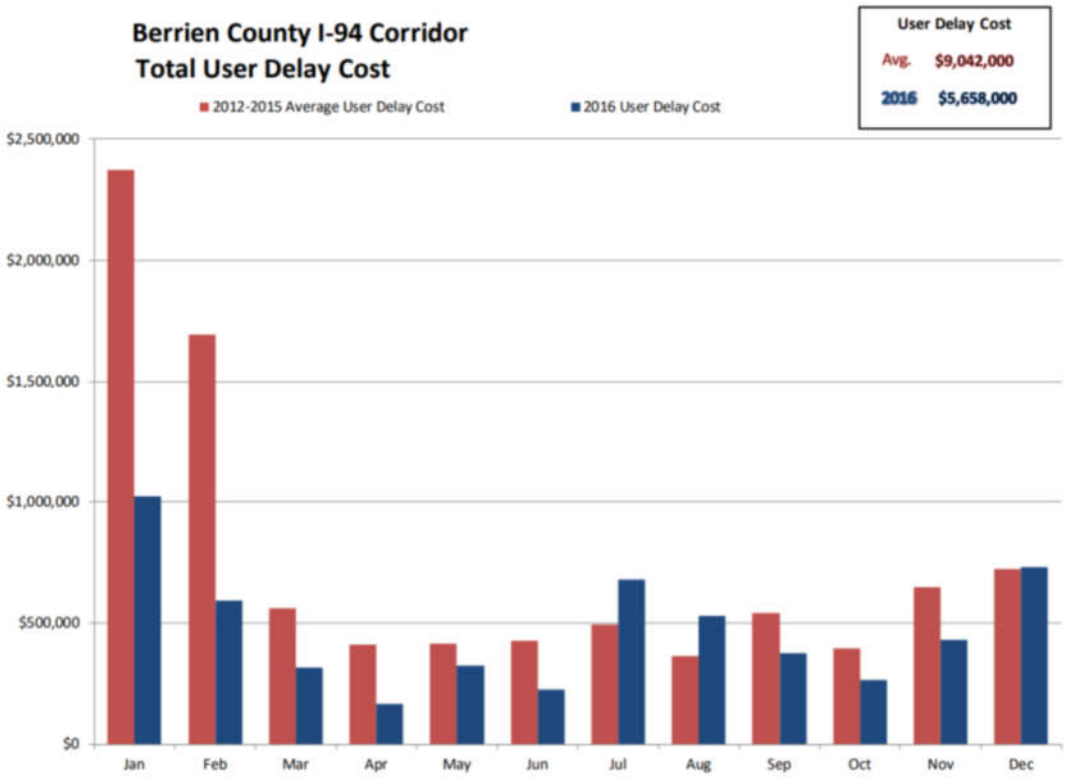
What is Freight?

"Any good, product, or raw material carried by a commercial means of transportation – including air, highway, rail, water, and pipeline"

– Michigan Freight Plan

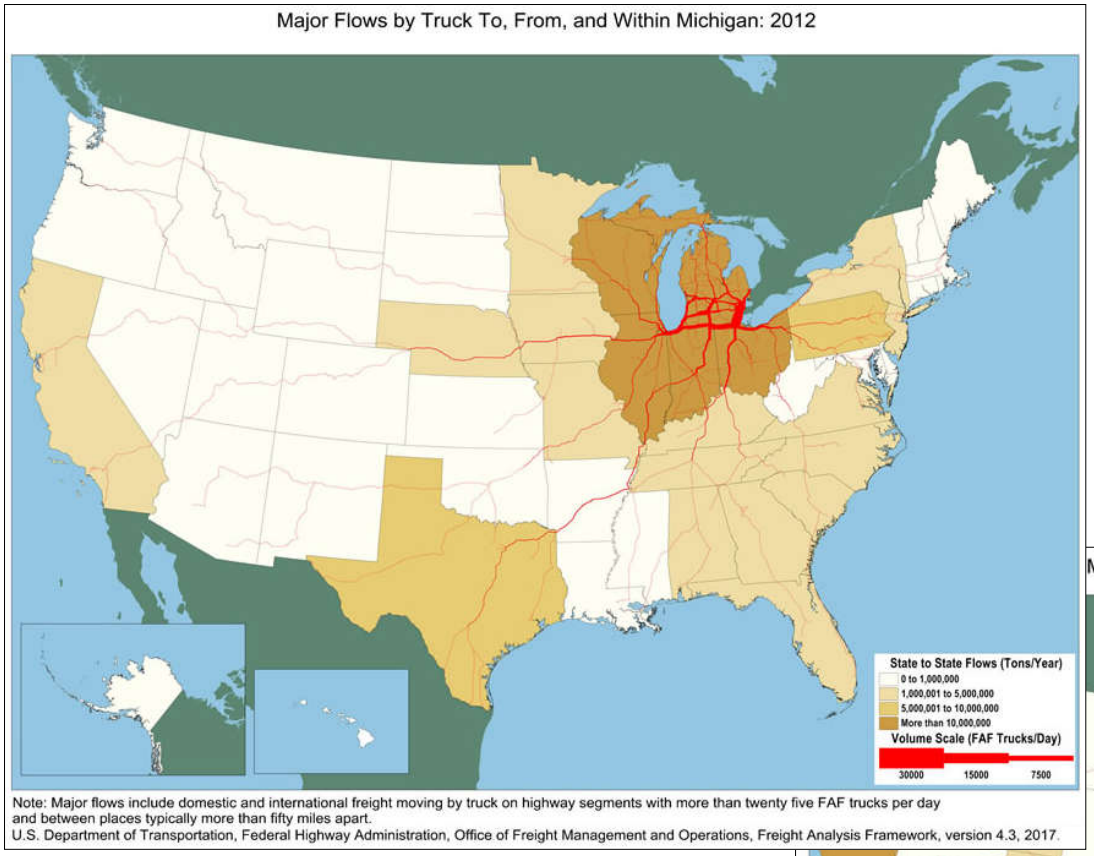
Corridors of Significance

In the Twin CATS area, I-94, I-196, and US-31 are the most significant corridors for freight, with I-94 being the most well used. The TwinCATS area also has a railroad network, commercial port, and an airport to move freight. Pipelines go through the area, but there are not any commercial access points, so they are not covered in this section.

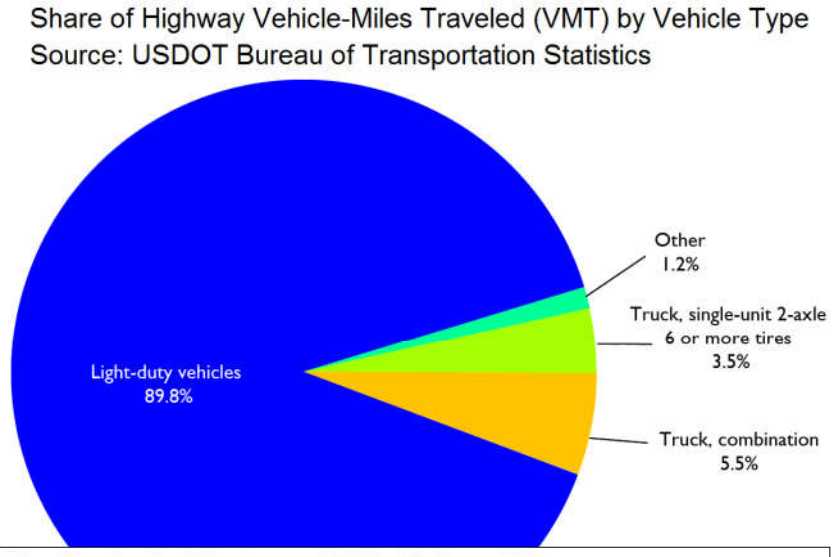


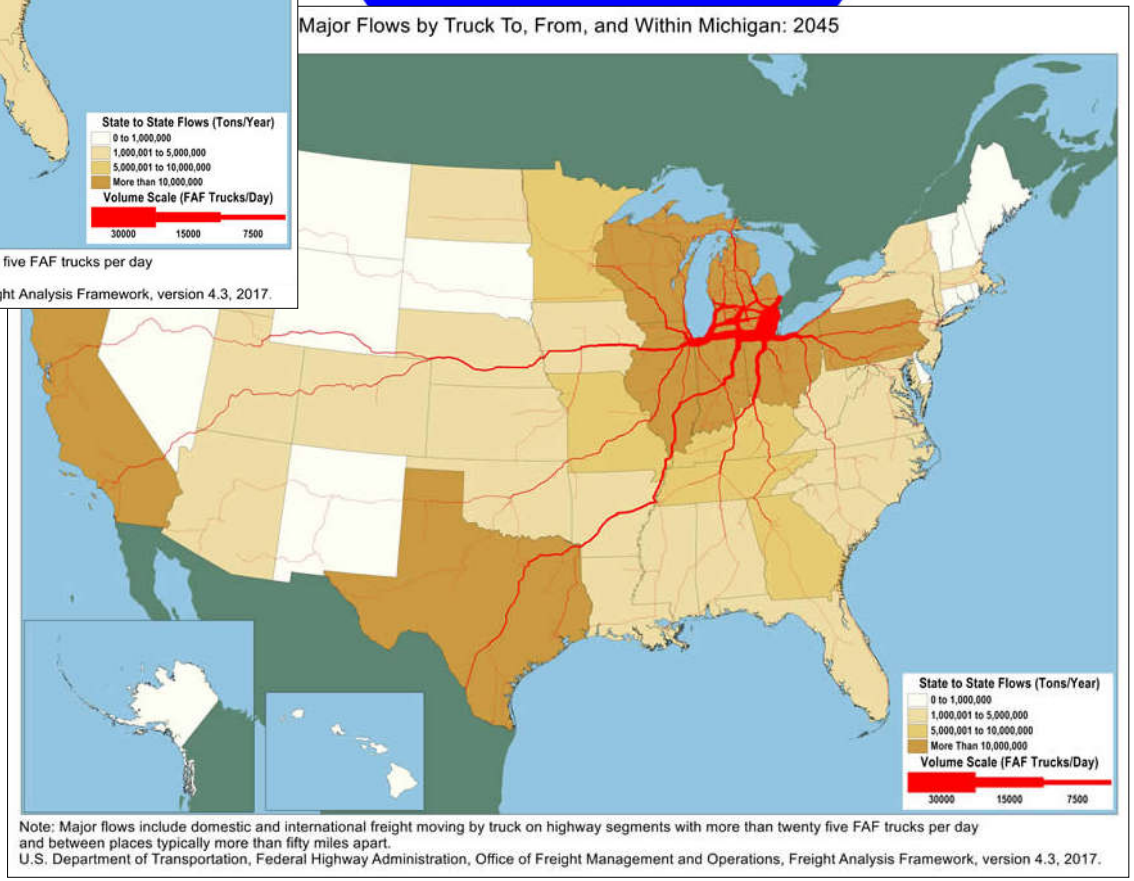
Interstate Congestion & Reliability

The MDOT 2016 Freeway Congestion & Reliability Report states that the in 2016 the user delay cost for the I-94 corridor in Berrien County was $5,658,000. This is an improvement on the 2012 to 2015 four-year average of $9,042,000. The graph below, from that report, shows how that user delay cost is broken out by month.



Note: Major flows include domestic and international freight moving by truck on highway segments with more than twenty five FAF trucks per day and between places typically more than fifty miles apart.
U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 4.3, 2017.



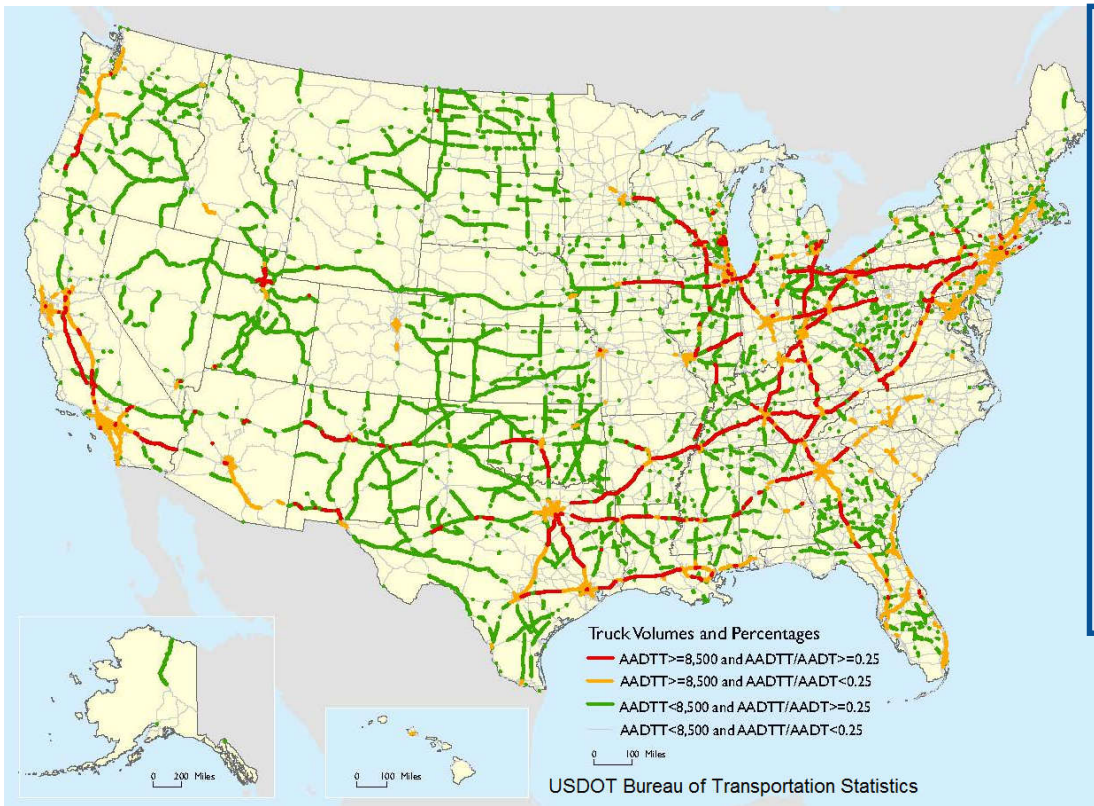


Note: Major flows include domestic and international freight moving by truck on highway segments with more than twenty five FAF trucks per day and between places typically more than fifty miles apart.
U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 4.3, 2017.

Freight Vehicle-Miles Traveled

Long-haul freight truck traffic on the National Highway System between 2012 and 2045 is projected to increase dramatically (per Bureau of Transportation Statistics), by:

58%



TwinCATS is located along NAFTA trade routes linking Canada, the U.S., and Mexico, which provides access to:

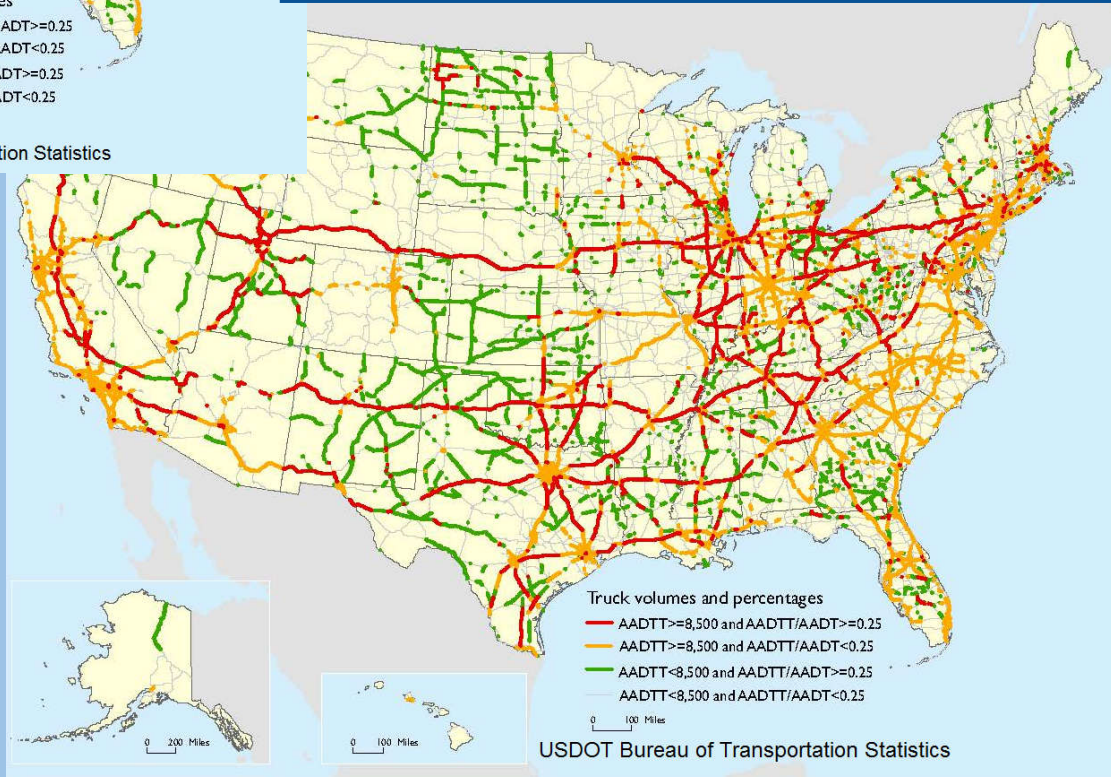
- ♦ 54% of the nation's manufacturers
- ♦ 48% of all national retail sales
- ♦ 54% of the nation's business payroll
- ♦ 65% of Canada's Gross National Product
- ♦ 37% of the U.S. population can be reached in one day by truck

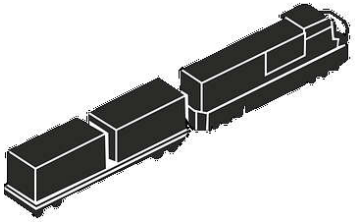
- ◊ More than 78% of the U.S. population can be reached within two days by roadway
- ◊ More than 100 million people live within overnight delivery capability
- ◊ More than 105 million people live within a 500-mile radius and 221 million people live within 1,000 miles radius of the region's center

Bureau of Transportation Statistics:

Freight goods depend heavily on the Interstate System for delivery. Although only one-fourth of the miles traveled by all traffic is on the Interstate System, about one-half of combination-truck vehicle miles of travel are on interstate highways.

The number of National Highway System miles carrying large volumes and high percentages of trucks is projected to increase dramatically by 2045. Segments with more than 8,500 trucks per day and where at least every fourth vehicle is a truck are estimated to grow from 5,560 miles in 2012 to 13,480 in 2045, an increase of more than **140%**.

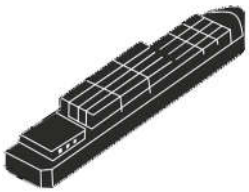




Freight Rail

CSX Transportation runs freight rail service through the Twin Cities, following the Pere Marquette line between Holland and Chicago. In Holland, the CSX line splits off into a route along the Lake Michigan coast and another that follows the Pere Marquette route to Grand Rapids and beyond (see map to right). Rail offers an economical and environmentally conscientious means to move freight. The table below shows inbound and outbound rail movements in Berrien County for 2014 (including the Amtrak line through the Niles area) (source: MDOT Office of Rail – IHS Transearch database). Pass-through tonnages, such as for coal, are not shown here.

2014 Rail Movements — Berrien County		
Product	**Inbound Tons**	**Outbound Tons**
Rubber/Plastic Scrap		21,600
Primary Metal Products	8,800	
Fiber, Paper, or Pulpboard	12,080	



Twin Cities Harbor

The Twin Cities Harbor is a deep draft commercial harbor with over 5,300 feet of structures including piers and revetments and over 1.5 miles of maintained channel. The U.S. Army Corps of Engineers (USACE) Fact Sheet for the Twin Cities Harbor reported that 282,000 tons of material were shipped and received at the Twin Cities Harbor in 2016, and 413,000 tons in 2015. These figures are both higher and lower than the ten-year average between 2007 and 2016 of 341,000 tons.

Commercial Harbor Importance

The USACE Fact Sheet identifies the transportation importance of the Harbor:

- ◊ Regionally significant receiving port on the Great Lakes
- ◊ Commodities received include limestone, sand, gravel, armor stone, cement, slag, salt, and petroleum products
- ◊ Project serves as an important Harbor of Refuge
- ◊ Harbor is home to the U.S. Coast Guard Station Saint Joseph

Harbor Freight Stakeholders

- **Dock 63:** In 2015, they handled $4.7M in road salt and $1.5M in limestone.
- **LaFarge North America:** Employs five people and supplies cement to over 30 ready-mix plants within southwestern Michigan and Indiana.
- **Central Dock Company:** In 2017, citing difficult economic viability, the owner approached Cornerstone Alliance for assistance in selling the property, potentially for mixed-use development.

Twin Cities Harbor Dredging

The Twin Cities Harbor is usually dredged by the USACE. Until January 2017, Berrien County had been taking responsibility for locally coordinating this work. The City of Benton Harbor, City of St. Joseph, and St. Joseph Charter Township have been meeting to build a multi-jurisdictional framework to address harbor dredging and other issues.

Harbor Study

In 2015, a multi-jurisdictional group prepared *Twin Cities Harbor A Study of Potential in Benton Harbor & St. Joseph MI* to explore several issues facing the harbor. Infographics related to harbor freight are on the following pages, but the whole study is online:

http://www.swmpc.org/bhsjharbor.asp

Bulk commodities that pass through the harbor:

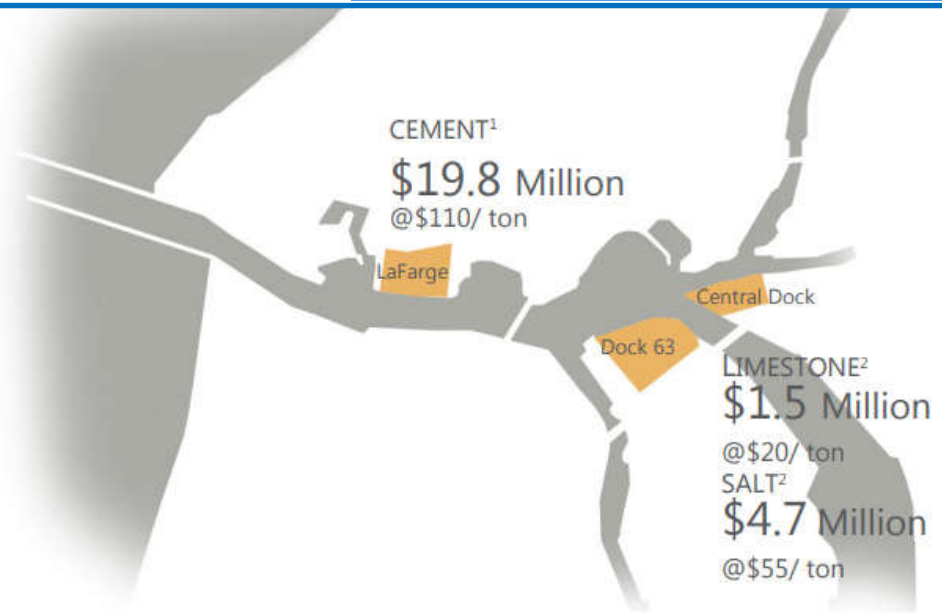
- **$840M** annually in business **revenue**
- **5,057** direct, indirect, & induced **jobs**
- **$251M** per year in personal **income**

Source: USACE Fact Sheet for the Twin Cities Harbor

Loss of between 4 and 5 feet of channel depth:

Results in increased transportation costs of between $1.6M and $3.9M

Source: USACE Fact Sheet for the Twin Cities Harbor



ESTIMATED

$2.5 Million Saved by Shipping in 2015

2015 Freight[3]

Projections: 340,000 tons

340 Jobs

2004 - 2009 2010 - 2014

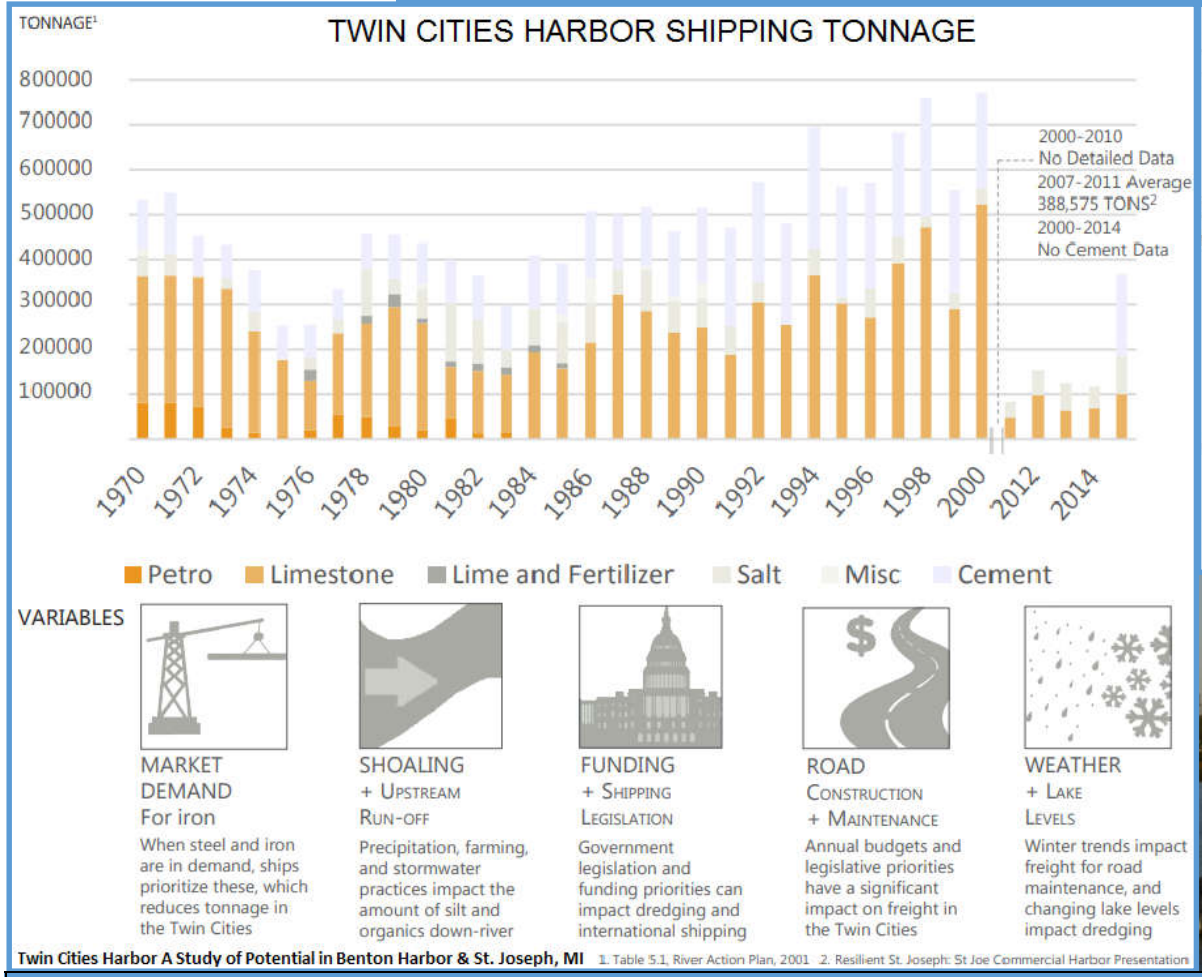
Changing variables have led to a decline in the number of annual ships.[4]

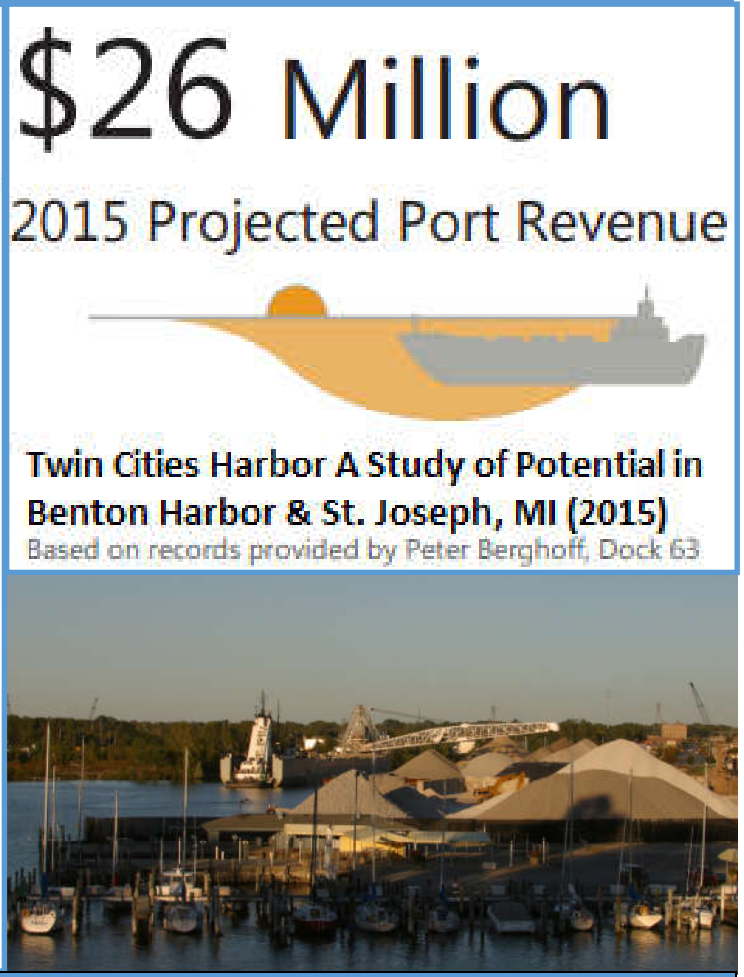
84% SUPPORT Commercial Shipping

The 2015 Resilient St. Joseph master planning process revealed overwhelming support for maintaining commercial shipping in the Twin Cities harbor.[6]

Twin Cities Harbor A Study of Potential in Benton Harbor & St. Joseph, MI (2015)

1. 2015 Projection based on records provided by Lafarge via phone
2. 2015 projection based on records provided by Peter Berghoff, Dock 63
3. Based on records provided by Peter Berghoff, Dock 63
4. Resilient St. Joseph: Port Presentation, January 22, 2015
5. Based on 2015 tonnage and trucking cost projections in the River Action Plan
6. www.resilientmichigan.org/downloads/compiled_results.pdf





U.S. Army Corps of Engineers Fiscal Year (FY) 2017, 2018, and 2019
St. Joseph Harbor, MI - Project Requirements and President's Budget ($1,000)

Work Package	FY17 Require-ment	FY17 Appropria-tion	FY18 Require-ment	FY18 President's Budget	FY19 Require-ment	FY19 President's Budget
Maintenance Dredging of Outer Harbor – Primary Work Package	750	750	765	765	600	600
Maintenance Dredging of Inner Harbor	0	0	0	0	900	900
Maintenance Dredging – Backlog Work Package	225	0	225	0	0	0
TOTAL	**975**	**750**	**990**	**765**	**1,500**	**1,500**

State Freight Priorities

The 2040 Michigan Transportation Plan goals particular for freight are tightly connected with national freight priorities, including:

- ***System Improvement:*** Modernize and enhance the transportation system to improve mobility and accessibility.
- ***Efficient and Effective Operations:*** Improve the efficiency and effectiveness of the transportation system and transportation services, and expand MDOT's coordination and collaboration with partners.
- ***Safety and Security:*** Continue to improve transportation safety and ensure the security of the transportation system.
- ***Stewardship:*** Preserve transportation system investments, protect the environment, and utilize public resources in a responsible manner.

National Freight Priorities

The Fixing America's Surface Transportation (FAST) Act of 2015 governs surface transportation federal spending, thus setting national priorities. The Michigan Freight Plan summarized national freight goals (**emphasis added**):

- Improve the contribution of the freight transportation system to **economic efficiency**, **productivity**, and **competitiveness**;
- **Reduce congestion** on the freight transportation system;
- Improve the **safety**, **security**, and **resilience** of the freight transportation system;
- Improve the **state of good repair** of the freight transportation system;
- Use **advanced technology**, **performance management**, **innovation**, **competition** and **accountability** in operating and maintaining the freight transportation system;
- **Reduce adverse environmental and community impacts** of the freight transportation system;
- Improve the flexibility to support **multi-state corridor planning** and the creation of multi-state organizations to increase the ability of states to address multimodal freight connectivity; and
- Improve the **short- and long-distance movement of goods** that travel across rural areas between population centers, between rural areas and population centers, and from the nation's ports, airports, and gateways to the National Multimodal Freight Network.

Strategies for Improving Freight Transportation

Freight Committee. As shown in this section, freight is very important the area. A freight committee could be established to bring together freight stakeholders (air, highway, rail, marine, and pipeline) to review, analyze, and make recommendations on how best to assist the Twin Cities area with any freight issues the committee identifies.

Twin Cities Harbor. The City of Benton Harbor, City of St. Joseph, St. Joseph Charter Township, and other stakeholders could organize a multijurisdictional body that could focus on harbor related issues, including dredging and other issues identified by those communities for the new multijurisdictional body to work on.

Regional Prosperity Initiative – Region 8. Support the Southwest Michigan Regional Prosperity Initiative Committee pursuing its strategies for its Goal #3; "Create, improve, and maintain services and infrastructure," Objective 3; "advance the effective and efficient transportation of goods."

AVIATION

Air Freight

In Michigan there are 226 airports that are open for public use and serve the general aviation market, which is a critical element of the air transportation network.

The Southwest Michigan Regional Airport (SWMRA) is the largest all– weather, general aviation airport in Berrien Cass, and Van Buren Counties.

Businesses rely on it to facilitate quick and efficient travel of personnel, minimize time away from work, provide dependable and flexible travel options to multiple destinations, and deliver goods on time. The airport supports a host of operations including, but not limited to:

- Agricultural spraying
- Emergency and medical operations
- Firefighting
- Flight training
- Aerial photography
- Coast guard and other military operations
- Remote access
- Personal travel
- Business aviation
- Cargo

The airport has regular UPS flights and other local charter operators delivering material for just-in-time manufacturing. The latest economic impact estimate conducted (2014) by Michigan Department of Transportation showed the airport's contribution to the local economy to be **$30 million**. There are no plans to expand operations or capacity for freight shipments or passenger service, however, those plans may change as the need arises.

The SWMRA is owned by the Cities of Benton Harbor and St. Joseph, and is governed by the Southwest Michigan Regional Airport Authority, established in 1997, which is responsible for airport operations. The airport authority is comprised of six municipalities: Cities of Benton Harbor and St. Joseph, St. Joseph Charter Township (including the Village of Shoreham), Lincoln Charter Township (including the Village of Stevensville), Royalton Township, and Benton Charter Township – all of which contribute a millage.

The majority of airport revenue is derived from fuel sales, hangar leases and millages from participating jurisdictions.

The US Coast Guard utilizes the airport for refueling during operations on Lake Michigan.

LONG TERM OBJECTIVES

Hangar Development –(20 T-Hangars)

- On track for Spring 2019 build, trying to get state and federal financial support.
- Waiting list of tenants (currently at 100% occupancy) with 13 aircraft on the waiting list either new tenants or looking for an upgrade.
- Permanent solution for winter equipment storage is also on the list to approach.
- **Charter Service**
- Always networking and sharing potential for business aviation and how it has benefited our community.

Flight School

Growing interest in local flight instruction.

Still looking for permanent occupancy.

SHORT TERM OBJECTIVES

- Secure long-term agricultural tenant
- Improve airport drainage,
- Inspection and design phase 2018 (fix storm water drains)
- Improve airport drainage system project 2019
- Taxiway D design 2020
- Taxiway D Construction 2021
-

ACCOMPLISHMENTS

Self Service Fuel Pickup and plow

Snow Broom Tow Vehicle

Runway 10/28: 6005 feet long by 100 feet wide to handle corporate jet traffic

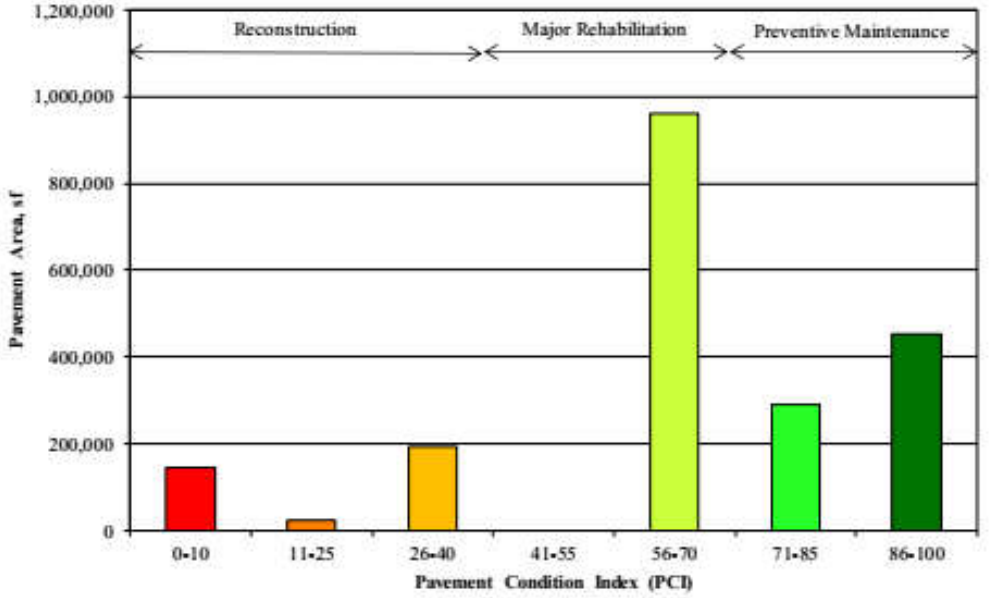
Runway 14/32: 3361 feet long by 100 feet wide

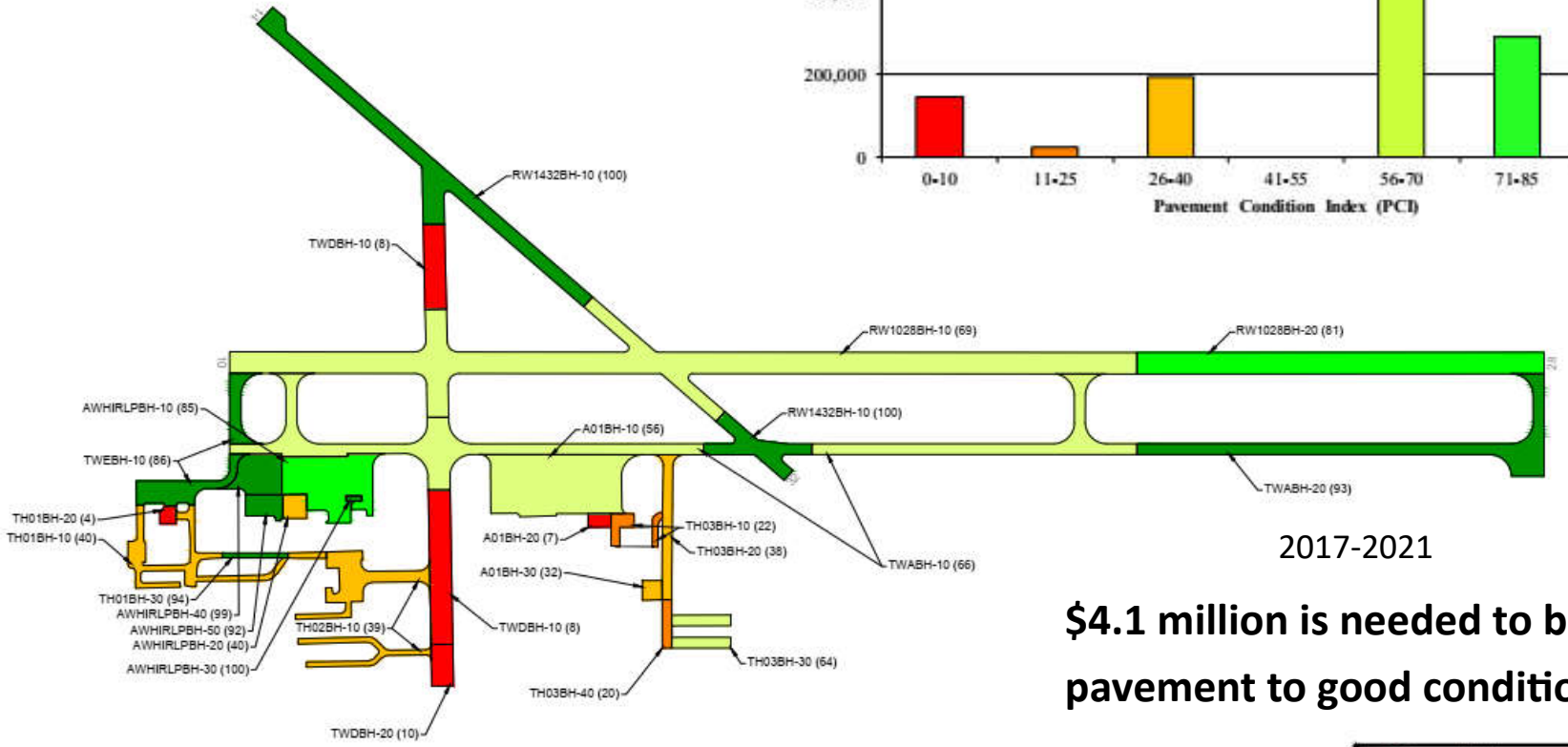
Taxiway: 2498 feet long by 100 feet wide

Runway 14/42: Crosswind runway

Southwest Michigan Airport Pavement Condition

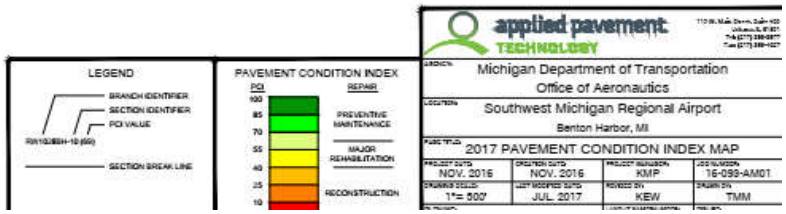
The airport manages over 2 million square feet of pavement. A 5-year program was prepared with the goal of maintaining the pavements above established critical PCIs, based on the runway design category. During the analysis, major rehabilitation was recommended for pavements in the year they dropped below their critical PCI.





2017-2021

$4.1 million is needed to bring pavement to good condition.



Southwest Michigan Regional Airport Condition Report-2017

Aviation and Tourism

One of Michigan's largest industries, tourism, is supported by commercial and general aviation. On the shores of Lake Michigan, the St. Joseph Benton Harbor urbanized area is positioned as a prime area for vacation and tourists.

"Due to its location and larger ARC, Southwest Michigan Regional Airport in Benton Harbor was determined to be the primary airport in Berrien County for use by tourists"

MDOT's 2017 Aviation System Plan

Berrien County Ranks # 8

Statewide in Traveler Spending

$403 Million

Annually

MEDC- 2014 The Economic Impact of Travel in Michigan

- Lodging – traveler spending in the accommodation sector. This includes food and other services provided by hotels and similar establishments.
- Food and Beverage – all traveler spending at restaurants and bars.
- Retail – traveler spending within all retail sectors within the Michigan economy.
- Recreation – traveler spending within the arts, entertainment, and recreation super sector.
- Transport – all forms of local transport services such as taxis, limos, trains, rental cars, and buses.

ENVIRONMENTAL REVIEW

Transportation and the Environment

It is broadly recognized the transportation networks can directly affect the natural environment and community resources of an area. Similarly, these same features can impact the maintenance and construction of transportation system. SWMPC's role in this relationship is summarized as; the transportation planning process provide for actions and strategies that protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns. The mission of these objectives is to streamline transportation projects, by way of discussing potential impacts and providing basic guidelines for protecting these features early in the planning process. This also includes sharing the information in consultation with applicable federal, state, and tribal land management, wildlife, and regulatory agencies.

To fulfill this mission a process was completed and outlined as;

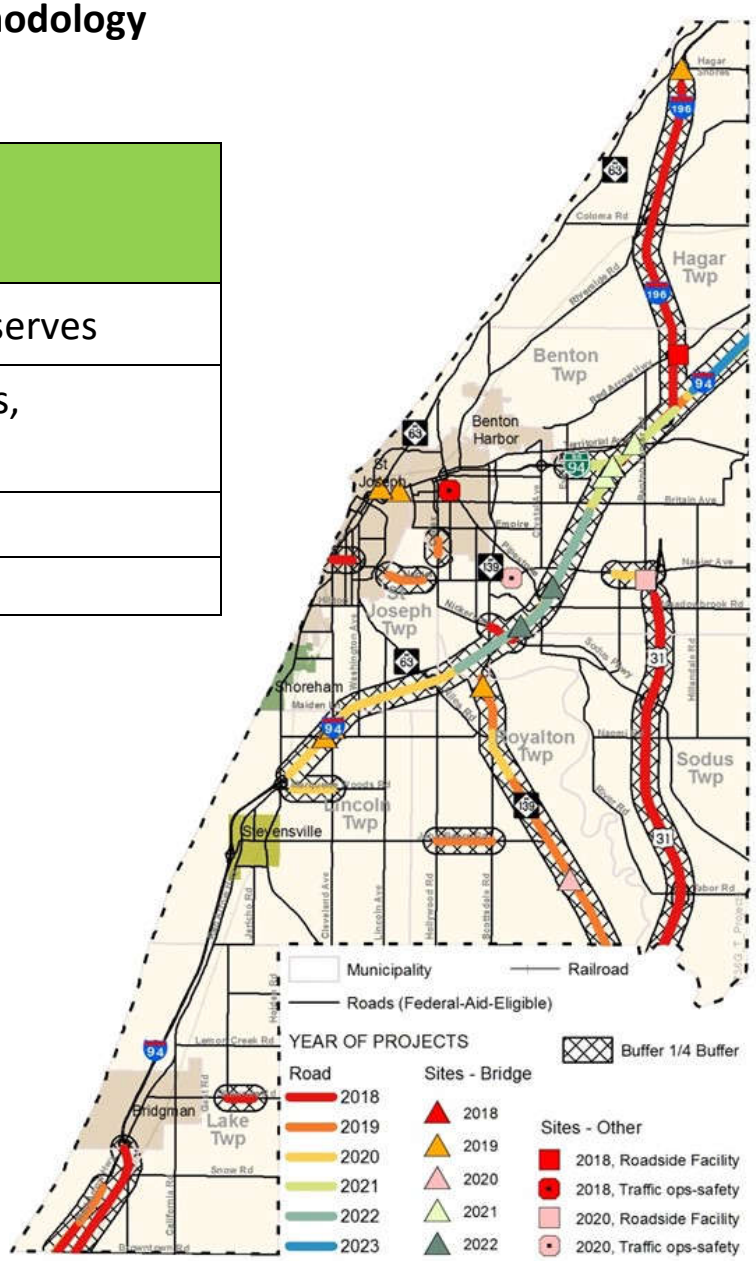
- Identify environmentally sensitive natural resources and significant community resources
- Analyze possible impacts on these environmental resources by examining the transportation projects using Geographical Information Systems (GIS)
- Presentation of GIS results: discussion, table, and maps
- Discussion of guidelines to review for threatened and endangered species
- Consultation list of relevant agencies
- Inclusion of overall guidelines for planning, design, construction and maintenance of transportation projects that represent good planning practice

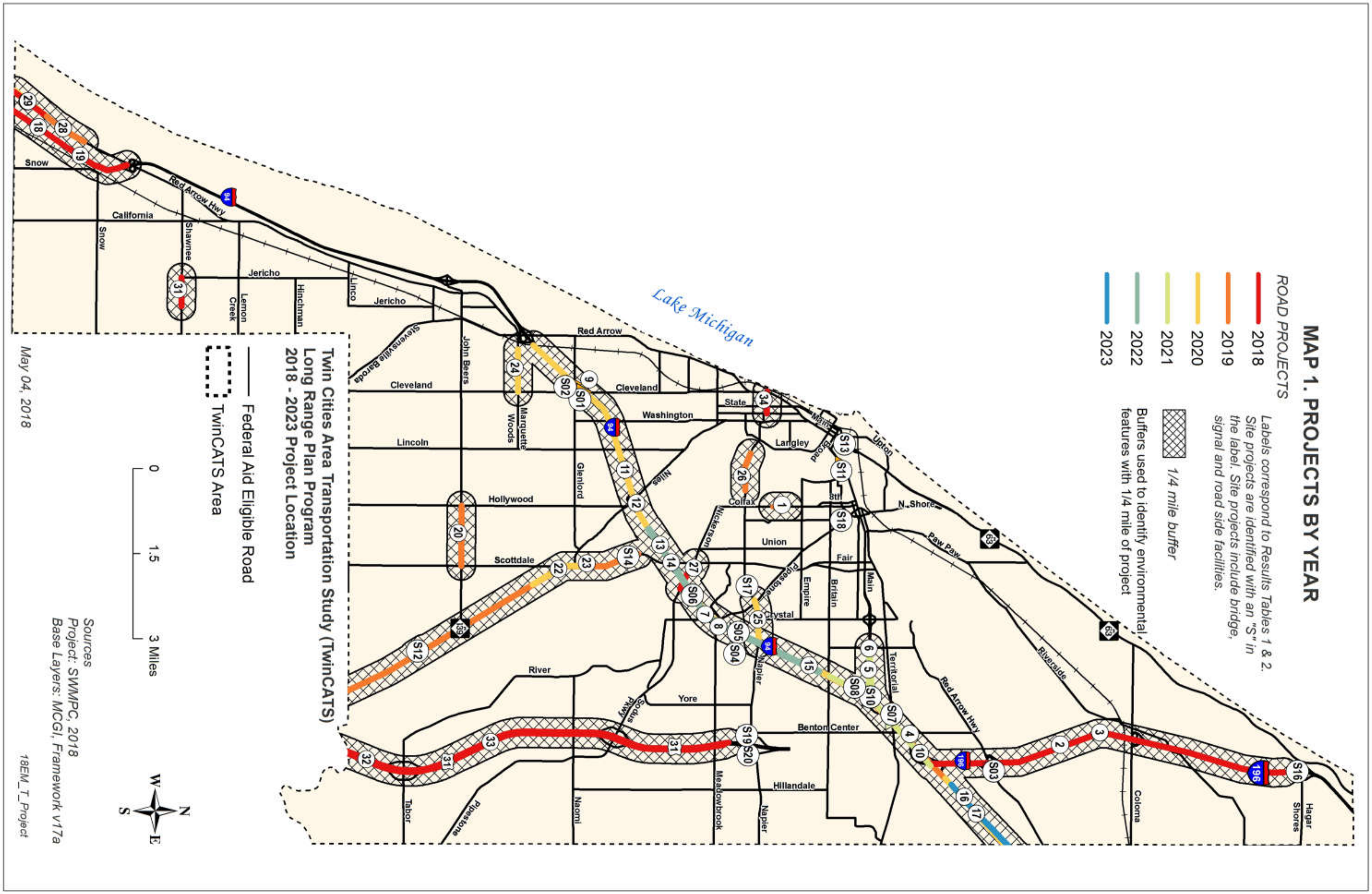
Identification of Sensitive Environmental Features and GIS Methodology

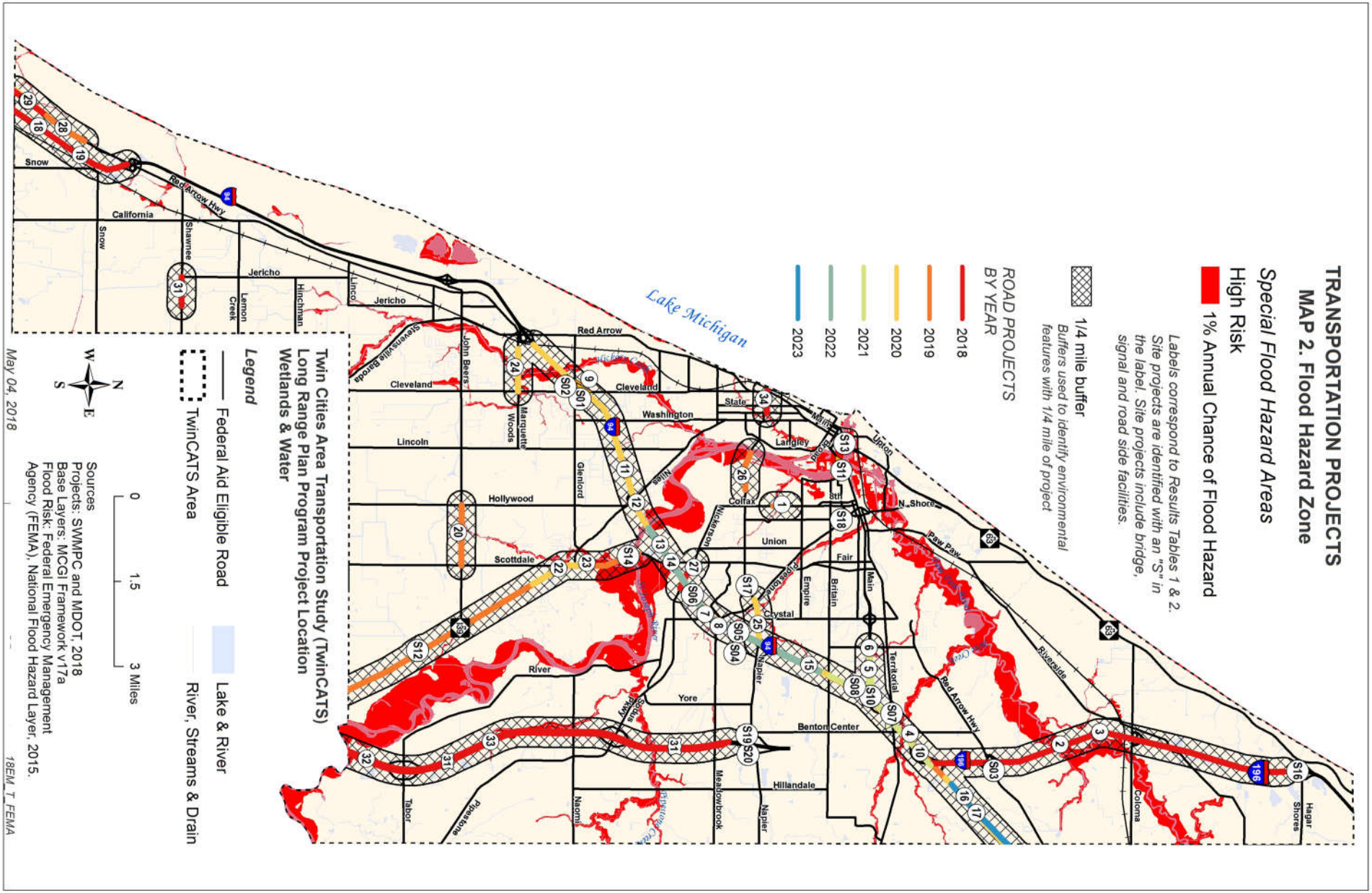
ENVIRONMENTAL FEATURES & SIGNIFICANT COMMUNITY RESOURCES - ANALYZED IN GIS	
Designated Critical Dunes	Conservation Areas: Parks & Preserves
Lakes, Rivers & Streams	Community Resources: Hospitals, Schools & Public Buildings
Wetlands	
High Risk Flood Areas	Recreational Areas & Parks
Farmland - Cropland	

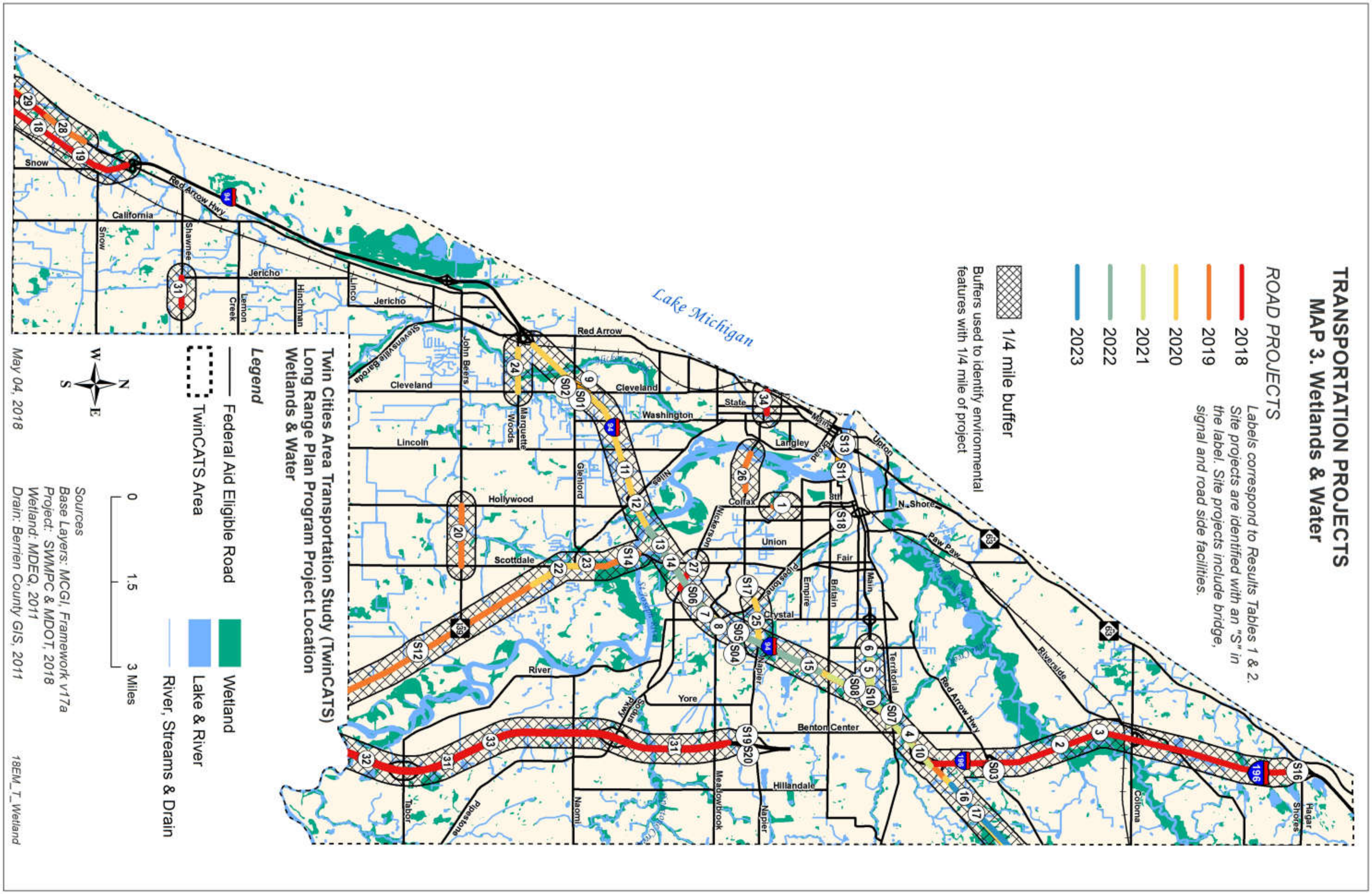
The list above was compiled with an awareness of invaluable natural resources and the community resources in TwinCATS, in addition to available data. A Geographic Information System (GIS) was used to analyze each transportation project in comparison to the features listed by creating a 1\4 mile buffer around each project and a 250 foot buffer around each work site, which includes bridge, signal or roadside facility. Features that fall within the buffer were identified and listed in the Results Table 1 & 2, along with a discussion of the findings and selected maps.

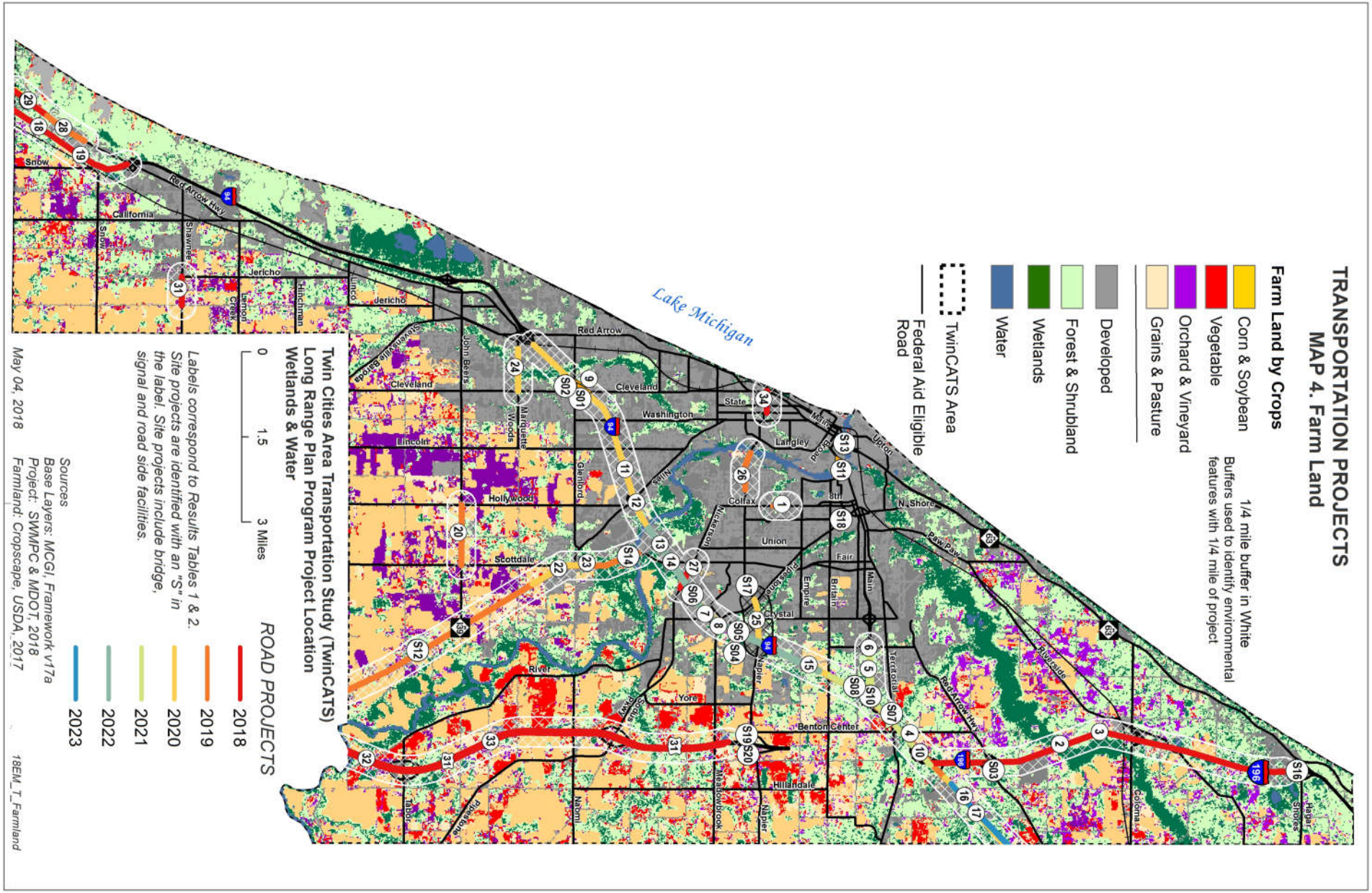
The source for this process is given in "Integrating Environmental Issues in the Transportation Planning Process: Guidelines for Road and Transit Agencies, SEMCOG, January 2007".

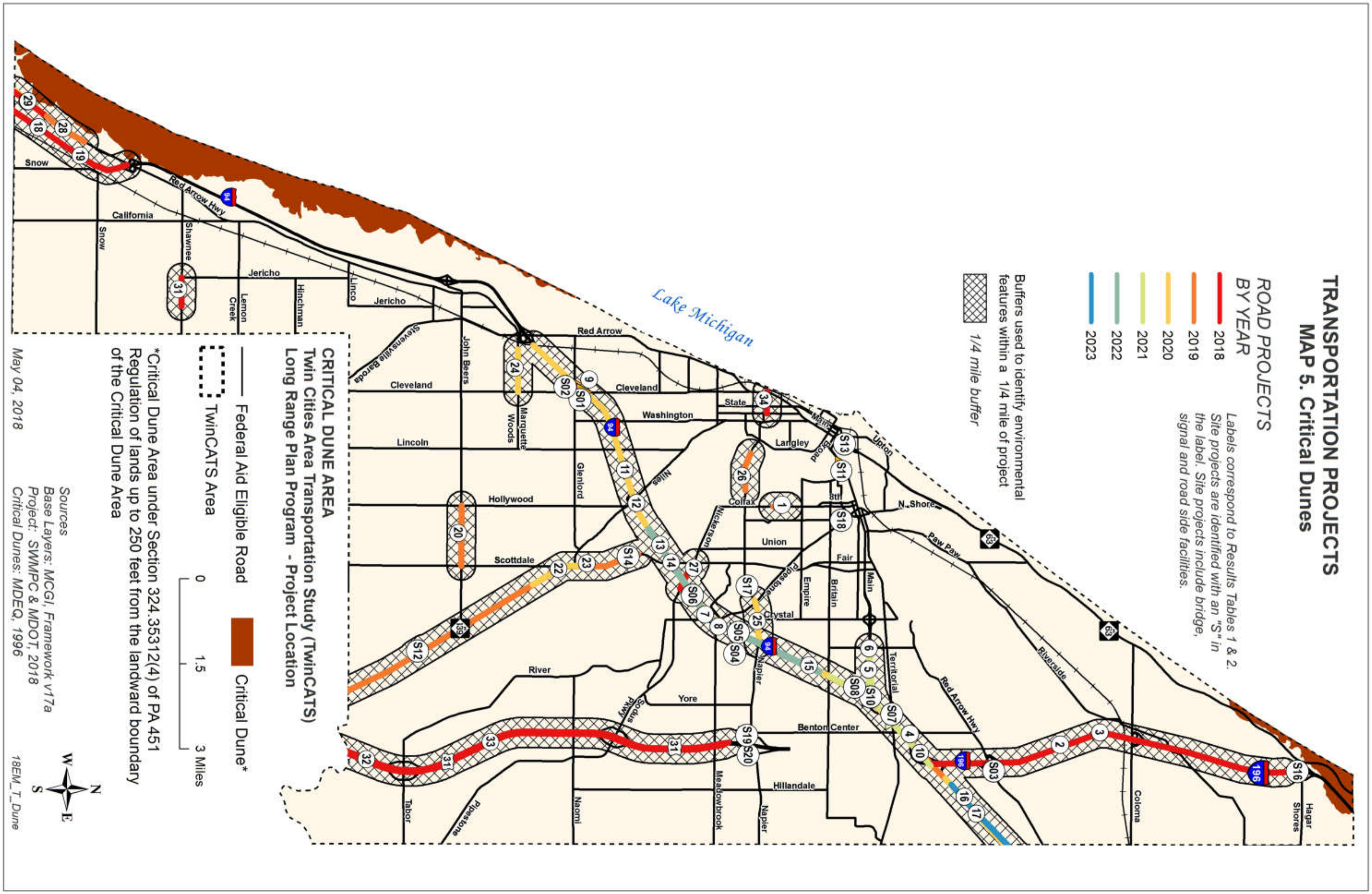



MAP 1. PROJECTS BY YEAR
ROAD PROJECTS
2018
2019
2020
2021
2022
2023
Labels correspond to Results Tables 1 & 2.
Site projects are identified with an "S" in the label. Site projects include bridge, signal and road side facilities.
1/4 mile buffer
Buffers used to identify environmental features with 1/4 mile of project
Twin Cities Area Transportation Study (TwinCATS)
Long Range Plan Program
2018 - 2023 Project Location
Federal Aid Eligible Road
TwinCATS Area
0
1.5
3 Miles
Sources
Project: SWMPC, 2018
Base Layers: MCGI, Framework v17a
May 04, 2018
18EM_T_Project
Lake Michigan


TRANSPORTATION PROJECTS
MAP 2. Flood Hazard Zone
Special Flood Hazard Areas
High Risk
1% Annual Chance of Flood Hazard
Labels correspond to Results Tables 1 & 2. Site projects are identified with an "S" in the label. Site projects include bridge, signal and road side facilities.
1/4 mile buffer
Buffers used to identify environmental features with 1/4 mile of project
ROAD PROJECTS BY YEAR
2018
2019
2020
2021
2022
2023
Lake Michigan
Twin Cities Area Transportation Study (TwinCATS)
Long Range Plan Program Project Location
Wetlands & Water
Legend
Federal Aid Eligible Road
TwinCATS Area
Lake & River
River, Streams & Drain
0
1.5
3 Miles
Sources
Projects: SWMPC and MDOT, 2018
Base Layers: MCGI Framework v17a
Flood Risk: Federal Emergency Management Agency (FEMA), National Flood Hazard Layer, 2015.
May 04, 2018
18EM_T_FEMA


TRANSPORTATION PROJECTS
MAP 3. Wetlands & Water
ROAD PROJECTS
Labels correspond to Results Tables 1 & 2. Site projects are identified with an "S" in the label. Site projects include bridge, signal and road side facilities.
2018
2019
2020
2021
2022
2023
1/4 mile buffer
Buffers used to identify environmental features with 1/4 mile of project
Lake Michigan
Twin Cities Area Transportation Study (TwinCATS)
Long Range Plan Program Project Location
Wetlands & Water
Legend
Federal Aid Eligible Road
TwinCATS Area
Wetland
Lake & River
River, Streams & Drain
0
1.5
3 Miles
Sources
Base Layers: MCGI, Framework v17a
Project: SWMPC & MDOT, 2018
Wetland: MDEQ, 2011
Drain: Berrien County GIS, 2011
May 04, 2018
18EM_T_Wetland


TRANSPORTATION PROJECTS
MAP 4. Farm Land
Farm Land by Crops
Corn & Soybean
Vegetable
Orchard & Vineyard
Grains & Pasture
Developed
Forest & Shrubland
Wetlands
Water
1/4 mile buffer in White
Buffers used to identify environmental features with 1/4 mile of project
TwinCATS Area
Federal Aid Eligible Road
Lake Michigan
Twin Cities Area Transportation Study (TwinCATS)
Long Range Plan Program Project Location
Wetlands & Water
0
1.5
3 Miles
ROAD PROJECTS
2018
2019
2020
2021
2022
2023
Labels correspond to Results Tables 1 & 2. Site projects are identified with an "S" in the label. Site projects include bridge, signal and road side facilities.
Sources
Base Layers: MCGI, Framework v17a
Project: SWMPC & MDOT, 2018
Farmland: Cropscape, USDA_2017
May 04, 2018
18EM_T_Farmland


TRANSPORTATION PROJECTS
MAP 5. Critical Dunes
ROAD PROJECTS BY YEAR
Labels correspond to Results Tables 1 & 2.
Site projects are identified with an "S" in the label. Site projects include bridge, signal and road side facilities.
2018
2019
2020
2021
2022
2023
Buffers used to identify environmental features within a 1/4 mile of project
1/4 mile buffer
Lake Michigan
CRITICAL DUNE AREA
Twin Cities Area Transportation Study (TwinCATS)
Long Range Plan Program - Project Location
Federal Aid Eligible Road
Critical Dune*
TwinCATS Area
0
1.5
3 Miles
*Critical Dune Area under Section 324.35312(4) of PA 451
Regulation of lands up to 250 feet from the landward boundary of the Critical Dune Area
May 04, 2018
Sources
Base Layers: MCGI, Framework v17a
Project: SWMPC & MDOT, 2018
Critical Dunes: MDEQ, 1996
18EM_T_Dune
N
S
E
W

Environmental Review Results and Discussion

The goal of the environmental review process is to eliminate or minimize environmental impacts from the planned projects in the MPO's transportation plan. This applies primarily to the "improve and expand" type projects. Though there are no improve and expand projects listed in the plan, there still will be a need to adhere to overall sound guidelines for planning, design, construction and maintenance of transportation projects. However, addressing this issue in the transportation plan is not intended to be project specific. The owners of any future project are still required to meet all of the necessary requirements of the National Environmental Policy Act (NEPA) process.

Project impacts on environmentally sensitive resources analyzed the likelihood of possible impacts from planned road projects, using Geographic Information Systems (GIS), projects were mapped and buffered, representing a likely area of influence. Next, the specified project buffers were intersected with environmentally sensitive resources. Where a project buffer and an environmentally sensitive resource intersect, impacts are considered possible and are listed in the Results Table 1 & 2, followed by selected maps. It should be noted that no additional analysis of possible impacts was conducted. Simply because a project buffer intersects a wetland, for example, does not mean the wetland would be impacted. Nor does the absence of intersection mean the wetland is definitely not impacted. This screening analysis is simply designed to focus attention on possible areas of concern that should be evaluated in more detail at the project level.

SUMMARY OF RESULTS – Bridge, Signal and Roadside Facility (All projects shown in Map 1)

FEATURE	RESULTS - Features that fall within 250 ft. of the projects
Map 4. Farmland	1 site in an agricultural area which is the roadside facility, off US -31, exit 24
Map 5. Critical Dune	No site projects within the Critical Dune Areas. The bridge work at M-63 is very close to the designated area of 1,000 ft.
Map 2. Flood Zones (High Risk)	3 bridge work sites over the St Joseph River
Map 3. Water Features	Many are very close to streams and drains, but not within the 250 foot buffer
Map 3. Wetland	2 bridge work sites are over the St Joseph River; I-94 BL in Benton Harbor and M-63 in St Joseph

There were very few bridge, signal or roadside projects that are within the 250 foot buffer zone of an environmental feature. None of the projects were found to be near community resources, conservation areas or recreational areas. See full results in Table 1 and find the project location in Map 1. It should be noted that the 250 foot buffer around the sites are not seen because of the scale of maps.

TABLE 1. **RESULTS** – **Bridge, Signal and Roadside Facility**
Environmental features that are within a 250 foot buffer around sites.

MAP LABEL #	LOCATION	TYPE	YEAR	AGENCY	WATER	WETLAND	FARM LAND	FLOOD HAZARD
S01	Cleveland Rd (Over I-94)	Bridge Preservation	2019	MDOT				
S02	Glenlord Rd (over I-94)	Bridge Preservation	2019	MDOT				
S03	I-196 (Exit 1, SW quadrant, Carpool Lot)	Roadside Facility-Restore	2018	MDOT				
S04	I-94 (St Joseph River to Britain Ave)	Bridge Reconstruction	2022	MDOT				
S05	I-94 (St Joseph Rivet to Britain Ave)	Bridge Reconstruction	2022	MDOT		X		
S06	I-94 (St. Joseph River to Britain Ave)	Bridge Reconstruction	2022	MDOT				
S07	I-94 EB (Britain Ave to I-196)	Bridge Reconstruction	2021	MDOT				
S08	I-94 EB (Britain Ave to I-196)	Bridge Reconstruction	2021	MDOT				
S10	I-94 EB (Britain Ave to I-196)	Bridge Reconstruction	2021	MDOT	X	X		
S11	I-94 BL (over St Joseph River in Benton Harbor)	Bridge Program	2019	MDOT	X			X
S12	M-139 (Buckthorn Creek)	Culvert Restoration	2020	MDOT	X		X	
S13	M-63 (over St Joseph River)	Bridge Program	2019	MDOT	X			X
S14	M-63 (over St Joseph River)	Bridge Replacement	2018	MDOT	X			X
S15	M-63 (over St Joseph River)	Bridge Replacement	2019	MDOT	X			X
S16	M-63 (Under)	Bridge Replacement	2019	MDOT				
S17	Napier & Leeds	Traffic ops-safety	2020	BCRC	X			
S18	Pipestone and Jefferson	Traffic ops-safety	2018	Benton Harbor				
S19	US-31 (Exit 24, Napier Ave Carpool Lot)	Roadside Facility-Restore	2018	MDOT			X	
S20	US-31 (Exit 24, Napier Ave, Carpool Lot)	Roadside Facility-Restore	2020	MDOT			X	

SUMMARY OF RESULTS – Road Projects

FEATURE	RESULTS - Road Projects within 1/4 mile of Features
MAP 2. Flood Zones (High Risk)	Many of the projects are in a high risk area for flooding, however most projects cross the area of flooding. Whereas other projects border the areas of high risk for flooding. The project on M-139, borders the east side of the road for 2 miles. While the southern 4 miles of the project are out of the floodplain. A similar situation occurs along US-31. The project is over 7 miles long while a 1 mile of the project is near the floodplain with 3 major crossing over the floodplain. The I-196 project is over 6 miles and runs with the flood plain for about a mile.
MAP 3. Water Features	All road projects intersect within ¼ mile of water – drains, streams, lakes or rivers.
MAP 3. Wetland	Most projects are located within a ¼ mile from wetlands, except for the projects on Wallace Avenue and Nickerson.
MAP 4. Farmland	Project along John Beers Road, US-31 and M-139, and the eastern portion of Napier are 75% - 90% in agricultural areas. Many of the I-94 projects do not fall in any agricultural areas with the exception of the project in the southern part of TwinCATS , along the eastern side of the expressway. I-196 near I-94 is in some farmland as is in the northern reach of the projects, approximately 25% or less.
Conservation	I-94 is next to Riverview Park, I-196 next to Sarret Nature Center. Red Arrow Hwy project on the borders of Warren Dunes State Park on the west side.
Recreation Areas	Very few, many projects on highway with no direct access, others near school athletic field. Projects along Red Arrow Highway and I-94 near Warren Dunes State Park.
Community Resources	Napier Ave is near Lakeland Hospital. Wallace Ave is near St Joseph High School.
MAP 5. Critical Dunes	Projects in the southern part of TwinCATS along I-94 are in or very close to the Critical Dune Area.

Looking at the road projects overall, the environmental features that are within the buffered zone of the road projects are the water infrastructure; lakes, rivers, streams and wetlands. This is linked to the number of projects crossing or within areas that are at high risk of flooding which are low areas relative to the landscape. Any of the wetlands around a project area need special consideration through sound project management for their importance in providing flood water storage, sediment retention and wildlife habitat. See full results of the GIS analyses in Table 1 & 2 along with the relevant maps.

TABLE 2. **RESULTS – Road Projects**

MAP LABEL #	LOCATION	TYPE	YEAR	AGENCY	WATER	WETLANDS	FARMLAND	FLOOD RISK	RECREATION	CRITICAL DUNES	COMMUNITY RESOURCES	CONSER-VATION
1	Colfax Ave. (May to Emery).	Resurface & Nonmotorized Facility	2019	Benton Harbor	X	X		X				
2	I-196 (I-94 to 0.5 miles South of M-63, Exit 7)	Restore & Rehabilitate	2018	MDOT	X	X		X	X		X	X
3	I-196 (I-94 to 0.5 miles South of M-63, Exit 7)	Restore & Rehabilitate	2018	MDOT	X	X		X	X		X	X
4	I-94 (Britain Ave to I-196)	Restore & Rehabilitate	2021	MDOT	X	X		X				
5	I-94 (From Britain Ave to I-196	Reconstruction	2021	MDOT	X	X		X				
6	I-94 (From Britain Ave to I-196)	Reconstruction	2021	MDOT	X	X		X				
7	I-94 (St Joseph River to Britain Ave)	Restore & Rehabilitate	2022	MDOT	X	X		X				X
8	I-94 (St Joseph River to Britain Ave)	Restore & Rehabilitate	2022	MDOT	X	X		X				X
9	I-94 (Under Glenlord and Cleveland)	Restore & Rehabilitate	2019	MDOT	X	X		X	X			
10	I-94 EB (Britain to I-196)	New route/stucture (capacity increase)	2019	MDOT	X	X		X				
11	I-94 EB (Exit 23 to St Joseph River)	Restore & Rehabilitate	2020	MDOT	X	X		X	X			X
12	I-94 EB (Exit 23 to St Joseph River)	Restore & Rehabilitate	2020	MDOT	X	X		X	X			X
13	I-94 EB (St Joseph River to Britain Ave)	Restore & Rehabilitate	2019	MDOT	X	X		X				X
14	I-94 EB (St Joseph River to Britain Ave)	Restore & Rehabilitate	2019	MDOT	X	X		X				X
15	I-94 EB (St Joseph River to Britain Ave)	Restore & Rehabilitate	2020	MDOT	X	X		X				X
16	I-94 WB (I-196 to 0.7 miles west of M-140)	Resurface	2020	MDOT	X	X						
17	I-94 WB (I-196 to 0.7 miles west of M-140)	Restore & Rehabilitate	2023	MDOT	X	X		X				
18	I-94 WB (Three Oaks Rd to Red Arrow Hwy)	Resurface	2018	MDOT	X	X		X		X		X
19	I-94 WB (Three Oaks Rd to Red Arrow Hwy)	Resurface	2018	MDOT	X	X		X		X		X
20	John Beers Rd (Hollywood to Scottsdale)	Reconstruct & Nonmotorized Facility	2019	BCRC	X	X	X	X	X		X	
21	M-139 (at Buckhorn Creek)	Restore & Rehabilitate	2022	MDOT	X							
22	M-139 (Hinchman to North of St Joseph River)	Resurface	2019	MDOT	X	X	X	X				
23	M-139 (Tanglewood/Anna)	Traffic ops/safety	2020	MDOT	X	X		X				
24	Marquette Woods Rd (Roosevelt to Cleveland)	Resurface	2020	BCRC	X	X		X				
25	Napier Ave (I-94 to 4300 ft West)	Resurface	2020	BCRC	X	X						
26	Napier Ave (St. Joseph River to Broadway, 3700 ft East Bridge)	Resurface and ADA Ramps	2019	BCRC	X	X		X	X		X	
27	Nickerson Ave (M-139 to 700 ft East of Woodley)	Resurface	2018	BCRC	X						X	
28	Red Arrow Highway (0.8 miles South of Bridgman to 1.6 miles)	Resurface	2019	BCRC	X	X		X	X	X		X
29	Red Arrow Highway (1.6 miles South of Bridgman to 2.4)	Resurface	2020	BCRC	X	X		X		X		X
30	Red Arrow Highway (Bridgman City Limits to 0.8 miles South)	Resurface	2018	BCRC	X	X		X		X		X
31	Shawnee Rd (Jericho to Holden)	Reconstruction & Nonmotorized Facility	2018	BCRC	X	X	X				X	
32	US 31 (M-139 to Napier)	Capital Preventive Maintenance	2018	MDOT	X	X	X	X				
33	US 31 (M-139 to Napier)	Capital Preventive Maintenance	2018	MDOT	X	X	X	X				
34	Wallace Ave (Lakeshore to BL 94)	Reconstruction & Nonmotorized Facility	2018	St. Joseph	X			X	X		X	

GUIDELINES: Review of the Threatened and Endangered Species Act

Federal listing as threatened or endangered by U.S. Fish and Wildlife Service

The species listed below as federal threatened or endangered for Berrien County are compiled from Information for Planning and Consulting (IPAC).

Species	Status	Habitat
Indiana Bat (*Myotis sodalis*)	**Endangered**	Summer habitat includes small to medium river and stream corridors with well-developed riparian woods; woodlots within 1 to 3 miles of small to medium rivers and streams; and upland forests. Caves and mines as hibernacula.
Northern Long-eared Bat (*Myotis septentrionalis*)	**Threatened**	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.
Piping Plover (*Charadrius melodus*)	**Endangered**	Beaches along shorelines of the Great Lakes
Rufa Red Knot (*Calidris canutus rufa*)	**Threatened**	Only actions that occur along coastal areas during the Red Knot migratory window of MAY 1- SEPTEMBER 30
Eastern Massasauga (*Sistrurus catenatus*)	**Threatened**	Hibernates below frost line in small burrows, tree roots or rock crevasses - Close proximity and in a variety of wetlands
Mitcherll's Satyr Butterfly (*Neonympha mitchellii mitchellii*)	**Endangered**	Fens; wetlands characterized by calcareous soils which are fed by carbonate-rich water from seeps and springs
Pitcher's Thistle (*Cirsium pitcheri*)	**Threatened**	Stabilized dunes and blowout areas
Small Whorled Pogonia (*Isotria medeoloides*)	**Threatened**	Dry woodland; upland sites in mixed forests (second or third growth stage)

Development of naturalized areas has the potential to impact threatened and endangered species. Under Part 365 of Public Act 451 people are not allowed to take or harm any endangered or threatened fish, plants, or wildlife. Rules that apply are administered by Michigan Department of Natural Resources: Michigan: Part 365 of the Natural Resources and Environmental Protection Act, Act 451 of the Michigan Public Acts of 1994 and the U.S. Fish & Wildlife Service Endangered Species Act of 1973.

Data sources are not readily available for threatened species, endangered species, or migratory birds. However, it is the recognition of habitat that is of importance. Berrien County and the TwinCATS area are home to many unique natural communities. Berrien County has 20 unique natural communities identified by the Michigan Natural Features Inventory (MNFI) who maintains a database of occurrences of exemplary natural communities, rare plants, and rare animals found in Michigan. By definition, a natural community, does not fall under state and federal regulations, however many of these natural communities are wetlands and dune ecosystems that are protected by regulations

GUIDELINES: Review of the Threatened and Endangered Species Act

TOOLS: "**Local Agency Threatened and Endangered Species Review Process, October 2017**"

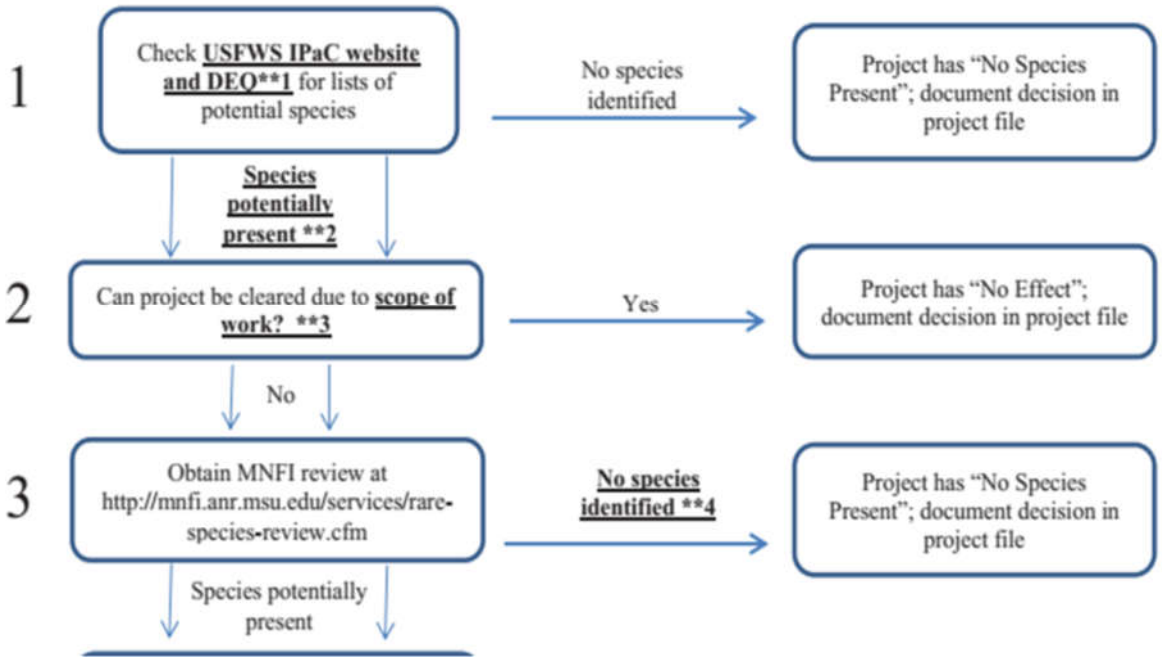
To navigate the process of review for threatened or endangered species the Michigan Department of Transportation (MDOT) have prepared guidelines for transportation agencies.

WHAT'S IN THE REPORT?:

- ⇒ Identify threatened and endangered species in your area through an online search
- ⇒ Guidelines for tree removal and bridge work in bat habitat
- ⇒ Fact sheet about the Eastern Mississauga Rattlesnake that must be read by contractors
- ⇒ Guidelines for "activity specific" best management practices
- ⇒ List of exempt work types that will not need further investigation

As an example, below are the first 3 steps (of a 13 step process) from the report

MUST-READ



Local agencies must follow this process for all projects that utilize federal or state funding

https://www.michigan.gov/documents/mdot/Local_Agency_Threatened_and_Endangered_Species_Review_Process_011818_611752_7.pdf

Overall Guidelines for Planning, Design, Construction and Maintenance of Transportation Projects

Source: Integrating Environmental Issues in the Transportation Planning Process: Guidelines for Road and Transit Agencies, January 2007. SEMCOG

Regardless of the type of project or the resources that may be impacted, the following guidelines should be considered during the planning, design, construction, and maintenance of transportation projects. They represent good planning practice and will help ensure a blending of sound construction techniques with desired environmental protection goals.

Planning and Design Guidelines

Employ context sensitive solutions (CSS) principles from the earliest point possible in project development. CSS is an approach to transportation design that considers the total context within which a transportation improvement will exist. It is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility. Essential to CSS is involvement of the public, community officials, and others affected by the project early and often.

Identify the area of potential impact related to the transportation project, including the immediate project area, anticipated borrow/fill areas, haul roads, prep sites, and other contractor areas, as well as other related project development areas.

Conduct an inventory to determine if any environmentally sensitive resources could be impacted by the project. (Note: Data conducive to the regional analysis defined in this report were not available for endangered/threatened species, archeological sites, and contaminated sites. However, additional information on how to obtain these data can be found under the "More Information" section below.)

Determine if a County Hazard Mitigation Plan exists and if impacted resources are addressed in the plan; if so, coordinate with hazard mitigation planners and remain consistent with the plan. (A County Hazard Mitigation Plan is required for a county to be eligible for federal Hazard Mitigation Grant funds. The Michigan State Police Management and Homeland Security Division is working to establish a plan in every Michigan county. The plans are designed to protect communities from hazards and to plan to reduce future hazards, including to the natural environment.)

Conduct a pre-construction meeting with local community officials, contractors, and subcontractors to discuss environmental protection. Communicate agreed-upon preservation goals to everyone working on the project. Discuss with the local community any special requirements (e.g., ordinances, site plan review).

If possible, avoid impacts to environmental resources by limiting the project scope or redesigning the project (e.g., alignment, design speed, retaining walls, cross-section narrowing, etc.).

Where impacts cannot be avoided, mitigate them as much as possible. Where required, coordinate the evaluation of possible impacts, exploration of alternatives, and development of mitigation strategies with appropriate federal, state, and local authorities.

Integrate storm water management into the design of the site. If appropriate, utilize low-impact development practices that infiltrate storm water into the ground (e.g., swales, rain gardens, native plantings).

Construction and Maintenance Guidelines (Part 1)

Insert special requirements addressing sensitivity of environmental resources into plans, specifications, and estimates provided to construction contractors. Note the kinds of activities that are not allowed in sensitive areas (e.g., stockpiling, clearing, construction equipment, etc.).

Confine construction and staging areas to the smallest necessary and clearly mark area boundaries. Confine all construction activity and storage of materials to designated areas.

Use the least obtrusive construction techniques and materials.

Install construction flagging or fencing around environmental resources to prevent encroachment.

Minimize and, where possible, avoid site disturbance. As appropriate:

- Protect existing vegetation and sensitive habitat;
- Implement erosion and sediment control;
- Protect water quality;
- Protect cultural resources;
- Minimize noise and vibrations; and
- Provide for solid waste disposal and worksite sanitation.

Sequence construction activities to minimize land disturbance at all times, but especially during the rainy or winter season for natural resource protection and during the high-use season for resources open to the public.

When utilizing heavy equipment, pay close attention to the potential of uncovering archeological remains.

Before site disturbance occurs, implement erosion control best management practices to capture sediments and control runoff.

- Minimize the extent and duration of exposed bare ground to prevent erosion;
- Establish permanent vegetative cover immediately after grading is complete.
- Do not stockpile materials within sensitive areas.
- Employ erosion control techniques.
- Prevent tracking of sediment onto paved surfaces.

Construction and Maintenance Guidelines (part 2)

Incorporate storm water management into the construction phase.

- Prevent the direct runoff of water containing sediment into waterways. All runoff from the work area should drain through sedimentation control devices prior to entering a water body.
- During and after construction activities, sweep the streets to reduce sediment entering the storm drainage system.
- Block or add best management practices to storm drains in areas where construction debris, sediment, or runoff could pollute waterways.

Do not dispose of spoil material in or near natural or cultural resources.

Properly handle, store, and dispose of hazardous materials (e.g., paint, solvents, epoxy) and utilize less hazardous materials when possible. Implement spill control and clean up practices for leaks and spills of fuel, oil, or hazardous materials. Utilize dry cleanup methods (e.g., absorbents) if possible. Never allow a spill to enter the storm drain system or waterways.

Keep equipment in good working condition and free of leaks. Avoid equipment maintenance or fueling near sensitive areas. If mobile fueling is required, keep a spill kit on the fueling truck.

Avoid hosing down construction equipment at the site, unless the water is contained and does not get into the storm drain system or waterways.

Identify and implement salt management techniques to reduce the impacts of salt on area waterways.

Utilize integrated pest management techniques if using pesticides during maintenance operations.

Conduct on-site monitoring during and immediately after construction to ensure environmental resources are protected as planned.

Source: Integrating Environmental Issues in the Transportation Planning Process: Guidelines for Road and Transit Agencies, January 2007. SEMCOG

Sources

AASHTO Center for Environmental Excellence. Environmental Stewardship Practices, Procedures, and Policies for Highway Construction and Maintenance. www.environment.transportation.org/environmental_issues/construct_maint_prac/compendium/manual/.
Michigan Department of Natural Resources Endangered Species Assessment
Michigan Office of the State Archeologist: Michigan Historical Center, Department of History, Arts and Libraries
Michigan Department of Environmental Quality, Remediation and Redevelopment Division

Environmental Consultation

As part of the guidelines directed in CFR 450.324(f)(10), the MPO must develop a discussion in consultation with applicable federal, state, and tribal land management, wildlife, and regulatory agencies. This process is meant to improve the depth of the analyses, by including professionals in varying disciplines to be considered in the project development, also to consider the needs of consulted agencies and to eliminate or minimize conflicts with other agencies' programs.

A list of contacts was compiled to include local, regional, state and federal organizations that have expertise in the environmental issues and regulations. Agencies were contacted via email using the following process:

- A letter explaining the transportation planning consultation and their role in the process
- A draft of the 2045 LRP which includes maps of proposed projects

Agency Name	Area of Experience
Abonmarche	Environmental
Andrews University Architecture Program	Landscape Design
Berrien County Conservation District	Conservation
Berrien County Department of Human Services	Health
Berrien County Drain Commissioner	Environmental
Berrien County Historical Association	Historic Preservation
Berrien County Park Department	Conservation
Berrien County Road Department	Road Design
U.S. Fish and Wildlife Service	Environmental–federal
Lakeland Hospital	Health
MDOT– Air Quality	Environmental—Air Quality

Agency Name	Area of Experience
MDOT Non motorized Transportation	Transportation Planning
Michigan Department of Environmental Quality (MDEQ)	Environmental–state
Michigan Department of Natural Resources (MDNR)	Environmental–state
Michigan Department of Agriculture and Rural Development (MDARD)	Environmental–state
Pokagon Band of Potawatomi Indians	Tribal Planning
Sarrett Nature Center	Conservation
Southwest Michigan Land Conservancy	Conservation
Southwest Michigan Regional Airport	Aviation
State Historic Preservation Organization (SHPO)	Historic Preservation
Two Rivers Coalition	Conservation
Wightman and Associates	Environmental

SUPPORTING DOCUMENTS

TwinCATS Policy Committee Membership	
Local Government	
City of Benton Harbor	Darwin Watson
City of Bridgman	Juan Ganum
City of St. Joseph	John Hodgson
Village of Shoreham	Robert Lawrence
Village of Stevensville	Chris Cook
Benton Charter Township	Carolyn Fowler
Hagar Township	Deborah Kavanaugh
Lake Charter Township	Gloria Payne
Lincoln Charter Township	Richard Stauffer
Royalton Township	Steve Tilly
St. Joseph Charter Township	Denise Cook
Sodus Township	David Chandler
County	
Board of Commissioners	Bill Chickering
Planning Commission	Eric Lester
Regional	
Twin Cites Area Transportation Authority	Alex Little
Southwest Michigan Regional Airport	Vince DesJardins
Cornerstone Alliance	Stacey Stephens
State	
MDOT Bureau of Transportation Planning	Jim Sturdevant
MDOT Southwest Region	Amy Lipset
MDOT Coloma Transportation Service Center	Jonathon Smith
Non Voting	
Federal Highway Administration	Andrea Dewey
Federal Transit Administration	Angelica Salgado
NIRPC	Scott Weber

TwinCATS Technical Advisory Committee Membership	
Local Government	
City of Benton Harbor	Chris Cook
City of Bridgman	Juan Ganum
City of St. Joseph	Tim Zebell
Village of Shoreham	Robert Lawrence
Village of Stevensville	Chris Cook
Benton Charter Township	**Vacant**
Hagar Township	Deborah Kavanaugh
Lake Charter Township	Gloria Payne
Lincoln Charter Township	Terrie Smith
Royalton Township	Steve Tilly
St. Joseph Charter Township	Roger Seely
Sodus Township	David Chandler
County	
Berrien County Road Department	Brian Berndt
Community Development	Evan Smith
Regional	
Twin Cites Area Transportation Authority	Alex Little
Southwest Michigan Regional Airport	Vince DesJardins
Cornerstone Alliance	Stacey Stephens
Disability Network	**Vacant**
State	
MDOT Bureau of Transportation Planning	Jim Sturdevant
MDOT Southwest Region	Amy Lipset
MDOT Coloma Transportation Service Center	Jonathon Smith
Non Voting	
Federal Highway Administration	Andrea Dewey
Federal Transit Administration	Angelica Salgado
MDOT, Urban Travel Analysis	Katie Beck
NIRPC	Scott Weber

PERFORMANCE MEASURES

Specific performance measures *target specific areas for improvement.*
Measurable performance measures *are quantifiable and objective.*
Available performance measures *use data that can be accessed.*
Relevant performance measures *are strongly linked to the objectives they support.*
Timely performance measures *are able to be measured regularly and to be forecasted over the life of the long-range plan.*

Safety Performance Measures

Performance Measure	Description	Base Data - 2016		State Target 2018	Data Source
		TwinCATS	State		
Number of fatalities.	The number of fatalities due to a vehicular crashes.	8.2	963	1,003	Michigan Crash Facts
Fatalities per 100 million vehicle miles traveled (VMT).	The rate of serious injuries based on the total miles driven in the area.	0.81	1.0	1.0	Michigan Crash Facts & HPMS
Number of serious injuries.	The number of serious injuries due to a vehicular crash	40.6	52734	5,136	Michigan Crash Facts
Serious injuries per 100 million vehicle miles traveled (VMT).	The rate of serious injuries based on the total miles driven in the area.	4.04	5.47	5.0	Michigan Crash Facts & HPMS
Non-motorized fatalities, serious injuries.	The number of pedestrians and bicyclists seriously injured or killed due to a vehicular crash.	6.4	721.8	744	Michigan Crash Facts

System Reliability Performance Measures

Performance Measure	Description	Base Data - 2017 SWMPC	Base Data - 2017 State	State Target 2021	Data Source
Percentage of the person-miles traveled on the Interstate that are reliable.	The percentage of miles traveled by a person on the Interstate that are reliable.	NA	85%	75%	INRIX/ NPMRDS
Percentage of the person-miles traveled on the non-Interstate NHS that are relia-ble.	The percentage of miles traveled by a person on the non-Interstate NHS that are reliable.	94.3%	86.10%	70%	INRIX/ NPMRDS
Truck Travel Time Reliability (TTTR) Index	The sum of maximum TTTR for each reporting segment, divided by the total Interstate system miles	1.11	1.38	1.75	INRIX/ NPMRDS

Road and Bridge Condition Performance Measures

Performance Measure	Description	Base Data - 2017 TwinCATS	Base Data - 2017 State	State Target 2021	Data Source
Pavement condition of the Interstate System	Percentage of pavement in good condition Percentage of pavement in poor condition	34.7% 8.2%	56.8% 5.2%	47.8% 10.0%	International Roughness Index
Pavement condition of the non-interstate National Highway System	Percentage of pavement in good condition Percentage of pavement in poor condition	39.6% 25.2%	49.7% 18.6%	43.7% 24.9%	International Roughness Index
National Highway System (NHS) bridge Condition	Percentage of deck area in good condition Percentage of deck area in poor condition	17.5% 11.3%	32.7%` 9.8%	26.2% 7.0%	National Bridge Inventory

Transit State of Good Repair Performance Measures

Performance Measure	Description	Asset	Base Data - 2018	Target 2019-2020	Data Source
Rolling stock in a state of good repair	Percent of rolling stock transit vehicles that have exceeded useful life	25 Cutaway Buses 1 Passenger Van	0% 0%	0% 0%	PTMS
Non-Revenue Vehicles in a state of good repair	Percent of non-revenue vehicles that have exceeded useful life	2 Staff Cars 1 Wrecker	100% 100%	0% 0%	PTMS
Facilities in a state of good repair	Percent of facilities within an asset class rated 3 or below on the FTA TERM scale.	Administration Building	0%	0%	PTMS

Transportation System Performance Management

The Federal Highway Administration (FHWA) defines Transportation Performance Management (TPM) as a strategic approach that uses system performance information to make investment and policy decisions to achieve national performance goals. In short, TPM: is systematically applied;

- provides key information to help decision makers understand the consequences of investment decisions across transportation assets or modes;
- improves communication between decision makers, stakeholders, and the traveling public;
- and ensures targets and measures are developed in cooperative partnerships and based on data and objective information.

Congress developed, through the Moving Ahead for Progress in the 21st Century (MAP-21) Act and the Fixing America's Surface Transportation (FAST) Act, new rules for states and metropolitan planning organizations (MPOs) to collect data and establish performance targets, to be utilized in transportation planning and programming processes.

The new federal performance measurement requirements focus on safety, pavement condition, bridge condition, travel time reliability and freight, congestions mitigation and air quality, and public transportation.

Rather than setting its own targets, the TwinCATS MPO has chosen to support the statewide safety, pavement, bridge, system performance, and freight targets set by MDOT , and the transit asset management targets set by the Twin Cities Area Transportation Authority (TCATA). The MPO supports those targets by agreeing to plan and program projects so that they contribute toward the accomplishment of the performance measures.

By agreeing to support the state's targets for safety, pavement, bridges, system performance, and freight, and TCATA's transit asset management targets, the TwinCATS MPO agrees to:

- Work with the Michigan DOT and stakeholders to address areas of concern regarding fatalities and serious injuries, pavement, bridges, system performance, and freight within the metropolitan planning area.
- Work with TCATA to address areas of concern regarding transit and transit asset management.
- Coordinate with the Michigan DOT and TCATA and include the State and transit performance measures and targets in the Long-Range Transportation Plan.
- Integrate into the metropolitan transportation planning process the goals, objectives, performance measures, and targets described in other Michigan DOT transportation plans and processes.
- Include a description in the Transportation Improvement Program (TIP) of the anticipated effects of the programming process towards achieving the State safety, pavement, bridges, system performance, freight, and transit asset management targets.

System Performance Report & Requirements

According to the FAST Act, a long range transportation plan needs to include a system performance report and subsequent updates evaluating the condition and performance of the transportation system with respect to the performance targets. The information should include progress achieved by the MPO in meeting the performance targets in comparison with system performance recorded in previous reports, including baseline data. The LRP will provide information on the current and proposed target information adopted by MPO for roads, highways, and transit. Updates to target data will be posted on the SWMPC website.

System Performance Report & Requirements

According to the FAST Act, a long range transportation plan needs to include a system performance report and subsequent updates evaluating the condition and performance of the transportation system with respect to the performance targets. The information should include progress achieved by the MPO in meeting the performance targets in comparison with system performance recorded in previous reports, including baseline data. The LRP will provide information on the current and proposed target information adopted by MPO for roads, highways, and transit. Updates to target data will be posted on the SWMPC website.

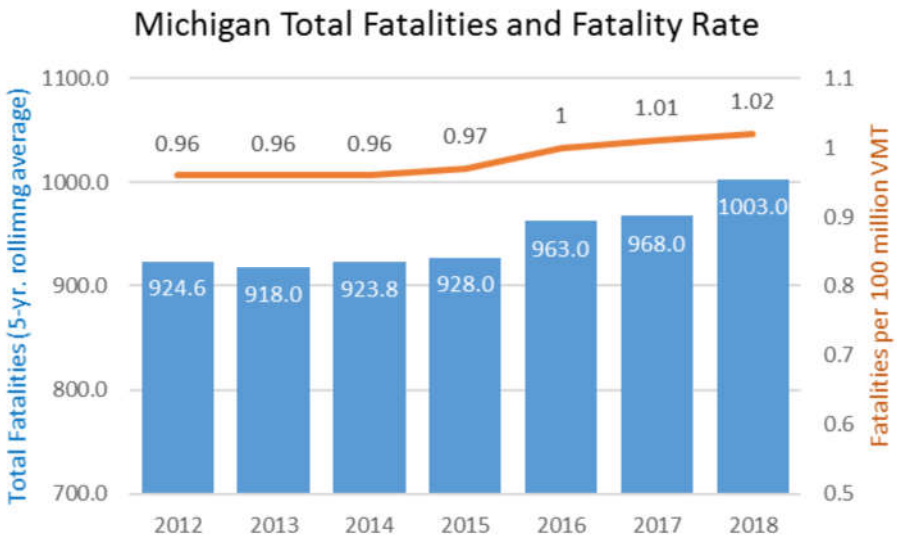
Roads and Highways Reporting Requirements

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. 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). 2018 Safety Targets - Roads and Highways federal regulations require the use of five year rolling averages for each of the performance measures, which include: Fatalities, Fatality Rate per 100 million VMT, Serious Injuries, Serious Injury rate per 100 million VMT, Non -motorized fatalities and serious injuries. The values used in creating the following charts for 2017 and 2018 are estimates provided by MDOT.

Total Fatalities & Fatalities Rate

How Targets Are Set: MDOT and Office of Highway Safety planning used two different models to forecast the total fatalities and serious injuries for target setting. The fatality models developed by MDOT relied on the relationship between oil prices, the Dow Jones Industrial (DJI) futures and fatalities. The price of oil and the level and changes in the DJI futures are closely correlated to the travel demand and traffic crashes. The second model was developed and maintained by the University of Michigan Transportation Research Institute (UMTRI). The UMTRI model relies on results of a recently completed research report titled *Identification of Factors Contributing to the Decline of Traffic Fatalities in the United States.* The model relies on the correlation between traffic crashes and vehicle miles traveled (VMT), Gross Domestic Product (GDP) per capita, median annual income, and the unemployment rate among 16-24 year olds. To determine the forecasted five year rolling average for Fatalities, Fatality rate per 100 million VMT, Serious Injuries, and Serious Injury Rate per 100 million VMT, the forecast was obtained from the models for 2017 and 2018. The final forecasted value for fatalities is the average of MDOT and UMTRI forecasted values which predicts **1,058 in 2017 and 1,030 in 2018**. The target for calendar year 2018 is **1,003** for fatalities and **1.02** for fatality rate, which is shown on the following table.

Chart Interpretation: The statewide number of fatalities rose significantly in 2016 and 2017. While part of the rise reflects an increase in the overall amount of travel in the state, the fatality rate shows elevated risk for every mile traveled in 2016 and 2017.



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 requirement 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.

State Actions

- 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 Implementation Plan to mitigate crashes within the area. Priority is given to those projects 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.

MPO Actions

- As shown in the table below, the TwinCATS supported the adoption of MDOT's State Targets for Safety Performance Measures for Calendar Year 2018. This established targets for five performance measures based on five year rolling averages, including:
  - ◊ Number of Fatalities,
  - ◊ Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT),

Michigan State Safety Targets for Calendar Year 2018

Safety Performance Measure	Baseline Through Calendar Year 2016	Calendar Year 2018 State Safety Target
Fatalities	963.0	1,003.2
Fatality Rate	1.00	1.02

- Give points in TIP project section to projects that address safety
- Encourage Act 51 Agencies to implement systemic treatments, such as cable stay barriers and center rumble strips to reduce lane departure crashes
- Use data to develop projects that address safety hazards in particular locations
- Promote safe travel habits for drivers, cyclists, and pedestrians through education and enforcement initiatives and programs

Total Serious Injuries & Serious Injuries Rate

How Targets Are Set: The UMTRI model was the sole model used in forecasting total serious injuries as it exhibited a strong linear relationship of the ratio of serious injuries and fatalities (A/K). The forecasting total for serious injuries is **5,243 in 2017 and 5,031 in 2018.** The target for calendar year 2018 is **5,136** for serious injuries and **5.23** for serious injury rate.

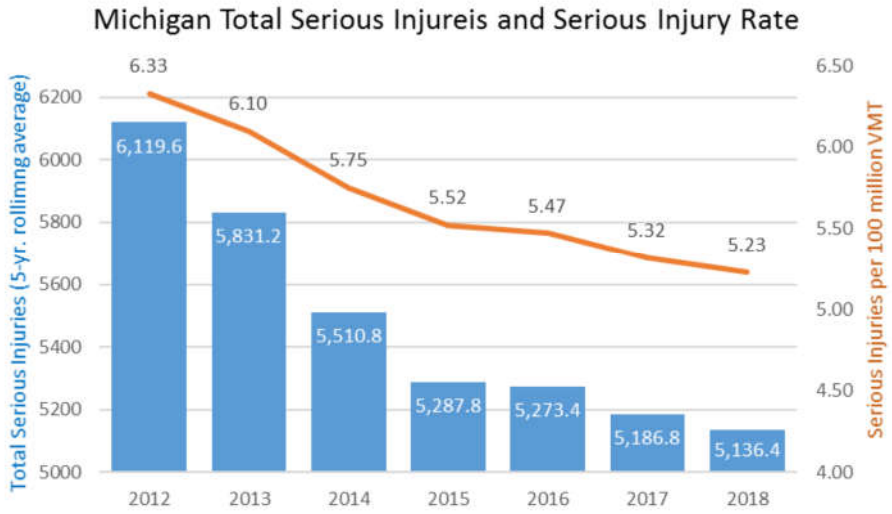


Chart Interpretation: The statewide number of serious injuries has seen a decrease since 2012. While there has been an increase in the overall amount of travel in the state, the serious injury rate is trending down for risk for 2017 (5.32) and 2018 (5.23).

State Actions

- 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 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 Implementation Plan to mitigate 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.

MPO Actions

- As shown in the table below, TwinCATS supported the adoption of MDOT's State Targets for Safety Performance Measures for Calendar Year 2018. This established targets for five performance measures based on five year rolling averages, including:
  - ◊ Number of Serious Injuries,
  - ◊ Rate of Serious Injuries per 100 million VMT

Michigan State Safety Targets for Calendar Year 2018

Safety Performance Measure	Baseline Through Calendar Year 2016	Calendar Year 2018 State Safety Target
Serious Injuries	5,273.4	5,136.4
Serious Injury Rate	5.47	5.23

- Give points in TIP project section to projects that address safety
- Encourage Act 51 Agencies to implement systemic treatments, such as cable stay barriers and center rumble strips to reduce lane departure crashes
- Use data to develop projects that address safety hazards in particular locations
- Promote safe travel habits for drivers, cyclists, and pedestrians through education and enforcement initiatives and programs

Total Bicycle & Pedestrian Fatality & Serious Injuries

How Targets Were Set: Results from the UMTRI model (the A/K relationship) were also used to generate forecasted 5 year moving average values for bicycle and pedestrian fatalities and serious injuries for 2017 and 2018. The forecasting total for fatalities and serious injuries is **782 in 2017 and 752 in 2018.** The target for calendar year 2018 is **743.6** for fatalities and serious injuries.

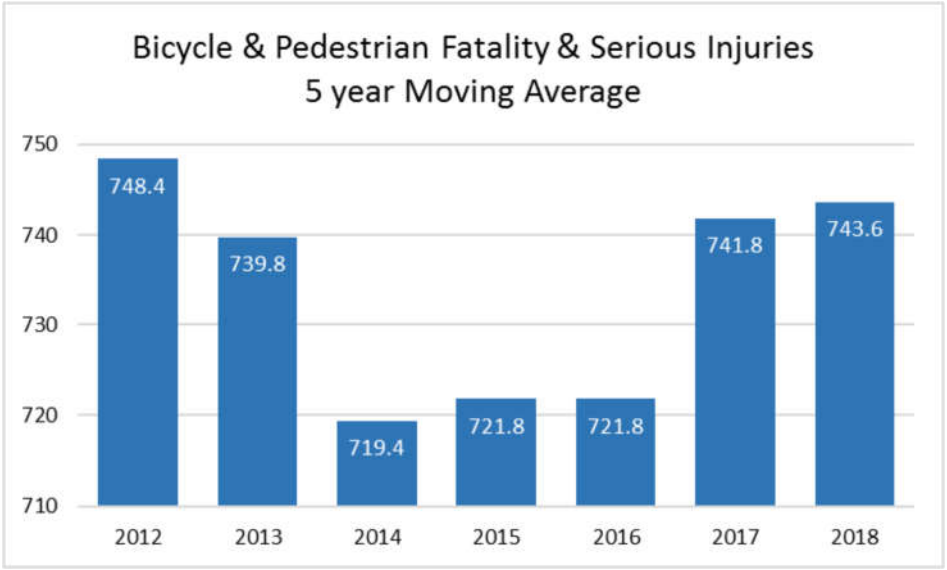


Chart Interpretation: Fatalities and Serious Injuries have seen a general downward trend since 2012 and saw lower numbers from 2014-2016. The increase in fatality and serious injury rate may be due to an overall increase in vehicular traffic (due to a good economy and inexpensive gas prices) as well as an increase in distracted driving. These factors don't appear to be changing in the near future, likely keeping the trends high.

State Actions

- Implement the recommendations of the MDOT Southwest Region Non-Motorized Plan.
- MDOT continues to work with researchers to improve pedestrian and bicycle safety. Examples of current or past work include the development of gateway treatments for pedestrians and Michigan bicycle and pedestrian travel models.
- MDOT supports Western Michigan University's participation in the Roadway Safety Institute as part of the Region 5 University Transportation Center aimed at high risk road users.
- MDOT also participates with UMTRI in the development of a risk model for non-motorized users, and with Wayne State University in research to further side-path safety.

MPO Actions

- As shown in the table below TwinCATS supported the adoption of
- MDOT's State Targets for Safety Performance Measures for Calendar Year 2018. This established targets for five performance measures based on five year rolling averages, including:
    - ◊ Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries

Michigan State Safety Targets for Calendar Year 2018

Safety Performance Measure	Baseline Through Calendar Year 2016	Calendar Year 2018 State Safety Target
Non-motorized Fatalities & Serious Injuries	721.8	743.6

- Implement the TwinCATS Complete Streets Policy
- Work with the Communities to advocate for the issues and needs of non-motorized users.
- Utilization of MDOT road safety audits and engineering countermeasures, and other initiatives, programs or designs that are promoted as part of the Toward Zero Deaths National Strategy.

Transit Reporting Requirements

On July 26, 2016, the Federal Transit Administration published the final rule on Transit Asset Management (TAM) (49CFR Part 625). Under the final TAM rule, State DOTs, MPOs, and designated transit providers must collect and report data for four performance measures covering rolling stock, equipment, infrastructure, and facility condition. The TwinCATS MPO area contains no relevant infrastructure as defined under 49 CFR part 625 (e.g. fixed guideway for light rail mass transit), and therefore the MPO is only required to set targets for equipment, rolling stock, and facilities. Targets are based on The Twin Cities Area Transportation Authority (TCATA) is the federally recognized public transit service provider for the St. Joseph Benton Harbor Urbanized area, and therefor must adopt targets for the performance of their transit assets annually for the ensuring year. MPOs must establish TAM targets specific to the MPO planning area. The MPO then updates its TAM targets every four years.

Asset Category	Assets	Current Condition	2019 Target
Rolling Stock Revenue Vehicles	CU – Cutaway	0% Cutaways	0% exceeds ULB
	PV – Passenger	0% vans exceed	0% exceeds ULB
Equipment Non-revenue Vehicles	Car	2 cars exceed ULB	0% exceeds ULB
	Wrecker	1 wrecker exceeds	0% exceeds ULB
	Mini Van	0 minivans exceed	0% exceeds ULB
Facilities	Administration/ Maintenance Building	1 rated 3 on TERM scale.	0% rated below a 3.0 on the FTA TERM Scale

TCATA has set the following targets for 2019:

TwinCATS targets were set for 2020 and the four year period will coincide with the four years' of the Transportation Improvement program (TIP). TwinCATS has adopted the following TAM targets:

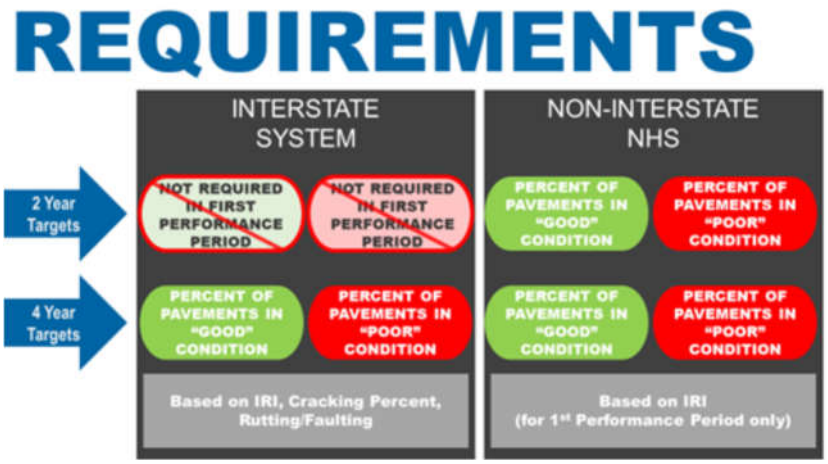
Asset Category	Performance Measure	Asset	MPO 2019-2020 Target
Rolling Stock Revenue Vehicles	Age – Percent of revenue vehicles within a particular asset class that have met or exceeded their useful	CU- Cutaway Busses	0% exceeds ULB
		PV –Passenger Van	0% exceeds ULB
Equipment Non-revenue Vehicles	Age – Percent of non-revenue vehicles that have met or exceeded their useful life	Staff Cars	0% exceeds ULB
		Wrecker	0% exceeds ULB
Facilities	Condition – percent of facilities with a condition rating below 3.0 on the FTA TERM	Administration Building	0% rated below a 3.0 on the FTA TERM Scale

How Targets are Set: SWMPC in partnership with TCATA ran report from the Public Transportation Management System (PTMS, the reporting system for public transit agencies who receive federal funding. Targets were based upon funds available to TCATA and the current condition of revenue vehicles, service vehicles, and facilities. Targets are set on an annual basis each year in January and reported by TCATA to the National Transit Data Base (NTD).

Pavement Performance

The Federal Highway Administration (FHWA) published in the Federal Register (82 FR 5886) a final rule establishing performance measures for State Departments of Transportations (DOTs) to use in managing pavement and bridge performance on the National Highway System (NHS). The National Performance Management Measures; Assessing Pavement Condition and Bridge Condition for the National Highway Performance Program Final Rule addresses requirements established by the Moving Ahead for Progress in the 21st Century Act (MAP-21) and reflects passage of the Fixing America's Surface Transportation (FAST) Act. The rule became effective May 20, 2017.

The federal rule requires MDOT to establish targets for pavement condition measures Percent Good and Percent Poor on the Interstate and non-Interstate NHS. Targets are required for two and four-year intervals for each measure, with eight targets in total. For the Interstate measures, there will be no two-year targets for the first (2018-2021) performance period per 23 CFR Part 490, therefore, there will only be six targets in the first period.



The rule requires states to measure, monitor and set targets based upon a composite index of pavement condition measures (PCM). The four metrics to be used are International Roughness Index (IRI), Cracking Percent, Rutting, and Faulting as reported by states to the FHWA's Highway Performance Monitoring System (HPMS). All four metrics will be used to determine the condition for Interstate. If all three metrics on a segment are "good," then a pavement is rated in good condition. If two or more metrics are "poor," it is to be considered in poor condition. Only IRI will be used to determine non-interstate condition for the 2018-2024 performance period, after which it will use PCM. Cracking Percent and IRI are to be reported on all pavement types. Rutting is to be reported only on asphalt pavements, and faulting, on jointed concrete pavements. The table below indicates the metric thresholds for condition on each pavement type, as defined by the rule.

Pavement Condition Thresholds

		Metric Value Range		
Metric	**Surface Type**	**Good**	**Fair**	**Poor**
International Roughness Index [IRI] (inches/mile)	Asphalt Pavement, Jointed Concrete Pavement, CRCP[1]	<95	95 - 170	>170
Cracking Percent (% of total area)	Asphalt Pavement	<5%	5 - 20%	>20%
	Jointed Concrete Pavement	<5%	5 - 15%	>15%
	CRCP[1]	<5%	5 - 10%	>10%
Rutting (inches)	Asphalt Pavement	<0.20	0.20 - 0.40	>0.40
Faulting (inches)	Jointed Concrete Pavement	<0.10	0.10 - 0.15	>0.15

Performance Measures: There are four performance measures for assessing pavement condition based on composite analysis of the metrics above:

1) Percent of Interstate pavement in Good Condition
2) Percent of Interstate pavement in Poor Condition
3) Percent of Non-Interstate NHS pavement in Good Condition
4) Percent of Non-Interstate NHS pavement in Poor Condition.

How Targets Were Set

The TPM Pavement Team reviewed historical trends of condition metric data from the last decade (2007-2017) to support future target establishment. FHWA and MDOT use the Highway Performance Monitoring System (HPMS) to report pavement condition. According to the rule, HPMS data must be submitted annually by April 15 for Interstate data, and June 15 for Non-Interstate NHS data. These figures were used as a baseline to establish the statewide targets. With MDOT's current funding levels, trunkline pavement condition is anticipated to decline over the course of the next decade, and therefore, MDOT has chosen conservative targets to reflect this decline. Given the definition of significant progress (equal to or better than the target, or better than the baseline condition), MDOT can achieve significant progress while targets are declining if condition does not fall below the targets.

Conservative Targets

The conservative nature of the approved targets is based on several factors:

1) Forecasts of the trunkline pavement condition based on Remaining Service Life (RSL) is declining.

2) Sample size for the cracking measure will move from 30% to 100% of roads sampled.

3) Issues surrounding the data such as the use of new vendors and the introduction of more advanced data collection may make data collection inconsistent.

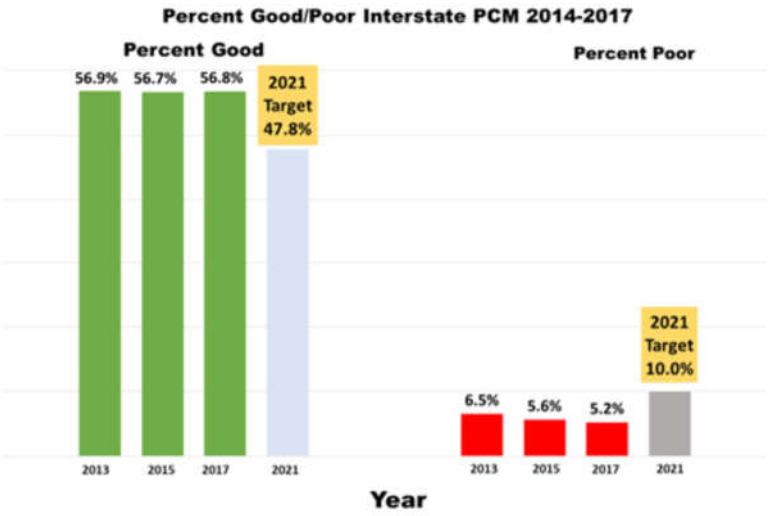
4) A buildup in the Interstate IRI category at the edge of good gives the potential for a significant number of segments to fall into fair.

5) The use of a composite score means that all three measures must be good to be counted as good. If only one measure was to fall the whole segment is no longer considered good.

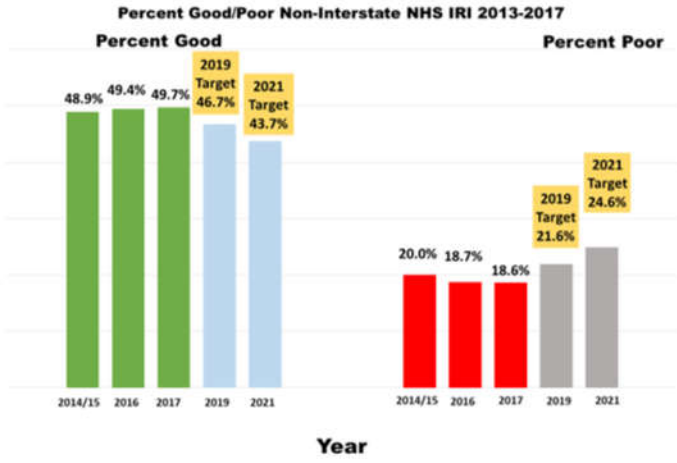
6) At the current time the sample size available for previous years is relatively small for the use of trend analysis.

Other major potential hindrances include climate changes, funding uncertainties, and funding levels.

Interstate Targets



Non-Interstate Targets



State Actions:

Department goals for state trunkline pavement condition are established by the State Transportation Commission (STC) and influence the way MDOT invests in and maintains state-owned transportation infrastructure. To do this, MDOT conducts investment planning. Investment strategies guide the allocation of capital resources to achieve the goals established. Investments are focused where they will most benefit the public, consistent with the direction established.

- Investment strategies are developed utilizing anticipated available funding, life cycle planning, and performance gap analysis, and the results of risk analysis.
- The various strategies are also analyzed and compared to determine how they would impact the overall goals and objectives set by the STC.
- The desired mix of fixes, investment levels, and funding targets are developed for the selected investment strategy and provided in the Highway Call for Projects memo. They form the basis for project selection and prioritization.
- The selected investment strategy is communicated to the public by way of the annual Five-Year Transportation Program. MDOT's investment strategy to achieve the constrained Michigan targets for asset condition are reflected in the STIP program of projects.

MPO Actions

- Encourage all agencies to adopt a road asset management plan
- Use a scoring system to help guide the programing of federal funds in a way that achieves maximum benefit to the region

Reporting Requirements:

Baseline Performance Report: In this report, MDOT must establish 2-year and 4-year targets, describe baseline conditions, urbanized area boundaries and population data, NHS limits, and relationships with other performance expectations. The Baseline Performance Report will include HPMS data collected in 2016 and 2017. States will be able to adjust the 4-year targets in the Mid Performance Progress Report based on data collected in 2018 and 2019. To allow for the phasing in of new reporting requirements for Interstate pavement conditions, states are only required to establish 4-year targets for Interstate pavements in the Baseline Performance Report that is due October 1, 2018. Both 2-year and 4-year targets are required for non-Interstate NHS pavements. **Baseline Performance Report due 10/1/18**.

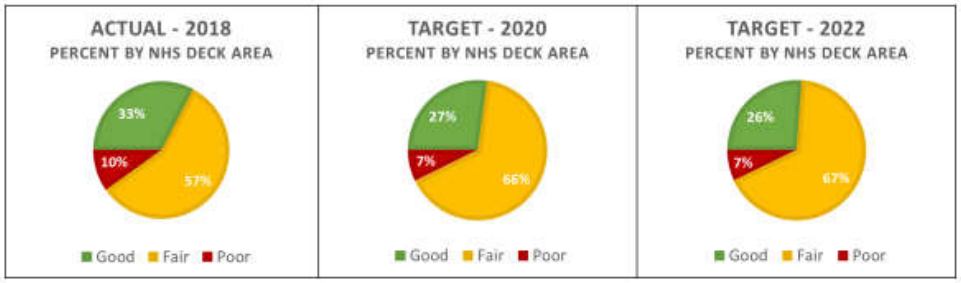
Mid Performance Progress Report: MDOT must report on 2-year conditions and performance, investment strategy effectiveness and discuss progress in achieving targets. States have the option to adjust 4-year targets at this time. In this report states may include a discussion of target achievement and extenuating circumstances. Because states are not required to establish 2-year targets for Interstate pavements in the Baseline Performance Report, they would use the Mid Performance Progress Report to update baseline condition/ performance data and, if necessary, adjust the 4-year targets. **Mid-Performance Period Progress Report due 10/1/20**.

Full Performance Progress Report: This report includes the same content as the Mid Performance Period Progress Report but reports on the 4-year targets. If a state has not made significant progress for achieving the NHPP targets in two consecutive biennial determinations, then the state DOT will include a description of the actions they will undertake to better achieve the NHPP targets in the next performance period. Even though significant progress is assessed for all four pavement performance measures, pavement condition penalties only apply for Interstate pavements. As part of the Full Performance Progress Report, MPOs will report targets and progress toward the achievement of targets. MPOs will report their established targets, performance, progress, and achievement of the targets to their respective state DOT in a manner that is agreed upon by both parties and documented in the Metropolitan Planning Agreement. **Full Performance Period Progress Report due 10/1/20.**

Bridge Condition

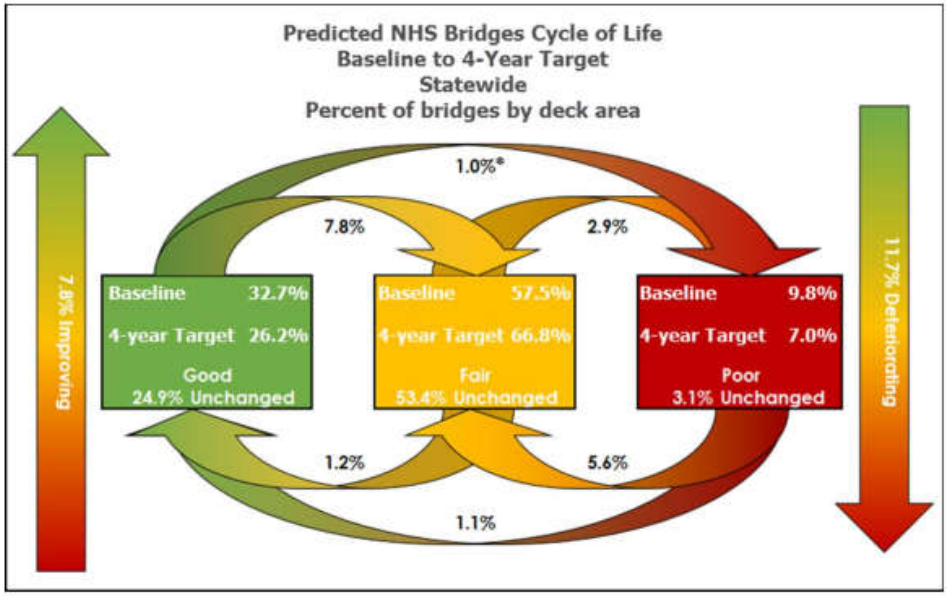
Federal law, outlined in the National Bridge Inspection Standards (NBIS), defines a bridge as a structure carrying traffic with a span greater than 20 feet and requires that all bridges be inspected every two years to monitor and report condition ratings. The FHWA requires that for each applicable bridge, the performance measures for determining condition be based on the minimum values for substructure, superstructure, deck, and culverts. The FHWA further requires counting this condition by the respective deck area of each bridge and express condition totals as a percentage of the total deck area of bridges in a state.

Condition ratings are based on a 0-9 scale and assigned for each culvert, or the deck, superstructure and substructure of each bridge. These ratings are recorded in the National Bridge Inventory (NBI) database. Condition ratings are an important tool for transportation asset management, as they are used to identify preventative maintenance needs, and to determine rehabilitation and replacement projects that require funding



How Targets Were Set

Starting from the condition reported with the NBI submittal on March 14th of 2018, the expected improved condition from projects and reduced condition from deterioration was summarized into expected condition in 2020 and in 2022. The deck areas in good, fair and poor conditions at each year was summarized. To account for uncertainty, the amount of deck area in good condition was conservatively reduced by 1%, and the amount of deck area in poor condition was increased by 1%. A 1% reduction for uncertainties reflects about 30 average size structures that either deteriorated faster than predicted or that did not see as much of an improvement as predicted.



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Reporting Requirements

The Transportation Performance Management (TPM) Bridge Condition Rule designates recurring four-year performance periods for which MDOT is required to two year (midpoint) and four-year (full performance) targets for bridge condition on the National Highway System (NHS). MDOT is required to submit three performance reports to FHWA within the 4-year performance period.

- Baseline Performance Report

-October 1st, 2018

- Mid-Performance Period Progress Report

-October 1st, 2020

- Full Performance Period Progress Report

-October 1st, 2022

The two performance measures for assessing bridge condition are:

- Percent of NHS bridges in Good Condition; and
- Percent of NHS bridges in Poor Condition.

MDOT established bridge targets on May 20, 2018

MDOT Actions:

As the product of ongoing asset management by MDOT and our local agencies, projects are programmed each year to extend life or improve condition throughout the bridge network. MDOT analyzes the candidates for each of the major work types – preventive maintenance, rehabilitation and replacement – and identifies a strategy that is the most cost-effective means to achieve and sustain a state of good repair within financial constraints.

Starting from this initial strategy, the regions then perform more detailed analysis and scopes, coordinating with other programs such as road, and selecting projects through the annual Call for Projects process.

A small number of MDOT bridges are managed centrally within the Big Bridge Program. The Big Bridge Population is a unique subset of MDOT's trunkline bridge population that includes twenty-three large deck bridges (deck area in excess of 100,000 sq ft), thirteen complex bridges, and twelve moveable bridges. These forty-eight bridges are unique not only from an engineering standpoint, but they also represent large capital investments in terms of their initial construction costs and in terms of their long-term preservation and rehabilitation costs. Because of the significant investment these bridges represent, MDOT's goal is to preserve and maintain the Big Bridge inventory in a continuously good or fair condition state. This population is also of unique importance to the Performance Management Target Settings as the 37 structures that carry NHS comprise 14% of the trunkline NHS deck area.

TwinCATS Project Selection Process Background

TwinCATS requires agencies to submit a project application who are requesting Surface Transportation Program (STP). TwinCATS updated the application in 2016 and again in 2018 to meet the MAP-21 and current FAST Act guidance for performance based planning. The updated application is a way to ensure projects are addressing Long Range Transportation goals, are outcome based and meet the federal funding policies.

- Safety
- Preservation
- Multi-Modal Connectivity
- Project Coordination
- Project Readiness
- Reliability
- State of Good Repair

Call for Projects –SWMPC staff initiates calls for projects based on the State of Michigan's Transportation Improvement Program (TIP) and/or Regional Transportation Plan (RTP) schedules. TwinCATS posts the application on the SWMPC website and sends instructions to all TwinCATS member transportation agencies and communities who are eligible for STP funding.

Prioritizing Projects – SWMPC provides a ranking and total project score for each local project to the Project Selection Committee (PCS) for TIP development. A draft of projects and scores is distributed prior to the PSC to facilitate discussion. The project selection committee will recommend projects to the Technical Advisory Committee, who will then recommend projects to the Policy Committee. The project prioritization application/system serves as a guiding document in project selection, and project selection is only made only after debate in an open, public process.

TwinCATS Road Project Prioritization System for the 2020-2023 Transportation Improvement Program.

Adopted on September 17, 2018

The following pages present a methodology to score projects submitted for consideration for TwinCATS' allocation of Surface Transportation Program (STP) dollars for the 2020-2023 Transportation Improvement Program (TIP).

This project prioritization system serves as a guiding document in project selection, but project selection will be made only after debate in an open and public process. A project selection subcommittee will recommend projects to the Technical Advisory Committee, who will then recommend projects to the TwinCATS Policy Committee. During the initial project selection process. The public will have an opportunity to inform project selection at each stage of the process. The ultimate authority for project selection still lies with the TwinCATS Policy Committee.

Each of these scoring categories corresponds to the relevant section on the TIP Application.

System Preservation (18 points possible total)

PASER Rating (10 points possible)

10 points if the most recent PASER rating is 3-4

8 points if the most recent PASER rating is 5-6

5 points if the most recent PASER rating is 1-2

Extension of Remaining Service Life (RSL) per MDOT's "Guidelines for Geometrics on Local Agency Project" (8 points possible)

8 points if the project extends RSL by 15 years or more (4R project)

6 points if the project extends RSL by 10-14 years (3R Project)

4 points if the project extends RSL by 5 – 9 years (Preventative Maintenance)

2 points if the project extends RSL by 2-4 years (Preventative Maintenance)

TwinCATS Road Project Prioritization System for the 2020-2023 Transportation Improvement Program.

Safety (7 points total possible)

Expected Crash Reduction - Based on MDOT approved Crash Reduction Factors

(5 points possible)

5 points for reduction of 50% or more

4 points for a reduction between 40% and 49.9%

3 points for a reduction between 30% and 39.9%

2 points for a reduction between 20% and 29.9%

1 point for a reduction between 10% and 19.9%

0 points for a reduction between of less than 10%

Addressing High Crash Location (2 points possible)

Based on the 5 yr. (2013-2017) total crashes per federal aid eligible road segment

2 points if the number of crashes is 20% higher than MPO median (4 crashes or more)

1 point if the number of crashes are within 20% of MPO median (2-3 crashes)

0 points if the number of crashes is lower than 20% of the MPO median (0-1 crashes)

Complete Streets (6 points possible total)

Complete Streets Policy (4 points possible)

4 points if project meets the Complete Streets Policy

Connectivity (2 point possible)

2 points if the pedestrian and bicycle elements of the project connect to existing bicycle and pedestrian facilities or those that can reasonably expect to be completed during 2020-2023.

TwinCATS Road Project Prioritization System for the 2020-2023 Transportation Improvement Program.

Regional Connectivity (8 Points total possible)

Traffic Volume (5 points possible)

5 points if ADT is more than 10,000 vehicles per day

4 points if ADT is between 5,000 and 9,999 vehicles per day

3 points if ADT is between 2,000 and 4,999 vehicles per day

Functional Classification (3 points possible)

3 points if project is located on a Principal Arterial

2 points if project is located on a Minor Arterial

1 point if project is located on a Major Collector

Fixed Route Transit

2 points if fixed route transit used the road.

Strategic Planning & Investment (11 points possible)

Asset Management (3 points possible)

3 points if the project is identified in an approved asset management plan.

Local Planning Document (1 point possible)

1 point if project is identified in another local planning document such as a master plan or a parks and recreation plan.

Cross Jurisdictional Coordination (1 points possible)

1 point if the project crosses jurisdictional boundaries (i.e. city to township) and it is arranged in such a way to be bid as a single project.

Regional Connectivity (8 Points total possible)

Traffic Volume (5 points possible)

5 points if ADT is more than 10,000 vehicles per day

4 points if ADT is between 5,000 and 9,999 vehicles per day

3 points if ADT is between 2,000 and 4,999 vehicles per day

Functional Classification (3 points possible)

3 points if project is located on a Principal Arterial

2 points if project is located on a Minor Arterial

1 point if project is located on a Major Collector

Fixed Route Transit

2 points if project is along a fixed route.

TwinCATS Road Project Prioritization System for the 2020-2023 Transportation Improvement Program.

Strategic Planning & Investment (11 points possible)

Asset Management (3 points possible)

3 points if the project is identified in an approved asset management plan.

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1 point if project is identified in another local planning document such as a master plan or a parks and recreation plan.

Cross Jurisdictional Coordination (1 points possible)

1 point if the project crosses jurisdictional boundaries (i.e. city to township) and it is arranged in such a way to be bid as a single project.

Project Continuity (2 points possible)

2 points if project continues resurfacing, reconstruction or preventative maintenance on segment of roadway adjacent to a resurfacing, reconstruction or preventative project done during the 2017-2020 TIP cycle or through Rural Task Force funding. For example: if Colfax Avenue from May to Britain was resurfaced in 2015, a resurfacing project on Colfax from Britain to BL-94 would count as an adjacent segment.

Additional Local Match (4 points total possible)

4 points if agency is willing to provide 40% or more of the total construction cost in local match. 2 point if agency is willing to provide 30% or more of the total construction cost in local match. An 18.15% minimum local match is **required** to proceed**.**

Project Readiness (No Points)

If the project requires relocation of utilities, purchase of ROW, or railroad crossing permits, these items must be addressed in the project schedule.

Coordination with sewer and water projects (No Points)

Prioritization of fiscal year if the project is coordinated with a planned sewer and/or water improvement in your community

A grand total of 52 points are possible.

Consultation

"The Secretary shall encourage each metropolitan planning organization to consult with officials responsible for other types of planning activities that are affected by transportation in the area (including State and local planned growth, economic development, tourism, natural disaster risk reduction, environmental protection, airport operations, and freight movements) or to coordinate its planning process, to the maximum extent practicable, with such planning activities." – 23 USC 134(g)

The Consultation Process is a separate but complimentary process to the general public participation process. The process is meant to ensure that the long-range plan compliments and does not conflict with the other planning efforts undertaken within the TwinCATS planning area. By consulting with agencies during the development of this plan, these groups can compare project lists and maps with other natural resource inventories. The MPO will be able to compare the draft LRP to any documents received and make adjustments as necessary to achieve greater compatibility.
Consultation was done among agencies responsible for the following:

Economic Growth and Development
Environmental Protection & Conservation
Freight Movement
Land Management
Natural Resources
Historical Preservation
Health and Human Services
Intercity Travel (Bus, Train)

The consulted agencies can either be directly responsible for providing services, regulatory agencies or advocacy agencies.

Agencies that were requested for consultation received the following:

- A letter explaining the transportation planning consultation process according to FAST ACT legislation
- A draft of the 2045 Long Range Plan
- An explanation of their critical role in the process and how they can provide input to the plan

CONSULATION LIST OF CONTACTS

Economic Development

Agencies responsible for Economic development planning, regulation or advocacy

- Berrien County Community Development
- Berrien Manufactures Association
- Cornerstone Alliance
- Kinexus (Michigan Works!)
- MI Dept. of Agriculture & Rural Development
- Michigan Economic Develop Corp
- Michigan State Housing and Development Authority (MSHDA)
- Michigan Great Southwest Strategic Leadership Council
- Southwest MI Economic Growth Alliance

Environmental Protection

Agencies responsible for protecting the environment or managing natural resources. Includes park agencies, regulatory agencies, and advocacy groups.

- Berrien County Conservation District
- Berrien County Drain Commissioners
- Berrien County Parks
- Environmental Protection Administration
- Friends of the St. Joseph River
- Michigan Department of Environmental Quality
- Michigan Department of Natural Resources
- Sarrett Nature Center
- Southwest Michigan Land Conservancy
- Sustainable Business Forum
- Two Rivers Coalition
- US Fish and Wildlife Service

Health & Human Services

Area Agency on Aging Region IV
Be Healthy Berrien Partnership
Berrien County Department of Human Services
Disability Network Southwest Michigan
Lakeland Hospital

Historic Preservation

Included to ensure transportation investments do not damage historical resources.

Berrien County Historical Association
State Historic Preservation Office
St. Joseph Heritage Museum & Cultural Center

Schools

Andrews University
Benton Harbor Area Schools
Bridgman Schools
Countryside Academy
Lake Michigan College- Napier Campus
Lakeshore School District
St. Joseph Area Schools

Governmental Partners

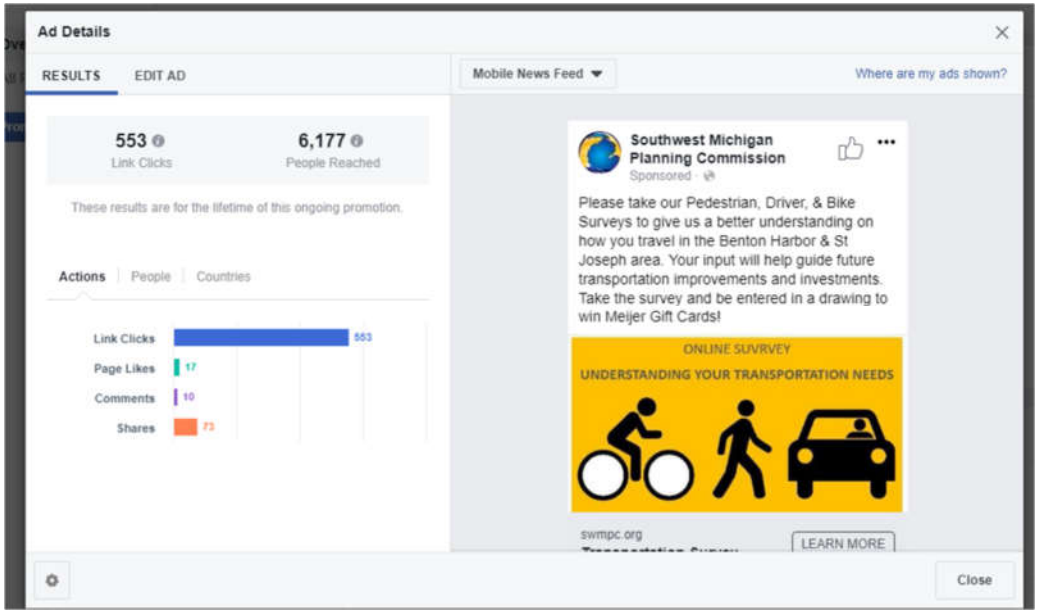
This includes representatives who are not represented on the TwinCATS policy committee but may still have an interest in the regional transportation planning process.

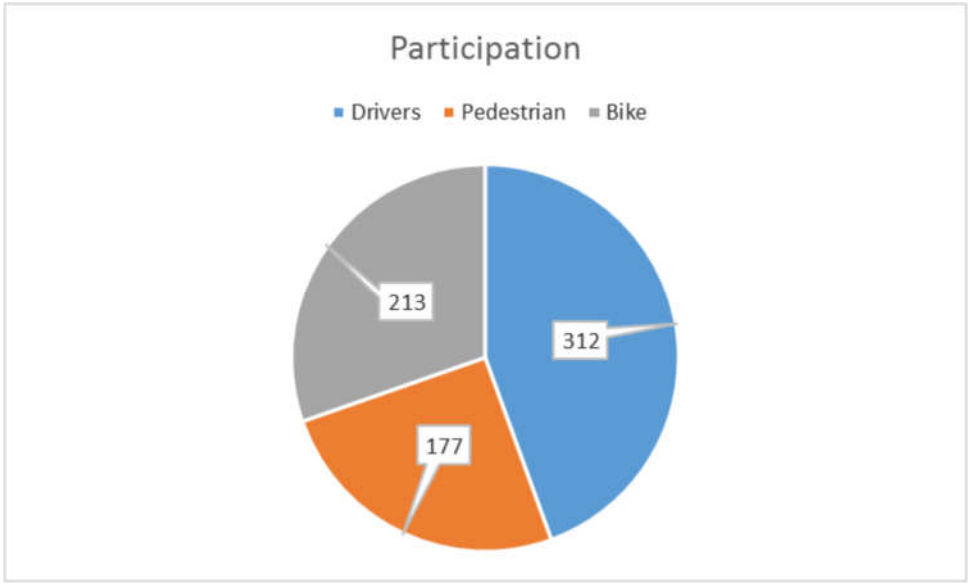
Pokagon Band of Potawatomi Indians
State Representative

This page is reserved for any comments received through the consultation process

Transportation Survey

In April and May of 2017 the MPO posted three surveys—passenger vehicle, bicycle and pedestrian on the SWMPC website and was also promoted on Facebook. Anyone who lives, works, attends school or conducts business in the TwinCATS planning area was encouraged to complete one or many surveys. While the surveys were not statistically significant, they provide significant information regarding the way people travel throughout the area. In total, over 700 surveys were collected.





Safety Sidewalk Snow Removal I think the city should enforce the clearing of snow ordinances in the winter. Just like they enforce lawn cutting in summer. Snow and ice are much more dangerous and inconvenient than tall grass.
Crosswalks Safety Sidewalk As a tourism destination, this must become a pedestrian and bicycle friendly community for long-term economic and social health. It's absurd that cyclists can't safely ride the lakeshore roads. Small or non-existent shoulders make a fun, positive, healthy activity that draws people in, impossibly dangerous. Crossing Main Street in St. Joe as a pedestrian is terrifying. Accessing basic services in Berrien county without a car is nearly impossible. Dial a ride is not a viable solution for someone who maintains full time employment. Nobody has time to wait for transportation to arrive by the door for an hour, both ways, listening for the driver to honk. It's undignified and inefficient. These are the things that keep people down and trapped in the cycle of poverty.
Crosswalks I still encounter a lot of curbs at crosswalks throughout town, as well as uneven sidewalks. I feel that city sidewalk maintenance should be the responsibility of the city and NOT the homeowner
Education Enforcement Drivers appear to not understand who has right if way at intersections Pedestrians often cross in unsafe areas such as across four lanes in the middle of the block
Crosswalks Safety The cross section of glenlord and Cleveland needs a roundabout and crosswalks it is completely unsafe.
Sidewalk Sidewalks
Trails Connected hiking trails
Education Enforcement Safety Currently not safe because of the cars, their speed, and distracted driving.
Crosswalks Education Enforcement My main request is more prominently marked pedestrian zones in the street. Drivers rarely stop at stop signs, so having a more visibly designated space for pedestrians can promote safety.
Off Road Trail Trails Long distance nature trails are few and far between e.g. 5+ miles
This area is not pedestrian friendly unless you are downtown st joseph along the bluff.
Safety I would just like to have a safe place to walk from my home on Windsor Road
Portland OR stores have umbrellas in open stands for shoppers to use in one place, shop, and leave in another store when done...no purchase or returns. Could work for rain or shade parasols.
Sidewalk I would walk to the grocery store and even to work if there were sidewalks available
Crosswalks Safety Sidewalk Walking anywhere is difficult because of the lack of sidewalks, crosswalks, and excessive speeds by motorists.
Sidewalk Napier Avenue needs a sidewalk.
Safety Sidewalk township sidewalks are well used, hopefully more will be built on major streets to continue safe routes
Lighting Paw paw ave has no street lights
Off Road Trail Sidewalks or path along niles to river view park would be awesome!
Education Enforcement Safety speed limits are too high & are not enforced
Education Enforcement No one knows sidewalk curtesy-single file if others are trying to pass
Sidewalk Kids walking to school in the morning walk in the street where there are no sidewalks. Very difficult to see them.

Walking trails along the bluff on red arrow and lakeshore drive in st joe would add to the beauty of the popular parks/lookouts...especially near hilltop.
Off Road Trail For exercise purposes what the area really need is a soft surface trail, lit up, not too far from down town. Running on concrete is not good.
Sidewalk Sidewalks would be nice to have.
Sidewalk Having sidewalks that run from townships into the cities would be safer, more attractive, and would allow more commuters access to routes.
Education Enforcement Safety Sidewalk There is heavy pedestrian traffic within neighborhoods (e.g., near SJHS, near Lincoln school, the historic district), but the busy boundary roads of Lakeshore Drive, Niles, Main and Langley are really difficult to cross with few crosswalks. Traffic always exceeds speed limits on those roads; pedestrians rarely get the right of way. Maybe motorists simply don't know the rules, suggesting some education is in order. St. Joe is very walkable distance-wise, and it's why I live here. I love to walk downtown from my SJHS-area location. But I have to plan carefully because of limited road-crossing options.
Sidewalk Increasing the number of sidewalks in St. Joseph Township should be a major priority for our community to promote physical activity, especially the stretch in Cleveland currently without sidewalks. Adding them in would create a network of sidewalks from Lakeshore High School to St Joseph high school and beyond.
Snow Removal We live at 2320, the house to our south never shovels or maintains her house/yard.
Sidewalk fix all the side walks so people can walk,and ride bikes on.
I live in the City of St Joseph with sidewalks. Walking in St Joseph is another thing on main roads. Cleveland avenue has the widest shoulder but Niles Avenue isn't great nor is Washington or Lincoln Avenues
Thanks for anything you can do!
n/a
Education Enforcement Speed limit on Washington Ave is 50 mph. Too fast for the amount of subdivisions and people using the road
Safety Sidewalk Please consider making Napier one lane each way with a turning lane in the middle. This will provide room to add desperately needed sidewalks. Traffic at times will have to move a little more slowly but it is a relatively short run of road and the time lost would be small. The safety benefit would be enormous.
Benches around city to rest

Education Enforcement Lighting Sidewalk It sucks! Let's get some walking groups going let's encourage people to walk instead of drive by implementing more sidewalks, streetlights, and just encouraging people to walk. Education.
Safety Sidewalk I would prefer walking to the store, but don't because it is unsafe.
Sidewalk Snow Removal We own a large lot on Napier Ave. I wish we had sidewalks, Though I only am concerned as to who is going to keep them clean in the winter time and who is going to pay to put them in? Being this is really a county/township issue I feel the county and township should pay to put in and maintain them. Being on Napier and the amount of snow in the winter it is too much to ask the taxpayers to pay MORE even more taxes and keep them clean. And IF the Township and County have already used up their right of ways (which by the way it has in many cases) are they going to pay for the land taken away from the property owners?????
Safety Sidewalk Lack of sidewalks in area makes walking dangerous, particularly on hills and curves.
Snow Removal Residents and businesses should be fined for failing to remove snow and/or piling it up on sidewalks. I have lived in several midwestern cities where a fine is standard practice and getting around in the winter is not the problem it is here.
Thank you for seeking to improve the community's access to safe walking routes!
Sidewalk I'm very pleased with the availability of sidewalks where I walk.
Sidewalk Sidewalks and walking in the Saint Joseph area is very pleasant. I love having so many options for parks.
Off Road Trail It would be great to have a pedestrian/bike trail connecting the area. St Joe/Benton Harbor/Berrien Springs/Baroda.
Off Road Trail I am so excited for the pedestrian bridge that will be built to cross over the Paw Paw River at Harbor Village/ Central Docks!
Education Enforcement Safety Drivers need to be more careful of runners and walkers
A good signage to parks and what is in the park would be helpful
In my neighborhood, South State Street in the City of St. Joseph, many peoples' landscaping (trees, bushes, etc) are grown over the sidewalks, which makes in difficult to pass. The city needs to do a better job of enforcing the ordinance that sidewalks need to be cleared by homeowners. Snow removal is a huge issue as well.
None
Sidewalks near schools where there are none should be an absolute priority. Do not have kids, but I am always very concerned when I see kids walking to school on the side of the road.
Our area really isn't pedestrian friendly at all. It doesn't feel like was taken into consideration when building. There are no sidewalks anywhere near us. Thank you
My biggest problem is runners not using the sidewalks and running in the road.

Bike Network Connectivity Safety As a tourism destination, this must become a pedestrian and bicycle friendly community for long-term economic and social health. It's absurd that cyclists can't safely ride the lakeshore roads. Small or non-existent shoulders make a fun, positive, healthy activity that draws people in, impossibly dangerous. Crossing Main Street in St. Joe as a pedestrian is terrifying. Accessing basic services in Berrien county without a car is nearly impossible. Dial a ride is not a viable solution for someone who maintains full time employment. Nobody has time to wait for transportation to arrive by the door for an hour, both ways, listening for the driver to honk. It's undignified and inefficient. These are the things that keep people down and trapped in the cycle of poverty.
Love the new pavement on M 140.
Would love to see bike trail extended South of lions park and north of harbor shores...
Bikes need to be registered and pay road taxes if ridden on any public road they can help pay for infrastructure upkeep including roads and bike trails
Safety Need better way for bicycles to cross the St. Joseph river at Bicentennial, Blossom Land, and Napier Avenue bridges.
Education Enforcement We need more education regarding bicycles having the same rules as cars (riding on the right, etc,) and that bicyclists should not ride on sidewalks
Safety There is no safe passage for cyclists or pedestrians in this area.
Existing bike routes need more space for bikes and better pavement. Bikers and drivers need education on rules of the road
Bike Network Connectivity This could be a huge advantage for tourism if we have a bike lane extending from new Buffalo up saint Joseph along red arrow highway. It's a huge missed opportunity that we can continue to advance small businesses in the area
Bike Network Connectivity Southwest Michigan is in need of a quality bike train system. It would help tourism and the residents would make good use of it.
ANY bike lane improvements are welcome. You need to work on a system similar to the TART trails in Traverse City. Integrated bus/trail connections.
You take your life in your own hands if you ride before 7 pm on any roadways.
Red Arrow Hwy is sooo dangerous.
Poor road conditions, little to no shoulder to ride on, and distracted drivers make cycling more dangerous in this town/county. The safest route out of town is M63 north. Commuting by bike outside city limits is more challenging due to poor road conditions and lack of bike lanes or adequate shoulder to ride. Ideally, a community would have bike paths like the Howard path that would cover longer distances to provide safe recreational and commuter bike use. Have to travel to South Haven to access real bike trails.
On Road Bike Lanes This is a very difficult area for Biking! No bike Lanes. Rural roads no shoulders. Go look at Milwaukee.
I would like to see some access by foot or bike from one end of Niles ave. To Niles road to the highway but particularly up the hill by eagle point harbor. I would also like to see a trail along the river from eagle point harbor to the downtown area of st Joe.
Thank you for asking
More street lights or a different type of light bulbs. And caution lights.
Bike Parking More bike parking please! And I'd love to have bicycle delivery from local restaurants.

More people (specifically families) would bike to downtown st joe and Stevensville if it was an option. Currently it is not. We would love to bike from the Cleveland/Maiden Lane area to visit either downtown with our kids. Trips to the farmers market or weekend lunch or even the beach. My husband would bike to work in st joe. That is not possible to do safely with the current "bike path/lane." Instead we pack our bikes up and drive to van buren state park. We then ride their new trail into downtown south haven to play and eat. Many other families do the same. We would LOVE to do that in our own town.

Safety Separated Bike Facilities Commuting bike paths are needed. And in some areas for SAFETY concerns the paths should be separated and/or elevated from the road. Hilltop down the hill to the Marina is a great example. Pedestrian traffic is halted in that area for safety concerns.

Separated Bike Facilities Please please please add more bike trails that are not on a busy road. People drive recklessly (particularly tourists!)

All new roads need to have a paved bike lane to the right of the fog line. Bike lanes and intersections need to be swept a few times throughout the spring and summer.

Bike Network Connectivity This is a beautiful area. We should be able to ride from all over this part of the state to connecting towns.

St. Joseph is one of the least bike-friendly cities in which I've lived, which is tragic given the local athletic events, such as the Steelman, that occur here. Huge opportunity for improvement and appealing to tourists who want to tour the area (and wine country) via bike. Be certain there are maps in all visitor centers and in the city hall.

I am excited to see all of the efforts being made to create a bikeable southwest michigan.

Locally shoulders are very narrow, travel over i94 and Napier bridges are even worse. No shoulder at all. The existing bike lanes in St Joseph are very narrow and on heavily travelled roads, not to mention cross street traffic. Distracted drivers also present a HUGE issue.

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n/a

Would love to see a recreational trail along Hickory Creek between Stevensville and St Joseph to allow isolated travel by foot or bike. There are sections that are open but not a contiguous paved path. I'm sure there are other examples of isolated paths that would be helpful. I grew up in Ohio and most all roads had a substantial paved shoulder which made biking safe and easy. Since moving to Berrien County I've pretty much given up riding due to poor roads and unsafe conditions.

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if off road biking at all parks you listed is permitted it needs to be advertised more!!

Current information regarding the public trail areas associated with the Harbor Shores development are impossible to find.

Bike Parking Safety I constantly hear people complain about lack of parking. With limited space in attraction areas (beaches, downtown SJ), the way to pack more people in is by multi-mode transit. If possible, my preference is toward barricaded/protected/separated bike lanes. These are the safest option and attract more types of riders.
Safety St Joe is a beach town, summer vacation destination. Embracing the outdoors should be OUR GOAL!!! ...yet it is incredibly challenging to feel safe on the road. I have barely ridden since moving here. ...and I certainly can't take my kids anywhere. Lakeshore rd is a nightmare. It would be awesome to ride our bikes down to the beach or to kilwins for an ice cream in the summer, but i don't trust that my kids woukd be safe. Lakeshore rd has the highest speed limits within city limits. People die at lakeshore and Hilltop. It's impossible to cross AND to ride on. Please help!!!!
Education Enforcement On Road Bike Lanes Road Surface More and Improved bike lanes on the street, paved/ fixing potholes, citing aggressive drivers
We live downtown and prefer to ride bikes in the summer to events and dining to avoid parking. However, the lack of bike racks makes it difficult.
Education Enforcement Safety General knowledge of drivers passing a bike is not very good.
There is often dangerous debris in the streets. I bike in the wine trail area. It could use better signage and slower speeds.
Road Surface I am a road cyclist and our roads are in terrible shape.
We are in need of roads with bike lanes and trails to get through town or back and forth from SJ to Stevensville, etc. It is not safe for teenagers to ride their bikes to work due to traffic and drivers that are not paying attention
drivers need to learn better driving habits to avoid bicycles and pedestrians, maybe PR campaign
On Road Bike Lanes Napier Ave from St. Joseph through B.H. has no sidewalks or bike lanes. Lane diets could be performed and striped with bike lanes concurrent with road re-surfacing projects. Our roads are lacking in design for multi-modal transportation.
Education Enforcement Better police enforcement of the bike laws from vehicles driving
On Road Bike Lanes Safety so many of my colleagues at Whirlpool would ride to work if there were safer bike lanes with a barrier (tall curb) between them and traffic.
Bikers do not follow rules of road--driving lane, traffic signals
You need to understand that many drivers do not recognize that cyclists have any rights to the road. I have been sworn at, had objects thrown at me, and been run off the road by drivers who feel I am in their way. Very, very sad and dangerous.
It is a major oversight not to connect st joe to south county lakeshore parks and beaches with a bike path! I'm thinking of the kind of trail that connects napannee and goshen indiana, which is a major attraction there--and we have much more to offer tourists than they do.
N/A
Don't feel comfortable on local streets like Red Arrow, Hilltop Main St in Benton Harbor too much traffic moving too fast Enjoy riding but would ride more if felt better about routes I need to take
Would be great to have another top notch mountain bike trail in the area. Current two choices are 1) Andrew's U, and 2) Fort Custer
Motorists are terrible-riding too close, too fast passing too close

Chip-sealing roads has made our area even worse for cyclists. The shoulder of the road stays in a loose gravel state and forces cyclists to ride in the lane of traffic where the chip is compacted..PLEEAASE STOP WITH THE CHIP-SEALING! Also, I think bike lanes or trails in the "Wine Country" of Berrien County would be very benificial for the area. I see cyclists at the wineries, and on the roads in between them all the time. It's only a matter of time before a cyclist gets flattened by a boozed up wine taster.
Somehow we need better education of drivers of the rights of cyclists. Many drivers think the roads are for cars only.
Overall people are friendly.
There are far too few roads with wide shoulders and/or clear bike lanes. Biking on some of these roads is dangerous with almost no shoulder and often in poor condition. It would also be good to have new trail sections added that would build contiguous trails sections between Stevensville - Saint Joseph - South Haven, etc. Grand Rapids is a model city with respect to biking/walking trails. Given the level of tourism around Berrien County, improvement of these outdoor facilities should be a priority in the larger planning process.
Bike friendly areas attract visitors which is specially important in a town that has large tourism.
We need Bike specific trails not roads.
Roads need larger shoulders that are marked for bike use. Michigan needs a 3+ foot rule! Crack down on texting and driving.
We need more bike lanes!
Bike use for recreation and general transportation has been steadily increasing over the last 10 years but bike lanes and information on bike laws and safety have not. This needs to be improved for the safety of everyone.
It would be nice if you could extend the Hickory Creek Rail trail all the way north to downtown St. Joe, as well as crossing I-94 and continuing down the powerline to the south. There are pathways connecting to Lincoln Ave and Maiden Lane soccer complex already. I think opening up the pathway where the sewer line follows along Hickory Creek from Stevensville to Cleveland Avenue to bikes would provide another excellent alternative.
We need bike lanes!
Advocate for it! More bike lanes! “Bike to work day”
On my morning commute it is rare to see a car diver that isn't on their device or speeding! I count 80-90% are operating dangerously. Needs enforcement! Make it a county statute not just a state law. Maintain roads and the right three feet of roads in all seasons, potholes and snow are deadly to bikes and pedestrians, cars just get dinged up; cyclists and walkers die!
n/a
We need wider, smoother, and more well-protected bike lanes just about everywhere, and more signage to remind drivers to give bikes space! I feel unsafe using almost all existing street routes, but do it anyway because I feel that it’s important. I often ride with my young child in a bike seat behind me (to school, stores, library, farmers market, and beaches) and cars still do not give us enough space.
I'm excited that we're being asked for feedback ... more trails (mainly off-street paved and unpaved) will cause more people to use bikes and transportation and exercise.
Thank you for soliciting the community's feedback on this important topic!
I’m surprised how bike unfriendly our community is. It seems so cost effective to promote biking in our community in regards to health benefits and cost benefits.

I would love to see greater biking initiatives and a commitment for more bike trails/riding.
As a St. Joseph resident, I am bounded on 3 sides by rivers. There are 4 ways to get across: 63, bicentennial bridge, Napier, 139. Cycling is not safe or convenient on any of these routes.
Public awareness is in need. People still believe that cyclists do not belong on the road.
I have several incidents were people refused to give me right away on edge of road and brushed my shoulder with their mirrors, then proceeded to pull over in front of me and exit their vehicle to yell and curse at me. It is very frightening for anyone (i carry pepper spray with me as my only recourse)...
Heavy gravel treatments, winter sand treatments leave dangerous debris along side of road dangerous for narrow tires. Pot holes also very dangerous.
I'm more interested in moving about Benton Harbor, Saint Joe, and Stevensville safely and efficiently than specific roads are used to accomplish that. Vehicles are the largest variable to the communities physical safety, health, and irritation on roadways. Creating a safe, healthy, and more relaxing avenue to experience our community on commute or leisure can be accomplished via increased cycle infrastructure.
More bicycling available between Baroda and Bridgman or Stevensville.
There are very few real "trail systems" in this area that are longer than a few miles and benefit cyclists. This area would benefit from a longer system- like the White Pine trail or Kent trails in Grand Rapids. There also needs to be more education of drivers- I have bicycled a lot of places and I am nearly run off the road way too often in this area- something that doesn't happen in Kalamazoo or Grand Rapids. I feel safest riding my bike at 6am when traffic is light and I have bright lights and reflective clothing- this isn't right. People texting while driving also scares me!
There are very few bike trails and lanes in the Saint Joseph Area. People driving seem very ignorant about how to respect bicyclers and there is no accountability if they are acting maliciously or carelessly.
Who are our local bicycle advocates. I work very hard to encourage cycling. I support Bicycle related nonprofits. I also participate in a number of cycling groups or clubs. It would be great to have a hub for other cyclists.
N/a
I feel we are behind the times when it comes to providing safe bicycling options in and between our communities.
People need to keep cars out of bike lanes.
SWMI has the lowest density of trails in all of Michigan. New and/or improved trail systems will attract more visitors while maintaining current residents.
The problem is that the main arteries are not wide enough or there are choke points such as bridges over 94 and there is no bicycle lane.
The city of St. Joseph is not bike friendly at all. It is very unsafe to ride any where in the town on the street. No dedicated bike lanes, no bike signs, no bike racks. It's impossible to commute or ride bike on road without taking a huge risk of getting hit. Check out Boulder, CO and see what they have done for bikes on the streets. They get it. People want to ride bikes for health, costs, and enjoyment and can't.
I think signage or other indicators to tell drivers to share the road with cyclists is needed to make them more aware that they need to share the road.

This area has the potential to be a destination for both tourists and locals but lags way behind surrounding areas.
I would love bike lanes on all roads
Cyclists of all levels use the streets of Southwest Michigan. There are many biking events which draw people to the streets. However, many streets are not bike friendly - little to no designated bike lanes, shoulders with gravel or potholes which contribute to accidents.
Would really like to see an extended, paved, multi use trail that could be used for cycling, walking, etc. There are beautiful trails like this in many other communities that are great for exercise and even draw tourism to the community. My husband and I are road bikers and have a young son who we pull in a trailer behind our bike - we are not able to do that much because I don't feel very safe having him in areas where there is a lot of traffic.
There's little to no consideration being given to biking as routine transportation in the whole SJ/BH area. I would love to ride my bike to work, but I'm scared to death of trying it on these roads.
Bike facility improvements should be coupled with increased driver and cyclist education so both parties understand traffic laws related to cyclists. Also, drivers need to become more aware of need to check for cyclists since they are not accustomed to sharing the road with them.

Poor Roadway Surface The pot holes are terrible. I actively avoid trying to drive near them. Benton Harbor Napier road and M-39 are the worst. In town along Lakeshore is also bad. I have bent 2 rims and lost 2 tires due to the damage from the streets. I am a careful driver but this is terrible.
The closest grocery stores are in Stevensville, so that is a bit of a distance. Aldi is one of my favorite stores and it's even further away.
Poor Roadway Surface Road conditions are horrendous—I think a dried creekbed would be smoother than some of the main thoroughfares.
Thank you
Public Transit We need public transpo such as busing in downtown SJ area also connecting towns along the lake
Public Transit A few coworkers use dial a ride to come to work and either arrive very early or are late. It doesn't seem reliable. I also see people waiting at meijer for rides, sometimes waiting long enough for me to complete my entire shopping order.
I have nothing further to say
Parking Our area has on occasions during the year tight parking. We don't want to go overboard on how much parking we require or provide. We do however need to optimize the space we have for parking and establish and enforce rules to share that parking. It is not appropriate to provide all day municipal parking for anyone. Workers for the large employers in our area need to walk a ways from their parking spot to their work location. People that work in an area that is provided municipal parking can also walk a ways from all day parking areas.
Enforcement Several speed limits seem way too restrictive, and it appears few drivers obey them....
Parking In-town summer parking is difficult.
Poor Roadway Surface Fix the pot holes
Poor Roadway Surface Road conditions are terrible.
I don't know if it's free
Ped/Car Conflicts Public Transit As a tourism destination, this must become a pedestrian and bicycle friendly community fornlong-term economic and social health. It's absurd that cyclists can't safely ride the lakeshore roads. Small or non-existent shoulders make a fun, positive, healthy activity that draws people in, impossibly dangerous. Crossing Main Street in St. Joe as a pedestrian is terrifying. Accessing basic services in Berrien county without a car is nearly impossible. Dial a ride is not a viable solution for someone who maintains full time employment. Nobody has time to wait for transportation to arrive by the door for an hour, both ways, listening for the driver to honk. These are the things that keep people down and feed the cycle of poverty.
Public Transit I think busses would be helpful for the area. They would help traffic congestion downtown SJ in the summer & could help teenagers /adults get to work who don't have access to a car.
Poor Roadway Surface Fix the Damn roads
Nothing to add
Snow removal from road would likely end up on the sidewalk. Sidewalk maintenance would be essential to getting people out of the street where the cars are.

Public Transit The bus use question was funny, given that there is no public bus service here. It's a huge miss. Generally, driving in St. Joe and the surrounding area is easy, though speeding is an issue, especially on Hilltop, Niles/M-63, and Lakeshore/Main. Parking downtown is an issue during summer festivals, which may hurt local merchants. Related: I also know from St. Joe and regional friends of color that they are pulled over by St. Joe police at very high rates vs. white drivers. Please consider studying the data and making the results public. If it's perception, then we can address the historical reasons. If it's reality, then let's address the bias. But the belief is keeping many great people away because they fear driving here. At a basic, business level, we need their dollars. At a community level, we need their participation and diversity. This has to be addressed honestly and transparently.

N/a

Poor Roadway Surface The roads are the worst that I've seen the last 18 years I've been here. Even after they raised the gas tax and fees. Every where you go there are big chunks missing especially in Benton Harbor.

Public Transit I have never lived in an area that didn't have reliable public transportation, until moving to Berrien County in 2008. The 2 options for public transportation are not reliable, nor affordable for daily transportation. It is sad, especially for those without reliable transportation.

Public Transit Older persons like myself would use the bus if our rural area was served by smaller ones that were regularly scheduled. We do not feel wanted or welcomed as passengers and sometimes feel as if the bus is for city residents only.

Public Transit I would like to drive less, but it is hard to rely on buses in this area

Public Transit I needed a ride home from the city of Benton Harbor, about three miles hade to wait over an hour for Dial-A-Ride they never came it was a weekday morning.

Ped/Bike Safety With all of the negative attn on driving and texting. I think safe sidewalks and biking areas would be great.

Poor Roadway Surface Public Transit Dial a ride is so slow. I've had to wait for 2 hours for them to pick me up. The section of Empire between M139 and Pipestone is so bad. I have to drive 5 mph to go over it.

Public Transit Lack of sidewalks forces pedestrians and bicyclists into the street creating hazards for both drivers and those in the streets. Dial--Ride is unreliable, causing people to walk

All good now.

Public Transit There are way too many individual vehicles driving pased/to the exact same place. A bus or train system would be invaluable in our area. Particularly connecting Berrien Springs, Baroda, Stevensville and in to St Joe and BH.

Please, no more traffic circles!

Ped/Car Conflicts Public Transit Often I see people running in the road when there are sidewalks (not snow covered) which causes me to slow because of oncoming traffic and an inability to move around the pedestrian in the roadway

Poor Roadway Surface Horrible pavement conditions, traffic light with no left turn arrow at busy intersections, traffic light no longer needed such as Wall St in Benton Harbor and Maiden Lane in Stevensville all contribute to driving delays and cost. Synchronized traffic lights on Red Arrow/Lakeshore and other main roads would alleviate commuting delays in morning and afternoon.
Public Transit The frequency and routes are most important for passenger vehicles
Public Transit Still not sure point of Survey. our existing roads/streets are horrible. I hate driving anywhere locally and I choose to go out of town and avoid our streets (what's left of them). Ridiculous. Fix them before spending money on additional stuff.
Ped/Bike Safety Poor Roadway Surface The only concern I have is bicycles on the road. Need their own trail but before that, fix the roads we have now.
Parking .
Public Transit Travel to the BH area for errands, the lake and on my way to other towns. I may soon be working in the mall area. Roads are poor and in need of work. If I resided in the area, I could see where a regular bus service (not dial -a-ride) could be essential in allowing people to break transportation barriers that keep them from working and accessing needed services in a timely manner.
Ped/Bike Safety Scary to worry about cyclists on Red Arrow & other areas with no designated bike lane.
Public Transit The waiting time is horrible!
Poor Roadway Surface Fix the roads
Parking Poor Roadway Surface Berrien county roads are rated 2nd worst roads in the state. Surrounding county roads are considerably better despite a lower tax base. Something is wrong here. .
Poor Roadway Surface Our roads are terrible. Vote Pot for Potholes!
Parking Parking and people walking in roadways are major issues.
It's a small semi-urban area in the northern United States, bikes are good for recreation but have a limited appeal for commuting, and it doesn't have population density to support busing. Hard to get away from cars.
Public Transit Public transport is non existent in Berrien County. Not sure you are going to convince us farmers that getting on a bus is going to work, but there is no reason why this should not become common practice in the more suburban areas.
Thank you
Enforcement Drive to fast.
Enforcement Far too many drivers are distracted by using their phones or vaping machines while driving.
Enforcement Teach people to use the sidewalks where there are sidewalks. Teach how to walk and ride a bike with traffic. And than enforce it. Very bad in BH.
Enforcement A lot of people need A refresher on the rules of engagement
Just more convenient for me to drive
More sidewalks!!! Everywhere. No new subdivisions without them! Mass transit although traffic is not bad... But when I was 16 we would race on I-96 and no cars went by.. No traffic at a for 15 to 30 minutes at a timd Point being that the future will be much different than u think

Public Transit We need an actual bus system. So many people would use it and invest in the passes.
Parking Parking facilities
Public Transit Im unsure if it services bridgman
Ped/Bike Safety Bike lanes or routes would be nice!
Lighting and sidewalks would make it easier for me to allow our kids to ride to school. It's dark and the road has a curve making it harder for less attentive drivers to see someone riding on the side of the road.
None
Public Transit I live in a small town and can walk or ride my bike every where I need to go so I wouldn't need a bus but there are handicap and elderly that have difficulty walking and could use a bus or affordable public transportation.
Public Transit I would say the roads are quite bad with respect to other towns cities. Riding a bike on these roads is very dangerous, cars swerving pot holes into a bikes usable space.
Public Transit I was fortunate and always had a car or a family member with a car, but I know people who would sit at the Walmart and wait for a bus for hours, so more frequent buses and phone application with approximate time of arrival, something that might help people who do take public transportation.
Ped/Car Conflicts It would be great to have non-driving options.
Bike lanes would be great on main roads like Napier ave and M139. so many people ride bikes on these main streets and its scary especially if it's not daylight out.
Enforcement Public Transit .
Enforcement Ped/Bike Safety Too many drivers ignore traffic signals--STOP signs, speed limits, red lights.
Ped/Bike Safety I would ride my bike daily if there was a good bike path from st joe to stevensville
Public Transit There's a bus that runs in this area besides dial a ride? Never seen them and I've lived in the area for years...
Enforcement Something needs to be done about texting and driving. I can honestly say this is more of a problem than drinking and driving because there are 100 times more people doing it.
We need additional ways to get across the river, especially into the South St. Joe area.
Enforcement Ped/Bike Safety Bicyclists are dangerous on our roads. No helmets. Do not abide by stop signs. And often not a safe distance away from traffic.
Parking Need Safer sidewalks and bike lanes on Napier and Niles Ave
Poor Roadway Surface They just need up keep of all the roads in the area
Poor Roadway Surface The roads in this area are in terrible condition. Moved here from Wisconsin. Embarrassed to have friends and family visit.

I moved out of St Joseph recently because it has become too tourist focused and caters to seasonal tourists that don't pay the extremely high taxes. More consideration is needed to keep the actual residents loyal. More long time residents have become very unhappy with St Joseph. Makes me sad to leave but it is only a tourist town with a great school system. Our kids are grown now and Employment opportunities are very limited and when you add rude Chicago people to the mix half of the year it becomes down right unbearable. Sad to have left my hometown but it just isn't the quaint homey town it used to be.
Poor Roadway Surface fix the roads.....Napier and Langley Aves. Should both be torn up and redone completely. We live on Napier in St. Joseph Township and there is such a dip in the road right by our property line that one day one of these trucks is going to go right thru the road. When a truck goes over it or house shakes and you can here the thump of the carriage of the vehicle!!!!
Poor Roadway Surface Road maintenance issues
N/a
Poor Roadway Surface City of Benton harbor roads are horrible this time of year
Enforcement Drivers need to SLOW down in residential neighborhoods and watch for children playing, pedestrians walking dogs or kids riding bikes! SLOW DOWN!!
Please improve of City Saint Joseph. For most of the things we commute to either South Bend or Michigan City and we end up paying taxes there
I have some issues with walking very far. Using my own vehicle is the best option for me. Transportation right at my own door!
Parking Parking in the summer can be a challenge with the influx from vacationers and tourists. Improving parking infrastructure or cycling availability seem to be two basic options.
Public Transit Questions 10 and 12 give no option but a preconceived notion that I would want some form of bus transportation in an expanded fashion. Survey participants are forced to answer one of these to reply.
Poor Roadway Surface Roads are bad
Public Transit I would love public transit like the Rapid in Grand Rapids. A bus system that ran every 5-10 minutes.
Public Transit There are buses in the area???
Public Transit Need more access to reliable community transit for those who ar elow income or havie a hard time keeping a reliable car.
Parking May want to consider special parking for hybrid or efficiency vehicles.
Public Transit Long public transit times due to poor service on fixed routes makes driving a preferred mode. Exceptionally bad street conditions are hazardous in our whole region.
Public Transit I have never used Berrien Bus or any other area transportation, actually do not know much about it.
Public Transit My age makes it difficult to walk or bike for errands especially if I'm carrying packages or groceries. My church is 11 miles away. I see many people at our Food Pantry walking or biking unsafe roads to carry their food home.
Ped/Car Conflicts Biking on roads here seems unsafe, drivers not used to sharing.
At the intersections of Cleveland and Glenlord as well as Cleveland and Marquette Woods, there is often a lot of congestion. Stop lights would be far more practical than a 4 way stop

County residents and stakeholders were invited to give input into the Connect Berrien Countywide service plan. The feedback helped to guide the final recommendations. The public input was used to create transit service goals and objectives, and then to form evaluation criteria for selecting the most appropriate type of service.

Outreach included a total of eleven workshops where surveys were distributed.

May 2017: *Three workshops were held conducted with invited stakeholders that included; elected officials, community leaders and human service agency staff. -78 people attended*

June 2017: *Four public meetings were held in Benton Harbor, Niles and New Buffalo –93 people attended*

September 2018: *Four public meetings were held in Benton Harbor, Niles, Bridgeman. –89 people attended*

HELP SHAPE THE FUTURE OF PUBLIC TRANSIT

CONNECT BERRIEN
Berrien County Transit Integration Plan

The Connect Berrien Project Team is seeking your input on the future of public transit in Berrien County.

We will host three community meetings to:

1. Explain what public transit currently looks like in Berrien County
2. Learn more about your needs and concerns
3. Describe future opportunities to get involved in the countywide transit service planning process

LEARN MORE AND PROVIDE YOUR INPUT

Attend a Community Meeting!

Niles
Tuesday
May
9
(Two Options)
3pm - 4:30pm
5pm - 6:30pm
Niles Library
620 E. Main Street
Niles, MI 49120

Benton Harbor
Wednesday
May
10
5:30pm - 7pm
Southwest Michigan Planning Commission
376 W. Main Street
Benton Harbor, MI 49022

New Buffalo
Thursday
May
11
5:30pm - 7pm
New Buffalo Twp. Library
33 N. Thompson Street
New Buffalo, MI 49117

125 people attended.

What is the future of public transit in Berrien County?

CONNECT BERRIEN

COUNTY-WIDE PUBLIC SERVICE/ECONOMIC DEVELOPMENT ISSUES: Today there are four independent public transit providers in Berrien County providing essential services within their service boundaries; however, the coverage and level of the services is inconsistent across the county and many residents and employees do not have public transit options available to them. Communities in Berrien County face serious challenges over the next ten years: meeting the needs of the aging population and tackling poverty, while attracting and retaining young people and supporting growth in the regional economy.

FINDING SOLUTIONS—THE CONNECT BERRIEN PROJECT: Over the last year and a half the Connect Berrien Project Team has been working with Nelson Nygaard on a plan for an improved and more robust countywide transit system that will put Berrien County in a better position to rise to these challenges. The plan was developed through a collaborative process including public outreach meetings, interviews and surveys. The plan is sponsored by the Federal Transit Administration, Michigan Department of Transportation, Lakeland Foundation, Berrien County Manufactures Association, Berrien County, and the Southwest Michigan Planning Commission.

CONNECT BERRIEN VISION PLAN GOALS:

- **ENHANCE** — *Make transit more convenient than it is today*
- **CONNECT** — *Connect people to more places than they can reach today*
- **SIMPLIFY** — *Make transit easier to use than it is today*
- **SUSTAIN** — *Ensure the financial and long-term sustainability of all transit systems*

MAKING THE FUTURE HAPPEN: Future implementation of the recommended service plan will create a transit system in Berrien County which is easier to understand and use, and which better meets the needs of the County. A more seamless experience for planning trips, paying fares, and traveling from place to place will be the biggest benefit. The increased coordination will reduce costs, attract ridership, and be more effective for both users and transit agencies.

More info: connectberrien.org

WE NEED YOUR GUIDANCE & ASSISTANCE: Please attend one of these public forums to learn more about how services outlined in this plan could benefit your community.

BRIDGMAN	NILES	BENTON HARBOR
Tuesday, September 25th	Wednesday, September 26th	Thursday, September 27th
5:30 pm –7:00 pm	3:00 pm – 4:30 pm & 5:00 pm – 6:30 pm	5:30 pm – 7:00 pm
Lake Charter Township Hall	Niles Public Library	Southwest Michigan Planning Commission
3220 W Shawnee Rd Bridgman, MI 49106	620 E. Main Street Niles, MI 49120	376 W. Main Street Benton Harbor, MI 49022

98 people attended

What do you think is currently most effective with public transit in Berrien County?

- ⇒ *No idea*
- ⇒ *Plead ignorance*
- ⇒ *TCATA if you live in the BH area. Berrien Bus in there is a contracted relationship*
- ⇒ *Unknown*
- ⇒ *Have never been involved with bus system in any way.*
- ⇒ *Since all that is available in our area is Berrien Bus, not really able to evaluate*
- ⇒ *I do not feel I am familiar enough with the system to give an informed answer.*
- ⇒ *Providing an option for those in need of service.*
- ⇒ *Some people have public transit access already.*
- ⇒ *Dial-A-Ride*
- ⇒ *Even though there are four separate systems, we work well together and make every effort to get people where they need to go.*
- ⇒ *We have some form of public transit – somewhat effective in the local area of service but so limited it has little value for the dollars spent.*

- ⇒ *The existing fixed routes provided by TCATA.*
- ⇒ *Red & Blue Route – TCATA in Benton Harbor/St. Joseph.*
- ⇒ *Nothing effective*
- ⇒ *Call for a Ride.*
- ⇒ *Nothing – not customer/need focused*
- ⇒ *Per my agency clients, there is not one public transit in Berrien County. Should communicate across city lines if possible. Many agencies trying to meet needs in local communities. Some fixed routes.*
- ⇒ *Dial-A-Ride*
- ⇒ *The few fixed routes seem the most effective. Expanding fixed routes seems reasonable.*
- ⇒ *Public transit get you where you need to be.*
- ⇒ *Fixed route seems to work for some, but not for seniors or disabled.*
- ⇒ *I cannot speak in a knowledgeable way to that question.*
- ⇒ *Fixed route service*
- ⇒ *That it exists*

What concerns or transportation needs should be addressed ?

CONNECT BERRIEN

- ⇒ Demand vs cost - Is there a need in SW county? What needs are going to be addressed? Senior Needs
- ⇒ All of them. It seems more education is necessary to illustrate benefits to the common good. (Urban, Rural.)
- ⇒ I feel there is a sizeable potential ridership in people using transit to get to and from work. Currently it is limited to day shifts only and not weekends. Unrealistic.
- ⇒ Rural/Summer
- ⇒ That it benefits every community and is equitable to everyone.
- ⇒ US 12 Corridor – New Buffalo, Three Oaks, Galien, Buchanan, Niles. Provide buses along US 12, with connecting busses to South Bend and Michigan City.
- ⇒ That seniors, disabled and financially need residences needs are met. Shopping, jobs and medical trips are available and affordable.
- ⇒ Time available – Service hours, limited ridership, needs a broader appeal.
- ⇒ Both look to transit from SW MI to Michigan City and connections to Chicago bound transportation. And look at seasonal events.
- ⇒ From Niles to other cities. I would like longer hours to work full time and be able to do other stuff with asking friends to help.
- ⇒ Connecting South County with North County more effectively. Creating greater access to transportation for those most in need, making it user friendly.
- ⇒ Southern access to Twin Cities.
- ⇒ Countywide Service that allows greater mobility for the present group of riders and make public transportation more viable for the next group of the public who would ride if it actually got them where they need to go.
- ⇒ Access to Countywide human/health services. Access to K-12 for school-of-choice and Lake Michigan College students.
- ⇒ Access to 2nd & 3rd shift jobs countywide.
- ⇒ Connectivity that is predictable so you can plan your life.
- ⇒ Connectivity.
- ⇒ Times, fare, options, wait times, simplicity in navigation (i.e., transfers and connecting)
- ⇒ Ability for willing, Prepared workers to get to work when they do not possess a driver's license or vehicle.
- ⇒ How to effectively merge (or at the very least) assist all county transportation to collaborate for clients and community benefit.
- ⇒ People need easy access to jobs and services (e.g. medical, legal). Connectivity to intercity transit (train, bus, plane). Speed and frequency (long waits or routes or transfers will diminish use).
- ⇒ Affordable routes that are able to allow travel countywide (no boundary issues).
- ⇒ Cost of Countywide Service, service routes, times available, etc.
- ⇒ Travel throughout the county is difficult! Ease of connectivity and affordability are primary concerns.

The Southwest Michigan Planning Commission along with key partner organizations initiated the Napier Avenue Pedestrian & Bicycle Plan in the Winter of 2017 to improve safety and pedestrian and bicycle networks along the Napier Avenue corridor. This summary contains input gathered from the public during the first phase of public outreach as part of this planning effort. Phase 1 of this plans' public outreach included an online survey and interative mapping tool (known as MetroQuest), hardcopy survey materials, and a public meeting held on March 26, 2018 at Overflow Community Church. The purpose of this first phase of outreach was to help educate the public on issues surrounding the corridor today and potential solutions, gather input and perspectives of the experience of those who use the corridor, and identify the public's top priorities for future improvements.

AT A GLANCE...

42
PUBLIC MEETING ATTENDEES

WEBPAGE VIEWS
960

174
SURVEY PARTICIPANTS

YOUR PRIORITIES

» identifying priorities for future improvements

1 SAFE WALKING 163 votes

(slowing vehicle speeds or installing sidewalks, shared use paths, crosswalks, or other pedestrian facilities could help Napier Avenue become a more walkable street)

2 SAFE BIKING 141 votes

(slowing vehicle speeds or installing bicycle lanes, shared use paths, or other bicycle safety infrastructure could encourage cyclists to use Napier Avenue and may make the street safer for bicycle use)

3 TRAFFIC SAFETY 106 votes

(installing signals, turn lanes, street lights, changing the lane configuration of the street, or slowing vehicle speeds could help improve safety for motorists traveling in the corridor)

4 EASY CAR TRAVEL
41 votes

5 CORRIDOR REVITALIZATION
33 votes

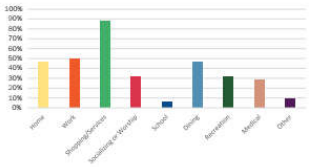
6 CORRIDOR BEAUTIFICATION
28 votes

7 TRANSIT ACCESS
26 votes

WHERE DO YOU GO?

» understanding how the corridor is being used today

For what purpose do you travel along Napier? Select all that may apply.

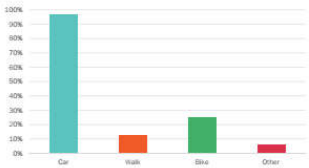


- Home - **47%**
- Work - **50%**
- Shopping/Services - **88%**
- Socializing or Worship - **31%**
- School - **6%**
- Dining - **47%**
- Recreation - **31%**
- Medical - **28%**
- Other - **9%**

How frequently do you walk or bike on Napier?

- Rarely - **81%**
- Daily/Weekly - **11%**
- Monthly - **8%**

Which modes of transportation do you most commonly use to travel along Napier? Select all that may apply.



- Car - **97%**
- Walk - **13%**
- Bike - **25%**
- Other - **6%**

If answered 'Rarely' to the previous question, tell us why.

- No sidewalk/path - **29%**
- Cars moving too fast - **23%**
- Too much traffic - **18%**
- Sidewalk/path too close to road - **3%**
- Unsafe crossing/turning - **18%**
- Other - **8%**

The Southwest Michigan Planning Commission along with key partner organizations initiated the Napier Avenue Pedestrian & Bicycle Plan in the Winter of 2017 to improve safety and pedestrian and bicycle networks along the Napier Avenue corridor. This summary contains input gathered from the public during the second phase of public outreach as part of this planning effort. Phase 2 of this plans' public outreach included an online survey, hardcopy survey materials, and a public meeting held on May 21, 2018 at Napier Parkview Baptist Church. The purpose of this second phase of outreach was to gather input input on the most desired concept alternatives for specific segments of the corridor.

The public meeting asked attendees to select their top two preferred concept alternatives while the online survey asked the public to what degree do they like each concept alternative. In this report, figures from the public meeting are presented as a weighted score (first choice = 2 points, second choice = 1 point), and figures from the online survey are presented as a weighted average score from 1 to 5 (1 = strongly dislike; 5 = strongly like).

AT A GLANCE...

47
PUBLIC MEETING ATTENDEES

WEBPAGE USERS
731

147
SURVEY PARTICIPANTS

WHO DID WE HEAR FROM?

PUBLIC MEETING

Percentage of responses by community

- St. Joseph Charter Township - **57%**
- Benton Charter Township - **5%**
- City of St. Joseph - **16%**
- City of Benton Harbor - **3%**
- Other - **14%**
- Did not answer - **5%**

ONLINE SURVEY

Where do you live?

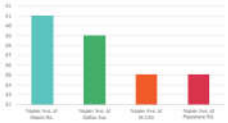
- St. Joseph Charter Township - **20%**
- Benton Charter Township - **13%**
- City of St. Joseph - **24%**
- City of Benton Harbor - **2%**
- Other - **22%**
- Did not answer* - **17%**

**Question was not available to first 25 respondents*

TOP SEGMENTS OF INTEREST ALONG NAPIER

PUBLIC MEETING

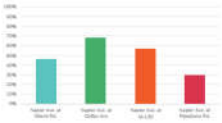
Number of responses by segment



- Napier Ave. at Miami Rd. - **41**
- Napier Ave. at Colfax Ave. - **39**
- Napier Ave. at M-139 - **35**
- Napier Ave. at Pipestone Rd. - **35**

ONLINE SURVEY

Which area(s) of Napier Avenue is most important to you?



- Napier Ave. at Miami Rd. - **46%**
- Napier Ave. at Colfax Ave. - **68%**
- Napier Ave. at M-139 - **56%**
- Napier Ave. at Pipestone Rd. - **29%**

MIAMI ROAD AREA

EXISTING	OPTION 0	OPTION 1	OPTION 2	OPTION 3
NO CHANGE/AMENITIES	SIDEWALKS + ZERO NEW ROW	SIDEWALKS	SIDEWALKS + BIKE LANES	SIDEWALK + MULTI-USE PATH
2.13 online survey score	2.95 online survey score	3.04 online survey score	3.33 online survey score	3.39 online survey score
2.0 public meeting score	10.5 public meeting score	21.5 public meeting score	44.0 public meeting score	28.0 public meeting score
dislike	it's okay	it's okay	like	like
			TOP committee selection, TOP meeting selection	TOP survey selection

The Southwest Michigan Planning Commission, along with key partner organizations, initiated the Napier Avenue Pedestrian & Bicycle Plan in the Fall of 2017 to improve safety and connectivity for pedestrian and bicycle networks along the Napier Avenue corridor. This summary contains input gathered from the public during the third and final phase of public outreach as part of this planning effort. Phase 3 of this plans' public outreach included a public meeting and demonstration tours held on September 24, 2018 at Napier Parkview Baptist Church. The purpose of this final phase of outreach was to present and receive feedback on the recommendations of the draft plan and provide a real-life demonstration of potential future improvements.

AT A GLANCE...

48
PUBLIC MEETING ATTENDEES

WEBPAGE USERS
453

23
SURVEY PARTICIPANTS

WHO DID WE HEAR FROM?

REACTIONS TO PROPOSED IMPROVEMENTS

QUALITATIVE FEEDBACK

- Pick a different street. Changing the street will result in more people getting hurt. People can walk on other roads.
- Concerns regarding hazards of being forced to ride in designated bike lane with debris, etc. Would prefer to have wider lane.
- Sidewalks are needed on Napier and should be placed with a buffer between traffic and the sidewalk.
- Sidewalks are badly needed. People walk and ride in the road at night and during winter months.
- Leave traffic lanes alone! Shared use path works!
- Plan looks appropriate; now the effort needs to move to timely execution and clear communication thru that time.
- Two lanes from St. Joe all the way to Colfax, the police do not enforce speed limits.
- Like the road diet plan for western section of Napier. In addition, there should be some pedestrian crosswalks between Miami and Colfax.
- Maintain sidewalks now and after the new ones are built, e.g. sweep, gravel removal; design heated sidewalks for the winter.
- Why not continue road diet to bridge also?
- Overall, good plan, but traffic is now slow on Napier and may impact bicycle use on the bike lanes. Would prefer multi-use path all the way on Napier.
- Need adequate lighting on Napier and snow removal.
- Implement option #3 in as many areas as possible.
- Make sure the driveways on Napier etc. will see the pedestrians and bicyclists at any direction.
- Institute an awareness campaign to educate the public on where to walk and in which direction as well as bicyclists. Townships to buy proper equipment to maintain and remove snow.
- I'd like to see at least sidewalk on one side. I think a bike path on other side as a sidewalk. I agree with road diet.
- The buffering or multi-use lane would be outstanding. I am okay with a shoulder, but a large buffer.
- Educate/enforce traffic code. Speeding/texting is a huge problem! Even one death is too costly!
- Build it sooner rather than later. This project will improve the quality of life and property values of the community.
- Encourage law enforcement to crack down on speeding.
- Designated bike lanes have buffer from street traffic (like hospital lane on Napier). Bike lane from 94 to Bridge. School needs sidewalk and bike lanes. Three lane traffic is an excellent idea.
- Anything is an improvement on the current situation.

This pages is reserved for the legal notice and press release about the November 13 public open house

This pages is reserved for public comments on the plan

Process for Amending and Updating the TwinCATS Long Range Transportation Plan

Amendments to the Plan may occur either as part of the comprehensive update (every four years), annual TIP-related update, or at other times as needed. The comprehensive update is a federal mandate and consists of re-examining the basic assumptions behind the Plan and the resulting projects and strategies. Amendments to the Plan requiring a comprehensive update consist of reassessing:

· Land use, demographic, and economic forecasts;

· Projected traffic and travel deficiencies;

· Financial Analyses (Cost/Revenues);

· Regional (Air Quality) Emissions Analyses; and

· Other aspects of the vision and Plan. Amendments to the Plan requiring a comprehensive update would need to be adopted by TwinCATS Technical and Policy Committees and approved by Southwest Michigan Planning Commission Board of Directors, after the opportunity for general public review and comment.

A comprehensive update is normally initiated by staff on a timetable that ensures the continuation of a 20-year horizon for the Plan and that meets the federal update timeframe requirements. On those other rare occasions when a comprehensive or major update might be requested by a road agency due to unforeseen changes to a major project or due to drastic and immediate changes in land uses/demographics/economics, staff would develop a timeline to conduct the update in a timely manner.

The following outlines the anticipated process for Plan amendments:

· Receive a formal request for a Plan amendment;

· Provide a detailed project profile.

· Determine if additional revenues are available to cover the project or modified project;

· Submit justification for the amendment. SWMPC staff would then finalize the project evaluation, review the appropriateness of the proposed amendment, review the financial constraints, conduct the air quality conformity analysis, and make a recommendation for the TwinCATS Policy Committee and SWMPC board action.

This page is reserved for Resolutions approving the LRP.