
midlandmpo.org
MATS
Midland Area
Transportation Study
A Metropolitan Planning Organization
MIDLAND AREA
TRANSPORTATION
STUDY
TOWARDS
2045
Long Range Transportation
Plan

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This document is a product of the Midland Area Transportation Study, which is solely responsible for its content. This report does not necessarilyreflect the views or policy of the U.S. Department of Transportation, or the Michigan Department of Transportation.

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Chapter 1 - Introduction to MATS

The Metropolitan Planning Organization

A metropolitan planning organization (MPO) is a federally mandated transportation policy-making organization in the United States that is made up of representatives from local government and governmental transportation authorities. MPOs were introduced by the Federal-Aid Highway Act of 1962, which required the formation of an MPO for any urbanized area (referred to as a UZA) with a population greater than 50,000. As of 2015, there are 408 MPOs in the United States.

Statewide and metropolitan transportation planning processes are governed by federal law (23 U.S.C. §§ 134–135, & 49 USC 1603, 1605, and 1607). Transparency through public access to and participation in the planning process as well as electronic publication of plans is now required by federal law.

Federal funding for transportation projects and programs is channeled through the planning process. Congress created MPOs in order to ensure that existing and future expenditures of governmental funds for transportation projects and programs are based on a continuing, cooperative, and comprehensive ("3-C") planning process.

Why MPOs are essential:

- Transportation investment means allocating scarce federal and other transportation funding resources appropriately;
- Planning needs to reflect the region's shared vision for its future;
- Adequate transportation planning requires a comprehensive examination of the region's future and investment alternatives;
- An MPO is needed to facilitate collaboration of governments, interested parties, and residents in the planning process.

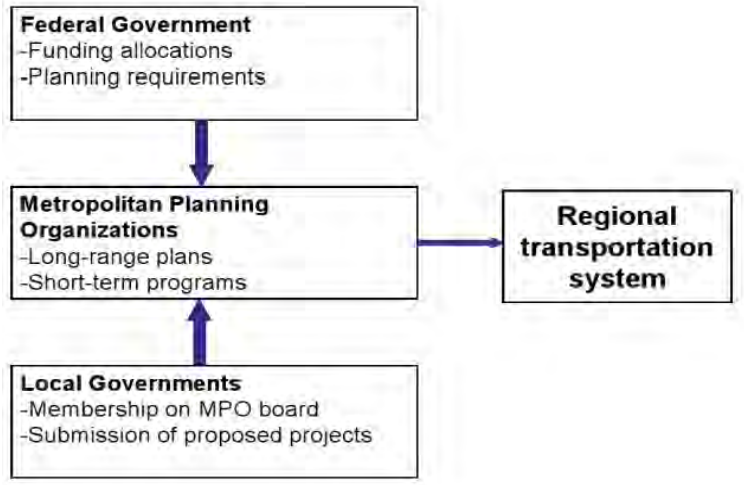
In other words, the federal government wished to see federal transportation funds spent in a manner that has a basis in metropolitan region-wide plans developed through intergovernmental collaboration, rational analysis, and consensus-based decision making.

MPO Planning

The five core functions of an MPO are: to establish a fair and impartial setting for decision-making; evaluate transportation alternatives that are appropriate for the region; maintain a fiscally-constrained Regional Transportation Plan that covers at least a 20-year time horizon; develop the fiscally-constrained Transportation Improvement Program that serves the goals of the urbanized area; and involve the general public and significantly affected groups.

Lastly, MPO plans are required to include performance targets and measures that address a performance driven, outcome-based approach to planning. This has been incorporated into MATS planning efforts, including this update of MATS Long Range Transportation Plan.

The graphic below shows the relationship between the MPO, the Federal government, local governments, and the regional transportation system. The MPO is both the bridge between, and the conduit for, funding and projects, local priorities and federal requirements. It does this by facilitating inter-governmental cooperation, public outreach, and maintaining a regional focus to policy-making in the transportation arena.



Source: Kalamazoo Area Transportation Study

Federal Planning Factors

Transportation planning must be a continuous, cooperative, and comprehensive process (the 3C's) designed to involve all users of the system, such as businesses, community groups, environmental organizations, the traveling public, freight operators, and the general public, through a pro- active public participation process. This planning process has certain federal requirements that the state and MPOs must adhere to. The federal government further recommends the consideration of eleven federal planning factors to all MPOs in development of future projects and plans.

The first eight factors (1 through 8 below) were established by the Federal Highway Administration(FHWA) and enacted in 2005 through the Safe Accountable Flexible Efficient Transportation Equity Act: A legacy for Users (SAFE TEA-LU). These eight factors were later reinforced through the passage of MAP-21, in addition new planning factors were added with the FAST Act (9 through 11 below). These factors guided MATS during our visioning process for creating goals and objectives for the 2045 LRTP.

The Federal planning factors are:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
2. Increase the safety of the transportation system for all motorized and non-motorized users.
3. Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and non-motorized users.
4. Increase accessibility and mobility of people and freight.
5. 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.
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
7. Promote efficient system management and operation.
8. Emphasize the preservation of the existing transportation system.
9. Improve resiliency and reliability of the system.
10. Reduce or mitigate storm-water impacts on surface transportation.
11. Enhance travel and tourism.

The Midland Area Transportation Study

The Midland Area Transportation Study (MATS) was designated an MPO in January of 2013. The MATS metropolitan planning region is defined as the entire geographic County of Midland, the geographic area of the City of Auburn and Williams Township within Bay County, and Tittabawassee Township in Saginaw County. Exhibit 1 shows the relationship between the city and other minor civil division boundaries, the designated Urbanized Area boundary,and the resulting overall MATS planning area.

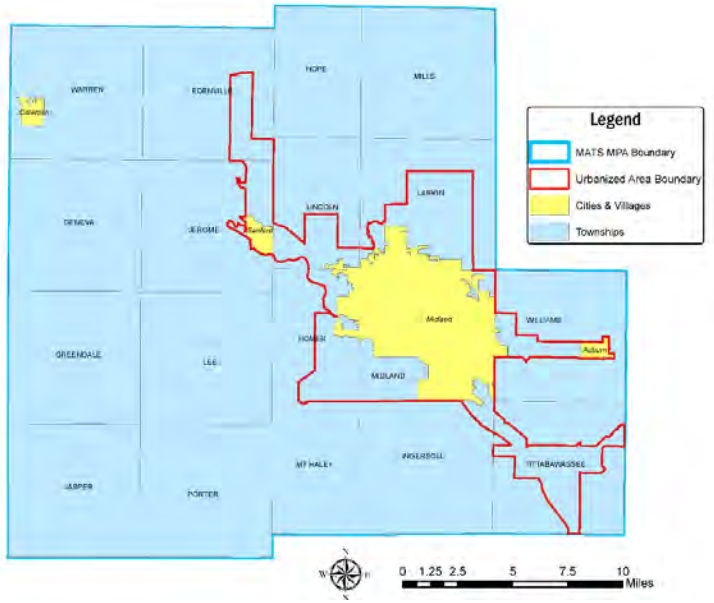


Exhibit 1, MATS Jurisdictional Map

Statewide, nearly two-thirds of Michigan's population is represented by an MPO, and 85% of the nation's population is so situated. MATS is Michigan's newest MPO, as well as the smallest by population.

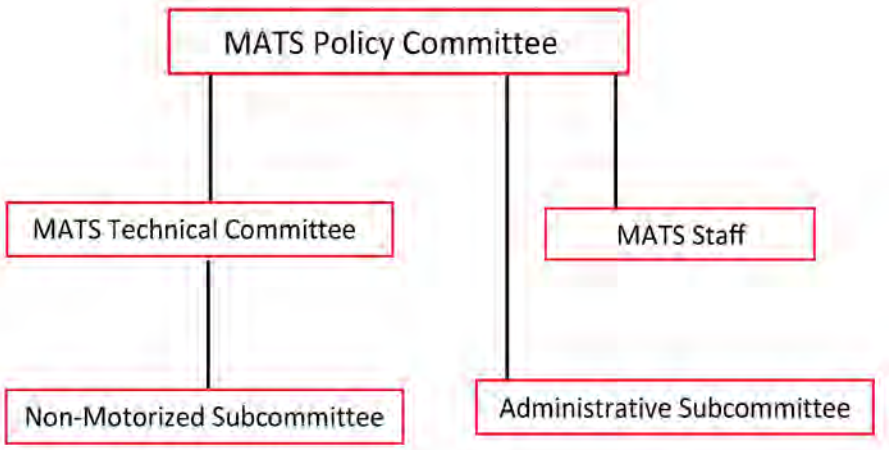
MATS serves as a single purpose agency which focuses on regional transportation planning issues and fulfilling federal requirements related to transportation. A primary function of MATS is to provide comprehensive transportation planning to assist in maintaining the various modal options. Undertaking this responsibility allows for a more efficient and effective multi-modal transportation network utilized by all within the MATS area today.

MATS is governed by a Policy Committee that includes elected or appointed officials from the MATS area and representatives from the Federal and Michigan Department(s) of Transportation. The Policy Committee takes actions to approve documents and federally funded projects, and adopt policy resolutions related to current transportation issues.

A Technical Committee is comprised of various transportation, planning, and engineering professionals who review the activities of MATS and make recommendations to the Policy Committee.

There are also two standing Subcommittees, the Non-Motorized and Administrative Subcommittees. Administrative and technical support is provided by MATS staff, who perform tasks and oversee projects and studies as directed by the committees.

The MATS organizational structure is presented below:

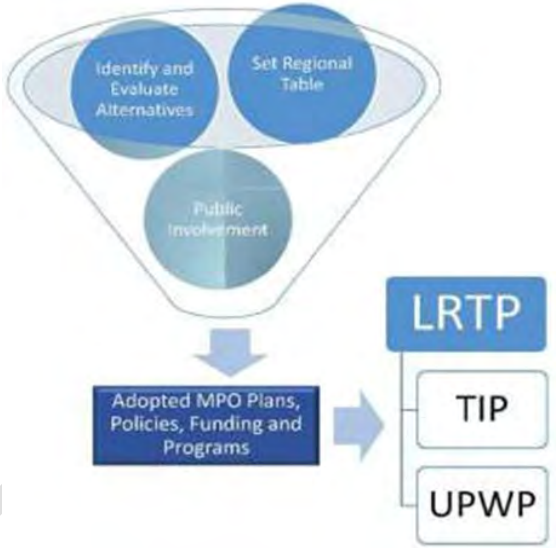


MATS Membership:

Homer Township
Non-motorized Advocate
MBS Airport
Ingersoll Township
Mount Haley Township
MDOT Mt. Pleasant TSC
Jerome Township
Saginaw County Rd Commission
Midland County
Larkin Township
Tittabawassee Township
Saginaw Area Transp. Agency
Edenville Township
Midland Dial-A-Ride
Jack Barstow Airport
Bay County Road Commission
Lincoln Township
Village of Sanford
Bay Metro Transit Authority
MDOT Bay Region
Williams Charter Township
City of Auburn
MDOT Statewide Planning
Bay City Area Transp. Study
City of Midland
Midland Charter Township
EMCOG
County Connection of Midland
Midland County Rd Commission
FHWA

Benefits of an MPO

There are recognized benefits which accompany the designation of a Metropolitan Planning Organization, chief among them access to, and eligibility for, funding for infrastructure and other transportation assets, data collection, transportation planning and research. The presence of MPO staff provides resources for coordinating or performing transportation planning activities and studies. Having an MPO promotes the involvement of local elected officials, stakeholders, and the general public in regional planning, that in turn results in policies and actions promoting integrated, modally mixed strategies for greater system efficiency, citizen mobility, and access.



MPO process informs planning and programming

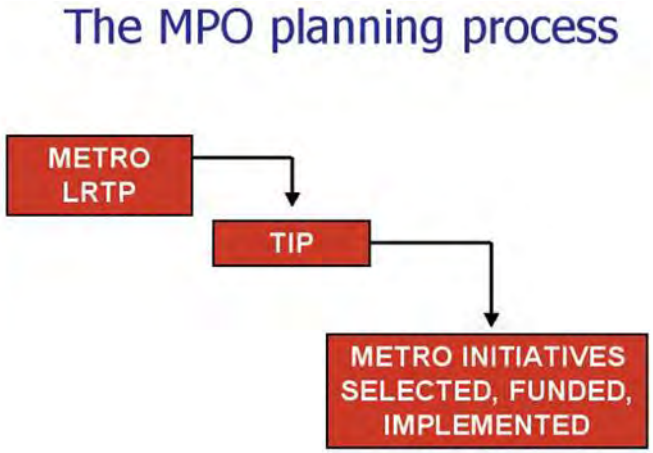
This is evident for the Midland area by the ability to leverage local funds with Federal funding for transportation projects. In essence, this local contribution is a match for the federal funds, so for every two dollars of local funds provided more than eight dollars of federal funds are typically available – a 300% return on investment. This leverage is further enhanced due to eligibility for federal funds for design, rights of way and construction projects.

A project is required to be programmed in the Metropolitan Transportation Plan and the Transportation ImprovementPlan to be eligible for federal funding.

Lastly, all modes of transportation, including streets and highways, public transit, airports, rail, trucking, and non-motorized transportation, arerepresented at the table with an MPO.

MATS produces an annual document called the Unified Planning Work Program. This is an important document that contains useful information about the MPO's work in the region, including a description of the planning work and resulting products, who will perform the work, time frames for completing the work, the cost of the work, and the source(s) of funds. It helps ensure transparency and accountability with regard to both Transportation planning and the implementation of those plans in the form of transportation projects and ongoing operating assistance for transit.

Together, these aspects of the MPO influence the region's growth patterns by planning for multi-modal transportation choices, including travel byhighways, transit, rail, bicycling, and walking; and moving freight by highway, rail, or air. This helps to improve transportation safety for all, and to ensure that the transportation system is adequately maintained.



Chapter 2 - Long Range Transportation Planning

What is the Long Range Plan?

The LRTP is developed over approximately three years with the support of MATS' various Committees and stakeholders. It is the intention of MATS to create a Long Range Plan that is both practical to implement and appropriate to our region.

The 2045 Long Range Transportation Plan serves as a decision-making guide for the Midland MPO, stakeholders, funding agencies, and other transportation partners. The plan prioritizes funding allocations; directs the transportation improvement program; and focuses on the relationship between the transportation network and regional land uses. Guidance for developing the LRTP is derived from the FAST Act which strives to create a continuous, performance-based process. Several concerns the FAST Act addresses include safety, infrastructure condition, congestion reduction, system reliability, economic vitality, environmental sustainability, reduced project delivery delays, transit safety, and transit asset management.

The FAST Act establishes a cooperative, continuous, and comprehensive framework for making transportation investment decisions in metropolitan areas. The 2045 Long Range Plan creates a unique opportunity for our area to explore transportation planning from a fresh perspective. Previous to MATS' designation, it may have been more challenging for various agencies to cooperate with one another concerning long-term regional transportation activities. MATS and the Long Range Transportation Plan help facilitate this type of regional planning in a variety of ways.

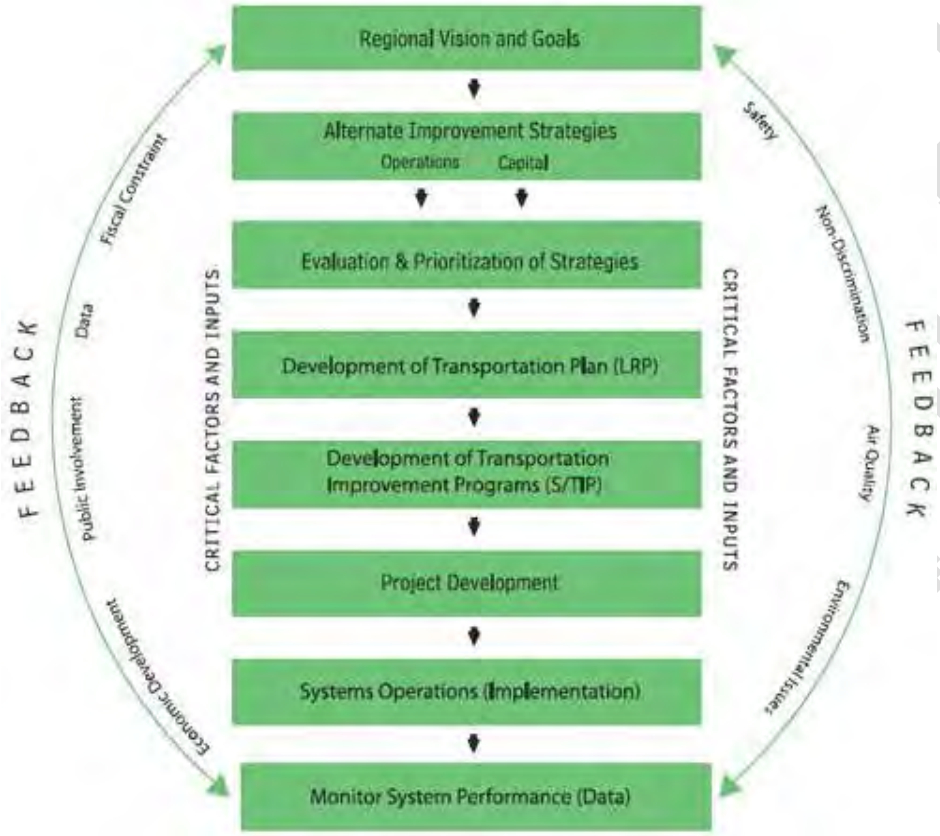
This Long Range Transportation Plan helps pinpoint and address the future transportation related needs of our region by identifying issues and deficiencies within the system, and recommending strategies to mitigate those issues. The plan is projected over a horizon of at least 20 years and is updated every 5 years thereafter in accordance with changing needs and new transportation-related legislation.

While planning has an end result in mind, it is also a circular process, in that good planning evaluates its end products and alters or modifies the process or content accordingly. The steps and circular nature can be seen in this graphic.

Finally, a note on nomenclature and syntax. Throughout this document, certain terms and acronyms will be used interchangeably. Long Range Transportation Plan, Long Range Plan, Metropolitan Transportation Plan, LRP and MTP all refer to the same thing, this document

Development, Structure, and Process

A Long Range Transportation Plan hasa typical structure and development process, as shown below. Presenting that structure and process helps explain the actions required to produce the desired results. The Long Range Transportation plan must address the 11 federally mandated planning factors, but it must also reflect the needs and priorities of the residents and stakeholders in the MATS area. This is part of the larger planning and implementation process for MATS.



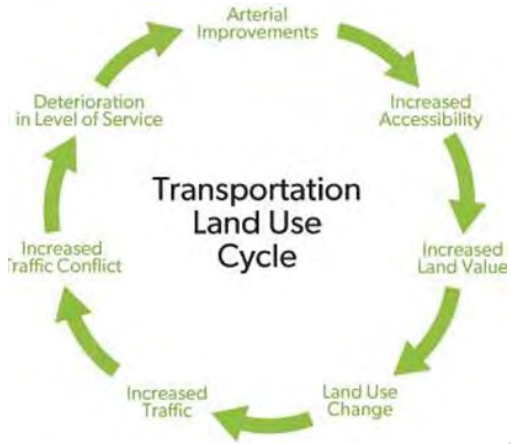
This document will, by and large, follow that structure. After the development of visioning and the setting of goals and objectives that correlate with the Federal planning factors, we will explore the history of the area, the existing and projected data in a variety of forms, and derive the prioritized solutions that link back to the vision and goals of the plan. In more detail, the development process of the Long Range Plan includes:

- Developing goals and objectives regarding the regions' transportation system
- Collecting an inventory of existing transportation modes
- Evaluating base and future year demographic data (2017 to 2045)
- Forecasting future travel demand through modeling
- Analyzing transportation issues and deficiencies
- Recommending actions to enhance the quality of the region's transportation system
- Plan monitoring and evaluation

Transportation-Land Use Cycle

How we use our land for development impacts our transportation facilities, modes of travel, services and vice versa. This land use-transportation relationship or cycle is illustrated by describing what commonly occurs when a roadis built or improved. Land along the road becomes more accessible and thus increased accessibility makes the land more valuable and attractive to developers. As land along the road is developed, traffic volumes and the number of driveways increase. Furthermore, a recent report by the Surface Transportation Policy Project (STPP) found that increasing road capacity leads to in-creased vehicular traffic loads. The report found that every ten percent (10%)increase in the highway network results in a five point three percent (5.3%)increase in the amount of driving, over and above any increase caused by population growth or other factors.

All this results in more congestion and a deterioration of the road's capacity to efficiently move peopleand goods. The reduced efficiency of the road eventually necessitatesroadway capacity improvements that may encourage additional development and the start of a new cycle. As the graphic below illustrates, this cycle is both dependent upon, and a result of, economic and population growth. It is this cycle that Travel Demand modeling is fundamentally premised upon, i.e. that growth creates more traffic, which creates reductions in the level of service.



Land uses are constantly changing, as both economic and population patterns change. This requires that transportation investments be planned to change with them if new or expanded facilities are required. More often than not, however, existing facilities may be adequate if maintained and rehabilitated in a timely way.

Visioning, Goals, and Objectives

The Long Range Planning Process establishes goals and objectives through collective visioning. This creates a framework for developing action strategies that may deal with transportation issues in a more sustainable manner.

For the Long Range Plan to be beneficial to our community, it is important to set goals and objectives which are achievable. Similarly, it is our intent to establish ones that are easily understood and tied to our overall vision which is to promote the region's attractiveness to live, work, and visit.

This structure of the LRTP, including scenario planning, creates a mechanism for evaluating projects in a systematic manner while remaining consistent with local and regional development goals.

MATS' goals and objectives consider various aspects of transportation planning including:

- Preserving the existing infrastructure
- Developing a multi-modal transportation network
- Enhancing accessibility, efficiency, and mobility
- Promoting connectivity/integration between varying modes
- Improving overall safety and security of the system
- Mitigating environmental impacts
- Supporting economic vitality

MATS determined that its overall vision was to strive for a safe and efficient transportation system which promotes the region's attractiveness to live, work, and visit. This is reflected throughout the Long Range Plan.

In order to fulfill that vision, the goals on the following page emerged from the planning process. These broad, primary themes are oriented towards promoting an integrated multi-modal transportation system that addresses the needs of all users.

Objectives were then developed for each goal to achieve measurable progress of the plan over time. This process allows for the analysis of future development scenarios which focus on enhancing the transportation network by improving integration, connectivity, and efficiency.

MATS' goals and objectives are arranged into seven areas which correspond to the recommended federal planning factors. The goals and objectives are achieved both directly and indirectly through MATS' various activities; primary objectives have been listed in **bold** to simplify and better relate to the work efforts presented subsequently.

Towards 2045 Vision

A transportation system which promotes the region's attractiveness to live, work, and visit.

Towards 2045 Goals and Objectives

1. Accessibility and Mobility

- Promote system continuity across the region
- Increase access to the transportation system for people with special needs, undeserved or disadvantaged
- Increase access to specialized services like health care facilities
- **Support transportation infrastructure improvements for all modes**

2. Safety and Security

- Strive towards zero transportation related deaths and injuries
- Incorporate systemic approaches into safety planning
- Reduce conflicts between modes to minimize accidents
- Enhance the safety of non-motorized users
- Increase security through better emergency response practices and handling of hazardous materials

3. Integration and Connectivity

- **Promote an integrated system with efficient connections between modes**
- Implement the Complete Streets Program; promoting transit and non-motorized travel options
- Encourage the integration of land use and transportation during the planning process
- Develop transportation projects in coordination with local plans

4. Operations and System Management Efficiency

- Encourage land development patterns that promote transportation efficiency
- Relieve traffic congestion and minimize travel times
- Enhance capacity and operations of existing facilities

5. Preservation of Transportation System

- **Encourage efficient preservation of the existing transportation system**
- Encourage multi-agency and public-private partnerships in transportation improvements and maintenance
- Support new technologies optimizing the use of the existing system

6. Environmental Protection and Enhancement

- Reduce air, water, light and noise pollutant emissions
- Encourage public and non-motorized transportation as well as ride-sharing
- Preserve natural and cultural qualities of the region including habitats, open space and agricultural lands

7. Economic Vitality

- **Promote cost effective transportation improvements that maximize long-term benefit**
- Improve access to employment and retail centers; enhance movement of freight
- Promote investments in the transportation system (including private sector.

Chapter 3 - Regional Background

The Midland Area Transportation Study Area is located within the Great Lakes Bay Region (GLBR) of Michigan, and is in proximity to the cities of Bay City and Saginaw. The MATS planning area comprises approximately 598 square miles and has a 2017 estimated population of 101,324. The largest population center within the MATS area is the City of Midland with a 2017 estimated population of 42,315.

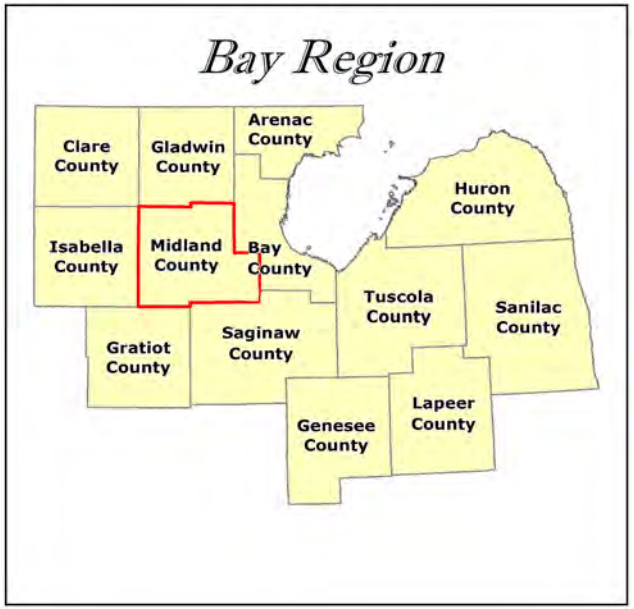
History

Midland received its name from its geographical location in the center of Michigan's Lower Peninsula. The earliest records of Midland County describe that it was inhabited by the Potawatomi, Chippewa and Ottawa Indians. The area was later settled by French Immigrants who arrived in the early 1830s. The French came across the convergence of the Chippewa and Tittabawassee Rivers later named "The Little Forks". In 1831, the Midland County boundaries were established by separating boundary lines from the previously incorporated Saginaw County.The official organization of the county occurred less than 20 years later in 1851 with the establishment of the City of Midland coming in 1887. The farming and lumber industries sustained the local economy for almost half a century largely due to utilizing waterways for transporting products. Eventually the farming and lumber industries began to shift away by the late 1800s and the area began transitioning to the manufacturing industry.

Large amounts of brine deposits resulted in Herbert Henry Dow starting The Dow Chemical Company in 1897. Dow greatly expanded over the next century and now produce a broad range of specialty plastics, agricultural chemicals, and products for the healthcare industry. In 2015 Dow merged with DuPont and within 18 months of the merger split into three publicly traded companies to focuses on agriculture (Corteva), materials science (Dow Inc.), and specialty products (DuPont).

Exhibit 2 - MATS Location in Michigan

Exhibit 3 - MATS Regional Overview



Geography

MATS is located in a predominantly rural and generally flat area of lower Michigan. The area's low and level terrain, known as Lake-border plains, was formed as a result of glacier activities that occurred approximately 15,000 years ago. This glacial process contributed to the deposit of distinct soils which are native throughout eastern mid-Michigan.

Another feature unique to the region is the Saginaw Bay watershed, Michigan's largest. This watershed encompasses over 8,500 square miles of land and drains approximately 15% of Michigan's land area into Lake Huron. Additional characteristics regarding the region include various woodlands, rivers, wetlands and other natural features.

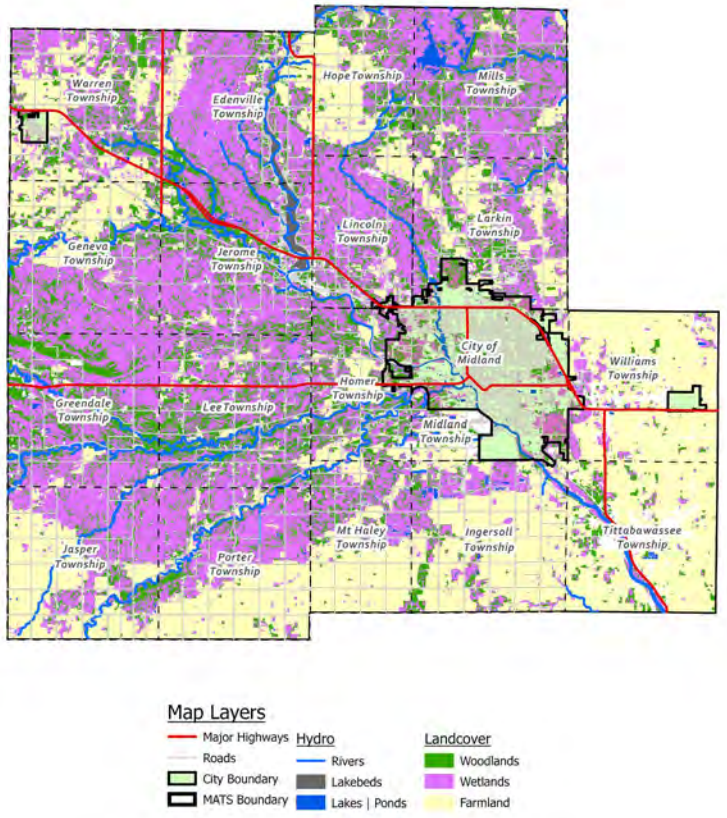
Within MATS' boundaries there are three major waterways, the Pine, Chippewa and Tittabawassee Rivers. The latter two rivers converge nearthe City of Midland's downtown at what is known as the Tridge; a large floodplain is associated with the area surrounding this confluence. All three rivers stretch inland across Michigan with coverage in all or partsof 22 counties. Other waterways throughout the MATS area include the Salt River, Black Creek, and Bullock Creek. Among the bodies of water in the area, Sanford Lake is the largest with a surface area of approximately 2.3 square miles. A man-made reservoir, it was created by a damming of the Tittabawassee River.

Soils deposited in the MATS area are a combination of loamy and sandy soils which are suitable for most development. However, these soils are generally impervious which stimulates frequent flooding in zones ofclose proximity to bodies of water. As a result, the City of Midland experiences frequent flooding and standing water in a number of areas due to poorly drained soils and low land slope. To mitigate this, the City of Midland implements best management practices to reduce the amount of impervious surfaces and preserve native vegetation which may assistin the soils ability to manage storm water.

Regarding vegetation, the MATS area was originally covered with whitepine and hemlock forests. However much of the landscape was timberedand utilized for agricultural activities. Subsequently, second growth forests emerged as a blend of pine and hardwoods which created a thriving ecosystem for Michigan's native wildlife. Relevant amenities within MATS' area include portions of the Au Sable State Forest and the Chippewa Nature Center which consists of 1,200 acres of preserved land for the general public to experience a varied array of ecosystems. In more urbanized areas,grasses, landscaping plants, waterfront vegetation, and some wooded areas can be found. A significant wooded feature within the City of Midland is the City Forest. This forest is approximately one square mile and provides a source of natural cover for local wildlife, as well as recreational opportunities for the general public.

The overall geographical landscape of the MATS area is depicted below. Natural features have been included such as prominent woodlands,bodies of water, and wetlands.

Exhibit 4 – MATS Geographical Features



Transportation Infrastructure

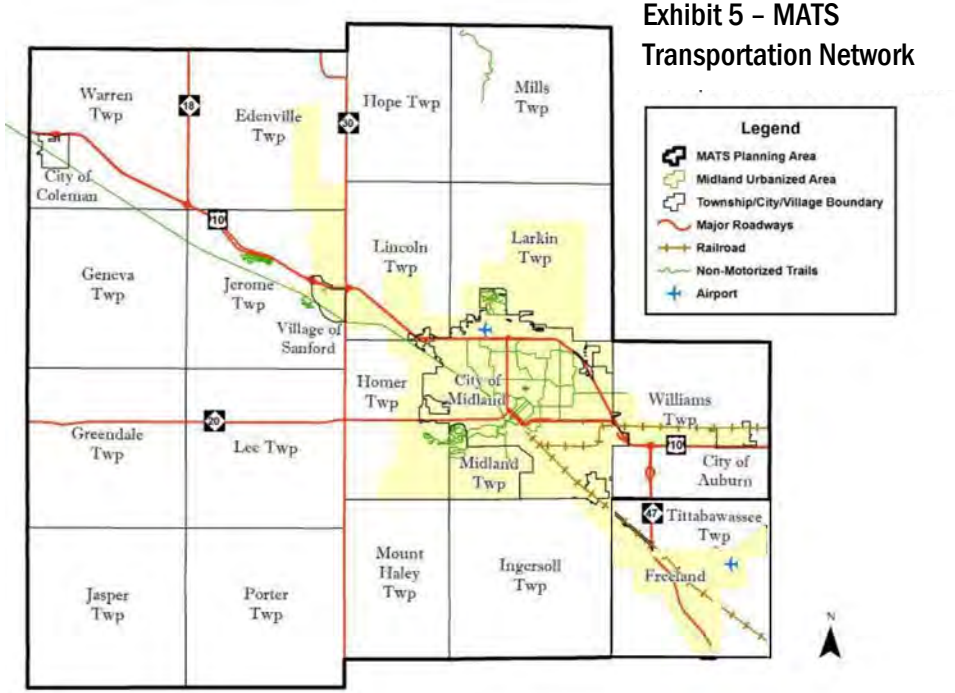


Exhibit 5 – MATS Transportation Network

The earliest history of the MATS transportation system includes a railway that began construction in 1867 by the Pere Marquette Railroad Company. This segment linked Saginaw to Midland while another segment was later built to link Midland to Averill in 1868. With the completion of the railroad in 1870, the City of Coleman was founded which allowed furtherfunding for westward expansion of the railroad to Coleman. Years later the last two segments were removed with the connection between Midland and Saginaw remaining. This segment splits into two rail lines currently known as the Grand Trunk Railroad and the Chesapeake and Ohio Railroad. In the early 2000s, the two removed segments were revitalized into the Pere Marquette Rail Trail, which is described in more detail laterin this section.

Local streets were first placed in the City of Midland hugging the banks of the Tittabawassee River. Over time, reoccurring floods forced the down-town to be relocated among the major road corridors developed with the emergence of the automobile. The main east-west trunkline in the MATS area is US-10, first constructed in the late 1920's. It acts as the major roadway corridor for travel through parts of Bay County and all of Midland County. US-10 provides linkage for other principal arterial roadways throughout Midland County such as M-18, M-20, M-30, and M-47. These corridors provide MATS with connection to US-10 which is a part of the National Highway System (NHS) for automotive travel.

Air services in the study area are provided by MBS International Airport and Jack Barstow Municipal Airport.

MBS International Airport, located in Freeland, provides commercial transportation primarily for Bay, Midland, and Saginaw Counties. MBS Airport was originally built in the 1940s by the federal government for WWII. Since then, the airport has expanded with a larger terminal constructed in 2008. Today, the airport supports commercial flights nationwide including flights to Chicago, Detroit, Milwaukee and others.

Jack Barstow Municipal Airport, previously known as Midland Municipal Airport, is a general aviation airport located northwest of downtown Midland. It was previously located just east of downtownuntil it was moved in 1950 to its current location to support expansion. In 2005, a terminal was built to accommodate increased use of the local airport.

Non-motorized pathways in the MATS area include the Pere Marquette Rail-Trail, a multi-use trail stretching from downtown Midland northwest to Clare County and beyond. The Trail was re-purposed in the early 1990s from what use to be the Pere Marquette Railroad. In 2001, the trail was extended an additional 8.25 miles completing the 30-mile stretch between Midland and Clare. Today, the trail is barrier-free and opened to all non-motorized transportation modes. Not only is it animportant amenity to the MATS area, but it also promotes the development of other similar non-motorized pathways.

Other non-motorized pathways that have been developed over time include the City of Midland's various pedestrian/bi- cyclist friendly trails. These trails link multiple destinations within the downtown and across the City providing safe travel routes for non-motorized transportation. Currently, there is an on-going effort to fund additional trails and pathways to provide even greater non-motorized connectivity throughout the City of Midland.

From a regional perspective, the Great Lakes Bay Region contains a portion of the proposed Iron Belle Trail. The recently planned trail is a 791-mile bicycle route which connects various existing multi-use trails across the entire state of Michigan. The Iron Belle extends from Belle Isle Park near downtown Detroit to Ironwood in the western part of the Upper Peninsula. This extensive trail does not run through the MATS area, however it is proposed to run through Bay City just to the east. Having the Iron Belle in close proximity allows potential connections to the MATS non-motorized network in the future.

Three public transportation options are available to residents of the MATS area including County Connection of Midland, Dial-A-Ride Transportation (DART), and Bay Metro Transportation Authority (BMTA).

- County Connection of Midland was founded in 1996 and is both federally and locally funded. County Connection provides demand response, curb-to-curb service within Midland County and transfer services with the surround counties of Clare, Isabella, Glad-win, Bay, and Saginaw.

- Dial-A-Ride Transit (DART) is a public transportation service which operates similarly to County Connection. DART provides curb-to- curb transportation within the City of Midland's boundaries. This program has catered to the transportation needs of Midland residents since it was first established in 1974.

- Bay Metro Transportation Authority (BMTA) was also started in 1974 to provide public transportation to Bay City's urbanized area. In FY 1992, the agency changed to an Act 196 transportation authority, which facilitated expanded transit services to all of Bay County and links to surrounding counties.

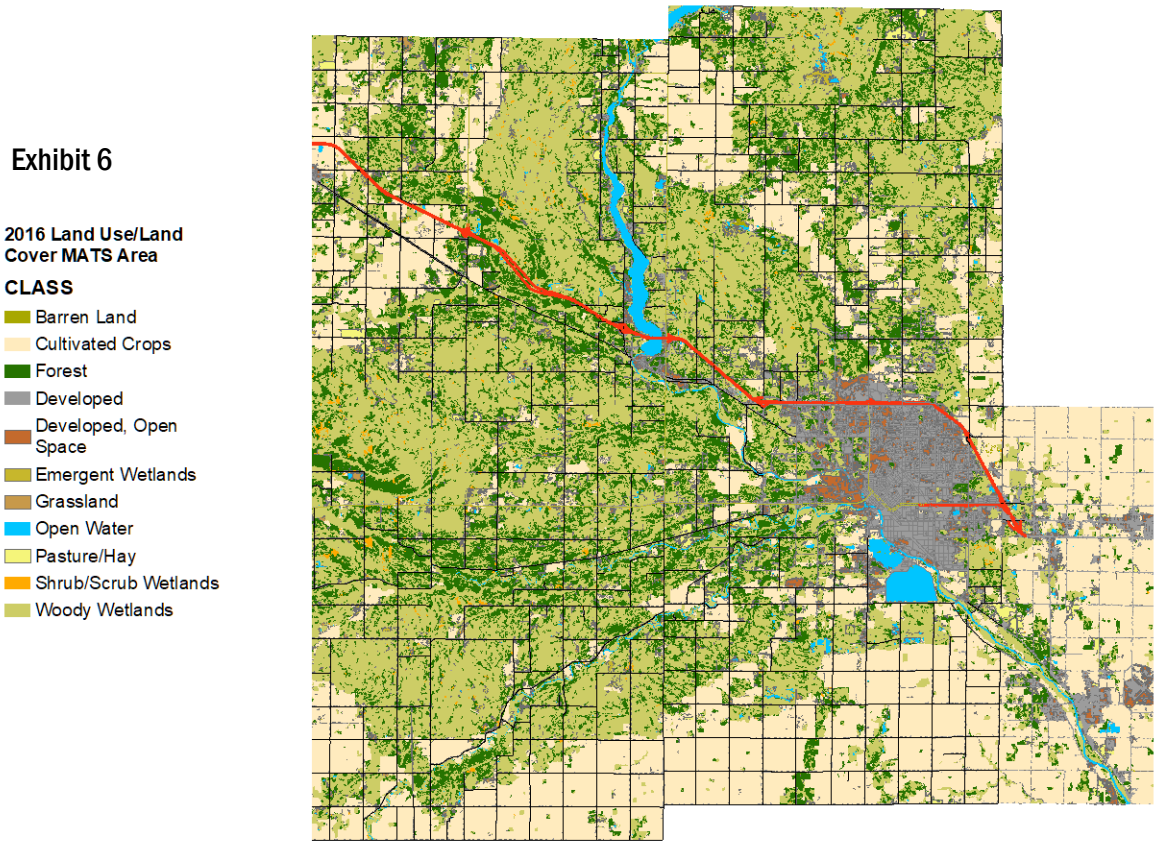
Land Use/Land Cover

The clear priority for MATS is to develop the region's transportation system. However, land use and transportation are inextricably linked, since changes in one inevitably affect the other.

An important component of the LRTP is recognizing changing land uses and how they relate to development of the transportation system over the next 25 years. Created with the assistance of the Midland County GIS Department, this map portrays 2016 information from the National Land Cover Database for the entire MATS area.

The NLCD provides nationwide data on land cover and land cover change at a 30m resolution with a 16-class legend based on a modified Anderson Level II classification system. The database is designed to provide cyclical updates of United States land cover and associated changes. In particular, the 2016 version of the data was obtained by MATS via Midland County then processed to reduce the number of categories from 16 to the 11 relevant classes presented here.

Exhibit 6



Class	Category	Total Acres	%
95	Emergent Wetlands	3,868	1.0%
90	Woody Wetlands	142,911	37.3%
82	Cultivated Crops	110,264	28.8%
81	Pasture/Hay	5,765	1.5%
71	Grassland	4,920	1.3%
52	Shrub/Scrub Wetlands	1,767	0.5%
43	Forest	68,202	17.8%
31	Barren Land	213	0.1%
24	Developed	23,600	6.2%
21	Developed, Open Space	16,126	4.2%
11	Open Water	5,274	1.4%

Exhibit 6 and its accompanying table presents the total acreage and percentage of each land use found in the MATS area. In summary, wooded land (especially when combined with State land which is frequently wooded), agricultural, and residential are the three most prevalent land uses within the region. Other findings of interest include the relatively large extent of State-owned land and also the significant percentage of parks and recreational acreage throughout MATS urbanized area.

Demographics

The twenty-one minor civil divisions that span the MATS area contain a diverse and growing, yet aging, population base. The changes in this population, its age distribution, racial and income makeup, and employment characteristics will all profoundly influence the demand for, and use of, ourtransportation infrastructure.

Both as a basic planning-level tool, and as preparation for the Travel Demand modeling effort, an understanding of the demographics of the MATS area is essential. Further, monitoring changes in socio-economic data willbe key to evaluating the effectiveness of the plan, and any changes to it, in the coming years.

Base Year Population, Household, and Employment Data

Once work on the updated Great Lakes Bay Regional Travel Demand Model commenced in 2019, 2017 was chosen as a base data year. The 2017 population, household, and employment data was then reviewed with local units of government from December 2019 to March 2020 for accuracy. This process thereby accounted for any recent developments that could influence local data trends and revised the location/number of employees for businesses within each jurisdiction. This data was then reviewed and approved by MATS Technical and Policy Committees in April 2015. These figures were then used as base year inputs to generate future year socio-economic data.

Exhibit 7 presents population, occupied households, and employments estimates for the year 2017 for all jurisdictions within MATS boundaries.

Exhibit 7 - Base Year Population, Household, and Employment Data

MCD	2017 Estimated Population	2017 Estimated Occupied Households	2017 Total Employees
Auburn	2111	927	894
Coleman	1197	517	371
Edenville TWP	2531	1070	225
Geneva TWP	1047	442	111
Greendale TWP	1713	648	226
Homer TWP	3975	1529	773
Hope TWP	1384	543	187
Ingersoll TWP	2726	1103	333
Jasper TWP	1139	456	95
Jerome TWP	4726	1935	1035
Larkin TWP	5343	1937	1025
Lee TWP	4269	1557	363
Lincoln TWP	2600	1055	917
Midland	42315	17675	34599
Midland TWP	2238	845	548
Mills TWP	1921	721	201
Mt. Haley TWP	1652	618	118
Porter TWP	1276	487	148
Tittabawassee TWP	10257	3248	3712
Warren TWP	2048	796	895
Williams TWP	4856	1852	2412
Totals	**101324**	**39960**	**49188**

Source: 2010 Census and American Community Survey Data, MATS Projections

Future Years Population, Household, and Employment Data Projection

Utilizing 2017 as a base year, socio-economic data, growth rates and projections for the years 2025, 2035, and 2045 were generated (referred to as future year data). This process involved utilizing Regional Economic Models, Inc. (REMI) forecast data as well as examining historical trends from the U.S. Census Bureau. Employment growth rates and future estimates were based on data from the Regional Economic Information System (REIS) published by the U.S. Department of Commerce, Bureau of Economic Analysis. In order to formulate population/household growth rates and future year estimates, MDOT's Statewide and Urban Travel Analysis Section (SUTA) worked in coordination with the U of M – Institute for Research on Labor, Employment, and the Economy.

MATS staff then reviewed future data with local units of government for accuracy and the inclusion of any known future developments within each jurisdiction, and revised the data accordingly. This was reviewed and approved by the MATS Technical and Policy Committees. Future year data was then utilized in the Regional Travel Demand Model to calculate trip productions and attractions for the MATS area.

Exhibit 8 displays regional totals for each category of data as well as the growth rates that occur for the interim decades.

MATS Area	2017 Population	Growth Rate	2025 Population	Growth Rate	2035 Population	Growth Rate	2045 Population
	101324	1.03%	102366	2.13%	104544	1.48%	106091
MATS Area	**2017 Occupied Households**	**Growth Rate**	**2025 Occupied Households**	**Growth Rate**	**2035 Occupied Households**	**Growth Rate**	**2045 Occupied Households**
	39960	1.40%	40520	2.40%	41479	1.80%	42211
MATS Area	**2017 Employment**	**Growth Rate**	**2025 Employment**	**Growth Rate**	**2035 Employment**	**Growth Rate**	**2045 Employment**
	49188	0.86%	49613	2.12%	50664	1.67%	51508

Exhibit 8 - Future Years Population,Household, and Employment Data

Chapter 4 - Existing Transportation System

The MATS area has a diverse transportation system that includes three curb-to-curb public transit systems, various non-motorized pathways, both a commercial and general aviation airport, rail/freight routes, and an extensive highway network. This chapter provides a detailed review of each mode of transportation that exists within the MATS area including traffic crash data and statewide freight commodities. It also addresses emergency and security services regarding the regional transportation network.

Roadway Network

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

Within the MATS area, there are approximately 535 miles of public roads that are maintained through federal transportation funding as designated by the National Functional Classification System (NFC). Roughly 130 miles are a part of the MDOT trunkline system and are classified under the NFC as Interstate, Other Freeway, and Arterials. These routes include US-10, US-10 BR, M-18, M-20, M-30, and M-47. The remaining 405 miles of federal-aid eligible roads are categorized as Minor Arterials, Major Collectors, and Minor Collectors. These roads are generally owned by local road agencies such as the county road commission, cities, or villages. Roadways that are not funded with federal transportation money are considered “local”; there are about 850 miles of local roads within the MATS area. Local roads are also administered by local road agencies. Note that other local governments, such as townships, do not receive federal-aid funding for road projects. Instead the road commission has jurisdiction over these road and they collaborate with local governments on projects.

National Functional Classifications

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

Interstate:

Designed to maximize mobility for long distance travel. Interstates linkmajor urban areas across the United States and are generally four-lanelimited access roadways which support high speed travel.

Other Freeways:

Function similarly to interstate roads, however they do not cross state boundaries. These roads have directional travel lanes with access limited to on and off ramp locations.

Other Principal Arterials:

Are highways in rural and urban areas which provide access between an arterial and a major land use. They typically support a high degree of mobility to major centers of metropolitan areas.

Minor Arterials:

Support high-capacity travel generally within urban areas. The primaryfunction of an arterial road is to deliver traffic from collector roads to principal arterials, freeways, or interstates.

Collectors (Major & Minor):

Mainly are low-to-moderate capacity roads which serve to move traffic from local streets to arterial roads. Generate access to residential, commercial, and industrial areas.

Local Roads:

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

Major Interstate and Principal Arterial Routes

US-10:

Extends from I-75 near Bay City to Ludington in eastern Michigan. This is an east-west limited access route that runs from the City of Auburn northwest past the City of Coleman within the MATS area. This is the main corridor of travel in MATS jurisdiction.

US-10 Business Route:

Connects US-10 to downtown City of Midland and serves as a facilitator for users to reach lower mobility routes within the MATS area. The segment of US-10 BR that extends from US-10 to Eastman Avenue within the City is an at grade route with one-way pairs in each direction east-west. This then becomes Eastman Avenue running north-south as one roadway with two lanes in each direction until it reaches US-10 to the north.

M-18:

Located in the northwestern part of the MATS area, M-18 is a north-south route which begins at US-10 and connects to M-72 in Crawford County approximately 80 miles north. The roadway has many at grade crossings and links various rural communities in the central region of the Lower Peninsula.

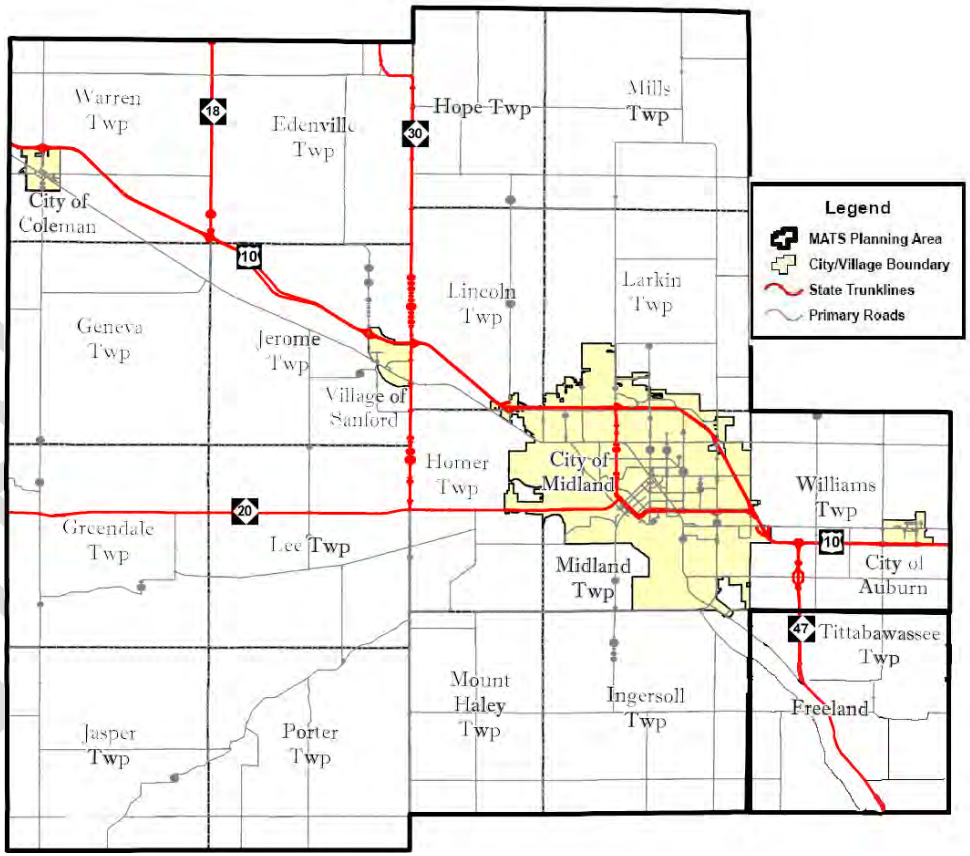
M-20:

Functions as an east-west corridor between the City of Midland and the City of Mount Pleasant to the west; this section has two lanes in both directions with many at grade intersections. In its entirety, the road extends to Big Rapids which is roughly 70 miles west from Midland. The segment west of Mount Pleasant has only one lane of traffic in each direction.

M-30:

Begins at M-20 and runs north-south to West Branch, Michigan about 52 miles to the north. This roadway functions very similarly to M-18 and provides access to the Village of Sanford and also links various rural communities throughout its entirety.

Exhibit 9 - MATS Area Major Roadways



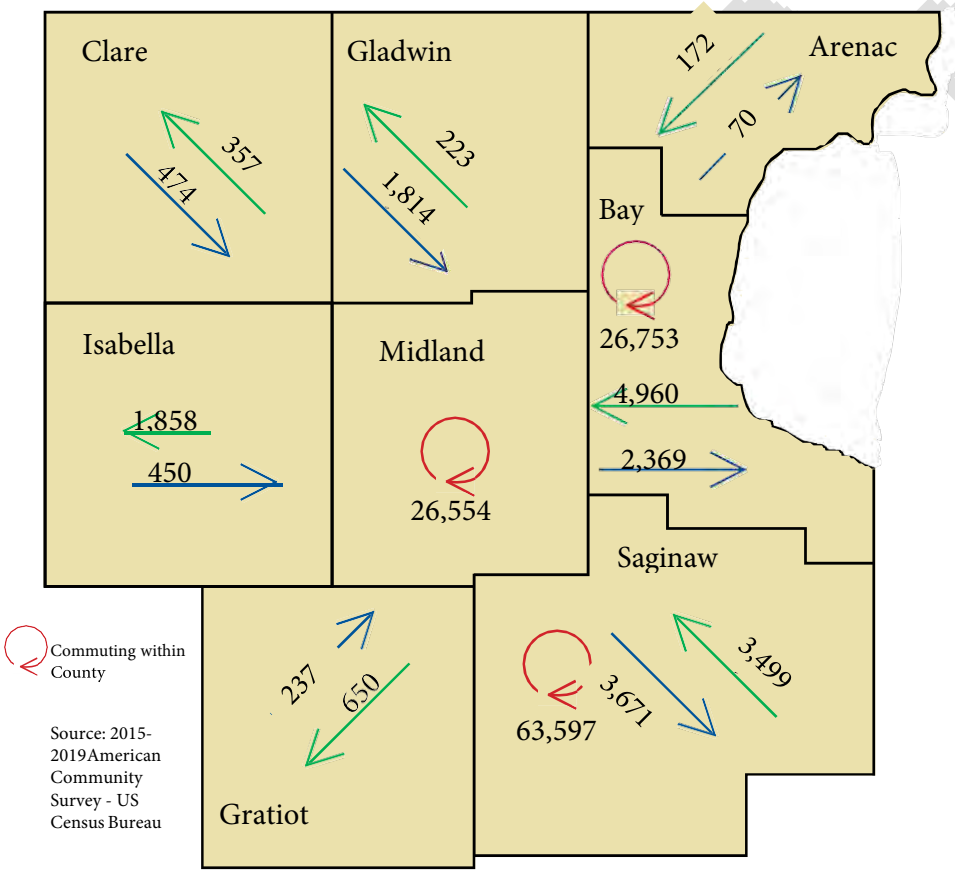
M-47:

Is located in the southeastern part of the MATS area near Freeland. This roadway runs north-south from US-10 west of the City of Auburn to M-46 near Saginaw. The route has two lanes in each direction and is a primary link between the Midland and Saginaw. This is one of the primary access routes for MBS Airport.

Travel Patterns

Commuting plays a significant role in employment patterns for the MATS area. 2015-2019 County-to-County commute data illustrates work flows into and out of counties in the MATS area to neighboring counties. In most cases, there are morepeople commuting ***to*** Midland County for work then commuting ***from*** Midland County for work. However, there are some counties where this is opposite; for example Isabella County, due to Central Michigan University being located there. The arrows pointing to Midland describe travel to the county and the arrows pointing away show travel from. The red circle displays commuting within the county for work.

Exhibit 10 - Regional Travel Patterns



Midland County Commuting Data

The tables below describe typical commuting characteristics within Midland County. The majority of workers travel less than 19 minutes. The vast majority of workers drive alone to get to their job. Consequently, very few people use other modes of transportation for work within Midland County.

Exhibit 11 – Commuting Characteristics

Travel Time to Work

Less than 10 minutes	15.5%
10 to 14 minutes	21.5%
15 to 19 minutes	17.6%
20 to 24 minutes	15.0%
25 to 29 minutes	5.4%
30 to 34 minutes	8.4%
35 to 44 minutes	6.7%
45 to 59 minutes	3.4%
60 or more minutes	6.6%

Mean travel time to work (minutes): 22.7

Means of Transportation to Work

Car, truck, or van	93.8%
Drove alone	83.7%
Carpooled	10.1%
In 2-person carpool	6.3%
In 3-person carpool	2.8%
In 4-or-more person carpool	1.0%
Public transportation (excluding taxicab)	0.5%
Walked	1.4%
Bicycle	0.2%
Taxicab, motorcycle, or other means	0.6%
Worked at home	3.5%

total workers 16 years old and over Avg. Workers per car, truck, or van: 1.07

Public Transit

The providers of transit services within Midland County include the County Connection of Midland, Midland Dial-A-Ride Transportation, and Bay Metro Transportation Authority. DART and CCM operate exclusively in the City of Midland and Midland County, respectively.

The two Midland based providers are demand-response services, whereas BMTA is primarily a fixed route provider. BMTA does offer ADA-compliant para-transit and a senior dial a ride service, for those who are not able to access the fixed route service. BMTA operates primarily in Bay County but runs one fixed route through the City of Auburn into the City of Midland. Exhibit 12 provides details regarding each transit agency's services.

Midland Dial-A-Ride Transportation (DART)

Service Type	Demand Response curb-to-curb. Calls booked on a first-call, first-serve basis.
Service Area	City of Midland Only
Ridership	Approximately 109,600 rides per year with over 70% of rides provided to seniors or persons with disabilities.
Hours of Operation	Monday through Friday from 6:30 AM - 10:30 PM Saturday from 9:00 AM - 8:00 PM Sunday 8:30 AM - 2:30 PM
Fleet	14 buses with lifts.
Fares	$0.75 - $2.00

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

County Connection of Midland (CCM)

Service Type	Demand Response curb-to-curb. Reservation required 24 hours in advance
Service Area	All of Midland County except the City of Midland
Ridership	Approximately 76,000 riders per year with about 46% of those rides provided to seniors or persons with disabilities
Hours of Operation	Monday through Friday from 5:00 AM - 11:00 PM Saturday from 6:00 AM - 6:30 PM
Fleet	22 buses with lifts.
Fares	$1.50 - $3.00

Bay Metro Transportation Authority (BMTA)

Service Type	Demand Response curb-to-curb and fixed-route
Service Area	11 fixed routes which service most of Bay County including Bay City, Essexville, Kawkawlin, Linwood, Pinconning, Auburn, University Center (Delta College and Saginaw Valley State University), and Standish. Route 4 encompasses Auburn and Midland Towne Plaza within MATS area
Ridership	Approximately 568,000 rides per year.
Hours of Operation	Monday through Friday from 6:30 AM - 6:30 PM Saturday from 9:00 AM - 6:00 PM
Fleet	65 vehicles
Fares (Demand Response)	$1.50 - $3.00
Fares (Fixed-Route)	$0.50 - $1.00

Exhibit 12 – Transit Systems Operational Details

Non-Motorized Facilities (NMT)

The MATS area has numerous diverse non-motorized facilities, such as shared use paths, traditional sidewalks, trails, routes along paved road shoulders and bike lanes. A focal point of the existing network is the Pere Marquette Rail-Trail, stretching across the entire region. The study area's network serves a wide-array of users including those who utilize the pathways for recreation, commuting to work or school, or long-distance travel.

In 2020, MATS local agencies were asked to identify future non-motorized project opportunities within their jurisdictions. The resulting extensive list of projects is shown on this page as MATS Proposed Non-Motorized Projects. The projects listed are in various stages of planning, and hence differing levels of detail are provided. Wide-ranging consultation was done in order to compile this list, which consists of projects submitted by the City of Midland, City of Auburn, Tittabawassee Township, Williams Township, and all three participating County Road Commissions.

As can be seen by the project list as a whole, specific attention has been paid to providing both local connectivity and linkages between various aspects of the regional network. The collection of trail routes in particular (Project #s 12-16) provide a tremendous number of access points and interconnection nodes by virtue of their geographic coverage and looped design. This provides both access to recreational opportunities as well as the ability to utilize the routes for basic transportation. Several proposed projects (#s 5-11) provide access to growing residential and commercial areas in the City of Midland, as well as interconnection to other routes via projects on the list.

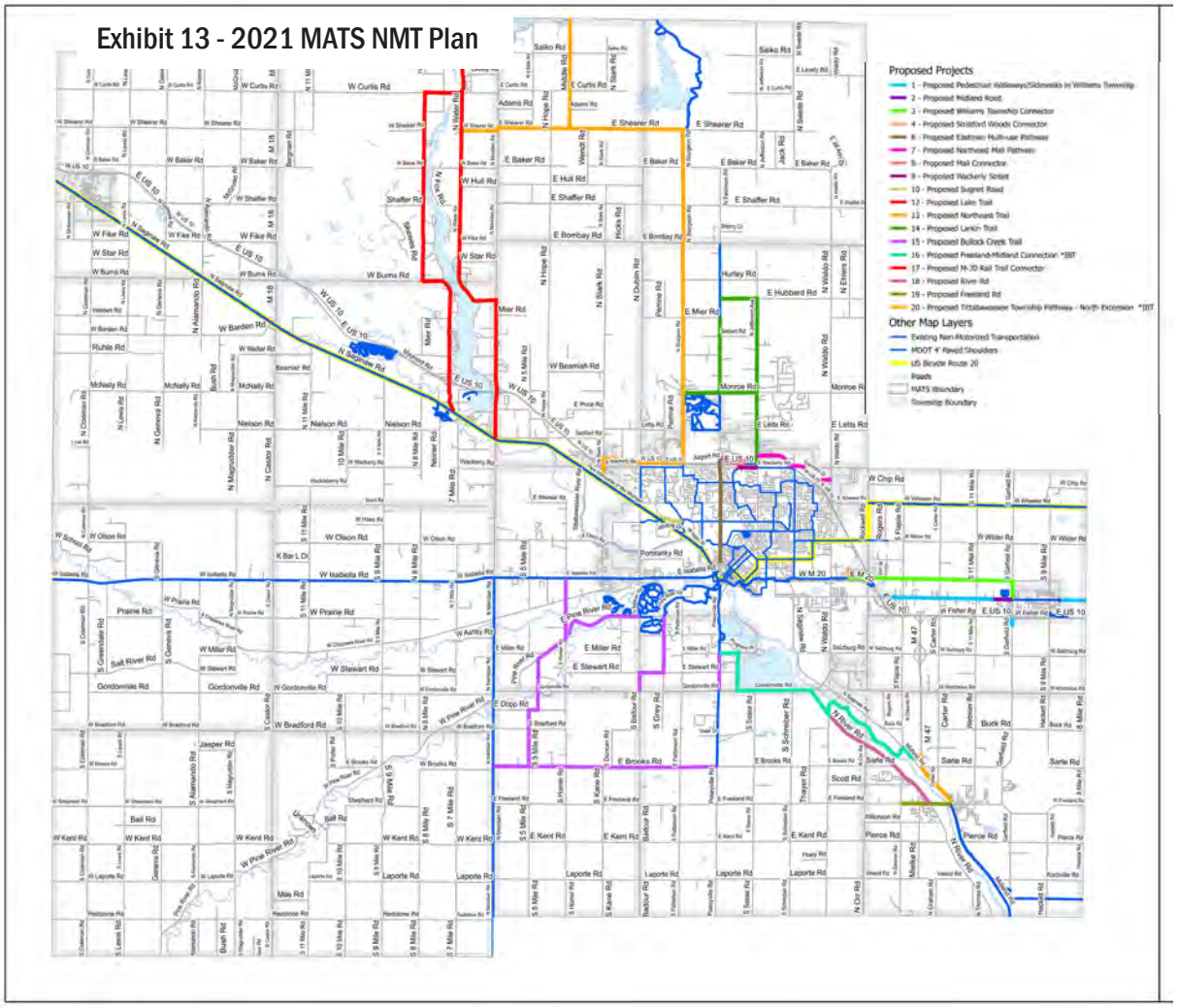


Exhibit 13 shows the collection of proposed projects that, when viewed in the context of existing NMT facilities, present a remarkable opportunity to leverage all the benefits of non-motorized transportation for the MATS area. An enlarged network provides direct benefits to users from improved walking and cycling conditions, and various benefits to society from increased non-motorized travel activity, reduced automobile travel, and support for more compact land use development, as well as benefits to economically, socially, or physically disadvantaged persons.

Air Services

There are two airports located within the MATS area. Jack Barstow Municipal Airport and MBS International Airport each provide different levels of service to the MPO region and surrounding areas.

Jack Barstow Municipal Airport

Located in the City of Midland, Jack Barstow Municipal Airport primarily supports small aircraft for recreation and business use. The airfield encompasses over 500 acres and serves the needs of approximately 500 pilots. There are two runways that accommodate takeoff and landing configurations and various sizes of small aircraft. The airport handles roughly 20,000 operations per year (take-offs and landings) and includes about 40 on-site hangars.

A 2,100 square foot terminal building is centrally located within the air-field at the end of Barstow Drive. The terminal includes a pilot's lounge,a conference room, and an aviation weather service to assist with flight planning. In 2015, Jack Barstow Airport was named Airport of the Yearby the Michigan Department of Transportation - Office of Aeronautics. It was recognized for its efforts in promoting general aviation with the development of an observation and education gateway project.

Jack Barstow Airport is funded by the Federal Aviation Administration (FAA) and State of Michigan who provide the majority of funding for capital improvements. Generally, the City of Midland is responsible for a 2.5% share regarding the total cost of projects. Additional funds help finance airport operations such as hangar rentals, land lease rentals, and aircraft fuel sales.

MBS International Airport

MBS International Airport is a commercial airport located in Freeland, central to the three jurisdictions which own it - the City of Midland, Bay County, and Saginaw County. It is governed by a nine member commission made up of three representatives from each community.

MBS mainly provides transportation to those living throughout the Great Lakes Bay Region. The airport supports 27 home-based aircraft which includes 13 single-engine, five multi-engine, and nine jet-engine aircraft. Approximately 50,000 flight operations are handled annually (take-offs and landings) with two runways of 8,002 feet and 6,400 feet length respectively. MBS Airport's recently constructed new terminal building is about 75,000 square feet. The two-story facility contains amenities such as various con-cession options, an efficient baggage claim, and convenient parking.

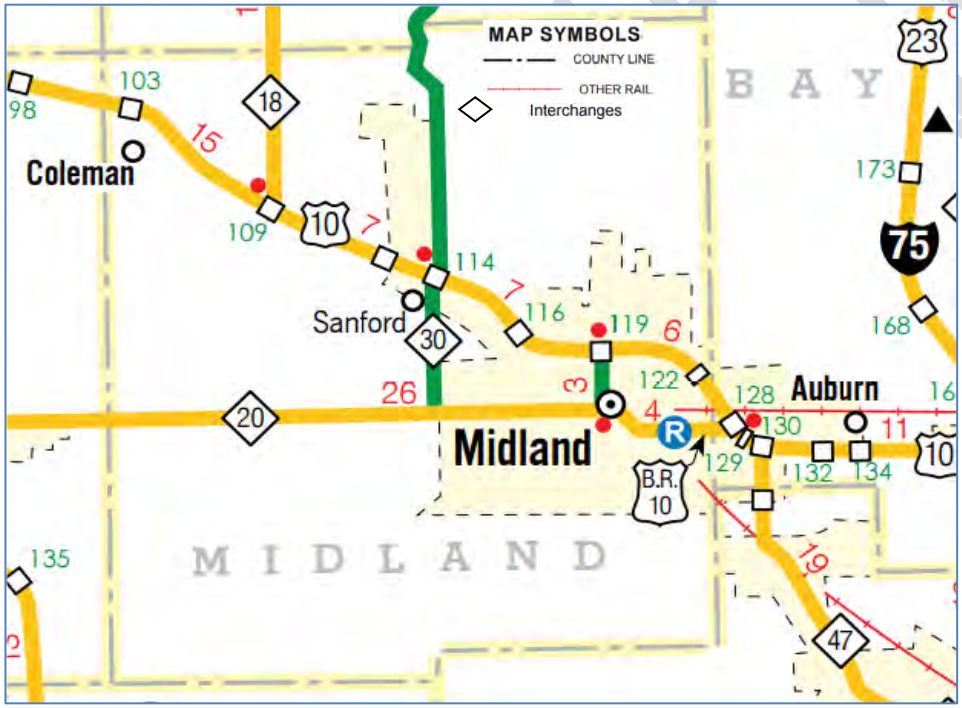
In 2016 MBS approved a master plan targeting $100 million in airport projects over a 20-year span. Projects include new pavement construction and rehabilitation, rental car and maintenance facilities upgrades, as well as improvements to general/private aviation development.

Freight Transportation

Freight is defined as any good, product, or raw material carried by a commercial means of transportation - including truck, rail, water, or air. The movement of freight is one part of an efficient and prosperous local economy and is important in terms of transportation planning activities. In the MATS Area, freight routes have been designated to provide access to local manufacturing facilities and distribute goods both statewide and nationally.

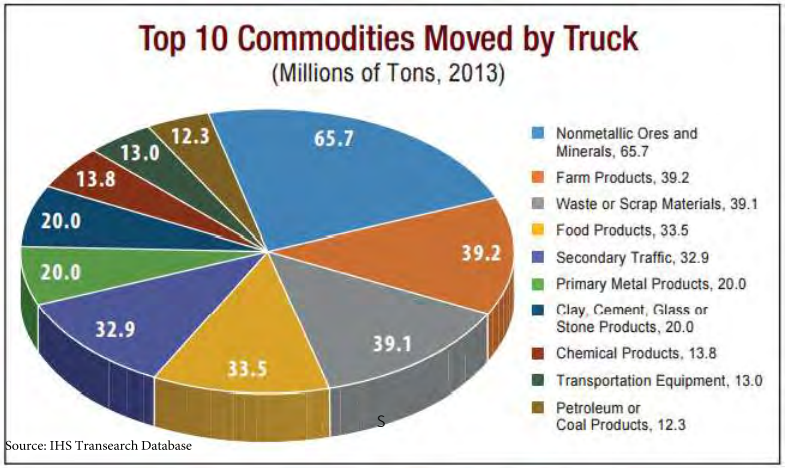
The image below depicts MATS area truck and rail routes; yellow lines represent MDOT Trunkline, used for the movement of goods by truck, and red lines depict two railway routes, owned and operated by the Huron and Eastern Railway Company. The existing railroads link to the Dow Chemical Company located in the southeastern part of the City of Midland. Dow is responsible for the majority of freight exported/imported in the area. In addition, limited air cargo services are available at MBS airport.

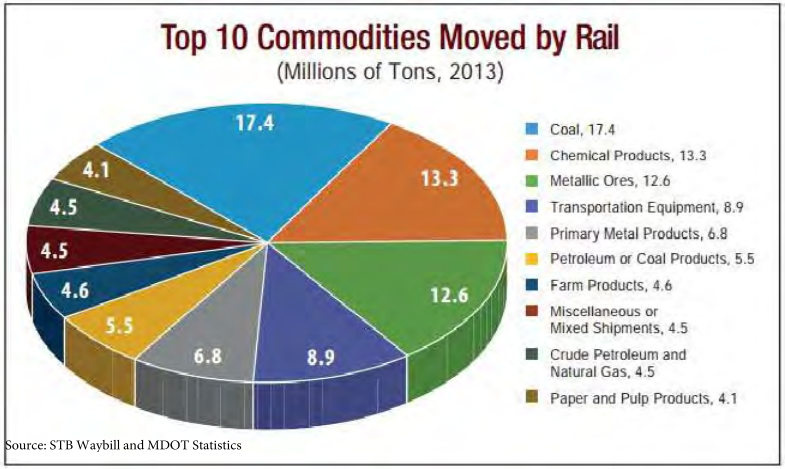
Exhibit 14 - MATS Area Freight Network



According to the statewide Freight Primer Report produced by MDOT, the majority of freight in Michigan is transported by truck and rail. In 2013, 338.1 million tons of freight were moved by truck, accounting for 67 percent of the tonnage moved in the state. In the same year, 100.4 million tons of freight were moved by rail, accounting for 20 percent of the tonnage moved in the state. The following charts display the top 10 commodities moved by truck and rail throughout Michigan in 2013.

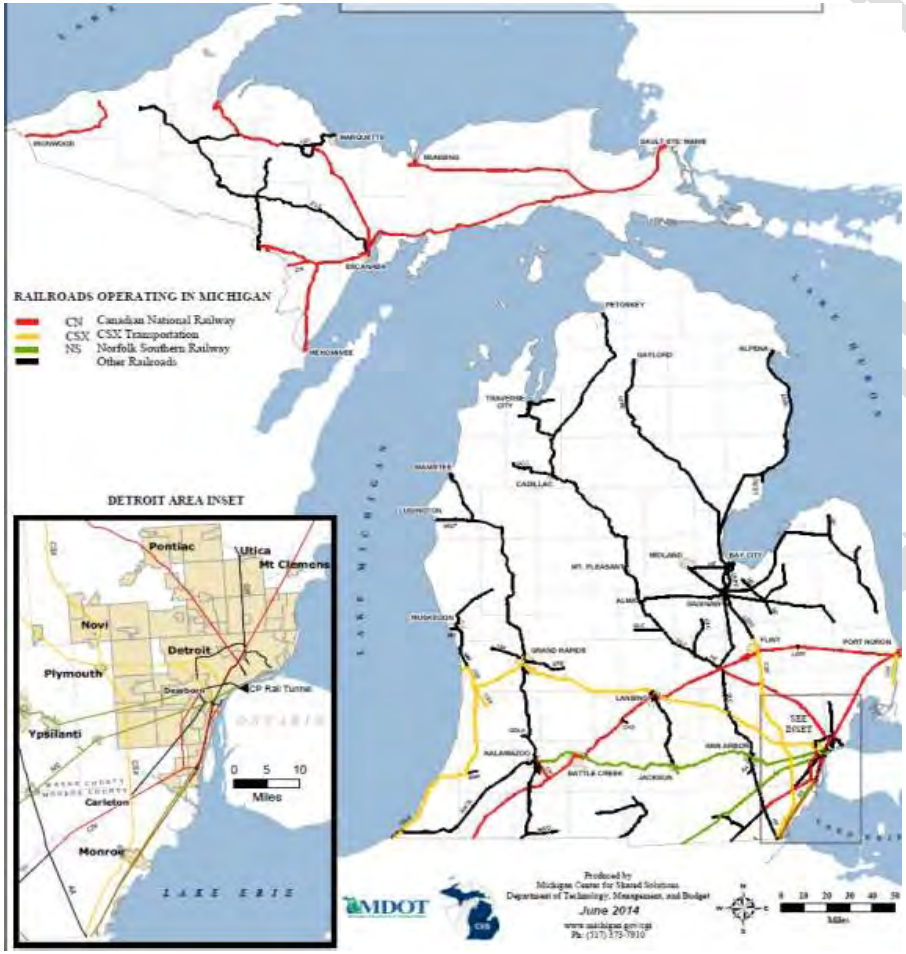
Exhibit 15 - Commodities by Truck and Rail





The map below depicts the various railways throughout Michigan. The railroad industry is now almost entirely privately owned andoperated. Primary railroads throughout Michigan are the Canadian National Railway, CSX Transportation, and Norfolk Southern Railway. The State of Michigan owns 665 miles, but is in the process of turning over commercially viable rail operations to the privatesector.

Exhibit 16 - Michigan's Railroad System



Source: Michigan Freight Primer Report (2013)

Exhibit 17 - Michigan's Trunkline System

Michigan's trunkline routes which carry the majority of truck movement throughout the State are shown above. In Michigan, a heavier overall truck load is allowed compared to most other states. The maximum permissible vehicle weight is 164,000 pounds which is more than double the federal standard vehicle weight of 80,000 pounds. Many attribute the deteriorating infrastructure throughout Michigan to this increased weight limit. However, research has found that pavement damage is directly related to axle load and not total weight. To mitigate this issue, Michigan requires additional axles as vehicle weight increases.

Chapter 5 - Infrastructure Evaluation

A key component of the planning process is the evaluation of the currentsituation in all areas that the plan addresses. This includes both surface conditions and system operations. According to a presentation given at the 3rd International Conference on Bituminous Mixtures and Pavements, 2002, (Norrison):

Deterioration of pavement occurs gradually and is usually unnoticed during the first few years following construction. However, at some stage of its life, pavement structural deficiencies and surface deterioration become evident. Visual assessment of a pavement's condition identifies defects and their severity at the surface level. These defects determine the pavement's functional performance that in turn relates to thelevel of service. The surface condition is also the result of the pavement's sub-surface structural deterioration. The relationship between pavement performance and levelof service is hard to establish because the various defects are difficult to quantify.

Utilizing Michigan Asset Management practices, MATS staff are directly involved in monitoring road conditions within the MPO boundaries. This process is conducted through the pavement assessment program, known as PASER (Pavement Surface Evaluation and Rating), that MATS uses to gauge the condition of Michigan's federal-aid eligible roads on an annual basis.

PASER is a visual tool used to evaluate the surface distress that pavement develops over time; distress is rated on a scale from 1 to 10. MATS staff, in partnership with MDOT and local implementing agencies, is responsible for reporting the condition of the federal-aid network biannually. However since MATS was designated, 100% of the federal-aid network has been rated every year as well as portions of the local road network. MATS gathers more data than required so that pavement deterioration trends can be examined more frequently thus mitigating more intrusive/costly improvements.

According to the Michigan Transportation Asset Management Council (TAMC) policies, the collected ratings are arranged into subgroups of Good (8-10), Fair (5-7) and Poor (1-4).

Roads with PASER ratings of 8 – 10 require Routine Maintenance. Routine maintenance is the day-to-day maintenance activities that are scheduled, such as street sweeping, drainage clearing, shoulder gravel grading, and sealing cracks to prevent standing water and water penetration.

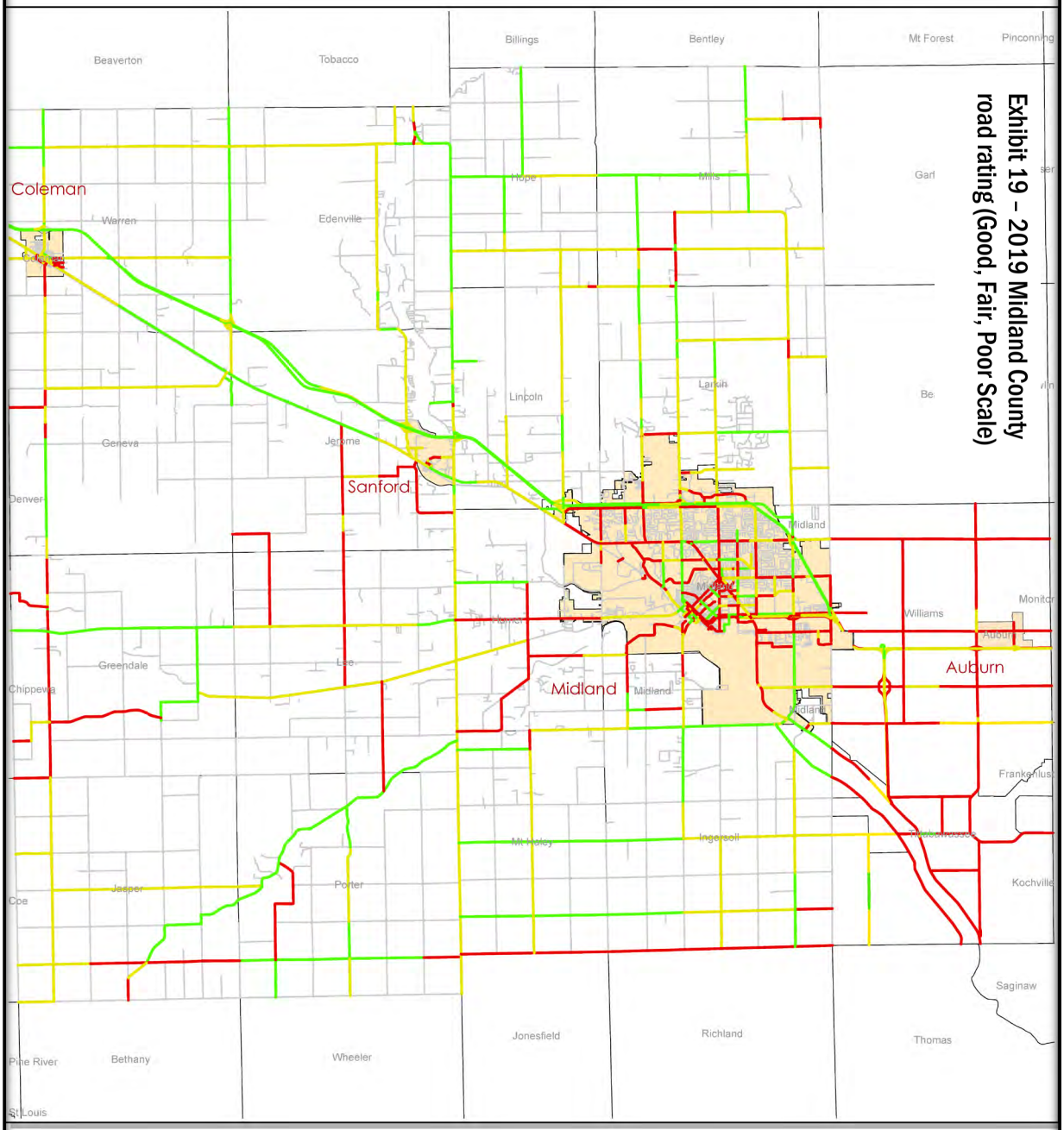
Roads with PASER ratings of 5 – 7 require Capital Preventive Maintenance. Capital preventive maintenance is a planned set of cost effective treatments to an existing roadway system and its appurtenances that preserves, retards future deterioration and maintains or improves the functional condition of the system without significantly increasing structural capacity. Surface treatments are targeted at pavement surface defects primarily caused by the environment and by pavement material deficiencies.

Roads with PASER ratings of 1- 4 require Structural Improvements. This category includes work identified as rehabilitation and reconstruction which address the structural integrity of a road.

Exhibit 18 PASER Rating Characteristics

10, 9, 8	7,6,5	4,3,2,1
New - Very Good Little or No Maintenance	Good - Fair Capital Preventative Maintenance	Poor - Failed Heavy Rehabilitation or Reconstruction
Estimated Costs $0 - $3,000 per mile	Estimated Costs $5,000 - $100,000 per mile	Estimated Costs $130,000 - $500,000 per mile

Source: Barry County Road Commission



Midland Area Transportation Study
2019 Road Surface Conditions

N

0 0.75 1.5 3 4.5 6
Miles

Produced by the Midland Area Transportation Study
2019 Data. For planning purposes only.

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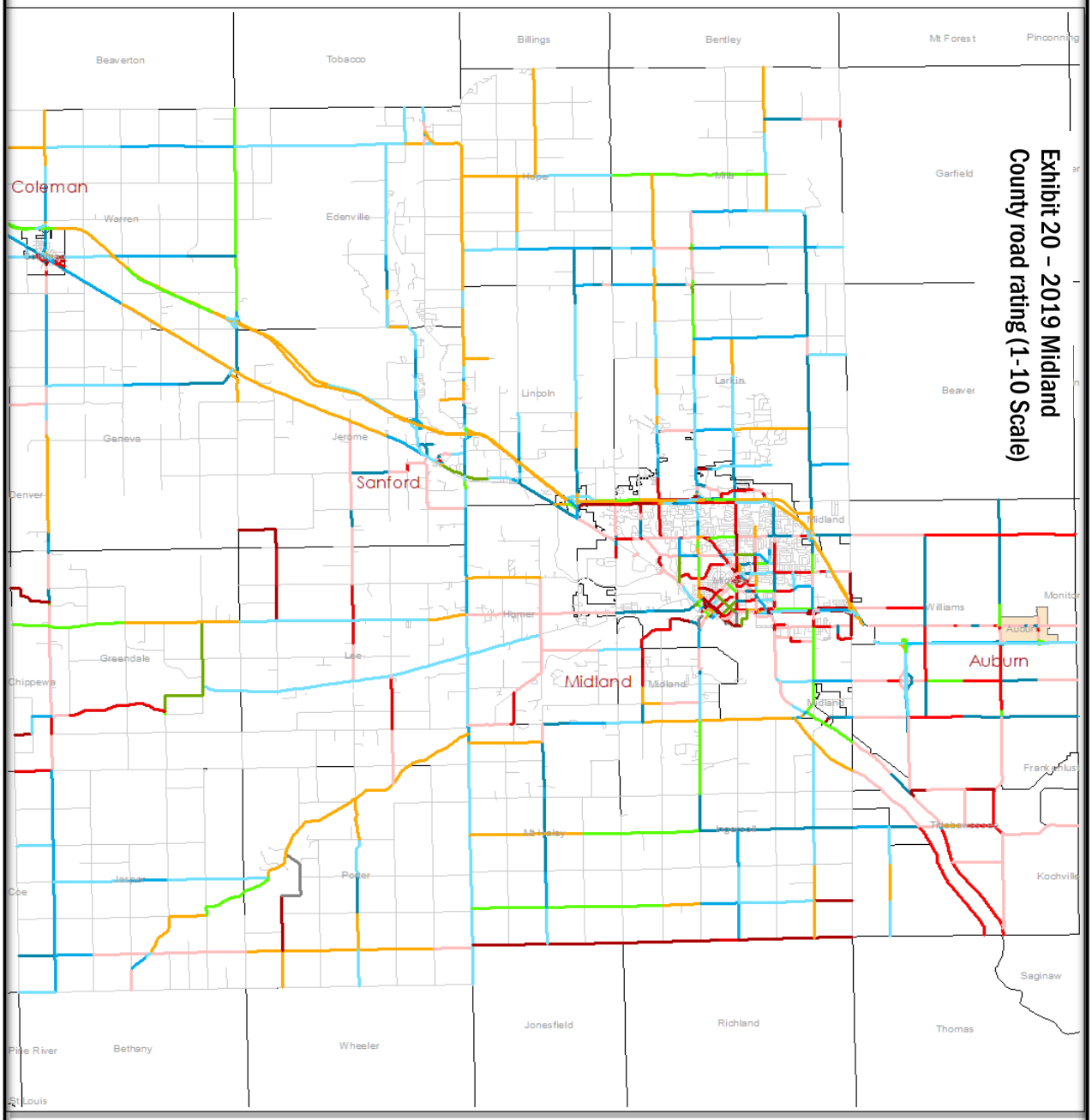
2019 Federal Aid PASER Ratings - MATS Area

Good *New*
Fair *Adequate*
Poor *Subpar*

Rating	Miles	Percent	TAMC
10	8.279	1.57%	Good
9	43.145	8.17%	34.27%
8	129.511	24.53%	
7	105.294	19.95%	Fair
6	64.742	12.26%	41.02%
5	46.486	8.81%	
4	64.223	12.17%	Poor
3	36.264	6.87%	24.71%
2	27.269	5.17%	
1	2.680	0.51%	
Total	**527.893**	**100.00%**	**100.00%**



Midland Area Transportation Study
2019 Road Surface Conditions

N

0 0.75 1.5 3 4.5 6
Miles

Produced by the Midland Area Transportation Study
2019 Data. For planning purposes only.

- 10 - New
- 9 - Very Good
- 8 - Good
- 7 - Adequate
- 6 - Fair
- 5 - Average
- 4 - Subpar
- 3 - Poor
- 2 - Very Poor
- 1 - Failed

Rating	Miles	Percent	TAMC
10	8.279	1.57%	
9	43.145	8.17%	Good
8	129.511	24.53%	
7	105.294	19.95%	
6	64.742	12.26%	Fair
5	46.486	8.81%	
4	64.223	12.17%	
3	36.264	6.87%	Poor
2	27.269	5.17%	
1	2.68	0.51%	
Total	**527.893**	**100.00%**	

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Midland County - 2019 Road Surface Conditions

Exhibits 19 and 20 show the most recent PASER ratings for Federal aid roads in the MATS area. As can be seen from these two maps, the vast majority of the Federal Aid road network in the MATS area is rated either poor or fair using the TAMC criteria (Good, Fair, Poor). Using PASER terminology (1-10 scale), this would be classified as adequate to very poor. The total miles of road encompassing these categories is 76%, leaving 34% as new to good.

"Virtually everyone – residents, visitors, pedestrians, passengers, commercial and private car drivers and anyone with a window-view of a block front – experiences the streets and observes their condition. People know that it is city government's responsibility to maintain them. For many, then, the performance of local government itself is evaluated by the condition of the streets."

How Smooth are New York City's Streets? Fund for the City of New York, September 1998

System Operations

Exhibit 21 depicts 2017 MATS Area Traffic Conditions as derived from the Great Lakes Bay regional travel demand model. This map shows limited segments operating at over 75% capacity. This indicates that currently there is a generally good level of service (low travel delays) over the greatest extent of the road network for the MATS area.

Therefore, as part of our infrastructure evaluation, we can conclude that physical condition is a far greater problem than traffic congestion for our Federal Aid network. Unfortunately, current funding levels are grossly inadequate to remedy the problem. In fact, MDOT analysis of other urban regions indicates that transportation investment increases of 250% and more would be necessary to improve the surface conditions significantly. Road construction projects completed prior to and since MPO designation reflect that priority of investment, and comparison of year-to-year PASER ratings show arrested decline of infrastructure condition.

Projects Utilizing Federal Funding Since 2017

The 2045 Long Range Transportation Plan will be the first update of the original MATS Long Range Plan. Therefore, projects listed within this section include all federally funded projects completed since completion of that plan in 2017, and prior to the adoption of this plan. A total of 76 projects were completed with approximately $78 million invested in that time. Allocations for transportation projects involve federal, state, and local sources for funding transit, highway, and non-motorized projects.

Projects listed for fiscal years 2017-2021 were programmed and prioritized as a part of the 4-year Transportation Improvement Program (TIP) planning process, utilizing both local agency level evaluation as well as the MATS committee structure. The TIP is an integral part of transportation planning, which identifies and prioritizes Federal-Aid projects and programs in local urbanized areas. The TIP will ultimately serve as an implementation tool of the final long- range transportation plan. It ensures that scheduled transportation improvements are consistent with current and projected financial resources. Note that the vast majority of the total dollar value is represented by MDOT projects.

Exhibit 22 lists the obligated amounts for each project completed within the MATS area categorized by implementing agency and fiscal year the project was programmed.

Exhibit 21 - 2017 MATS Area Traffic Conditions, PM Peak hours

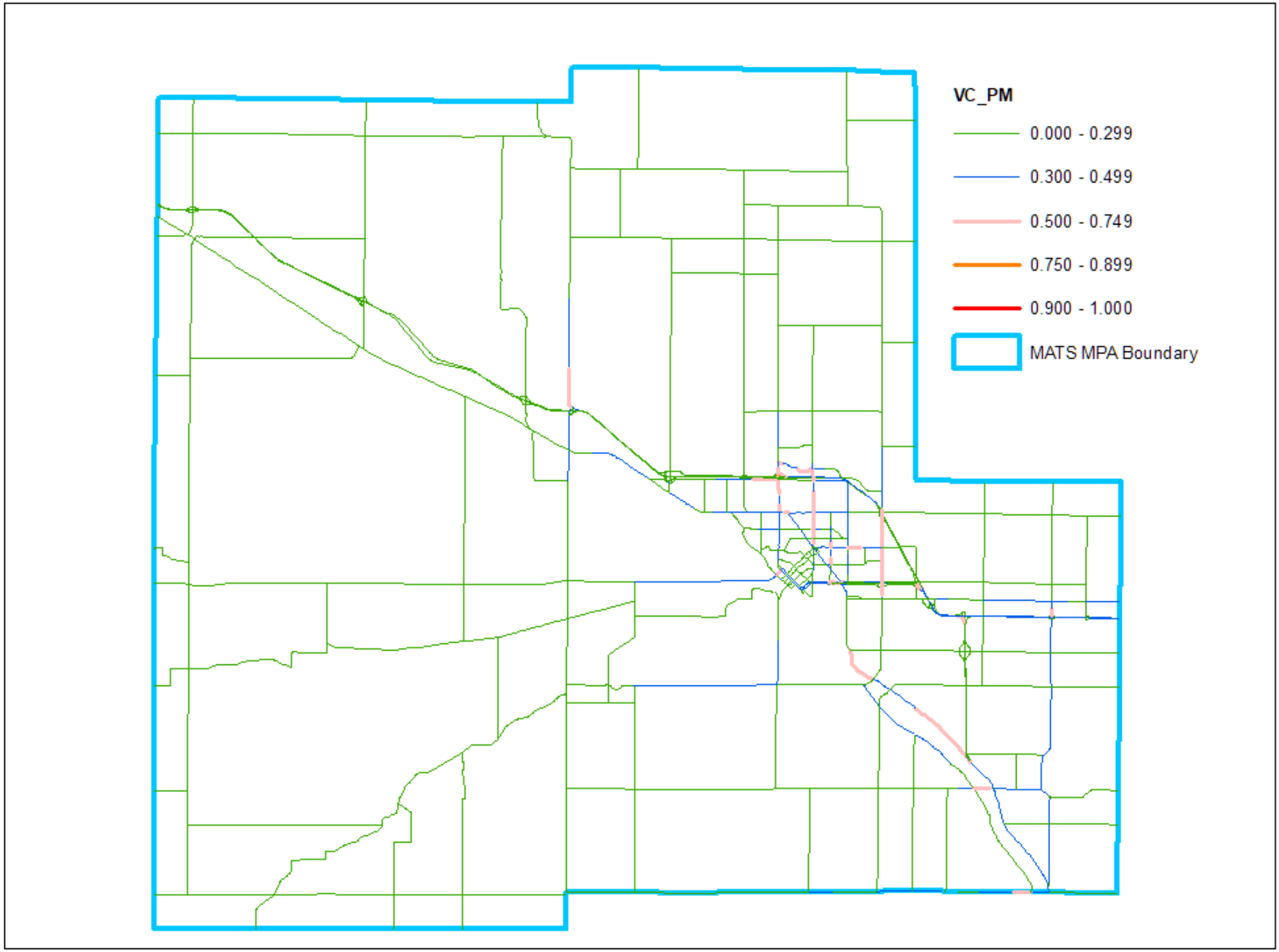

Exhibit 22 - Completed Road Projects 2017 - 2021

Midland Area Transportation Study (MATS)

Listing of FY 2017 Obligated Federally Funded Transportation Projects/Activities

Road/Bridge/Transit/Administration	Phase	Responsible Agency	Federal Funds - Programmed	Federal Funds - Obligated	Federal Fund Source	State Funds - Programmed	State Funds - Allocated	Local Funds - Programmed	Local Funds - Allocated
US-10 E near the US-10BR interchange	Preliminary Engineering	MDOT	$10,852	$10,852	NH	$2,407	$2,407	$0	$0
US-10 E near the US-10BR interchange	Construction	MDOT	$290,312	$258,597	NH	$64,377	$57,343	$0	$0
M-20 Geneva Road to 9 Mile Road	Construction	MDOT	$1,849,705	$1,045,278	NH	$410,166	$231,787	$0	$0
US-10BR Wackerly Road to Airport Road	Preliminary Engineering	MDOT	$0	$0		$29,641	$29,641	$0	$0
M-20 Bridge Over Tittabawassee River & CSX Railroad	Right of Way	MDOT	$204,625	$204,625	NH	$40,270	$45,375	$5,105	$0
M-20 Bridge Over Tittabawassee River & CSX Railroad	Utility	MDOT	$532,025	$532,025	NH	$104,703	$117,975	$13,272	$0
US-10: 8 Mile Road (Bay County) to Isabella County Line	Preliminary Engineering	MDOT	$11,700	$11,700	HSIP	$1,300	$1,300	$0	$0
US-10: 8 Mile Road (Bay County) to Isabella County Line	Construction	MDOT	$168,754	$168,300	HSIP	$18,750	$18,700	$0	$0
Wackerly Rd: Sturgeon Road to Schade Drive	Construction	City of Midland	$295,482	$276,384	STUL	$0	$0	$75,406	$61,287
Saint Andrews Rd: Washington Street to Sugnet Road	Construction	City of Midland	$304,677	$320,000	STUL	$0	$0	$77,753	$0
Airport Road: Perrine Road to Hicks Road	Construction	MCRC	$240,000	$240,000	STUL	$0	$0	$210,000	$152,116
Eastman Ave from S. of Schneider Ct to N. of Bombay	Construction	MCRC	$600,000	$600,000	HRRR	$0	$0	$99,735	$85,334
Combined RTF funds - Freeland Road: Kane Road to Poseyville Road Shearer Road: Sturgeon Road to 1 mile East West Pine River Road: Magruder Road to Redstone Road	Construction	MCRC	$959,271	$917,840	STL	$131,050	$120,692	$173,644	$810,145
Gordonville Road: 4 3/4 Mile Road to Homer Road	Construction	MCRC	$464,004	$511,781	HRRR		$0	$51,556	$56,865
Poseyville Rd At Jo Drain	Construction	MCRC	N/A	$411,973	ER	N/A	$0	N/A	$102,993
W Shaffer Rd At Bliss Creek	Construction	MCRC	N/A	$449,476	ER	N/A	$0	N/A	$112,369
S 9 Mile Rd At North Carroll Creek and at South Carroll Creek	Construction	MCRC	N/A	$871,654	ER	N/A	$0	N/A	$217,914
MPO - Transportation & Transit Planning/Administration	Planning	MATS	$221,807	$221,807	PL 112/5303	$0	$0	$49,185	$49,185
MPO - Asset Management	Asset Management	MATS	$0	$0		$20,000	$20,000	$0	$0
TOTALS (Road and Bridge)			**$6,153,214**	**$7,052,293**		**$822,664**	**$645,220**	**$755,656**	**$1,648,207**
Transit Operations		County Connection of Midland	$466,451	$466,451	5311	$1,026,556	$901,638	$983,216	$1,177,444
Transit Operations		DART	$640,719	$640,719	5307	N/A	N/A	$640,719	$640,719
Transit Capital		DART	$72,000	$72,000	5307	$18,000	$18,000	$0	$0
Transit Capital		DART	$64,419	$64,419	5339	$16,105	$16,105	$0	$0
TOTALS (Transit)			**$1,243,589**	**$1,243,589**		**$1,060,661**	**$935,743**	**$1,623,935**	**$1,818,163**

Funding Codes:

NH - National Highway System
HSIP - Highway Safety Improvement
STUL - Surface Transportation Urban
STL - Surface Transportation Rural
HRRR - High Risk Rural Roads

ER - Discretionary Emergency Funds
PL 112 and FTA 5303 - Planning Funds
5307 - Operating Assistance, Urban
5311 - Operating Assistance, Rural
5339 - Capital Request

Midland Area Transportation Study (MATS)

Listing of FY 2018 Obligated Federally Funded Transportation Projects/Activities

Project	Work Type	Responsible Agency	Federal Funds - Programmed	Federal Funds - Obligated	Federal Fund Source	State Funds - Programmed	State Funds - Allocated	Local Funds - Programmed	Local Funds - Allocated
Auburn Rd: Jaycee Drive to Midland Road	Preventative Maintenance	City of Auburn	$230,000	$194,756	STUL	$0	$0	$70,000	
S 11 Mile Rd: At Huron & Eastern Railway in Williams Township	Crossing Upgrades	H&E Railway Company	$180,000	$136,861	STRP	$15,207	$15,207	$0	$0
S Carter Rd: At Huron & Eastern Railway in Williams Township	Crossing Upgrades	H&E Railway Company	$180,000	$138,790	STRP	$15,421	$15,421	$0	$0
S Flajole Rd: At Huron & Eastern Railway in Williams Township	Crossing Upgrades	H&E Railway Company	$180,000	$135,894	STRP	$15,099	$15,099	$0	$0
US-10 & US-10BR; Within Midland County	Preliminary Engineering	MDOT	$20,338	$20,338	HSIP	$2,260	$2,260	$0	$0
US-10 & US-10BR; Within Midland County	Various Safety Upgrades	MDOT	$313,786	$221,458	HSIP	$8,746	$24,606	$0	$0
Traffic Safety: Within Midland County	Preliminary Engineering	MDOT	$13,500	$13,500	HSIP	$1,500	$1,500	$0	$0
Traffic Safety: Within Midland County	Various Safety Upgrades	MDOT	$2,642,400	$2,001,881	HSIP	$293,600	$222,431	$0	$0
Traffic Safety: Within Midland County	Preliminary Engineering	MDOT	$13,500	$13,500	HSIP	$1,500	$1,500	$0	$0
Traffic Safety: Within Midland County	Various Safety Upgrades	MDOT	$360,000	$315,421	HSIP	$40,000	$35,047	$0	$0
US-10BR: Areawide Traffic Safety	Preliminary Engineering	MDOT	$42,453	$42,453	STG	$0	$0	$0	$0
M-47 S: M-47 Midland Rd (Saginaw) to US-10 Traffic Safety	Preliminary Engineering	MDOT	$100,000	$70,000	NHG	$0	$0	$0	$0
M-47: US-10 to Tittabawassee Road	Preventative Maintenance	MDOT	$1,437,501	$1,064,586	NH	$318,762	$236,069	$0	$0
M-20: Midland County-wide	Preventative Maintenance	MDOT	$1,542,627	$1,664,119	NH	$342,073	$369,014	$0	$0
US-10BR: Wackerly Road to Airport Road, Midland	Preventative Maintenance	MDOT	$381,244	$337,238	NH	$84,539	$74,782	$0	$0
M-20: over Tittabawassee River	Bridge Replacement	MDOT	$27,640,735	$20,258,562	NH	$5,360,615	$3,993,511	$797,049	$0
Saginaw Rd: Waldo Road to Saginaw CO. Line	Road Rehabilitation	MCRC	$260,000	$268,042	STUL	$0	$0	$152,500	N/A
Saginaw Rd: Oak Street to Pinesboro Drive	Road Rehabilitation	MCRC	$329,316	$284,247	STUL	$0	$0	$170,684	N/A
Combined RTF Funds: Shearer Rd: Sturgeon Rd west 1 mile West Pine River: Laporte Rd to Kent Rd	Road Rehabilitation	MCRC	$582,187	$791,810	STL	$106,135	$144,350	$171,678	N/A
Poseyville Road: Brooks Road to Gordonville Road	Preliminary Engineering	MCRC	$40,000	$40,000	HRRR	$0	$0	$40,000	N/A
Poseyville Road: Brooks Road to Gordonville Road	Road Rehabilitation	MCRC	$600,000	$600,000	HRRR	$0	$0	$397,370	N/A
N Eastman Road: At Shaffer Road	Preliminary Engineering	MCRC	$25,657	$25,657	HRRR	$0	$0	$25,658	N/A
N Eastman Road: At Shaffer Road	Minor Widening	MCRC	$461,835	$461,835	HRRR	$0	$0	$51,315	N/A
W Freeland Rd: At River Road Intersection	Preliminary Engineering	SCRC	$50,000	$51,156	STUL	$0	$0	$11,344	N/A
TOTALS (Road and Bridge)			**$37,627,079**	**$29,147,208**		**$6,774,485**	**$5,150,796**	**$1,887,598**	
Transit Operations	General Operations	CCM	$480,634	$480,634	5311	$995,211	$1,018,376	$1,122,177	$1,122,177
Transit Capital	Bus Purchase (4)	CCM	$298,314	$298,314	5339	$74,578	$74,578	$0	$0
Transit Operations	General Operations	DART	$692,465	$692,465	5307	$874,833	$874,833	$692,465	$692,465
Transit Capital	Preventative Maint.	DART	$90,000	$90,000	5307	$22,500	$22,500	$0	$0
Transit Capital	Bus Purchase (1)	DART	$81,398	$81,397	5339	$20,349	$20,349	$0	$0
TOTALS (Transit)			**$1,642,811**	**$1,642,810**		**$1,987,471**	**$2,010,636**	**$1,814,642**	**$1,814,642**
MPO - Transportation & Transit Planning/Administration	Planning	MATS	$225,318	$225,318	PL 112/5303	$0	$0	$49,964	$49,964
MPO - Asset Management	Asset Management	MATS	$0	$0		$21,000	$21,000	$0	$0

Funding Codes:

NH - National Highway System
HSIP - Highway Safety Improvement
STG – Safety 100% Federal
ER - Emergency Funds
STL - Surface Transportation Rural
HRRR - High Risk Rural Roads
N/A – Not Currently Available
PL 112 and FTA 5303 - Planning Funds
STRP – Surface Transportation Safety Rail
STUL - Surface Transportation Urban
5311 - Operating Assistance, Rural
5339 - Capital Request

Midland Area Transportation Study (MATS)

Listing of FY 2019 Obligated Federally Funded Transportation Projects/Activities

Project	Work Type	Responsible Agency	Federal Funds - Programmed	Federal Funds - Obligated	Federal Fund Source	State Funds - Programmed	State Funds - Allocated	Local Funds - Programmed	Local Funds - Allocated
Garfield Rd US-10 Off Ramp to Midland Road	Road Rehabilitation Rehabilitate and Recon/Widen	BCRC	$282,327	$290,114	STUL	$0	$0	$632,673	$650,123
Wheeler Road Wheeler Road from Eight Mile Road to Rockwell Road	Road Capital Preventive Maintenance Milling and Asphalt Overlay	BCRC	$540,112	$445,356	STL	$0	$0	$271,953	$224,242
Saginaw Rd Dartmouth Drive to Patrick Road	Road Capital Preventive Maintenance Resurface	City of Midland	$624,101	$0	STUL	$0	$0	$153,899	$0
Castor Road Over Big Salt River	Bridge Rehabilitation	MCRC	$1,205,600	$472,526	BO	$226,050	$88,599	$75,350	$29,533
Magrudder Road over Pine River	Bridge preventative maintenance for STR 6992	MCRC	$264,800	$180,362	BO	$41,375	$28,182	$24,825	$16,909
Saginaw Road over Big Salt River	Bridge preventative maintenance	MCRC	$82,642	$113,141	BHT	$15,495	$21,213	$5,165	$7,071
Saginaw Road over Big Salt River	Bridge preventative maintenance	MCRC	$112,238	$153,659	BHT	$21,045	$28,812	$7,015	$9,604
Porter Road 11 Mile/Odd Rd/Porter Rd from Pine River Rd to Laporte Rd	Road Rehabilitation Two Course Asphalt Resurfacing	MCRC	$507,115	$532,022	STL,EDD	$175,755	$184,387	$144,130	$151,209
Freeland Road at Sasse Road	Traffic Safety center left turn lane & transverse rumble strips	MCRC	$25,180	$25,180	HRRR	$0	$0	$25,180	$25,180
N Sturgeon Rd over Newell Drain, Structure 13939	Bridge Replacement	MCRC	$633,600	$477,176	BRT	$118,800	$89,471	$39,600	$29,824
Regionwide M20 (ISABELLA) @ HOMER RD M20 (ISABELLA) @ MERIDIAN RD M20 (ISABELLA) @ COLEMAN RD	Traffic Safety Traffic Signal Modernizations; connected vehicle installations.	MDOT	$7,500	$20,000	STG	$0	$0	$0	$0
Bay Region: Midland County and part of Bay County	Traffic Safety Longitudinal pavement marking application	MDOT	$156,788	$156,788	HSIP	$17,421	$17,421	$0	$0
Bay Region: Midland County and part of Bay County	Traffic Safety Application of pavement markings	MDOT	$5,324	$5,324	HSIP	$592	$592	$0	$0
Region wide Midland MPO area	Road Capital Preventive Maintenance HMA Crack Treatment	MDOT	$68,293	$68,293	ST	$15,144	$15,144	$0	$0
M-20 West of Saginaw Road to US-10	Road Capital Preventive Maintenance Milling and HMA Overlay	MDOT	$57,062	$57,062	NH	$12,653	$12,653	$0	$0
TOTALS (Road and Bridge)			**$4,572,682**	**$2,939,941**		**$644,330**	**$486,474**	**$1,379,790**	**$1,143,695**
Transit Capital	Bus Rolling Stock Purchase 4 Buses	CCM	$236,399	$236,399	5339	$59,100	$59,100	$0	$0
Transit Capital	Bus Support Equipment / Facilities FY19 RTF	CCM	$11,200	$11,200	STL	$2,800	$2,800	$0	$0
Transit Capital	Bus Support Equipment / Facilities FY19 RTF	CCM	$40,000	$40,000	STL	$10,000	$10,000	$0	$0
Transit Operations	General Operations	CCM	$501,783	$501,783	5311	$1,092,719	$1,092,719	$1,174,743	$1,174,743
Transit Capital	Capital Preventive Maintenance	DART	$100,000	$100,000	5307	$25,000	$25,000	$0	$0
Transit Capital	Computer Equipment (Mobile Data Terminals)	DART	$17,606	$17,606	5339	$4,401	$4,401	$0	$0
Transit Capital	Bus Purchase (1)	DART	$64,427	$64,427	5310	$16,107	$16,107	$0	$0
Transit Operations	General Operations	DART	$928,206	$928,206	5307	$888,397	$888,397	$928,206	$928,206
TOTALS (Transit)			**$1,899,621**	**$1,488,760**		**$2,098,524**	**$2,098,524**	**$2,102,949**	**$2,102,949**
MPO - Transportation & Transit Planning/Administration	Planning	MATS	$213,566	$213,566	PL 112/5303	$0	$0	$47,358	$47,358
MPO - Asset Management	Asset Management	MATS	$0	$0		$21,000	$21,000	$0	$0

Funding Codes: NH - National Highway System
STUL - Surface Transportation Urban
STL - Surface Transportation Rural
STG - Safety 100% Federal
HRRR - High Risk Rural Roads
HSIP - Highway Safety Improvement
EDD – Economic Development
BHT - Bridge Rehabilitation
BO - Bridge, Off System
BRT - Bridge Replacement
5307 – Urban Transit Funds
PL 112 and FTA 5303 - Planning
5310 – Enhanced Mobility Grant
5339 - Capital Request
5311 - Operating Assistance, Rural

Midland Area Transportation Study (MATS)

Listing of FY 2020 Obligated Federally Funded Transportation Projects/Activities

Project	Work Type	Responsible Agency	Federal Funds - Programmed	Federal Funds - Obligated	Federal Fund Source	State Funds - Programmed	State Funds - Allocated	Local Funds - Programmed	Local Funds - Allocated
S Garfield Rd (Hotchkiss Road to US-10)	Road Rehabilitation - Asphalt Resurfacing	Bay County	$573,822	$573,822	STL	$0	$0	$526,178	$371,228
W Salzburg Rd (11 Mile Rd to Garfield Road)	Road Rehabilitation - Asphalt Resurfacing	Bay County	$418,224	$418,224	STL	$0	$0	$236,776	$313,500
Saginaw Rd (Dartmouth Dr. to Patrick Road)	Road Capital Preventive Maintenance - Resurface	City of Midland	$344,000	$344,000	STUL	$0	$0	$434,000	$424,270
Midland County - Road Improvements	Milling & Asphalt Resurfacing @Various Locations	Midland County	$575,709	$552,555	STL	$73,388	$73,388	$150,975	$104,065
Eastman Ave (Commerce Dr. to Monroe Rd)	Minor Widening, add center left-turn lane	Midland County	$885,323	$890,774	STUL	$0	$0	$293,447	$295,254
	Additional Funding for same project	Midland County	$69,648	$70,077	HIPS	$0	$0	$15,444	$15,539
Midland County Traffic Safety Improvements	Upgrade curve warning signs	Midland County	$224,973	$196,756	HSIP	$0	$0	$38,573	$67,090
N Waldo Road @ Monroe Rd. PE Phase	Traffic Safety, Construct Roundabout - PE Phase	Midland County	$37,501	$37,501	HRRR	$0	$0	$37,501	$37,501
N Coleman Rd @ Chippewa River	Bridge Replacement over Chippewa River - CON Phase	Midland County	$0	$0		$2,622,400	$1,962,507	$655,600	$491,477
N. Saginaw Rd (7 Mile to Oak St.)	Emergency Road Engineering and Reconstruction	Village of Sanford	$0	$391,030	ER	$0	$0	$0	$0
W. Curtis Road (Water Rd. To Neiner Rd)	Emergency Road Engineering and Reconstruction	Midland County	$0	$287,079	ER	$0	$0	$0	$0
W Freeland Rd @ W. River Road	Construct Roundabout – CON Phase	Saginaw County	$295,000	$295,000	STUL	$0	$0	$669,600	$691,378
US-10 E	Traffic Safety, Median Guardrail Improvements	MDOT	$1,449,771	$1,449,771	HSIP	$161,086	$161,086	$0	$0
US-10 at M-47	Traffic Information Systems Implementation	MDOT	$148,353	$148,353	ST	$32,897	$32,897	$0	$0
M-20 @ Homer and Coleman Roads	Traffic Signal Modernizations	MDOT	$976,066	$976,066	STG	$0	$0	$0	$0
M-47 (US-10 to Freeland)	Freeway Signing Upgrade	MDOT	$101,000	$101,000	NHG	$0	$0	$0	$0
M-20 (M-30 to east of Currie Pkwy)	Milling and two course HMA overlay	MDOT	$1,109,318	$1,109,318	NH	$233,258	$233,258	$12,730	$12,730
Bay Regionwide Pvmt Marking Readings	Pavement Marking Reflectivity Testing	MDOT	$806	$806	HSIP	$90	$90	$0	$0
Pavement Marking Projects	PE and CON work at various trunkline locations	MDOT	$208,474	$208,474	HSIP	$23,164	$23,164	$0	$0
M-30 (US-10 to Wixom Lake)	Preventive Maintenance HMA Overlay	MDOT	$0	$0 $0		$2,329,310	$2,019,431	$0	$0
M-20 Over Prairie Creek	PE/PES for Bridge Replacement	MDOT	$0	$0		$284,561	$284,561	$0	$0
US-10 Under M-30	PE/PES for Bridge Replacement	MDOT	$0	$0		$778,475	$778,475	$0	$0
Regionwide Bridge Projects	Repair, Preventative Maintenance, PE/PES Work	MDOT	$0	$0		$531,147	$531,147	$0	$0
M-20 (West of Saginaw Road to US-10)	Preventative Maintenance, Milling and Overlay	MDOT	$1,318,604	$1,178,197	NH	$292,397	$261,262	$0	$0
US-10BR at Wackerly Road	PE for thru/right turn lane, signal modernization	MDOT	$289,749	$289,749	NH	$57,023	$57,023	$7,228	$7,228
	ROW for same project	MDOT	$81,850	$81,850	NH	$16,108	$16,108	$2,042	$2,042
TOTALS (Road and Bridge)			**$9,108,191**	**$8,624,336**		**$7,435,304**	**$6,434,397**	**$3,080,094**	**$2,833,302**
Rural Transit Capital Improvements	2 Vans for Veteran/Medical Transportation	CCM	$56,208	$56,208	STUL	$14,052	$14,052	$0	$0
Rural Transit Operating Assistance	FY 2020 CARES Act Funds	CCM	$0	$508,096	CA-11	$0	$0	$0	$0
Rural Transit Operating Assistance	Annual Operating Assistance	CCM	$508,096	$508,096	5311	$1,038,537	$1,038,537	$1,200,000	$1,200,000
Urban Transit Capital Improvements	Preventative Maintenance	DART	$120,000	$120,000	5307	$30,000	$30,000	$0	$0
Urban Transit Capital Improvements	Purchase of Bus(es)	DART	$102,773	$102,773	5339	$31,414	$31,414	$0	$0
Urban Transit Operating Assistance	FY 2020 CARES Act Funds	DART	$0	$2,974,164	CA-11	$0	$0	$0	$0
Urban Transit Operating Assistance	Annual Operating Assistance	DART	$932,387	$0	5307	$858,639	$858,639	$847,625	$651,088
TOTALS (Transit)			**$1,719,464**	**$4,269,337**		**$1,972,642**	**$1,972,642**	**$2,047,625**	**$1,851,088**
MPO - Transportation & Transit Plng/Admin.	Planning	MATS	$188,566	$184,074	PL 112/FTA 5303	$0	$5,000	$41,814	$41,814
MPO - Asset Management	Asset Management	MATS	$0	$0		$21,000	$21,000	$0	$0

Funding Codes: NH - National Highway System
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STG – Safety 100% Federal
HSIP - Highway Safety Improvement
STL - Surface Transportation Rural
BHT - Bridge Rehabilitation
BRT – Bridge Replacement
PE – Preliminary Engineering
PES – Preliminary Engineering, Structure
EDD – Economic Development
ER – Emergency Transportation Improvement Funding
5307 – Urban Transit Funds
5311 - Operating Assistance, Rural
5339 - Capital Improvements
PL 112 and FTA 5303 - Planning Assistance
HRRR – High Risk Rural Roads

Midland Area Transportation Study (MATS)

Listing of FY 2021 Obligated Federally Funded Transportation Projects

Project Name	Project Description	Responsible Agency	Fund Source	Fed Programmed Amount	Fed Obligated Amount	State Programmed Amount	State Allocated Amount	Local Programmed Amount	Local Allocated Amount
Rogers Rd (At Lake State Railway crossing)	Railroad - install new crossing surface	Lake State Railway Company	MRR	$0	$0	$41,082	$41,082	$0	$0
Carter Rd (At Lake State Railway crossing)	Railroad - install flashing-light signals and half-roadway gates	Lake State Railway Company	STRP	$161,729	$161,729	$17,970	$17,970	$0	$0
N Saginaw Road (Drake St. to Perrine Rd.)	Reimbursement of emergency repair costs	City of Midland	ER	$13,377	$13,478	$0	$0	$0	$0
N Saginaw Rd. (Dartmouth Dr. to Patrick Rd.)	Road Capital Preventive Maintenance - Milling & Overlay	City of Midland	STUL	$344,000	$344,000	$0	$0	$434,000	$336,941
Various Locations	Road Capital Preventive Maintenance - Milling & Overlay	Midland County	STUEDD	$572,477	$462,030	$76,909	$62,071	$155,614	$125,592
West Curtis Road (Water Rd. to Neiner Rd.)	Road reconstruction. DDIR MCRC1 EMER	Midland County	ER	$1,148,317	$1,148,317	$0	$0	$0	$0
Various Locations	Reimbursement of Emergency Repair Costs.	Midland County	ER	$909,992	$547,472	$0	$0	$0	$0
Poseyville Rd (Ashby Rd. to St. Charles Rd.)	Permanent Repairs - Restoration, Rehabilitation	Midland County	ER	$92,240	$92,240	$0	$0	$23,060	$23,060
Various Locations	Permanent Repairs - Restoration, Rehabilitation	Midland County	ER	$80,473	$80,473	$0	$0	$20,118	$20,118
Poseyville Rd (Gordonville Rd. to Midland City limits)	Road Capital Preventive Maintenance - Milling & Overlay	Midland County	HIPS	$68,618	$73,571	$0	$0	$15,216	$16,314
Poseyville Rd (Gordonville Rd. to Midland City limits)	Road Capital Preventive Maintenance - Milling & Overlay	Midland County	STUL	$591,083	$633,751	$0	$0	$525,083	$562,986
Freeland Road (At Sasse Rd.)	Traffic Safety - Construct compact roundabout	Midland County	HRRR	$453,240	$411,877	$0	$0	$50,360	$45,764
Various Locations	Traffic Safety - Centerline rumble strips	Midland County	HSIP	$62,329	$62,100	$0	$0	$6,925	$6,900
W Freeland Road (River Rd. to M-47)	Reimbursement of emergency repair costs	Saginaw County	ER	$24,772	$24,772	$0	$0	$0	$0
West Freeland Road (River Rd. to M-47)	Road Reconstruction	Saginaw County	ER	$286,048	$283,010	$0	$0	$71,511	$70,752
North Saginaw Road (7 Mile Rd. to Oak St.)	Road reconstruction. DDIR San1 EMER	Village of Sanford	ER	$1,560,919	$1,560,919	$0	$0	$0	$0
West Saginaw Road (Center St. to Oak St.)	Reconstruction - Replacement of street light system	Village of Sanford	ER	$207,200	$235,280	$0	$0	$51,800	$58,820
6 Bridges in Midland Co.	Bridge CPM - Scour Protection	MDOT	ER	$114,226	$114,226	$28,556	$28,556	$0	$0
M-20 (0.50 miles west of Magruder Rd to 9 Mile Rd)	Culvert rehabilitation at 4 locations	MDOT	ER	$15,421	$15,421	$3,855	$3,855	$0	$0
Various Locations	Traffic Safety - Longitudinal pavement markings on trunklines	MDOT	HSIP	$176,229	$176,229	$19,581	$19,581	$0	$0
Various Locations	Traffic Safety - Special pavement markings on trunklines	MDOT	HSIP	$31,842	$31,842	$3,538	$3,538	$0	$0
Various Locations	Traffic Safety - Retroreflectivity readings on trunklines	MDOT	HSIP	$1,208	$1,208	$134	$134	$0	$0
Various Locations	Traffic Safety - FY 2021 Durable Pavement Marking Placement	MDOT	HSIP	$21,960	$21,960	$2,440	$2,440	$0	$0
M-20 (West Midland County Line to Meridian Road)	Traffic Safety - Installation of shoulder rumble strips	MDOT	HSIP	$7,668	$10,800	$852	$1,200	$0	$0
M-30 (M-20 to US-10)	Road Capital Preventive Maintenance - Mill and resurface	MDOT	M	$0	$0	$1,513,011	$1,407,986	$0	$0
M-30 over US-10., Hotchkiss Rd. over M-47	Bridge CPM	MDOT	M	$0	$0	$321,950	$549,528	$0	$0
Various Locations	Bridge CPM - Miscellaneous repairs to address RFAs	MDOT	M	$0	$0	$75,000	$75,000	$0	$0
M-30 (at US-10 Roundabout)	Traffic Safety - Advance warning flashing beacons for roundabout	MDOT	M	$0	$0	$70,000	$66,588	$0	$0
Carter Rd. over US-10 & US-10 over GTW RR	Bridge Rehabilitation - Superstructure Repair- Steel	MDOT	M	$0	$0	$82,042	$441,055	$0	$0
US-10 over Sturgeon Creek	Bridge CPM - Scour Protection	MDOT	NH	$439,575	$439,575	$97,475	$97,475	$0	$0
M-30 (1.4 mi south from Gladwin Co. Line)	Road Capital Preventive Maintenance - Mill and overlay	MDOT	ST	$342,502	$303,895	$75,948	$67,388	$0	$0
M-47 (Midland Rd. to Tittabawassee Rd.)	Traffic Safety - Non-Freeway Signing Upgrade	MDOT	STG	$10,000	$10,000	$0	$0	$0	$0
Total (Road and Bridge)				**$7,737,445**	**$7,260,175**	**$2,430,343**	**$2,885,448**	**$1,353,687**	**$1,267,248**
Transit Capital	FY21 Section 5310 program - mobility management (expansion)	CCM	5310	$28,800	$28,800	$7,200	$7,200	$0	$0
Transit Operating	FY21 Section 5310 Operating Assistance/New Freedom program	CCM	5310	$90,000	$90,000	$0	$0	$90,000	$90,000
Transit Operating	Transit Operating Funds (5311)	CCM	5311	$499,452	$499,452	$499,452	$499,452	$0	$0
Transit Capital	Purchase Bus (1) under the 5339 Program	CCM	5339	$64,366	$64,366	$16,091	$16,091	$0	$0
Transit Operating	Operating assistance under the FY21 CARES Act	CCM	CA11	$499,452	$499,452	$0	$0	$0	$0
Transit Operating	Operating assistance under the FY21 CARES Act ($10M)	CCM	CA11	$240,570	$240,570	$0	$0	$0	$0
Transit Operating	FY21 Local Bus Operating	CCM	CTF	$0	$0	$1,041,498	$1,041,498	$0	$0
Transit Capital	FY21 Section 5307 Transit Capital Preventive Maintenance	DART	5307	$100,000	$100,000	$25,000	$25,000	$0	$0
Transit Capital	FY21 Section 5307 Bus Replacement	DART	5307	$76,000	$76,000	$19,000	$19,000	$0	$0
Transit Capital	FY21 Section 5339 Bus Replacement, copier	DART	5339	$137,200	$137,200	$34,300	$34,300	$0	$0
Transit Operating	FY21 Local Bus Operating	DART	CTF	$0	$0	$832,282	$832,282	$0	$0
Total (Transit)				**$1,735,840**	**$1,735,840**	**$2,474,823**	**$2,474,823**	**$90,000**	**$90,000**
MPO - Transportation & Transit Planning	FY2022 (10/01/2021 - 9/30/2022) Consolidated Planning Funds	MATS	PL112/ FTA 5303	$181,873	$0	$0	$0	$40,330	$40,330
MPO - Asset Management	Asset Management	MATS		$0	$0	$21,000	$21,000	$0	$0

Funding Codes: NH - National Highway System; STL - Surface Transportation Rural; EDD – Economic Development; 5307 – Urban Transit Funds; PL 112 and FTA 5303 - Planning Assistance; HSIP - Highway Safety Improvement; PE – Preliminary Engineering

STUL - Surface Transportation Urban; BHT - Bridge Rehabilitation; ER – Emergency Transportation Improvement Funding; 5311 - Operating Assistance, Rural; 5339 - Capital Improvements; HRRR – High Risk Rural Roads; BRT – Bridge Replacement; STG – Safety 100% Federal

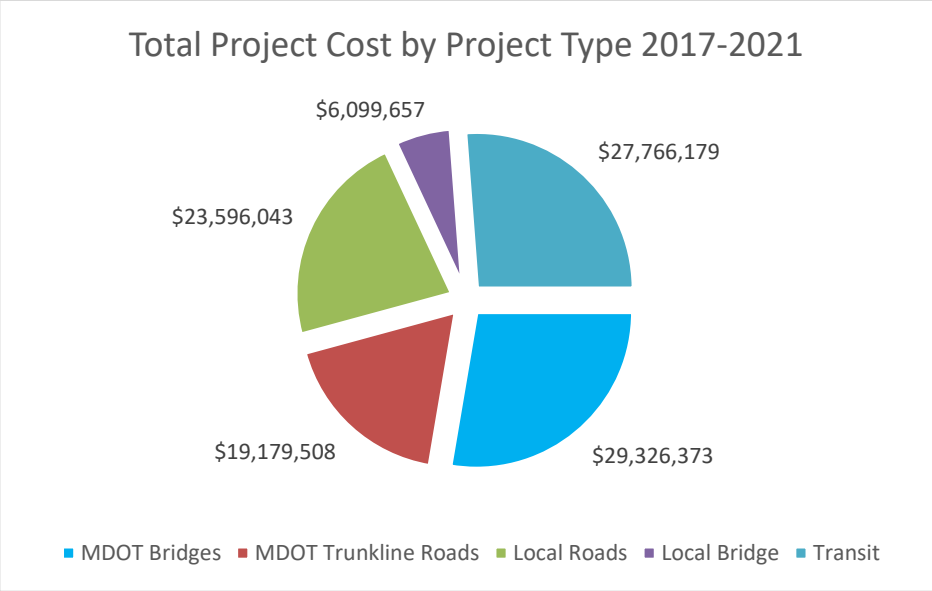
Analysis of Projects Completed 2017 – 2021

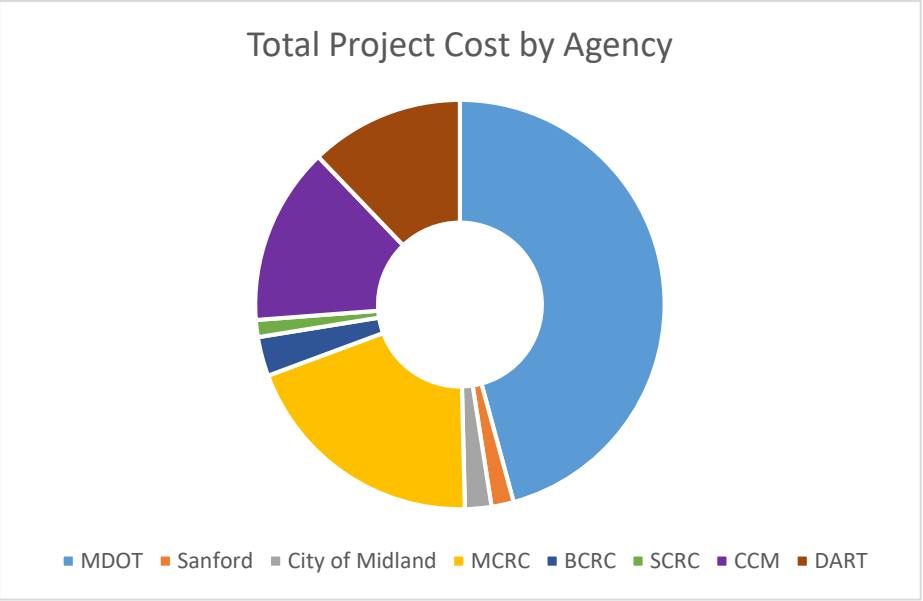
The following tables and chart summarize the previously listed projects to more closely examine the breakdown of total transportation investments by agency and type. Exhibit 23 depicts the number of projects completed by type and total cost by agency. It should be noted that the totals are somewhat misleading since MDOT had a large $21 million project during this time frame. Projects completed include trunkline improvements, resurfacing and reconstructing roads, transit projects, bridge repairs, safety improvements, rail crossings, and other projects. The graphs to the right display the breakdown of transportation investments by type and agency.

Exhibit 23 - Projects Completed by Type and Agency

Type	Number	Total Cost
Trunkline Bridges	11	$29,326,373
Trunkline Roads	45	$19,179,508
Local Roads	56	$23,596,043
Local Bridges	9	$6,099,657
Transit	37	$27,766,179
Total	158	$105,967,761

Agency	Total Cost
MDOT	$48,505,881
Sanford	$1,855,019
City of Midland	$2,212,232
Midland County Road Commission	$20,914,428
Bay County Road Commission	$3,286,609
Saginaw County Road Commission	$1,427,412
County Connection of Midland	$14,875,998
Dial a Ride Transportation	$12,890,181





Total Project Cost = Federal, State, and Local funds

Chapter 6 - Infrastructure Management and Other Factors

System Management

One of the primary roles of MATS is to facilitate coordination between the entities responsible for transportation improvements and operations in the area. This is conducted through various programs/strategies to enhance system management in order to achieve the Goals and Objectives of the Long Range Plan. Here are several of those ongoing programs MATS participate in or facilitates.

Asset Management

As part of Asset Management, MATS monitors road conditions within the MPO boundaries. Asset Management provides key data for monitoring, planning, and strategically improving the road network. Each local agency within MATS' area has access to PASER data and RoadSoft software to help evaluate data that has been collected. Local agencies can track road segments' distress this way and invest in a strategy to mitigate those issues.

Capital Preventative Maintenance (CPM)

A key component of asset management practices is CPM. Resurfacing, repaving, re-striping, signal upgrades, re-decking, and other preventative measures are included in this strategy.

Since these projects are much smaller, they are not included in the Long Range Plan. In its Transportation Improvement Program (TIP), MATS promotes CPM. A TIP will usually identify these in a General Program Account (GPA). GPAs are groups of similar projects that take place each fiscal year. GPA processes make it easier for local implementing agencies to complete CPM projects by streamlining project development and review, as in a Midland County Road Commission GPA that contains several resurfacing projects.

Traffic Counts

The collection of traffic count data is another example of ongoing sys- tem operations to enhance the transportation network in the MATS area.Both the City of Midland and Midland County Road Commission collect traffic count data on federal-aid and local roads to be utilized for variouspurposes. Fox example, in 2015 traffic count data was used to assist withthe review and potential reclassification under the NFC, of MATS area roadways. Providing traffic count data for roadways which are supporting higher traffic volumes potentially allows for that roadway to be re- classified to a higher level. This process determines whether the roadway is eligible for federal funds, either as part of the National Highway System (NHS) or through the Surface Transportation Program (STP).

Complete Streets

This program is a measure to support a balanced transportation system and a guide to incorporating the needs of all users (i.e. transit and non-motorized) in the planning, design, and implementation of projects.Examples of non-motorized facilities considered while planning road projects include sidewalks, bike lanes, non-motorized paths, ADA accessible crosswalks and ramps, signalized intersections, among many other enhancements. MATS requires that all projects proposed for inclusion in the TIP must be reviewed in consideration of the extent that the project will accommodate Complete Streets measures, or that the project shouldbe exempt. Local agencies, primarily Midland's Non-Motorized Transportation Committee, and MDOT are actively involved in this process and the implementation of these types of projects.

Transit Coordination

As mentioned previously, MATS has participated in two studies being conducted to take a closer look at regional transit services and how they can be enhanced. Although these studies are on-going and will potentially lead to improvements regarding transit coordination and services, currently there are some noticeable issues with the area's public transportation.

Highway Safety

Planning for roadway safety is an important component examined during MATS' project selection process, TIP, and LRTP development. This includes considering both traffic crash history and potential safety improvements. RoadSoft, developed by The Center for Technology & Training (CTT) at Michigan Technology University, provides a geographic summary of collision data.

Exhibit 24 - Top 10 Highest Crash Segments and Intersections within MATS Area, 2016-2019

Intersection Location	Total # of Crashes
Eastman Ave & E Wackerly Rd	124
Buttles St & Jerome St	104
Eastman Ave & N Saginaw Rd	88
E Indian St & Ashman St	69
Midland Rd & E Tittabawassee Rd & Tittabawassee Rd	62
W US 10/Eastman RAMP & Eastman Ave	57
Eastman Ave & Joe Mann Blvd	55
Midland Rd & Washington Ave	52
E Patrick Rd & N Saginaw Rd	47
E Isabella Rd & W Isabella Rd & N Meridian Rd	46

Segment Name	Limits	Total # of Crashes
Eastman Ave	E Wackerly Rd to Harcrest Dr	95
Eastman Ave	Pleasant Ridge Dr to N Saginaw Rd	85
N Saginaw Rd	E Haley St to E Patrick Rd	84
N Saginaw Rd	Campau St to Eastman Ave	69
E Isabella Rd	Currie Pkwy to Jerome St & W Main St	51
E Wackerly Rd	Wackerly/E US 10 ramp to Eastman Ave	47
Jerome St	Ellsworth St to W Buttles St	46
Joe Mann Blvd	Eastman Ave to Elisenal Dr	43
Buttles St	Eastman Ave to Jerome St	39
E Indian St	Gordon St to Ashman St	37

Source: RoadSoft - Center for Technology and Training

Having access to this type of data is crucial in selecting projects which may contain safety improvements such as intersection optimization, construction of left-turn lanes, curb and gutter enhancements, and others. This allows federal-funding to be utilized in an efficient manner to address on-going roadway safety issues in the MATS area.. Further, it is the mission of the Michigan's Strategic Highway Safety Plan to"improve traffic safety in Michigan by fostering effective communication, coordination, and collaboration among public and private entities." The vision of moving towards zero deaths includes goals to reduce traffic fatalities and injuries drastically. This plan establishes programs which provide funding opportunities for road agencies to apply for funds for safety improvement projects.

Exhibit 25 – Total Crashes per Type & Total Annual Crashes per County

MATS Area (2019)	
Single motor vehicle	1,594
Head-on	15
Head-on / left turn	41
Angle	309
Rear-end	383
Rear-end left turn	28
Rear-end right turn	10
Sideswipe same direction	180
Sideswipe opposite direction	28
Backing	47
Other	112
Unknown	19

Total Annual Crashes per County			
	Bay	**Midland**	**Saginaw**
2010	2,963	2,668	5,874
2011	2,900	2,661	5,566
2012	2,654	2,608	5,086
2013	2,879	2,655	5,650
2014	2,855	2,472	5,288
2015	2,909	2,528	5,316
2016	3,007	2,672	5,729
2017	3,052	2,714	5,545
2018	3,078	2,755	5,374
2019	2,855	2,472	5,288

Source: Michigan Office of Highway Safety Planning - Michigan Traffic Crash Facts

Another way the state assists local road agencies in highway safety planning is by maintaining extensive traffic crash data for all of Michigan. The Michigan Office of Highway Safety Planning provides a web-based data query tool that shows crash data for various geographic areas including cities, counties, MPOs, and other regions. This data tool can be found at: http://www.michigantrafficcrashfacts.org. Exhibit 25 shows two examples of crash data which can be found using the data query tool.

Emergency and Security Planning

Two of the eight federally adopted planning factors emphasize the importance of incorporating emergency and security planning in maintaining and developing the future transportation system. As a result, MATS has adopted goals and objectives for its own network which are relevant to this endeavor.

Emergency Management

As defined by the Federal Highway Administration, emergency management is "the continuous process by which all individuals, agencies, and levels of government manage hazards in an effort to avoid or reduce the impact of disasters result from the hazards". There are four phases of emergency management:

Mitigation: Action taken to prevent hazards from developing into disasters, or to reduce the effects or mitigate the consequences of disasters when they occur.

Preparedness: In this phase, emergency managers develop plans of action for implementation when a disaster strikes.

Response: Governments taking direct action to save lives, protect property, care for victims, and mitigate the amount of damage.

Recovery: These efforts are primarily concerned with actions that involve rebuilding destroyed property, re-employment, and the re- pair of other essential infrastructure.

Midland County's Office of Emergency Management serves as the emergency management coordinator for the MATS area. Midland County follows guidelines provided by the Federal Emergency Management Agency (FEMA) and the Michigan State Police Emergency Management and Homeland Security Division. Midland County and MATS are thus up-to-date on regulatory and program changes, homeland security initiatives, advances in technology, and lessons learned from disasters elsewhere.

Security Planning

As recommended by the FHWA, transportation planning groups should include non-traditional members such as law enforcement, fire, emergency medical services, and emergency management agency representatives. Involving these agencies can provide recommendations to improve how a project is designed and constructed. Also, specific questions can be asked as a project is planned, which can help mitigate potential threats or hazards and seek a final design that incorporates security measures.

The Federal Highway Administration has prepared a chart which out- lines steps for security planning and how they can be integrated into the transportation planning process. Below is a summary of key concepts taken from the chart - the column on the left provides a set of steps that should be utilized to help integrate security planning in the traditional planning steps listed on the right. Each planning step notes in bold the relevant security step.

Exhibit 26 - Transportation Security Planning

Security Steps	Project Steps
A. Security Advisory Team *B. Threat Assessment and Hazard Analysis*	*1. System Analysis - Determine need for a new project (A)*
C. Threat and Hazard Mitigation Strategies	*2. Project Identification - Location, purpose, access, funding source (B,C,D,F)*
D. Incorporate Security Requirements	*3. Project Planning - Review and approval of project*
E. Develop Contract Language (C, F, G)with Security in Mind	*4. Project Programming - Added to MPO TIP, then STIP (C, F)*
F. Conduct Security Reviews *G. Develop Scope of Work* *H. Conduct Planning and Rehearsals*	*5. Preliminary Design - Initial risk assessment (D, E, F, G, H)* *6. Environmental Review - (D, F)* *7. Final Design - (D, F, G)* *8. Acquisition and Contracting - Acquiring ROW and construction firm (F)* *9. Project Construction - (A)* *10. Project Acceptance - (F, H)*

Other Factors Affecting Transportation

Aging Population

As the average age of the country's population continues to increase, the transportation needs of older residents becomes significantly more important. Within the MATS area, this trend becomes very evident when analyzing the US Census Bureau's statistics on total population per age group. When comparing data from 2014 to 2019 regarding Midland County, there has been an increase to all age groups 60 and above. The overall median age during this same time period has increased by a half a year, to 41.3.

Examining this data makes it clear that alternatives to personal vehicles for those unable to drive must be provided. Transit services serve as a possible choice to accommodate older residents for needs such as medical appointments and groceries. It is also important to mention that those with disabilities benefit similarly from such services. In order to enhance multi-modal options, currently door-to-door services, these concerns can be addressed through various transit planning efforts.

Exhibit 27 - Midland County's Aging Population

	2019 ACS Estimate		2014 ACS Estimate		
Total population	83,156	100.0%	Total population	83,620	100.0%
Under 5 years	4,504	5.4%	Under 5 years	4,481	5.4%
5 to 9 years	4,634	5.6%	5 to 9 years	5,436	6.5%
10 to 14 years	5,814	7.0%	10 to 14 years	5,472	6.5%
15 to 19 years	5,377	6.5%	15 to 19 years	5,965	7.1%
20 to 24 years	4,246	5.1%	20 to 24 years	5,435	6.5%
25 to 34 years	10,131	12.2%	25 to 34 years	9,418	11.3%
35 to 44 years	10,533	12.7%	35 to 44 years	10,234	12.2%
45 to 54 years	10,660	12.8%	45 to 54 years	13,000	15.5%
55 to 59 years	5,577	6.7%	55 to 59 years	6,362	7.6%
60 to 64 years	6,211	7.5%	60 to 64 years	4,884	5.8%
65 to 74 years	8,480	10.2%	65 to 74 years	6,807	8.1%
75 to 84 years	5,043	6.1%	75 to 84 years	4,365	5.2%
85 years and over	1,946	2.3%	85 years and over	1,761	2.1%
Median age (years)	41.3		Median age (years)	40.7	

Enhancing Livability

Like many places across the United States, there is a clear effort with- in the MATS area to maintain and strengthen the community's overall quality of life. Agencies within MATS' boundaries take this a step further through the various activities and programs held that establish an incredibly unique and livable community. Whether it is participating in the ongoing revitalization process of the City of Midland's downtown or attending a Great Lakes Loons minor league baseball game, thereis a wide variety of events the public is encouraged to engage in that support this efforts success. Since there are an abundance of activities which build upon this movement, a list has been provided to mention some of significance:

- City of Midland's downtown Streetscape redevelopment and enhanced downtown activities
- Nearby Universities - CMU, SVSU, Davenport and Northwood
- City of Auburn's Farmers Market improvements
- City of Midland Safe Community designation to address fire and fall safety for seniors, drug abuse, and mental health
- Midland Community Bike Tours to promote cycling safety
- Midland County Courthouse renovations to improve access, in-crease security
- Art Wave collaboration to promote art and entertainment for theGLRB
- Midland STEM elementary school opening in 2017 (third in the country)

Recognizing that transportation plays a vital role both directly or in- directly regarding these activities, it is crucial for MATS to assist the continuous initiative of enhancing livability. Not only should MATS support these agencies and programs, but the MPO must ensure that transportation investments it facilitates improve quality of life as well.

Major floods in both 2017 and 2020

Parts of Michigan were inundated with heavy rain May 17 through May 19, 2020. A low pressure system and front stalled across the region. Per the NWS Detroit, widespread rain totals of 5-8 inches were observed in the Tri Cities region (Saginaw, Bay City, and Midland) and into parts of northern Lower Michigan. This rain amount overwhelmed the Tittabawassee River. The result was the third "500 year flood"-category event in the last 50 years for Midland County.

In the two weeks following the 2020 event, the Midland County Road Commission had 138 different segments of roadways closed at some point. This is in addition to the significant number of streets and roads affected in the City of Midland. Furthermore, the flood that occurred on June 23, 2017 caused damages exceeding $7,000,000 to roads and bridges in Midland County. As the tables on page 34 and 37 show, over $3,000,000 in a combination of Federal and local emergency funding was expended after the two flooding events on road and bridge restoration and other associated costs.

As this event made abundantly clear, during extreme weather events transport infrastructure can be directly or indirectly damaged, posing a threat to human safety, and causing significant disruption and associated economic and social impacts. Flooding, especially as a result of intense precipitation, is the predominant cause of weather-related disruption to the transport sector.

MBS Airport Master Plan

With an FAA Classification as a Primary Service Non-Hub Airport, MBS' future plans interconnect with those of the greater MATS area. To better understand these impacts, MATS staff reviewed the recently completed Airport Master Plan. The primary focus of the plan is the on-site infrastructure related to aviation, but the surrounding road network has a key role.

Usability of the airport is affected by surrounding land uses, traffic volumes and physical characteristics of the adjacent road network. The road system will require upgrades to meet safety standards and community needs. This correlates with an interchange study conducted in 2004 for US-10 corridors in Bay County. According to MDOT, the Garfield Road interchange of US-10 "has the geometrically sub-standard two-way eastbound US-10 on ramp which involves Fisher Road." The Study further determined that modern roundabouts would be the most cost effective solution.

As noted in the Bay City Area Transportation Study LRTP:

> *"In 2012, MBS International Airport completed construction on their new terminal. The cost to build the terminal was approximately $55 million. This new terminal should meet the aerial needs for the region for the next 40-50 years and will improve the efficiency for air transportation for both the passengers and carriers. With this new terminal, improvement may also be on the way for Garfield Road from US-10 to MBS, the main access road to the new terminal from the north. Currently, the road is a two-lane, rural route and is operating under capacity. Thereare several safety issues along the route including large drainage ditches and during the winter months, wind driven snow and the mix of jurisdictional snow removal timing becomes an issue. This corridor will likely be studied in the future for possibly airport related development as the new terminal comes on line."*

Transit Coordination and Personal Mobility Studies

Midland County Public Transportation Study

According to public surveys, public transportation needs are not being met fully or adequately by existing public transportation options. Due to this perception, a study that focused primarily on determining and evaluating potential strategies to address those needs was conducted for Midland County. Its purpose was to evaluate and build on the County's current transportation services and create improvement strategies and a plan to implement them. An important aspect included promoting connectivity collaboration among local and regional agencies (especially for non-emergency medical transportation) while being mindful of fiscal

constraints and barriers. The *Midland County Public Transportation Study* was completed in late 2017 and is available on the MATS website.

Understanding that enhancing public transportation plays a critical role in developing the overall transportation system, MATS will continue to work with transit providers as well as other agencies to narrow deficiency gaps that can be addressed through better planning and coordination.

Coordinated Mobility Plan, Michigan Prosperity Region 5

The aim of the Coordinated Mobility Planwas to identify regional mobility needs in Region 5 (which includes Arenac, Bay, Clare, Gladwin, Gratiot, Isabella, Midland and Saginaw Counties) as well as the actions and strategies to remedy those needs. This resulted in:

- An assessment of available services that identifies current transportation providers, both public and private.
- An assessment of transportation needs for individuals with disabilities and seniors.
- Strategies, activities, and/or projects to address the identified gaps between current services and needs, and opportunities to achieve efficiencies in service delivery.
- Priorities for implementation based on resources from multiple program sources, time and feasibility for implementing specific strategies and/or activities identified.

Momentum Midland projects and related groups

Momentum Midland is an organization that, like the Downtown Development Authority, Chamber of Commerce, and Midland Tomorrow, seeks to improve the community in various development-related ways. One Momentum Midland project that has particular impact, due to its being related to the US-10 Business Route through downtown, is the West Entranceway project. This project has as its goals:

- Create an updated and attractive entranceway into Downtown Midland from the West.
- Encourage reinvestment on the east side of the block.
- Attract future investment on additional sites between the high- speed one-ways, Indian and Buttles, in Downtown.

Another project that relates to transportation and livability for the MATS area is a Bike Share System, partially funded through the Midland Community Foundation. This $170,000 project provides community members of all ages, income and ethnicity with access to a sustainable and affordable method of transportation, further promoting community health and wellness.

Other significant proposed road projects

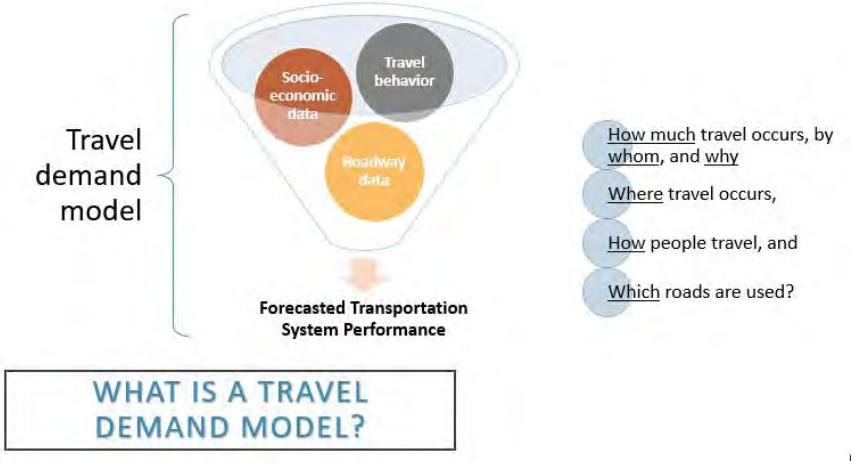
In August of 2015 the Michigan Department of Transportation (MDOT) began a corridor study of the US-10 Business Route from Washington Street to US-10 at Eastman Avenue. The primary objective of their work was to identify potential corridor improvements to US-10 BR that would alleviate traffic congestion, enhance safety, increase connectivity, eliminate barriers for non-motorized transportation, be context sensitive and support economic development.

One aspect of the larger overall study was tested over 18 months beginning in late 2017. This placed a portion of Buttles Street on a “road diet”, attempting to reduce the auto-related footprint so as to improve things like walk-ability and inter-connectedness to the downtown area. This is related to the West Entranceway project mentioned above, implemented by Momentum Midland. In early 2021 the Midland City Council voted to reduce the lanes permanently to 2, from Gordon Street to State Street. The timing of this reduction will be determined in cooperation with MDOT.

Chapter 7 - Travel Demand Modeling

The travel demand model used for the MATS 2045 Long Range Transportation Plan is a regional model, referred to as the Great Lakes Bay Region (GLBR) Model that includes Midland, Saginaw, and Bay Counties. Because of the interaction between these three areas, travel patterns can be better modeled as a regional model instead of modeling each area separately. This effort required coordination between MATS, Bay City Area Transportation Study (BCATS), and Saginaw Area Transportation Agency (SATA).

Travel demand forecasting models (TDMs) are a major analysis tool for the development of long-range transportation plans. These mathematical models are designed to calculate the number of trips, connect their origins and destinations, forecast the mode of travel, and identify the roadways or transit routes most likely to be used in completing a trip. Models are used to determine where future transportation problems are likely to occur, as indicated by modeled roadway congestion. Once identified, the model can test the ability of roadway and transit system improvements to address those problems. The model is a computer estimation of current and future traffic conditions and is built and ran through TransCAD software.



It is important to keep in mind that Travel Demand models work best at the *regional* level of detail. Although detailed volumes for individual segments are an output of the model, these are merely a starting point when additionalanalysis for a specific project is required. Due to the fact that many projects (such as preventative maintenance or rehabilitation) cannot be modeled, it is a necessarily limited view of one possible path towards future transportation investments in the MATS area.

Although overall growth must be planned for, limited growth like that occurring in the MATS region does not invalidate the use of the Model. It is still an important piece of the Long Range Planning process. By proceeding through the modeling of connectivity and/or roadway capacity expansion projects we can further identify the effect of those projects on traffic patterns and subsequent connectivity and capacity impacts.

Also, we can see if *not* constructing capacity expansion projects will affect operations of the transportation system, either positively or negatively. Modeling allows us to see optimal traffic patterns from a regional perspective and propose alternative projects or policies that address any congestion or otherissues that may be revealed. Transportation models help to build high-quality multimodal transportation systems, reducing environmental impacts, minimizing traffic congestion and avoiding detrimental, undesirable travel and land use patterns.

The GBLR model has 4 time periods that were developed to match the peak periods observed in traffic counts. The following period were used: AM Peak (7am - 9am), Mid-Day (9am - 3pm), PM Peak (3pm - 6pm), Nighttime (6pm - 7am). The PM Peak period represents the largest utilization of capacity, and therefore the worst case scenario for any given segment.

Details regarding the modeling process are included in the Appendix to this document.

Model Outputs

Certain model outputs are used to assist decision-makers in planning for future transportation improvements. The “existing” scenario, the starting point for the model, is the current road network (simplified) with travel volumes based on the current socio-economic data. The model calibration/validation verifies, for the base year, that the assigned volumes simulate actual traffic counts on the street system.

It is important to bear in mind that individual segment operations are correlated to the size of the urbanized area. It must be seen in the context of the whole regional network and associated travel times, as well as the perspective that in urbanized areas delays will happen simply due to the reality of signalized intersections and other traffic control devices.

The “current” scenario reflecting 2017 PM peak period operations (3 to 6 PM) is presented in Exhibit 21, on page 29. The overall network operations are satisfactory, with only one segment above 75% capacity. The model validates our existing experience in higher traffic areas such as near the Midland Mall, Eastman Avenue and Jefferson Avenue along with Waldo Road (operating between 50 and 75% capacity).

The "no build" scenario reflects the current road network with future year traffic volumes. Projected changes to socio-economic data are applied to the model to generate these traffic assignments and volumes. This supposes that over the model time-frame no capacity is added to the network outside of projects that are currently committed to being built.

The “no build” scenario reflecting 2045 PM peak period operations (3 to 6 PM) is presented in Exhibit 28. The overall network operations are still satisfactory, however more segments are now operating at a higher level of capacity utilization. We now have 4 segments predicted to operate at over 75% capacity utilization. This makes sense from the perspective of adding 28 years of traffic growth.

Finally, the "build" scenario shows the future road network (accounting for potential network enhancements, otherwise known as Capacity Expansion projects, detailed below) with future year traffic volumes. Build scenario traffic conditions are then compared to the no-build scenario, evaluating the impacts of those network enhancements. The “build” scenario reflecting 2045 PM peak period operations is presented in Exhibit 29.

The overall network operations in the “build” scenario are at a slightly better level of capacity utilization versus the “no build” scenario, notably there fewer segments operating at over 75% utilization. This is due to traffic reassignment from the desired network connectivity projects that were modeled. Other projects that were modeled were either lane reductions (Indian and Buttles) or lane direction reassignment projects (Rodd and Ashman). Even with those changes, satisfactory operations were maintained, with capacity utilization of individual segments being less than 50%. The modeled full interchange at US-10 and Waldo Road had a significant positive effect on surrounding road network operations. Exhibit 30 (inset) more clearly illustrates the effect on network operations resulting from those enhancements.

Individual Evaluation of Modeled Projects

A detailed list of desired network enhancements that was modeled is shown in Exhibit 31. This list is the culmination of a process of extensive dialog with local agencies within the MATS area. It emphasized projects which were both widely sought after, and feasible to complete in the model time-frame.

A Commerce Drive and Letts extension provides connectivity north of the Mall area. This will allow residents to travel east of Jefferson and west of Eastman if they are not traveling to the mall area. The model shows reduction in capacity utilization on the parallel road Monroe and some reduction on Eastman and Jefferson.

The Mier Road Extension adds connectivity to the immediate area. It reduced traffic to the south on Meridian and Stark roads and created a path from Meridian to Eastman.

The bridges and new road connections on S. Alamando Road, Magruder Road, 9 Mile Road and Burns Road all add connectivity to their respective areas and give more direct paths to arterials for residents. They do reduce traffic on some of the existing primary roads due to the creation of more direct paths. Overall they have a positive effect on the area.

The Ashman and Rodd project, creating 2-way streets from the current 1-way pair, allows motorists greater choice, and results in trips that could be shorter either in distance or time. This change in configuration slightly increased the capacity utilization of both roads, due to the reduction in total travel lanes from 6 to 4. However, the new traffic conditions would not be perceived as congested by motorists.

The changes to Indian and Buttles streets would result in lane reductions from 3 to 2 lanes. This change in configuration slightly increases the capacity utilization of both roads, due to the reduction in total travel lanes from 6 to 4. However, the new traffic conditions would not be perceived as congested by motorists. Note however that the Buttles portion of this project is not listed as a modeled capacity project because it was a confirmed change at the time of publication.

Regarding Jefferson Avenue, there is currently a significant congestion issue at the intersection with Joe Mann Boulevard. This modeled project adds a second left turn lane in the northbound direction, thus greatly improving operations at that intersection, partly by increasing the ability of traffic to que prior to turning and partly by optimizing throughput.

The full Waldo Road@US-10 interchange results in key traffic pattern realignment, not only in the immediate surrounding area but at adjacent US-10 interchanges. That interchange currently provides no re-entry for eastbound traffic and no off-ramp for westbound traffic.

The additional two ramps and the subsequent traffic pattern changes provided localized traffic congestion relief (including the Midland Mall area and the segment of Waldo Road between Patrick and Wheeler). This results in substantial numbers of vehicles using these ramps in the 2045 future year.

Each of the projects listed in exhibit 31 provide a benefit to the overall MATS area, either through enhanced connectivity or through traffic pattern adjustments for better system-wide capacity utilization and operations.

A final note about these projects and proposed network changes. They are not intended to directly address the specific locations of high capacity utilization shown on the “No Build” exhibit. Rather, we employ the overall network analysis capability of the model to evaluate broader-scale impacts of the desired projects.

Exhibit 28 - 2045 “No Build” Scenario PM Peak Traffic Conditions

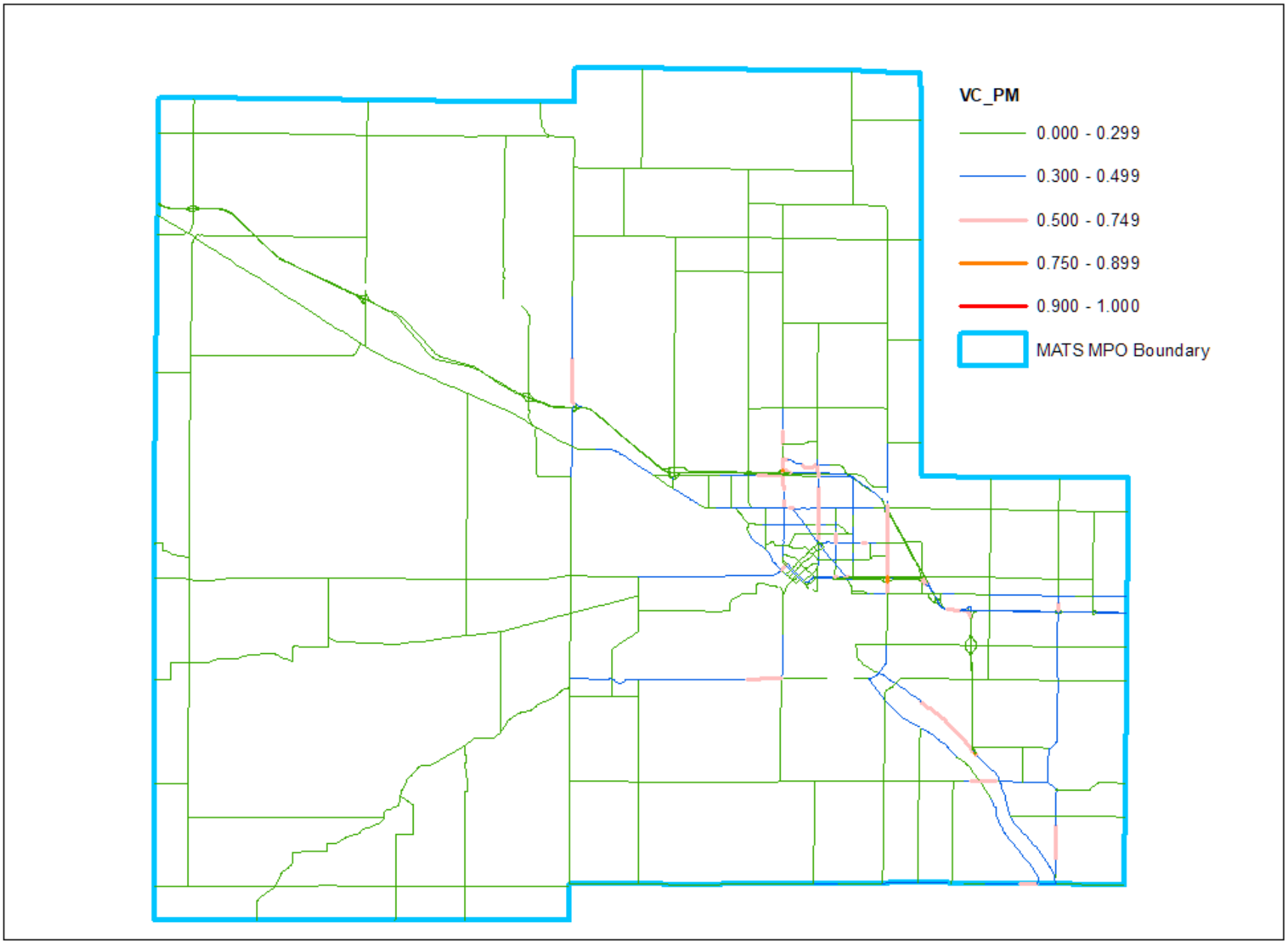


Exhibit 29 - 2045 “Build” Scenario PM Peak Traffic Conditions

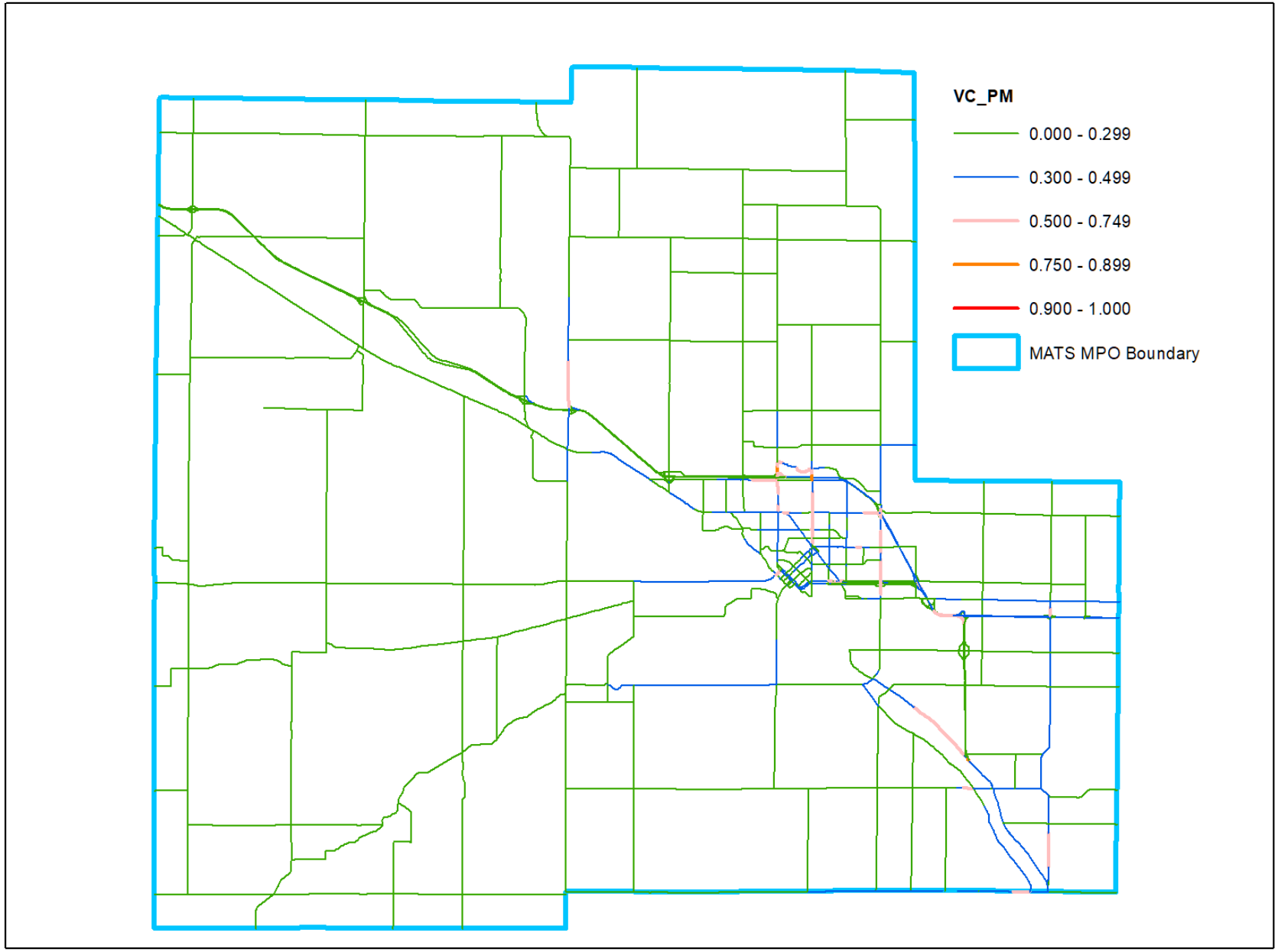


Exhibit 30 - 2045 “Build” Scenario PM Peak Traffic Conditions, Inset

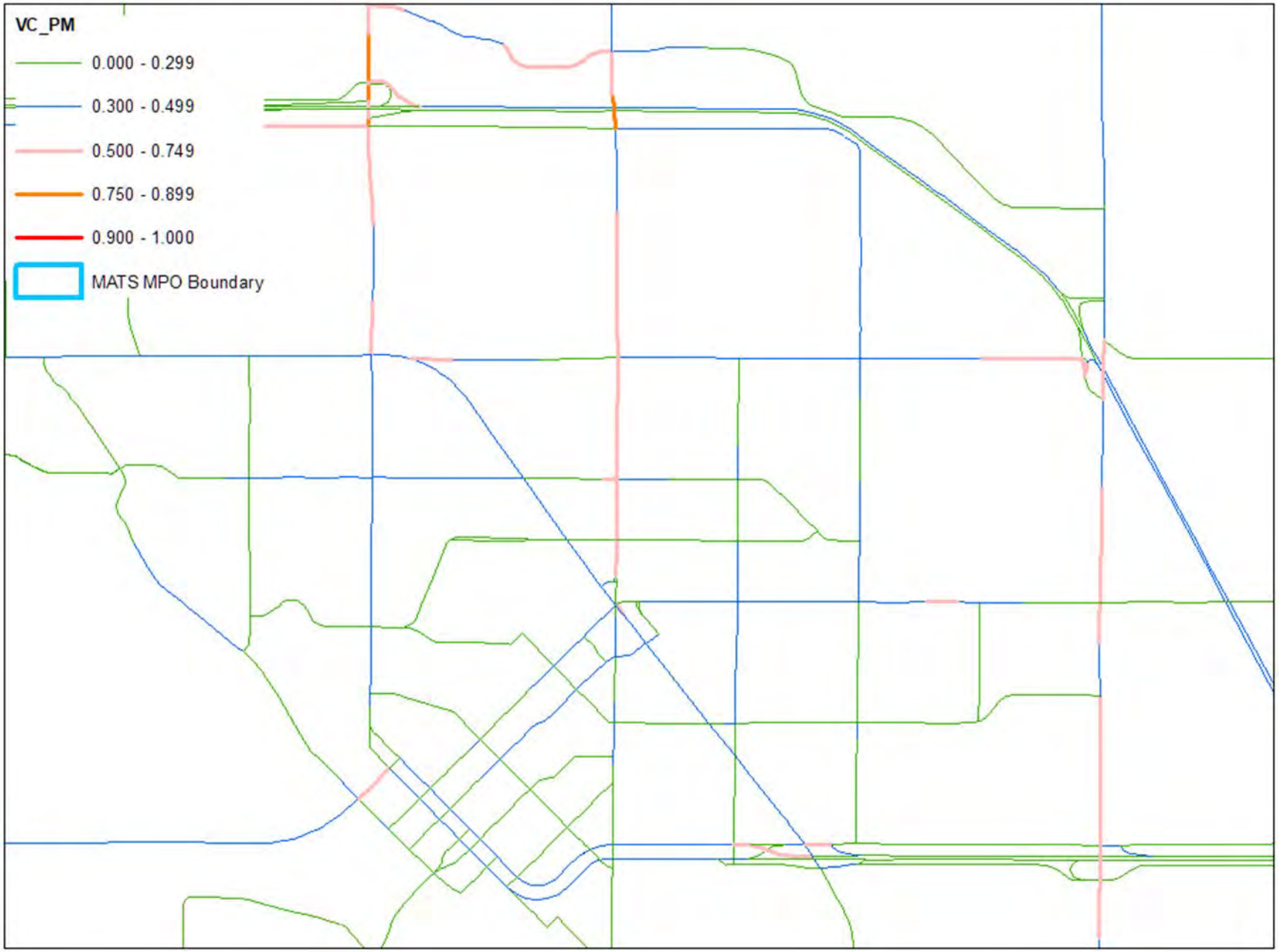


Exhibit 31 - Modeled Capacity Projects

Project and Limits	Project Description	Completed By
Letts Road Extension: I mile East of Jefferson Avenue to Waldo Avenue	Construct two lanes	2035
Commerce Drive Extension: Eastman Avenue to Sturgeon Road	Construct two lanes	2045
Mier Road Extension: 0.8 miles East of M-30 to N. Dublin Road	Construct two lanes	2035
Magruder Road: McNally Road to M-20	Construct two lanes	2035
S. Alamando Road: Salt River Road to W. Pine River Road	Construct two lanes and build bridge over Little Salt Creek	2035
9 Mile Road: W. Chippewa River Road to W. Pine River Road	Construct two lanes and build bridges over Chippewa River and Little Salt Creek	2045
Burns Road: M-18 to N. Lake Sanford Road	Construct two lanes and build bridge over Bluff Creek	2045
Indian Street: Gordon St. to State St.	3 to 2 lane reduction	2045
Ashman Street: Ashman Circle to Indian Street	Reconfigure 3 lanes SB to 1 lane each direction w/center lane; roundabout modifications	2035
Rodd Street: Cambridge Street to Indian Street	Reconfigure 3 lanes NB to 1 lane each direction w/center lane	2035
Ashman Street: Indian Street to Ann Street	Reconfigure to 1 lane in each direction	2035
Rodd Street: Indian Street to Wyman Street	Reconfigure to 1 lane in each direction	2035
Jefferson Ave. @ Joe Mann Blvd.	Added left turn lane	2035
US-10 at Waldo Rd. Interchange	Add two ramps for full interchange	2035

Chapter 8 - Evaluation & Resulting Strategy

Evidence Base

Thus far we have examined a large amount of data, information and explanations of the process utilized. This is known as the Plan Foundation, or Evidence Base. Through the process, we have defined an overall vision for the plan, i.e. *"Striving for a safe and efficient transportation system which promotes the region's attractiveness to live, work, and visit."*

In addition, we have arrived at goals for the MATS area with which to fulfill that vision. These goals are, briefly put:

- Accessibility and Mobility
- Safety and Security
- Integration and Connectivity
- Operations and System Management
- Preservation of Transportation System
- Environmental Protection and Enhancement
- Economic Vitality

Next, objectives were identified for each goal. These objectives are specific and accomplishable, and directly support the overall vision for the plan.

To accomplish these objectives, the existing physical environment, infrastructure, and socio-economic conditions were identified, and reviewed. They were analyzed in conjunction with a travel demand modeling effort to better predict travel patterns for future years. Other plans, for non-motorized and air transport, or other issues, were reviewed and incorporated as well. Finally, proposed project lists were generated and reviewed for applicability and ability to be funded.

> *"By asking questions such as 'what should we do in order to …?', and 'what are the consequences of …?', and applying relevant expert knowledge when answering these questions – in dialogue with other actors – planners can contribute to finding ways of solving problems, reaching agreements and achieving defined objectives."*
>
> *Tennoy, Hansson, Lissandrello and Naess, 2016*

Overall Long Range Strategy

The conclusions reached from this process clearly indicated that current operations and traffic conditions are satisfactory; therefore the existing network is not in need of expansion (except for very limited locations); and that demographic forecasts through 2045 predict low but steady growth. Future traffic operations and conditions will remain acceptable.

This resulted in an overall Long Range strategy that focuses on 4 local factors: Preservation, Maintenance, Safety, and Livability. The implementation plan, i.e. the Prioritized Project List, was then carefully prepared to address and support the vision, goals, and objectives identified earlier. The prioritized projects are primarily infrastructure maintenance and rehabilitation, with some connectivity enhancements and non-motorized projects. They are presented in Chapter 10, and are fiscally constrained (as demonstrated in the appendix).

In addition, the remainder of the projects that were proposed are listed in Chapter 11, to illustrate the discrepancy between the transportation infrastructure needs and projected available funding.

Chapter 9 - Financial Resource Analysis

Background

A key requirement of the Long Range Transportation Plan is that it be fiscally constrained. This means that the total sum of all prioritized projects within the MATS area cannot exceed the amount of financial resources reasonably expected to be available; this pertains to each individual source of funding. Therefore, it is important that as part of the systematic analysis both the costs and the available financial resources be carefully reviewed.

This analysis will enable us to better understand the sources and amounts of available revenue, planned expenditures, and how this Long Range Plan meets the regulatory requirement of fiscal constraint.

Unfortunately, not all needed projects can be funded, so the review and analysis process utilized carefully targeted factors, among them the fiscal constraint requirement, to determine the final Prioritized Project list. These projects are constrained to revenue projections through 2045.

Sources of Funding

Through the current Infrastructure Investment and Jobs Act, Michigan receives its federal highway funding from the following programs: The Interstate Maintenance Program, the National Highway System Program, the Surface Transportation Program, the Highway Bridge Replacement, and Rehabilitation Program, among others.

The general sources of transportation funding come from motor fuel taxes and vehicle registration fees. The federal government and the State of Michigan both tax motor fuel. Motor fuel taxes are excise taxes, which means they are a fixed amount per gallon; the tax amount does not increase/decrease with the changing cost of gasoline. Consequently, inflation erodes the purchasing power of the motor fuel tax. The State of Michigan also collects vehicle registration fees annually when motorists purchase license plates or tabs. Vehicle registration fees make up roughly half of the transportation funding collected by the state.

The most commonly used Federal-aid programs within the MATS area are summarized herein, as well as State and local sources.

Federal Funding Sources

STBG - Urban (STUL)

States and localities may utilize the Surface Transportation Block Grant program (STBG) to preserve and improve road conditions and performance on any Federal-aid highway. As the designated MPO for the Midland Urbanized Area, MATS is allocated this source of funding directly.

STBG - Rural (STL)

The Rural Surface Transportation Block Grant funds projects through Rural Task Forces. MDOT distributes funds to each rural task force based on a statewide formula. Funds disbursed represent allocation "target" amounts that each task force can use to plan projects for the fiscal year. Rural Task Force (RTF) 7C, which includes Midland County, as well as 7B (Saginaw and Bay counties), are responsible for programming transportation projects in the non-metropolitan portion of MATS. The Midland, Bay, and Saginaw County Road Commissions are the agencies that are part of these Rural Task Forces.

STBG - Transportation Alternatives Set-Aside Program

TA Funds are distributed among states via the STBG. Applicants are eligible for awards on a competitive basis for activities such as enhancing bike and pedestrian facilities, landscaping, historic preservation, and safety improvements.

State Trunkline

MDOT does not allocate a specific amount to each region to spend on highway repairs. Priorities are instead set based on the overall trunkline system's condition. Projects such as rehabilitation, reconstruction, bridge repairs, and capacity improvements are supported through these funds.

Transit Section 5303

Section 5303 funds are available to carry out the metropolitan transportation planning and programming requirements of the joint FTA/FHWA planning regulations.

Transit Section 5307

The Urbanized Area Formula Funding program (49 U.S.C. 5307) makes federal resources available to urbanized areas and to governors for transit capital and operating assistance in urbanized areas and for transportation-related planning. Midland Dial-A-Ride Transportation receives operational and capital assistance through the 5307 program.

Transit Section 5310

This funding source is available to improve mobility for seniors and individuals with disabilities by removing barriers to transportation service and expanding mobility options. This program supports transportation services in all areas, urban and rural.

Transit Section 5311

This funding source is provided to assist transportation services in non-urbanized areas. The goal is to allocate funds to rural areas with less than 50,000 in population. This allocation is received by County Connection of Midland.

Transit Section 5339

This category of federal-aid provides capital funding to replace, rehabilitate, and purchase buses and related equipment and to construct bus related facilities. Both the County Connection of Midland and Dial-A-Ride apply for this type of funding on an annual basis.

State Funding Sources

ACT 51 and Other Funds

Public Act 51 of 1951, also known as Act 51, governs the collection and distribution of Michigan's highway revenue. Revenue from the motor fuel tax and vehicle registration fees is deposited into the Michigan Transportation Fund (MTF). After certain grants and administrative costs are removed from Act 51 funding, around ten percent remains in the Comprehensive Transportation Fund (CTF) for transit. Thereafter, the remaining funds are divided among the Michigan Department of Transportation (MDOT), county road commissions, and municipalities (incorporated cities and villages) in proportions of 39.1 percent, 39.1 percent, and 21.8 percent.

For transportation, MTF funds are the primary source of the 20% local match to 80% federal funds. Also, they are used for various other transportation projects, including maintenance work. Roadway maintenance projects can include activities such as salting, plowing, moving lawns, and trimming trees.

Other State funds include Transportation Economic Development Fund (TEDF), Local Bridge Program, Winter Maintenance, Freight Economic Development Program, and others. Revenues for operations and maintenance come primarily from taxes and user fees at the local and state level.

Local Funding Sources

Local governments can allocate additional funds to transportation projects. Funding comes primarily from millages (property taxes), general funds, township or county governments, and other sources. A county road commission usually supplements its budget by partnering with local townships. Local governments usually provide funds for transportation projects based on their needs.

Michigan Legislative Action and Future State Funding

Several years ago, major changes to the State of Michigan's surface transportation revenue collection were enacted. These changes included:

1) Increasing all motor fuel taxes to 26.3¢/gallon from 19¢/gallon (gasoline) and 15¢/gallon (diesel), effective January 1, 2017;
2) Raising vehicle registration fees by an average of 20%, effective January 1, 2017;
3) Transferring $600 million from the state's General Fund to highways in FY 2021 and subsequent years; and
4) Adjusting the motor fuel tax for inflation by up to 5% each year, starting in January 2022.
5) In FY 22- 26, ~$235 million in income tax and ~$19.2 million in excise tax on recreational marijuana will be appropriated annually to the STF.

When these changes take full effect MTF revenue is anticipated to increase by approximately $1.2 billion annually, from the current $2.856 billion (in fiscal year 2018-19, the most recent fiscal year completed) to over $4 billion annually.

Revenue Forecast and Fiscal Constraint

The revenue forecast for MATS 2045 Long Range Transportation Plan is presented in the table below. This table shows the amount of funding estimated to be dedicated to each program, the details of each program can be found in the Appendix. The expenditures identified through the Prioritized Projects in the next chapter do not exceed the total federal, state, and local revenues expected to be available for the 2022-2045 time period.

Exhibit 32 - 2022 - 2045 Total Revenues for MATS Area (Federal, State, & Local Funding)

	2022-2025	2026-2035	2036-2045	Totals
Local STP Urban Program	$8,831,000	$17,171,003	$47,236,787	$47,236,787
Local STP Rural and EDD Program	$6,588,482	$10,706,361	$30,487,905	$30,487,905
Non-Motorized Program	$14,000,004	$5,466,952	$26,184,500	$26,184,500
Local Safety Program	$1,504,767	$2,838,335	$7,830,720	$7,830,720
Local Bridge Program	$4,694,500	$5,676,670	$17,346,405	$17,346,405
Local Capital Program	$4,103,161	$11,590,137	$29,657,979	$29,657,979
Trunkline Capital Program	$37,000,000	$106,900,000	$303,800,000	$303,800,000
State and Local Operations and Maintenance Program	$45,253,950	$127,828,158	$327,099,213	$327,099,213
Urban Transit Program	$11,012,519	$31,212,047	$80,223,116	$80,223,116
Urban Transit - Capital Program	$12,397,013	$32,141,733	$38,942,957	$83,481,703
Totals	**$145,385,396**	**$351,531,396**	**$456,431,538**	**$953,348,328**

Chapter 10 - Prioritized Projects

Funding our Future

A simultaneous process of assembling prioritized projects list out of all proposed projects and calculating reasonably expected revenues for each funding category over the period 2022 to 2045 was undertaken by MATS staff. Several iterations of intense and detailed effort were required to equalize the level of funding to the resulting project list. All planning principles and financial assumptions used to identify federal and state financial resources and investment needs were developed with and reviewed by MATS Committees and federal, and state partners. The Appendix provides detailed revenue and cost projections for each funding category and project list.

Key to Program Types:

HSIP – Highway Safety Improvement SAFETEA-LU
NH - National Highway System
STL - Surface Transportation Rural
STUL - Surface Transportation Urban Local
STUT - Surface Transportation Urban Trunkline
5307 - Transit – Section 5307 – UZA Formula
5310 - Transit – Section 5310 – Enhanced Mobility of seniors and Persons with Disabilities
5339 - Transit – Section 5339 – Bus and Bus Facilities
BHT - Bridge Rehabilitation – Surface Transportation Program (STP)
BRT - Bridge Replacement – Surface Transportation Program (STP)
EDD - Transportation Economic Development Fund-Category D
HRRR- High Risk Rural Roads - SAFETEA-LU
NHG - National Highway System - Safety - 100% Federal
STG - STP - Safety - 100% Federal for ST

Prioritized Projects

In the proceeding list of prioritized projects two things should be noted. First, that these projects were approved by the MATS Policy committee for a variety of reasons that, taken together, aim to fulfill the goals and objectives of this LRP. This could include projects suggested by the modeling effort, but more often are intended to deal with the urgent need to preserve and improve the aging transportation infrastructure of the area.

Secondly, even though previous plans and studies may have suggested particular projects or improvements, such as in the case of the 2021 Non-Motorized Transportation Plan, other factors such as funding and project time frames may have dictated a differing set of project priorities.

The result of the planning, modeling, and evaluation process is Exhibit 33, which shows the prioritized projects in the MATS area for the years 2022 - 2045. Note that projects are current as of November 2021 in order to finalize the data for LRP publication. The expenditures identified through the Prioritized Project list do not exceed the total federal, state, and local revenues reasonably expected to be available for the 2022-2045 time period, consequently ensuring a fiscally constrained plan. Though MATS compiled the list of projects with the aid of local agencies, MDOT, and other

stakeholders, projects will inevitably arise that were not included in the LRP. Not all projects are listed because a) some sources of funding operate with short time-frames or are competitive sources that are not known more than a year in advance, and b) there are safety or rehabilitation projects that arise from reaction to changing circumstances and traffic patterns.

The urban and rural transit programs have been proven to be fiscally constrained (as shown in the Appendix), but are not included in the prioritized project list because they are consistently comprised of operating and capital acquisition expenses.

Exhibit 33 - Prioritized Projects FY 2022 - 2045

Fiscal Year	Responsible Agency	Primary Work Type	Project Name	Limits	Project Description	Phase	Total Amount within MATS for Year of Construction	Fund Source
2022	Midland County	Bridge Rehabilitation	N Meridian Rd	Meridian Road over Pine River, SN# 6950	Miscellaneous Rehabilitation	CON	$1,746,000	BHT/State/Local
2022	Midland County	Bridge Rehabilitation	N Meridian Rd	Meridian Road over Chippewa River, SN# 6951	Bridge Rehabilitation	CON	$1,505,000	BHT/Local
2022	Midland County	Road Capital Preventive Maintenance	Stark Road Jefferson Street Baker Road Shaffer Road	Shaffer to Bombay Coleman limits to Adams St. Eastman to Swede Eastman to Sturgeon	Milling and One Course Asphalt Overlay	CON	$816,212 $73,388	STL/Local EDD
2022	MDOT	Road Rehabilitation	M-20	M-30 to east of Currie Parkway	Milling and two course HMA overlay	ROW UTL CON	$20,000 $300,000 $18,635,451	NH/State/Local NH/State/Local NH/State/Local
2022	MDOT	Traffic Safety	trunkline routes	various locations	Pavement marking retroreflectivity	CON	$1,342	HSIP/State
2022	City of Midland	New Roads + Non-Motorized Project	W Sugnet Rd	Main Street to Northwood Drive	New Road+ Dedicated Bike Lane within Roadway	CON	$1,226,000 $300,000	STUL/Local HIC
2022	MDOT	Traffic Safety	trunkline routes	various locations	Longitudinal pavement marking application	PE	$1,220	HSIP/State
2022	MDOT	Traffic Safety	trunkline routes	various locations	Longitudinal pavement marking application	CON	$223,260	HSIP/State
2022	MDOT	Traffic Safety	trunkline routes	various locations	Special pavement marking application	PE	$610	HSIP/State
2022	MDOT	Traffic Safety	trunkline routes	various locations	Special pavement marking application	CON	$32,330	HSIP/State

2022	MDOT	Bridge Replacement	M-20	over Prairie Creek	Bridge Replacement	CON	$2,045,282	ST/ER/State
2022	MDOT	Bridge CPM	US-10 BR Hope Road	over Snake Creek over US-10	Miscellaneous repairs to address RFAs	CON	$462,735	M
2022	Midland County	Traffic Safety	N Waldo Road	N Waldo Road at Monroe Road	Construct roundabout	CON	$750,017	HRRR/Local
2022	MDOT	Reconstruction	US-10 W	7 Mile Rd. to US-10 Railroad Bridge	Reconstruct	PE	$4,786,130	NH/State
2022	MDOT	Bridge CPM		6 Bridges in Midland County	Scour Protection	CON	$742,248	ER/State
2022	MDOT	Road Rehabilitation	M-20	from 0.50 miles west of Magruder Road to 9 Mile Road	Culvert rehabilitation at 4 locations	CON	$115,656	ER/State
2022	Midland County	Reconstruction	Poseyville Rd	From Ashby Road to St. Charles Road	Permanent road repairs	CON	$938,873	ER/Local
2022	Midland County	Road Rehabilitation	West Curtis Road	from 11 Mile Road to 1/4 mile east of 11 Mile Road	Permanent road repairs	CON	$78,940	ER/Local
2022	Midland County	Road Rehabilitation	North Eastman Road	from Hubbard Road to Hurley Road	Permanent road repair	CON	$187,168	ER/Local
2022	Midland County	Road Rehabilitation	Gordonville Road	River Road to Saginaw Road over the Tittabawassee River	Permanent road repair	CON	$561,966	ER/Local
2022	Midland County	Road Rehabilitation	East Pine River Road	Hubert Rd to Woodcock Rd	Permanent scour repair	CON	$138,566	ER/Local
2022	Midland County	Road Rehabilitation	Redstone Road	Meridian Road to 7 Mile Road	Permanent road repair	CON	$21,334	ER/Local
2022	Midland County	Road Rehabilitation	West River Road	Gilhaven to Mier Road	Permanent road repair	CON	$126,116	ER/Local
2022	MDOT	Traffic Safety	US-10BR	US-10BR at Wackerly Road	Construction of new thru/right turn lane, signal modernization	CON	$891,104	NH/State/Local
2023	Midland County	Bridge CPM	Gordonville Road	At 4 3/4 Mile Road	Capital Preventative Maintenance	CON	$229,000	BO/State/Local
2023	Midland County	Bridge CPM	E Freeland Road 9 Mile Road	E Freeland Road, SN #6931 9 Mile Road, SN #6947	Capital Preventative Maintenance	CON	$205,000	BHT/State/Local
2023	Midland County	Non-Motorized Project	Smiths Crossing Rd Bridge	Smiths Crossing Road Bridge & vicinity	bridge restoration, NMT path connectors	CON	$3,824,604	TAUL/Local
2023	Saginaw County	Road Rehabilitation	W Freeland Rd	Orr Rd to N. Gleaner Rd	Crush & Shape + Asphalt Resurfacing	CON	$850,000 $20,000	STL/Local EDD
2023	Midland County	Road Capital Preventive Maintenance	Tittabawassee Road	Sasse Rd. to Orr Rd.	Milling and One Course Asphalt Overlay	CON	$826,612 $73,388	STL/Local EDD

2023	Saginaw County	Road Rehabilitation	W Freeland Rd	N. Gleaner Road to River Road	Crush & Shape + Asphalt resurfacing	CON	$375,000	STUL/Local
2023	Midland County	Road Capital Preventive Maintenance	N Eastman Rd	Monroe Road to Mier Road	Milling & One Course Asphalt Overlay	CON	$68,356 $99,983 $1,131,661	HIPS HIC STUL/Local
2023	Midland County	Traffic Safety		Various Locations	Intersection signing	CON	$250,000	HSIP/Local
2023	MDOT	Traffic Safety	trunkline routes	various locations	Longitudinal pavement marking application	PE	$1,220	HSIP/State
2023	MDOT	Traffic Safety	trunkline routes	various locations	Longitudinal pavement marking application	CON	$194,285	HSIP/State
2023	MDOT	Traffic Safety	trunkline routes	various locations	Special pavement marking application	PE	$610	HSIP/State
2023	MDOT	Traffic Safety	trunkline routes	various locations	Special pavement marking application	CON	$50,630	HSIP/State
2023	MDOT	Traffic Safety	trunkline routes	various locations	Pavement marking retroreflectivity	CON	$1,342	HSIP/State
2023	MDOT	Traffic Safety	M-20	West Midland County Line to Meridian Road	Installation of shoulder mumble strips	CON	$68,827	HSIP/State
2023	MDOT	Bridge Rehabilitation	US-10 EB & WB Carter Road	Over GTW Rail Tracks Over US-10	Superstructure Repair- Steel	CON	$725,748	M
2024	Midland County	Road Capital Preventive Maintenance	Eastman Rd. Wackerly Rd. 7 Mile Rd.	Bombay to Baker Rd. 7 Mile Rd. to Meridian Rd. Saginaw Rd. to Wackerly Rd.	Milling and One Course Asphalt Overlay	CON	$900,000	STL/EDD/Local
2024	Bay County	Road Rehabilitation	W Midland Rd	Carter Road to Eleven Mile Road	Cold Milling	CON	$1,800,000	STUL/Local
2024	MDOT	Traffic Safety	trunkline routes	various locations	Non-Freeway signing upgrade	PE	$20,000	STG
2024	MDOT	Traffic Safety	trunkline routes	various locations	Longitudinal pavement marking application	PE	$1,220	HSIP/State
2024	MDOT	Traffic Safety	trunkline routes	various locations	Longitudinal pavement marking application	CON	$194,285	HSIP/State
2024	MDOT	Traffic Safety	trunkline routes	various locations	Special pavement marking application	PE	$610	HSIP/State
2024	MDOT	Traffic Safety	trunkline routes	various locations	Special pavement marking application	CON	$50,630	HSIP/State
2024	MDOT	Traffic Safety	trunkline routes	various locations	Pavement marking retroreflectivity readings	CON	$1,342	HSIP/State
2024	MDOT	Bridge Replacement	US-10	under M-30	Bridge Replacement	CON	$5,595,286	NH/State

2025	Bay County	Road Rehabilitation	Midland Road	11 Mile Road to Garfield Road	Cold Milling	CON	$1,900,000	STUL/Local
2025	Midland County	Road Rehabilitation	Barden Road 7th Street	Geneva Rd. to Saginaw Rd. Saginaw to County Line	Milling & Two Course Asphalt Overlay	CON	$900,000	STL/EDD/Local
2025	City of Midland	Non-Motorized Project	Saginaw Rd.	Dartmouth St. to Rodd St.	Separated Multi-Use Path Construction	CON	$1,000,000	Local
2025	City of Midland	Non-Motorized Project	Saginaw Rd.	Dartmouth St. to Patrick Road	Separated Multi-Use Path Construction	CON	$5,000,000	Local
2025	City of Midland	Road Rehabilitation	N Jefferson Ave	Wheeler Road to Chapel Lane	Crush & Shape asphalt resurfacing	CON	$780,000	STUL/Local
2025	MDOT	Traffic Safety	trunkline routes	various locations	Non-freeway signing upgrade	CON	$115,000	STG
2025	MDOT	Traffic Safety	trunkline routes	various locations	Longitudinal pavement marking application	PE	$1,220	HSIP/State
2025	MDOT	Traffic Safety	trunkline routes	various locations	Longitudinal pavement marking application	CON	$201,605	HSIP/State
2025	MDOT	Traffic Safety	trunkline routes	various locations	Special pavement marking application	PE	$610	HSIP/State
2025	MDOT	Traffic Safety	trunkline routes	various locations	Special pavement marking application	CON	$32,330	HSIP/State
2025	MDOT	Traffic Safety	trunkline routes	various locations	Pavement marking retroreflectivity readings	CON	$1,342	HSIP/State
2026	Saginaw County	Capital Preventative Maintenance	Garfield Road	M-47 to Freeland Road	Milling & Asphalt Overlay	CON	$750,000	STUL/Local
2026	Midland County	Road Rehabilitation	Pine River Road	Kent Rd. to 8 Mile Rd.	Milling & Two Course Asphalt Overlay	CON	$900,000	STL/EDD/Local
2026	Midland County	Capital Preventative Maintenance	Monroe Road	Eastman Rd to Sturgeon Rd	Milling & Asphalt Overlay	CON	$720,000	STUL/Local
2026	MDOT	Reconstruction	US-10 W	7 Mile Rd. to US-10 Railroad Bridge	Reconstruct	CON	$35,757,939	NH/State
2026	MDOT	Traffic Safety	trunkline routes	various locations	Longitudinal pavement marking application	PE	$1,220	HSIP/State
2026	MDOT	Traffic Safety	trunkline routes	various locations	Longitudinal pavement marking application	CON	$197,335	HSIP/State
2026	MDOT	Traffic Safety	trunkline routes	various locations	Application of special pavement markings	PE	$610	HSIP/State

2026	MDOT	Traffic Safety	trunkline routes	various locations	Application of special pavement markings	CON	$26,230	HSIP/State
2026	MDOT	Traffic Safety	trunkline routes	various locations	Pvmt mrkg retroreflectivity readings	CON	$1,342	HSIP/State
2027	MDOT	Traffic Safety	trunkline routes	various locations	Pvmt mrkg retroreflectivity readings	CON	$1,342	HSIP/State
By 2025	Midland County/Tittabawassee Twp.	Non-Motorized Project	Freeland-Midland Connector	Miller/Consumers Trail/Gordonville/River/Smiths Crossing/Tittabawassee Twp. Pathway	Separated Multi-Use Path /Shared Bikeway Construction	CON	$2,510,400 * ($8,000,000 overall cost, two subprojects listed separately.)	TAUL/Local
By 2025	Tittabawassee Twp.	Non-Motorized Project	Tittabawassee Twp. Pathway N. Extension	M-47 from Freeland Rd. to Tittabawassee Twp. Park	Separated Multi-Use Path/4 foot shoulders, Bike route signage	CON	$1,665,000	TAUL/Local
By 2027	City of Midland	Road Rehabilitation	Main Street	N. Saginaw Rd. to Orchard Dr.	Crush & Shape +asphalt resurfacing	CON	$1,470,000	Local
By 2027	City of Midland	Road Rehabilitation	Perrine Road	Wackerly St. to N. Saginaw Rd.	Crush & Shape +asphalt resurfacing	CON	$1,150,000	Local
By 2035	Midland County	Road Rehabilitation	Pine River Road	8 Mile Rd. to Meridian	Milling & Two Course Asphalt Overlay	CON	$740,000	STL/Local
By 2035	Midland County	Capital Preventative Maintenance	9 Mile Road	Olson Rd. to Prairie Rd.	Milling & One Course Asphalt Overlay	CON	$592,000	STL/Local
By 2035	Midland County	Capital Preventative Maintenance	Sasse Road	Freeland Rd. to Tittabawassee	Milling & One Course Asphalt Overlay	CON	$740,000	STL/Local
By 2035	Midland County	Road Rehabilitation	Poseyville Road	Freeland Rd. to Brooks Rd.	Milling & Two Course Asphalt Overlay	CON	$444,000	STL/Local
By 2035	Midland County	Road Rehabilitation	Stewart Road	Grey Rd. to Poseyville Rd.	Milling & Two Course Asphalt Overlay	CON	$666,000	STUL/Local
By 2035	Midland County	Capital Preventative Maintenance	Waldo Road	Wackerly Rd. to Monroe Rd.	Milling & One Course Asphalt Overlay	CON	$888,000	STUL/Local
By 2035	Midland County	Capital Preventative Maintenance	Sturgeon Road	Letts Rd. to Monroe Rd.	Milling & One Course Asphalt Overlay	CON	$444,000	STUL/Local
By 2035	City of Midland	Road Rehabilitation	Swede Avenue	Ashman St. to Patrick Rd.	Crush & Shape +asphalt resurfacing	CON	$1,776,000	STUL/Local

By 2035	City of Midland	Road Rehabilitation	Sturgeon Avenue	Letts Rd. to Wackerly St.	Crush & Shape +asphalt resurfacing	CON	$888,000	STUL/Local
By 2035	Midland County	Capital Preventative Maintenance	Schaffer Road	Coleman City Limits to M-18	Milling & One Course Asphalt Overlay	CON	$1,332,000	STL/Local
By 2035	Midland County	Capital Preventative Maintenance	Coleman Road	M-20 to Huckleberry Rd.	Milling & One Course Asphalt Overlay	CON	$592,000	STL/Local
By 2035	Midland County	Capital Preventative Maintenance	Dopp Road	Meridian Rd. to Homer Rd.	Milling & One Course Asphalt Overlay	CON	$444,000	STL/Local
By 2035	Midland County	Road Rehabilitation	Barden Road	Coleman Rd. to Geneva Rd.	Milling & Two Course Asphalt Overlay	CON	$888,000	STL/Local
By 2035	Midland County	New Roads	Letts Road	Waldo Rd. to 1 mi E. of Jefferson	New Road Construction	CON	$3,500,000	STUL/Local
By 2035	MDOT	Reconfiguration/ Road Rehabilitation	Buttles Street	Gordon St. to State St.	3 to 2 lanes reduction + resurfacing	CON	$18,000,000	NH/State/Local
By 2035	City of Midland	Reconfiguration/ Road Rehabilitation	Ashman Street	Ashman Circle to Indian St.	3 lanes SB to 1 lane in each direction + center lane	CON	$2,500,000	Local
By 2035	City of Midland	Reconfiguration/ Road Rehabilitation	Rodd Street	Cambridge St. to Indian St.	3 lanes NB to 1 lane in each direction + center lane	CON	$2,500,000	Local
By 2035	City of Midland	Reconfiguration/ Road Rehabilitation	Ashman Street	Indian St. to Ann St.	2 lanes SB to 1 lane in each direction	CON	$500,000	Local
By 2035	City of Midland	Reconfiguration/ Road Rehabilitation	Rodd Street	Indian St. to Wyman St.	2 lanes NB to 1 lane in each direction	CON	$500,000	Local
By 2035	City of Midland	Non-Motorized Project	Northeast Mall Pathway	Jefferson Ave. to Waldo Rd.	Separated Multi-Use Path Construction	CON	$500,000	Local
By 2035	Midland County	Pavement Preservation/ Non-Motorized Project	Lake Route	Curtis/Water/Dague/Meridian/ River/Burns/Lake Sanford Roads	Shoulder widening and bike route signage	CON	$1,200,000	STL/Local
By 2035	Midland County	Pavement Preservation/ Non-Motorized Project	Larkin Route	Monroe/Eastman/Hubbard/ Jefferson Roads	Shoulder widening and bike route signage	CON	$750,000	STL/Local
By 2035	Midland County	Pavement Preservation/ Non-Motorized Project	Bullock Creek Route	Homer/Pine River/Dopp/5 Mile/ Brooks/Poseyville/Grey/Stewart Roads.	Shoulder widening and bike route signage	CON	$1,500,000	STL/Local

By 2045	Midland County	New Roads	S. Alamando Road	Salt River Rd. to W. Pine River Rd.	New Road Construction	CON	$3,650,000	STL/Local
By 2045	Midland County	New Roads	Magruder Road	McNally Rd. to M-20	New Road Construction	CON	$2,750,000	STL/Local
By 2045	Midland County	Pavement Preservation/ Non-Motorized Project	Northeast Route	Shearer/Meridian/Middle/ Sturgeon/Airport/Stark Roads	Shoulder widening and bike route signage	CON	$1,800,000	STL/Local
By 2045	MDOT	Reconfiguration/ Road Rehabilitation	Indian Street	Gordon St. to State St.	3 to 2 lanes reduction + resurfacing	CON	$18,000,000	NH/State/Local
By 2045	City of Midland	Non-Motorized Project	Stratford Woods Connector	Patrick St. to Stratford Woods	Separated Multi-Use Path Construction	CON	$150,000	Local
By 2045	City of Midland	Non-Motorized Project	Wackerly St.	Siebert St. to Jefferson Ave.	Shared Road with bike signage	CON	$7,500	Local
By 2045	City of Midland	Non-Motorized Project	Downtown NMT Modification	Ashman/Rodd/McDonald/Buttles/ Indian	Development of NMT Facilities within roadway	CON	$500,000	Local

Chapter 11 – Projects Exceeding Available Funding

The large number of projects below illustrates dramatically the level of ageing transportation infrastructure and the discrepancy between those needs and the available funding. While the previous table showed the application of the principle of fiscal constraint, the needs of the transportation system substantially outweigh the funding available to address them. Therefore, this plan also lists necessary projects that exceed the currently available funding, in case other funding becomes available. The following tables in this chapter are projects that did not make the prioritized (funded) project list. If more funding does become available these projects are among those that should be considered. Also shown in the extensive tables is a comparison between the estimated present cost of the project and a projection of the increased cost in the future.

Finally, it should be noted that some of these projects are the result of the modeling process, while many are also the result of various other planning efforts. Among those is the full Waldo Rd./U.S. 10 interchange that resulted in traffic pattern realignment, and predicted localized traffic congestion relief (including the Midland Mall area) provided by the additional two ramps. That interchange currently provides no re-entry for eastbound traffic and no off-ramp for westbound traffic.

Exhibit 34 -Projects Exceeding Available Funding

Fiscal Year	Responsible Agency	Primary Work Type	Project Name	Limits	Project Description	Total Amount within MATS for Year of Construction
By 2035	City of Midland	Road Rehabilitation	Waldo Road	Wheeler Rd. to Ashman St.	Crush & Shape +asphalt resurfacing	$1,000,000
By 2035	Midland County	Capital Preventative Maintenance	Hope Road	Saginaw Rd. to Beamish Rd.	Milling & One Course Asphalt Overlay	$600,000
By 2035	Midland County	New Roads	Mier Road Extension	0.8 miles E. of M-30 to N. Dublin Rd.	New Road Construction	$7,400,000
By 2035	City of Midland	New Roads	Jefferson Ave/Joe Mann Blvd Intersection	Roundabout or 2nd L. Turn Lane	Intersection Improvements	$0.5M to 1.0M
By 2035	City of Midland	Capital Preventative Maintenance	Washington Street	Adams St. to Wheeler Rd.	Asphalt Overlay	$600,000
By 2035	City of Midland	Road Reconstruction	Jefferson Avenue	Wackerly St. to Chapel Ln.	Road Reconstruction	$2,350,000
By 2035	City of Midland	Road Reconstruction	S. Saginaw Road	Waldo Rd. to Bay City Rd.	Road Reconstruction	$4,080,000
By 2035	City of Auburn	Road Rehabilitation	Midland Road	Garfield Rd. to Price St.	Milling & Asphalt Overlay	$550,000
By 2035	City of Auburn	Road Rehabilitation	Midland Road	Price St. to E. City Limits	Milling & Asphalt Overlay	$630,000
By 2035	Bay County	Road Reconstruction	Garfield Road	US-10 to Salzburg Rd.	Road Reconstruction	$2,200,000

By 2035	City of Midland	Road Rehabilitation	George Street	Poseyville Bridge to Collins St.	Crush & Shape +asphalt resurfacing	$1,000,000
By 2035	City of Midland	Road Rehabilitation	N. Saginaw Road	Eastman Ave. to Perrine Rd.	Crush & Shape +asphalt resurfacing	$3,000,000
By 2035	City of Auburn	Capital Preventative Maintenance	Auburn Road	Midland Rd. to RR Tracks	Milling & Asphalt Overlay	$200,000
By 2035	Williams Township/Bay County	Non-Motorized Project	Pedestrian Walkway/Sidewalks	Various Locations/Access to and from various subdivisions	Sidewalk Construction	$300,000
By 2035	Bay County	Non-Motorized Project	Midland Road/Flajole Road/North Union Road/BR-20	4 Mile to Midland Co. Line	8 ft. paved shoulders, both sides for all listed roads	$1,700,000
By 2035	Saginaw County	Non-Motorized Project	River Road	Freeland Rd. to Gordonville Rd.	4 ft. paved shoulders/Bike Route signage	$500,000
By 2045	Midland County	New Roads	9 Mile Road	W. Chippewa River Rd. to W. Pine River Rd.	New Road Construction + 2 Bridges	$20,000,000
By 2045	Midland County	New Roads	Burns Road	M-18 to N. Lake Sanford Rd.	New Road Construction + 1 Bridge	$10,000,000
By 2045	City of Midland	New Roads	Commerce Drive Extension	Eastman Ave. to Sturgeon Rd.	New Road Construction	$2,200,000
By 2045	MDOT	Interchange Improvements	US-10	At Waldo Rd.	Add 2 ramps for full interchange	$5,200,000
By 2045	City of Midland	Road Reconstruction	N. Saginaw Road	Ashman St. to Wheeler Rd.	Road Reconstruction	$2,250,000
By 2045	Midland County	Capital Preventative Maintenance	Letts Road	Jefferson Rd. to Bay County Line	Milling & Asphalt Overlay	$800,000
By 2045	Midland County	Capital Preventative Maintenance	Wheeler Road	Waldo Rd. to Bay County Line	Milling & Asphalt Overlay	$300,000
By 2045	City of Midland	Road Reconstruction	Bay City Road	S. Saginaw Rd. to US-10 Ramps	Road Reconstruction	$5,070,000
By 2045	City of Midland	Road Rehabilitation	Eastlawn Drive	Jefferson Ave. to Waldo Rd.	Crush & Shape +asphalt resurfacing	$2,450,000
By 2045	City of Midland	Road Rehabilitation	Haley Street	Buttles St. to Swede Ave.	Crush & Shape +asphalt resurfacing	$2,000,000
By 2045	City of Midland	Road Rehabilitation	Jefferson Avenue	Commerce Dr. to Wackerly St.	Crush & Shape +asphalt resurfacing	$1,200,000
By 2045	Midland County	Capital Preventative Maintenance	Prairie Road/Pine River Road	Homer Rd. to Gray Rd.	Milling & Asphalt Overlay	$500,000

By 2045	Midland County	Capital Preventative Maintenance	Salzburg Road	Waldo Rd. to Bay County Line	Milling & Asphalt Overlay	$300,000
By 2045	Midland County	Capital Preventative Maintenance	Hubbard Road	Eastman Rd. to Waldo Rd.	Milling & Asphalt Overlay	$600,000
By 2045	City of Midland	Road Rehabilitation	Wackerly Street	Stark Rd. to Sturgeon Rd.	Crush & Shape +asphalt resurfacing	$2,600,000
By 2045	City of Midland	Road Rehabilitation	Waldo Road	Ashman St. to Bay City Rd.	Crush & Shape +asphalt resurfacing	$2,000,000
By 2045	City of Midland	Road Rehabilitation	Washington Street	Wheeler Rd. to Ashman St.	Crush & Shape +asphalt resurfacing	$1,000,000
By 2045	City of Midland	Road Rehabilitation	N. Saginaw Road	Wheeler Rd. to Eastman Ave.	Crush & Shape +asphalt resurfacing	$600,000
By 2045	City of Midland	Road Rehabilitation	S. Saginaw Road	Bay City Rd. to Patrick Rd.	Crush & Shape +asphalt resurfacing	$1,200,000
By 2045	Midland County	Road Rehabilitation	W. Kent Road	Coleman Rd. to Pine River Rd.	Milling & Two Course Asphalt Overlay	$1,800,000
By 2045	Midland County	Capital Preventative Maintenance	Freeland Road	Poseyville Rd. to Saginaw Co. Line	Milling & Asphalt Overlay	$800,000
By 2045	Midland County	Road Rehabilitation	Shearer Road	Meridian Rd. to Mills Twp. Line	Milling & Two Course Asphalt Overlay	$1,000,000
By 2045	City of Midland	Non-Motorized Project	Eastman Multi-use Path	Midland Mall to Buttles St.	Construction of separated multi-use path or 5-foot walkway	$750,000
By 2045	Midland County/MDOT	Non-Motorized Project	M-30 Rail trail Connector	Pere Marquette Rail trail to Meridian HS	Construction of separated multi-use path	$6,000,000

Chapter 12 - Air Quality & Environmental Mitigation

Air Quality

The Clean Air Act Amendments of 1990 (CAAA) established a mandate for better coordination between air quality and transportation planning. All transportation plans and investments in non-attainment and maintenance zones must be submitted to an air quality compliance decision, according to the CAAA. The goal is to achieve and maintain clean air while adhering to the National Ambient Air Quality Standards (NAAQS). As a result, the LRP and TIP must establish that the projects' implementation does not result in higher mobile source emissions than the emissions budget.

The MATS area meets all USEPA Standards based on measured air quality and mobile source emissions. This means that a regional transportation conformity analysis for the LRP or TIP for the MATS area is not required under this classification. This is true until such time as EPA publishes a notice designating the area as non-attainment for any regulated pollutants, presuming large changes in emission levels.

Environmental Mitigation

SAFETEA-LU requires that MATS include in its long range plan *"a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the metropolitan transportation plan."* (USDOT, Metropolitan Transportation Planning: Final Rule FHWA, Sec. 450.322(f)(7), effective 3/14/07).

The goal of this procedure is to raise awareness of the wide spectrum of potential impacts and to elevate environmental resource consideration in all phases of project planning. The factors reviewed include Rivers & Streams, Lakes & Ponds, Wetlands, Forests, Endangered Species, Agriculture, Parks & Trails, Historic Sites & Structures, and Cemeteries. In reference to those considerations, the projects listed in this 2045 Long Range Transportation Plan were reviewed.

All projects are noted as potentially impacting endangered species since the habitat for many of the identified plants or animals covers the entirety of the MATS area. The tables of the endangered species can be found in the Appendix. As for the Historical Sites and Buildings in this analysis, data was reviewed from the National Park Service website which provides an online inventory, complete up to July 2015.

MATS and the implementing agencies will strive to minimize the impact on the environmental sensitive resources for these and future projects. This will be accomplished by following the guidelines set by the American Association of State Highway and Transportation Officials (AASHTO) Center for Environmental Excellence located at http://www.environment.transportation.org/.

As can be seen from Exhibits 35 through 38, none of the environmental factors reviewed are disproportionately impacted due to proposed projects being located throughout the MATS area. The majority of the listed projects are either roadway rehabilitation or capital preventative maintenance with minimal environmental disturbance. The remaining limited capacity enhancement projects will be subject to all applicable environmental regulations and processes.

Agencies contacted regarding environmental mitigation are included in the Appendix.

Exhibit 35 2023-2045 Projects

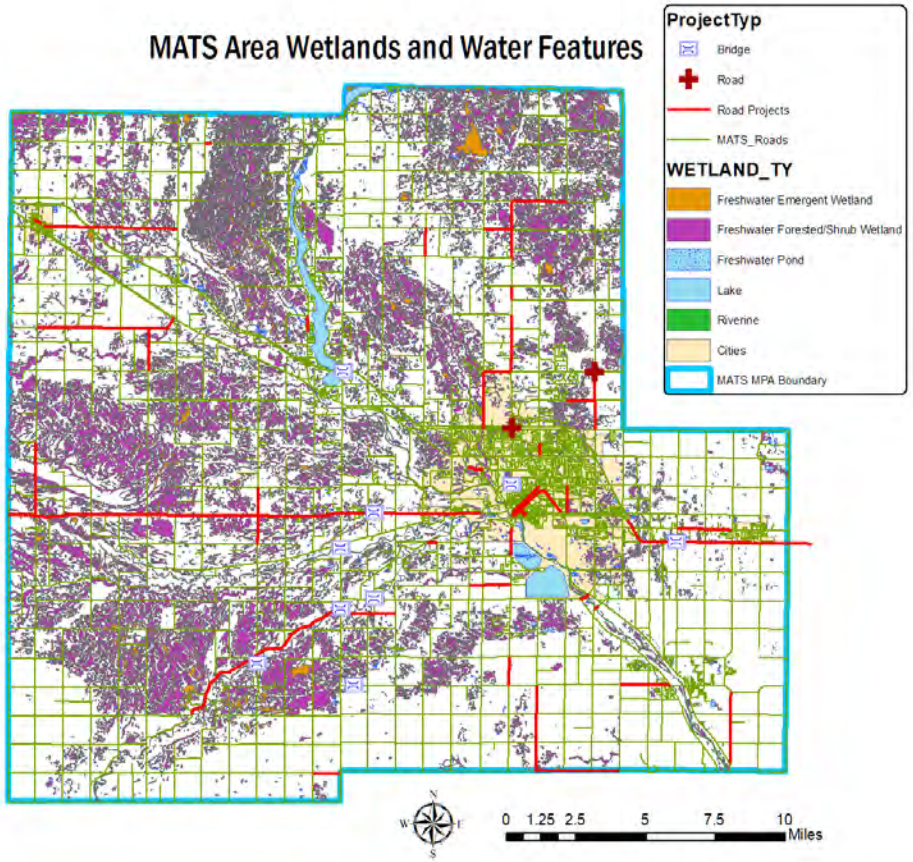


Exhibit 36 2023-2045 Projects

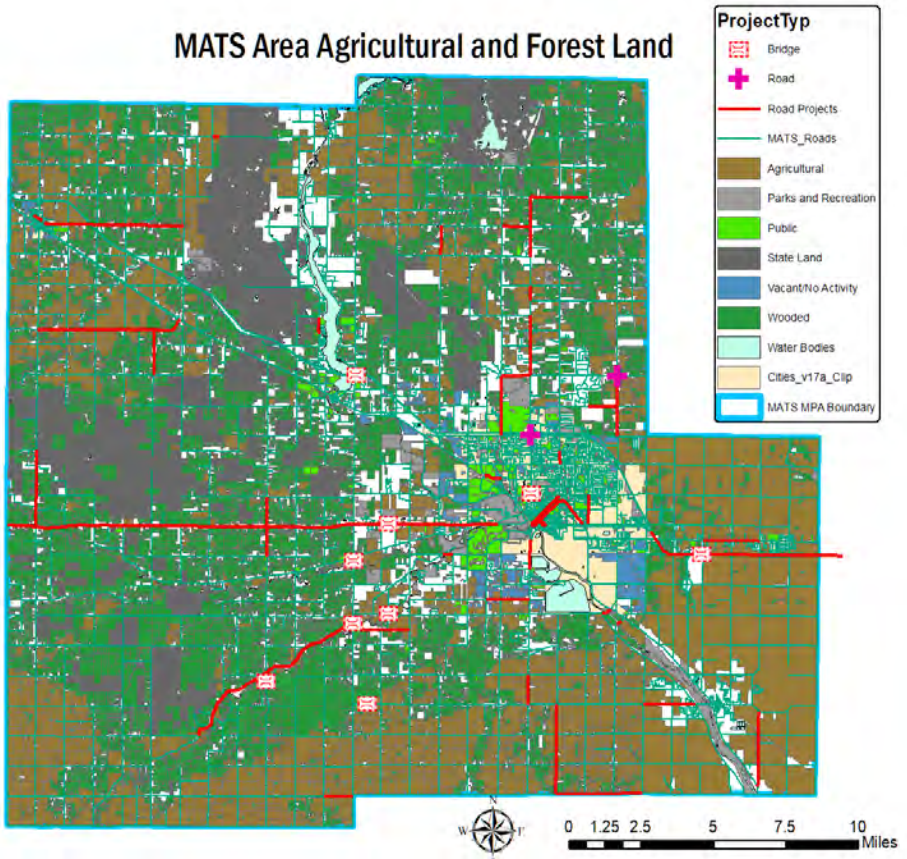


Exhibit 37 2023-2045 Projects

MATS Area Historic Sites and Cemeteries

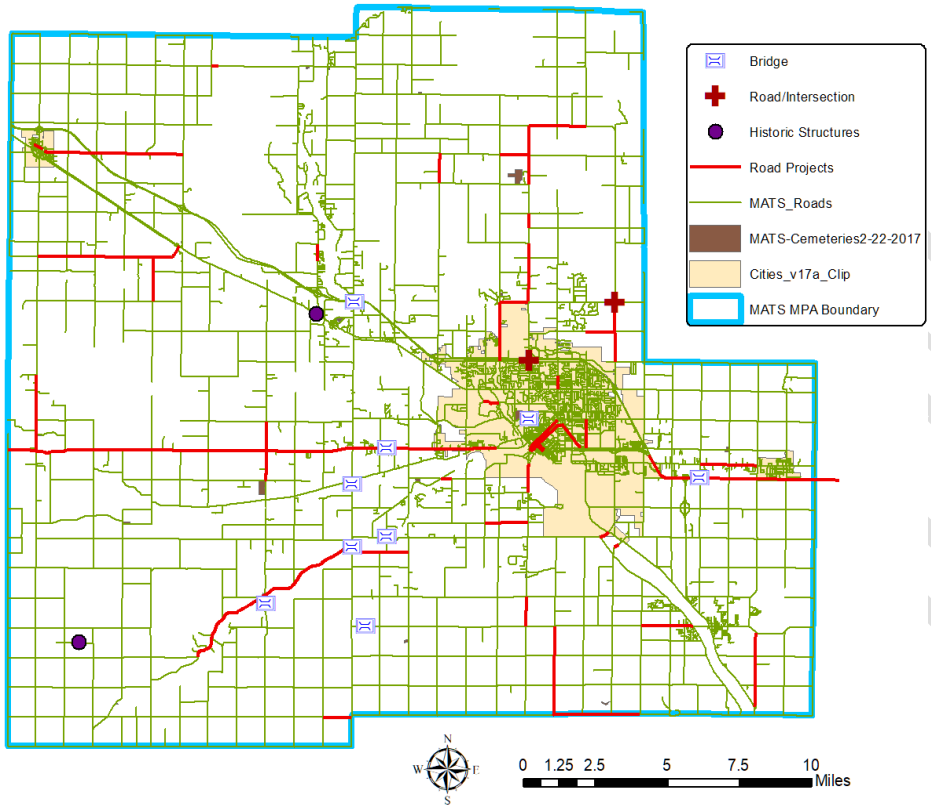
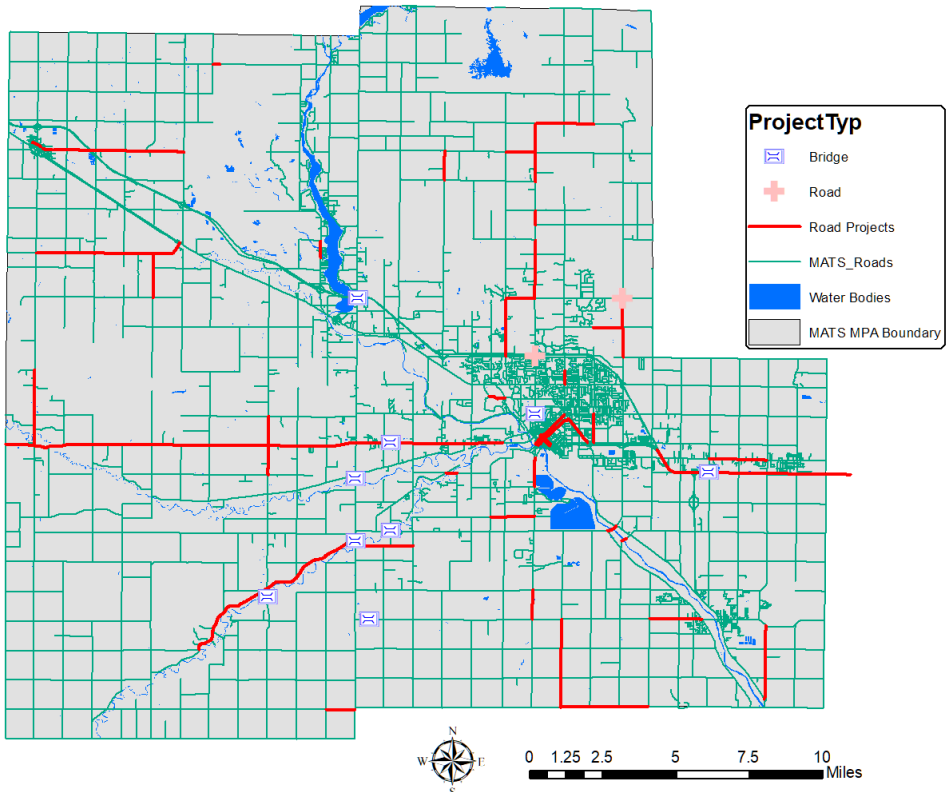


Exhibit 38 2023-2045 Projects

MATS Area Endangered, Threatened & Special Concern Species



Chapter 13 - Environmental Justice Analysis

In 1997, the U.S. Department of Transportation (DOT) issued an order to address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order 5610.2). The order generally describes the process for the incorporation of environmental justice principles into all DOT programs, policies, and activities.

Environmental justice must be taken into account at all stages of the planning process. This comprises MATS' public engagement plans and activities, as well as the formulation of transportation planning and improvement projects. There are three fundamental concepts of environmental justice:

- To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected com-munities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.

MATS has identified Census block groups where low-income and minority populations live so that their needs can be identified and addressed, and the benefits and costs of transportation investments can be fairly distributed. This cannot be achieved without the involvement of the public, community groups, and other organizations. Although there are no specific minority advocacy groups in the MATS area, extensive efforts at consultation were still undertaken. For example, the public input process included a presence at the Midland County Fair in August of 2021.

Definitions

"Low-income" is defined as a household income at or below the Department of Health and Human Services (HHS) poverty guidelines. These guidelines change every year due to inflation and vary by the number of people in the household.

According to the US DOT Order 5610.2, the following groups are defined as a "minority":

- African American (a person having origins in any of the black racial groups of Africa).
- American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).
- Asian American (a person having origins in any of the original people of the Far East, Southeast Asia, or the Indian subcontinent).
- Hispanic or Latino (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race).
- Native Hawaiian and Other Pacific Islander (a person having origins in any of the original peoples of Hawaii, Guam, Samoa or other Pacific Islands).
- Other minorities (a person having origins from the regions not included in "African American," "American Indian and Alaskan Native," "Asian American," "Hispanic," or "Native Hawaiian and Other Pacific Islander")

Development

For the purpose of the environmental justice analysis, MATS has identified areas within the MPO boundaries where the percentage of minority populations and percentage of households below the poverty level (2020 Redistricting data) are higher than the overall MATS average. The minority populations that are considered are African-American, Native American, Asian, Hawaiian, and Other Race. All other minority groups are then combined into one resulting in a category called Two or More Races. To measure minority population, Census blocks were utilized, while Census Tracts were utilized for poverty data. The maps in this chapter portray areas with higher than average minority or low-income populations.

Exhibit 40 - % of Each Minority Group Impacted

	MATS MPO	2022-2045 EJ Census Blocks	% Concentration per category within Impact Area
Area	598.8 sq. miles	197.7 sq. miles	33.01%
Total Population	101,386	26,916	26.55%
White	90,559	24,806	27.39%
African American	1,837	177	9.63%
American Indian/Alaska Native	405	103	2.54%
Asian	1,825	288	15.78%
Hawaiian	92	8	8.69%
Other Race	936	182	19.44%
Two or More Races	5,732	1,352	23.58%
Households Below Poverty Level	3,997 out of 40,302	1,318* out of 11,263	9.92% vs. 11.70%

*estimated based on area calculations

Exhibit 39 - % of Total Racial Distribution

2020 Population	MATS MPO		2022-2045 EJ Census Blocks	Impact Area %
Area	598.8 sq. miles	---	197.7 sq. miles	33.01%
Total Population	101,386	100%	26,916	26.55%
White	90,559	89.32%	24,806	92.16%
African American	1,837	1.81%	177	0.66%
American Indian/Alaska Native	405	0.40%	103	0.38%
Asian	1,825	1.80%	288	1.07%
Hawaiian	92	0.09%	8	0.03%
Other Race	936	0.92%	182	0.68%
Two or More Races	5,732	5.65%	1,352	5.02%
Total Households	40,302	100%	11,263	27.9%
Households Below Poverty Level	3,997	9.92%	1,318	11.70%

The data that was used for minority information is based on individuals, while the data for poverty is based on households. In order to show if there are minority populations or households below poverty within a certain distance of each road project, those census blocks or census tracts are indicated on the map in yellow. Utilizing census blocks for the minority population, and utilizing data available by census tract for the poverty calculation better matches the scale of the typical road project to that of the potentially affected population by geographic area. Thereafter, the percentage of each group was calculated for all of the blocks. Once the percentage of minorities was calculated within the impact area, it was compared to the average of the whole MATS area and shown graphically based on how much the actual value differed from the average. The results of this analysis are shown in the maps following this section.

Analysis and Results

The MATS area is predominately white in terms of race (89.32%) with minorities representing 10.67%. Further, there are 3,997 below-poverty-level households in the MATS area representing 9.92% of all households.

Exhibits 39 and 40 (above) describe the MATS area's minority demographics and low-income households, as well as the percentages of each group residing in census blocks or census tracts near the proposed projects. To calculate each percentage, the actual number of each minority group inside the impact zone was divided by the total population of the impact area. To see how the demographic makeup corresponds, compare the percentages of impact regions in each column to the overall MATS data. According to the data, no groups are disproportionately overlooked or overexposed when it comes to proposed transportation projects.

For each minority group, the percentage of minorities in the Impact Region is generally equal to or greater than the percentage in the whole MATS region. This indicates that future transportation developments will take minorities' needs into account. The same may be said for low-income persons. 11.70 percent of families in the Impact Region of proposed transportation projects are impoverished, which is roughly comparable to the MATS area's overall poverty percentage (9.92 percent). This shows that low-income residents in the MATS area are not disproportionately penalized or ignored when it comes to future transportation improvements.

Environmental Justice was assessed for 75 road projects in the MATS area, excluding transit operating and capital funds, regional safety and pavement marking projects, and entries on the broader list for engineering phases or multiple financing sources for a single project.

There are a total of 7 projects in or near areas with a large minority population, which is defined as more than the MATS area's average proportion. In addition, two projects are located in or near census tracts with higher-than-average households living below the poverty line.

In summary, MATS' prioritized 2022-2045 transportation projects are located throughout the MATS planning area; no population groups are disproportionately neglected or overexposed in light of these projects. The minorities' and low-income populations' needs are being taken into consideration with respect to future transportation improvements.

The following maps show the analysis that was described above geographically. The first map shows the location of all the prioritized road projects and the type of project. The maps following show each minority group in relation to the TIP projects. For every Census block within MATS planning area, minority group population percentages were calculated and are represented and compared to the overall average for the entire MATS area. The final map shows below poverty level households in relation to TIP projects. It is clear that some of the block groups with higher poverty percentages will have transportation improvements within their areas.

In addition to the prioritized road projects, there are also multiple projects for the County Connection of Midland and Dial-a-Ride agencies that involve replacing old buses and vans to allow for efficient and adequate public transportation in the area. The described projects are presented on the complete list of projects as previously shown. County Connection and Dial-A-Ride provide transit services within the MATS area for a minimal cost to the user.

MATS will continue to address environmental justice issues throughout the life of the Transportation Improvement Program, and will continue to work in coordination with MDOT and FHWA to help improve efforts in the future.

Exhibit 41 - MATS projects Overview

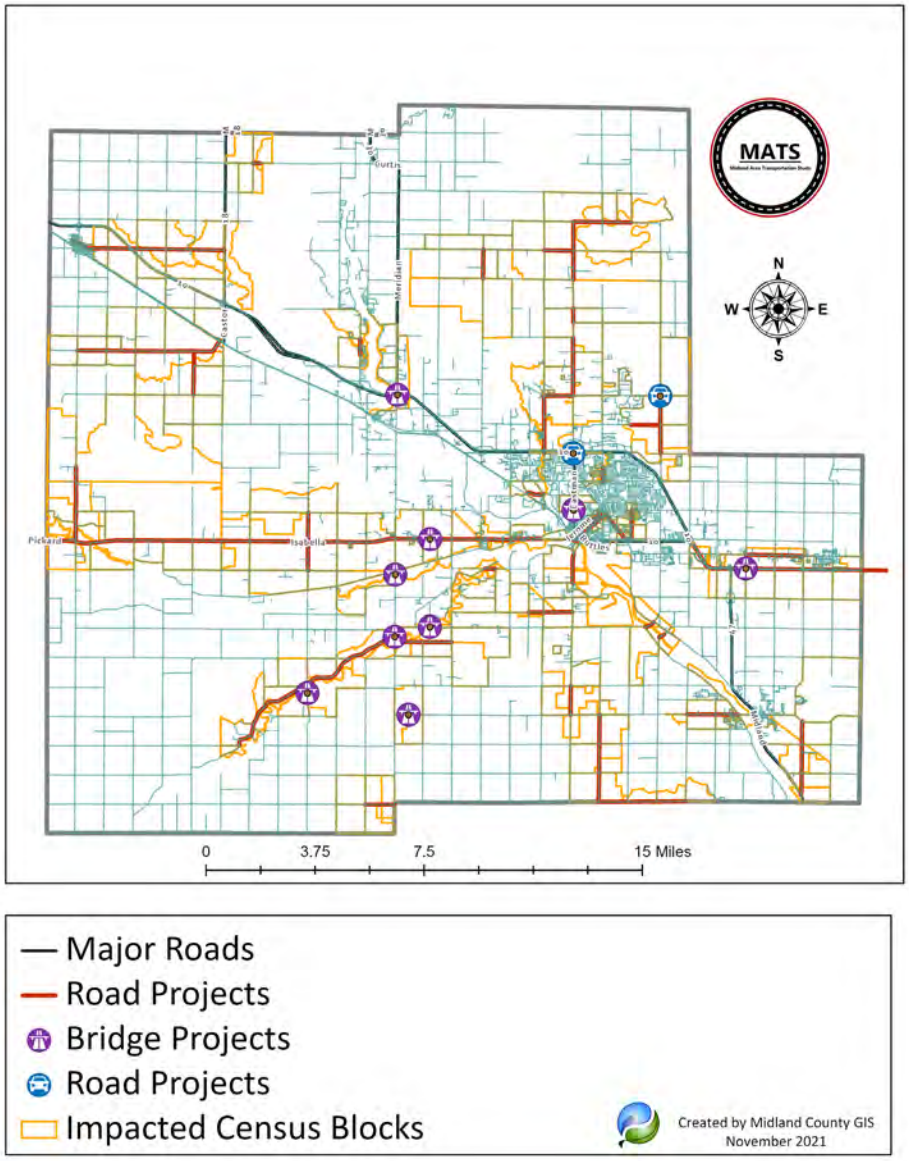


Exhibit 42 –Blocks with African American Population % higher than MATS area total

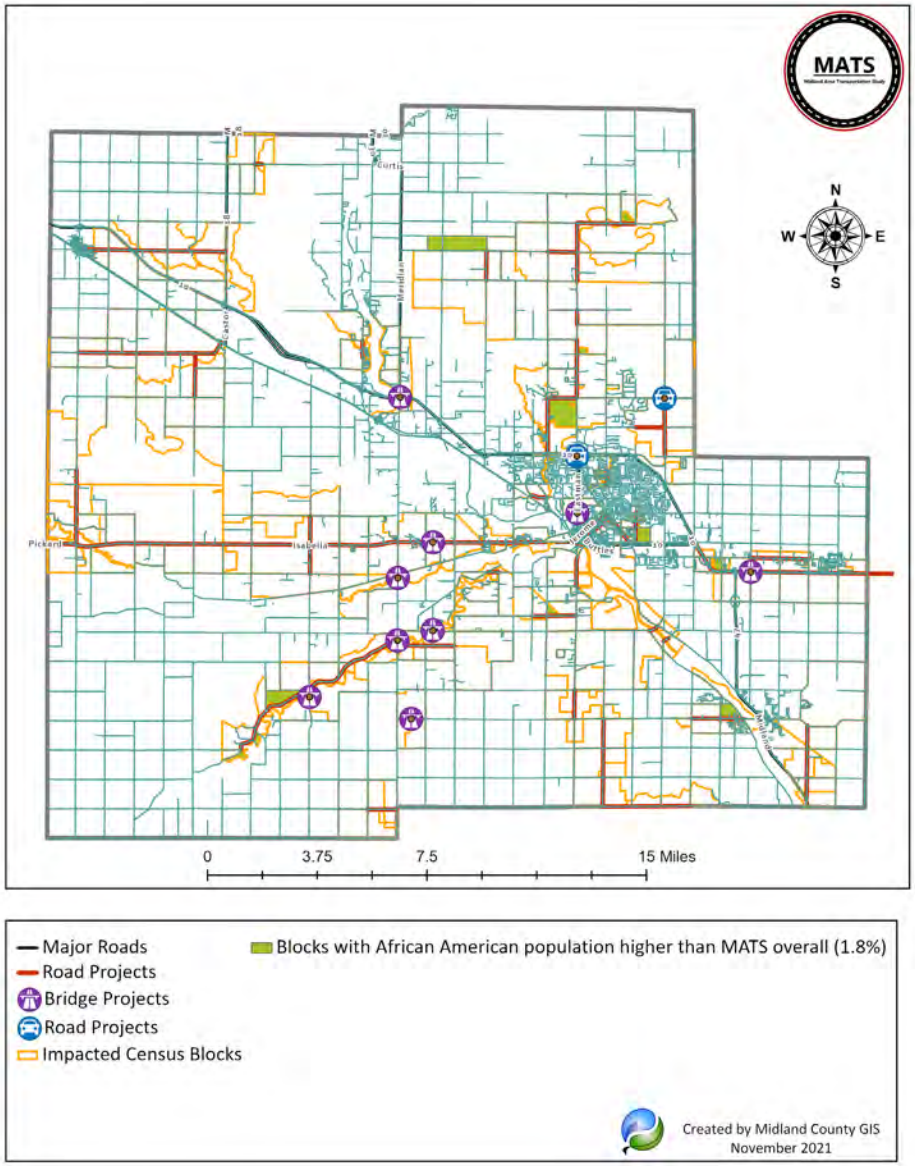
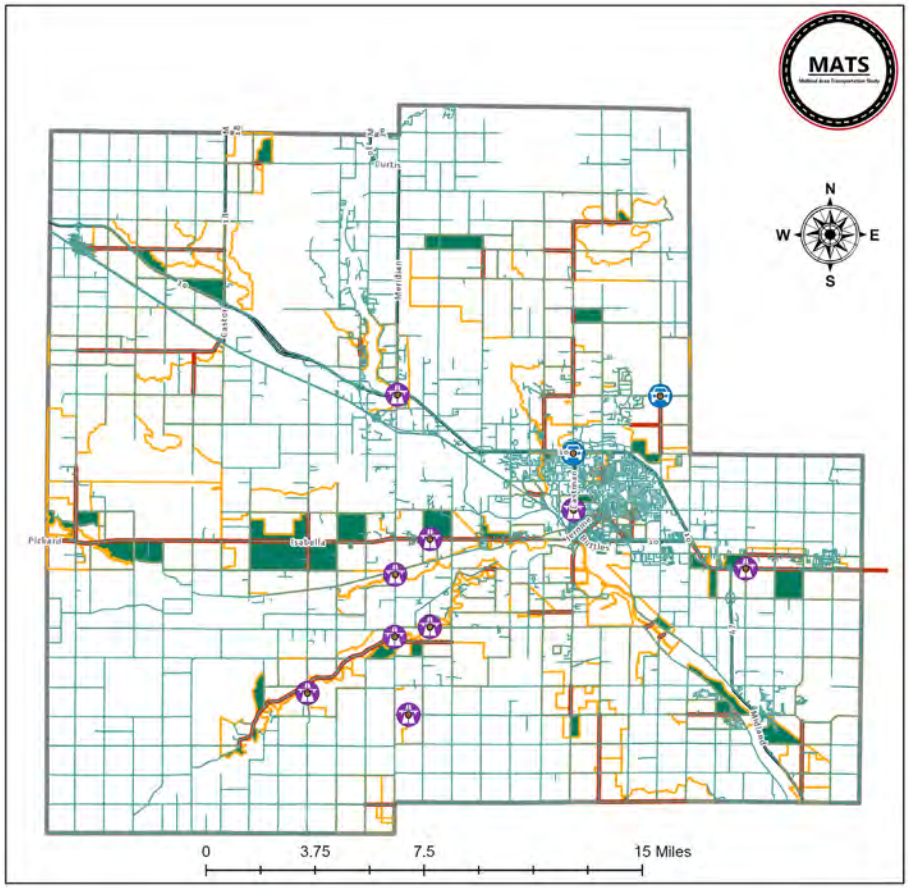


Exhibit 43 –Blocks with Native American Population % higher than MATS area total



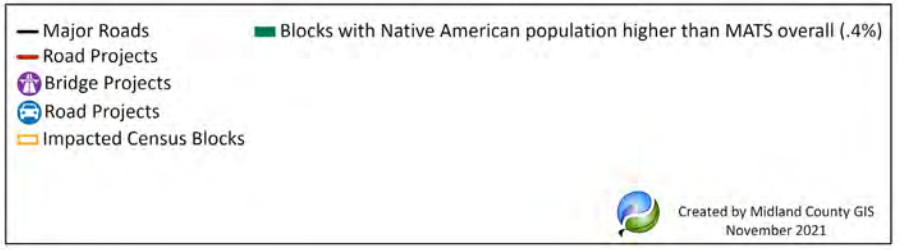
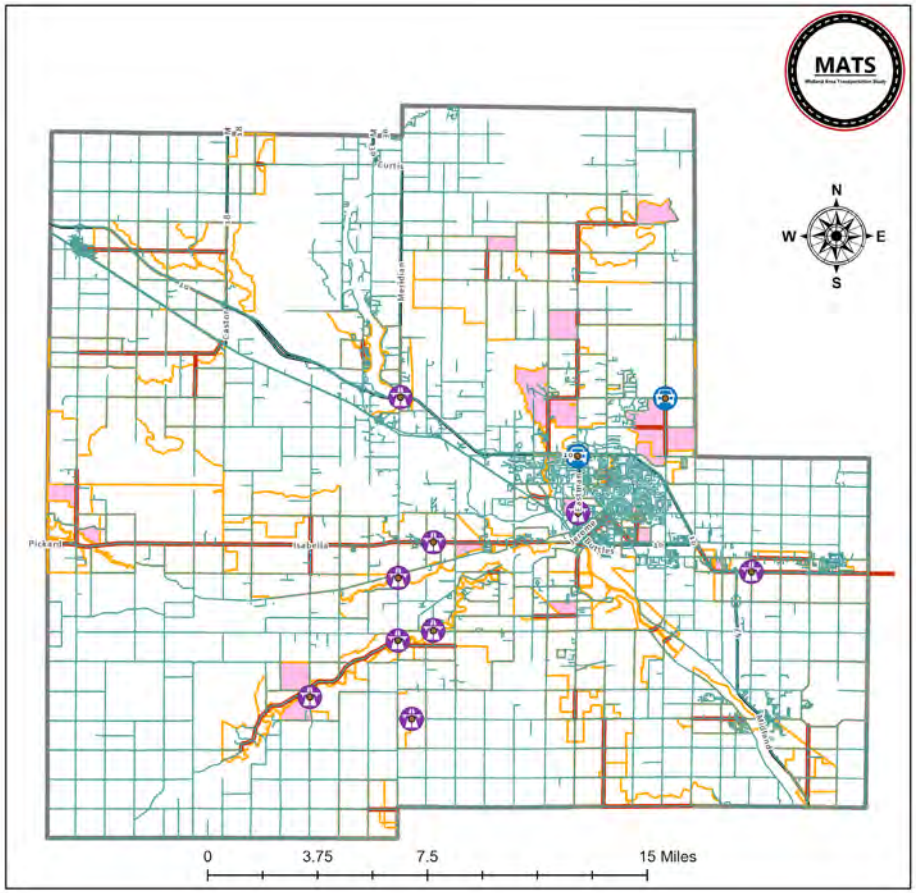


Exhibit 44 –Blocks with Asian American Population % higher than MATS area total



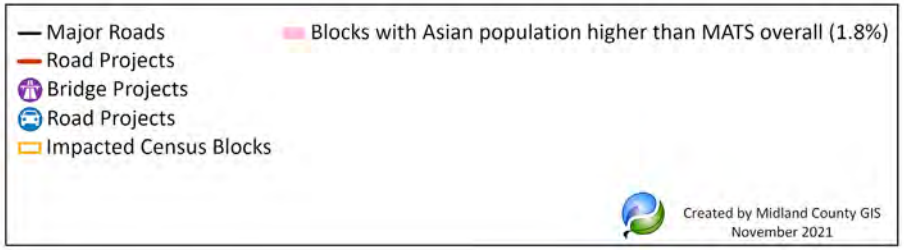


Exhibit 45 –Blocks with Hawaiian American Population % higher than MATS area total

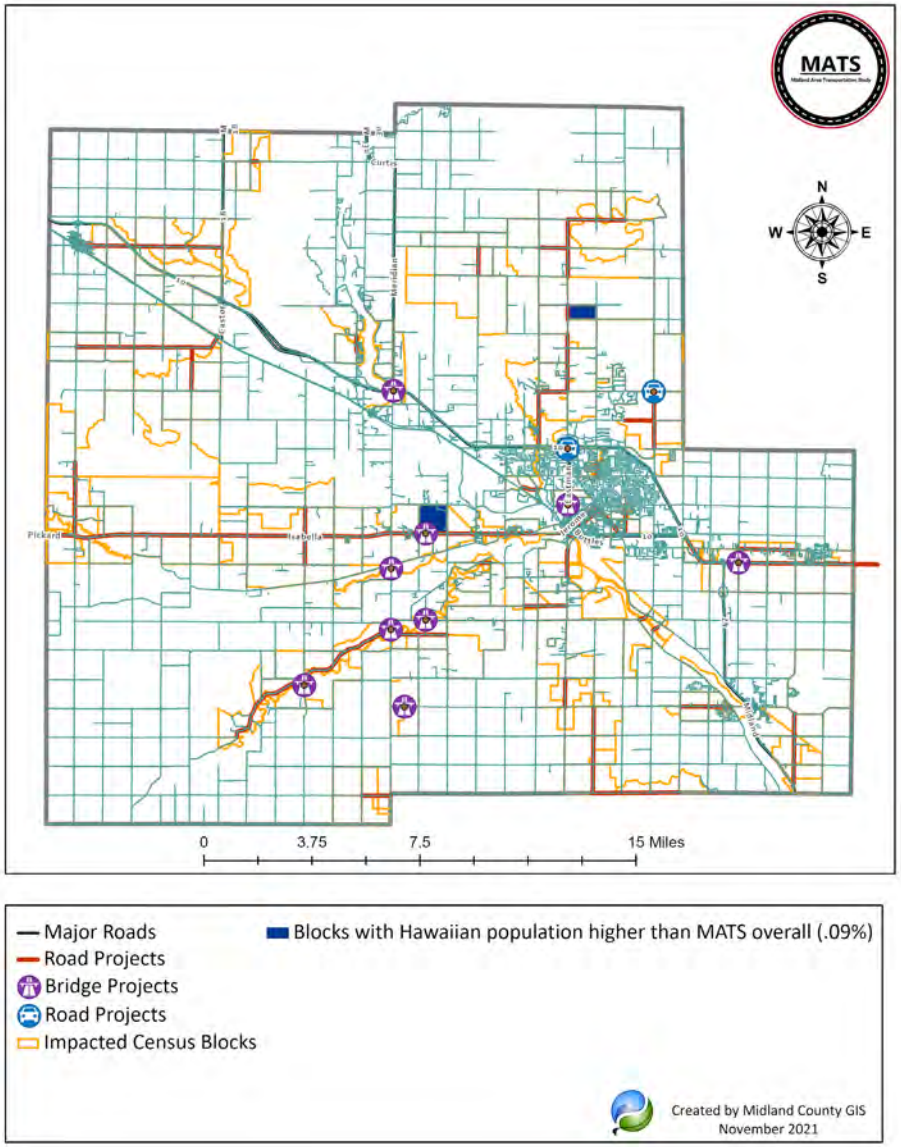


Exhibit 46 –Blocks with Other Race Population % higher than MATS area total

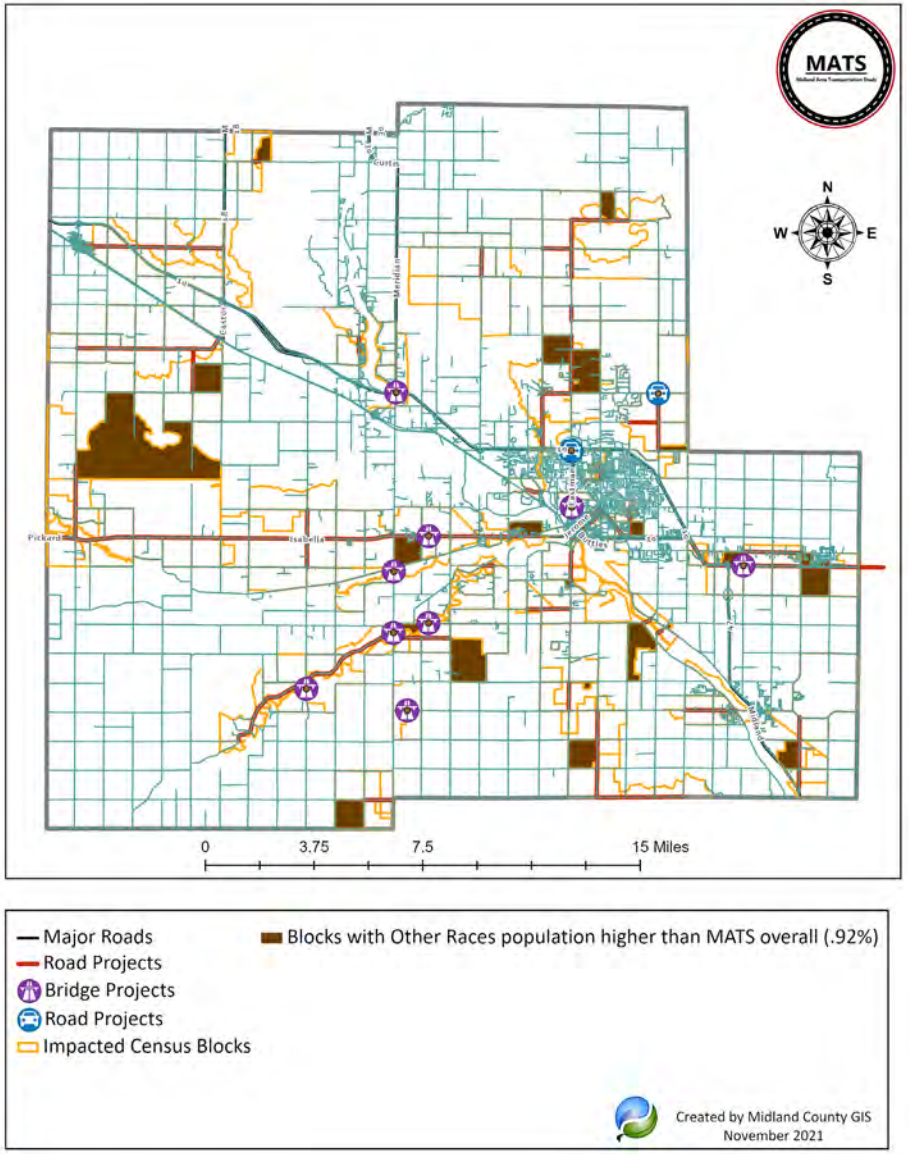


Exhibit 47 –Blocks with Two or More Population % higher than MATS area total

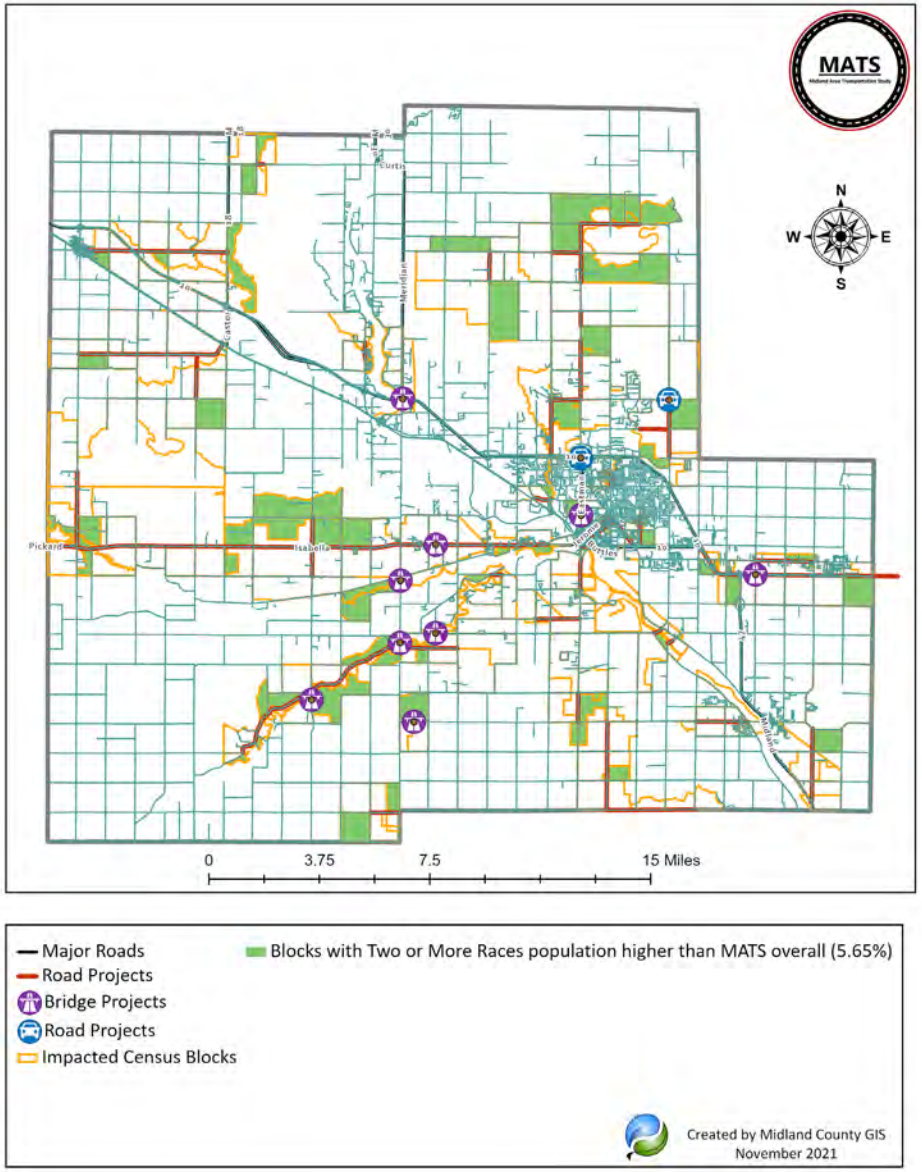
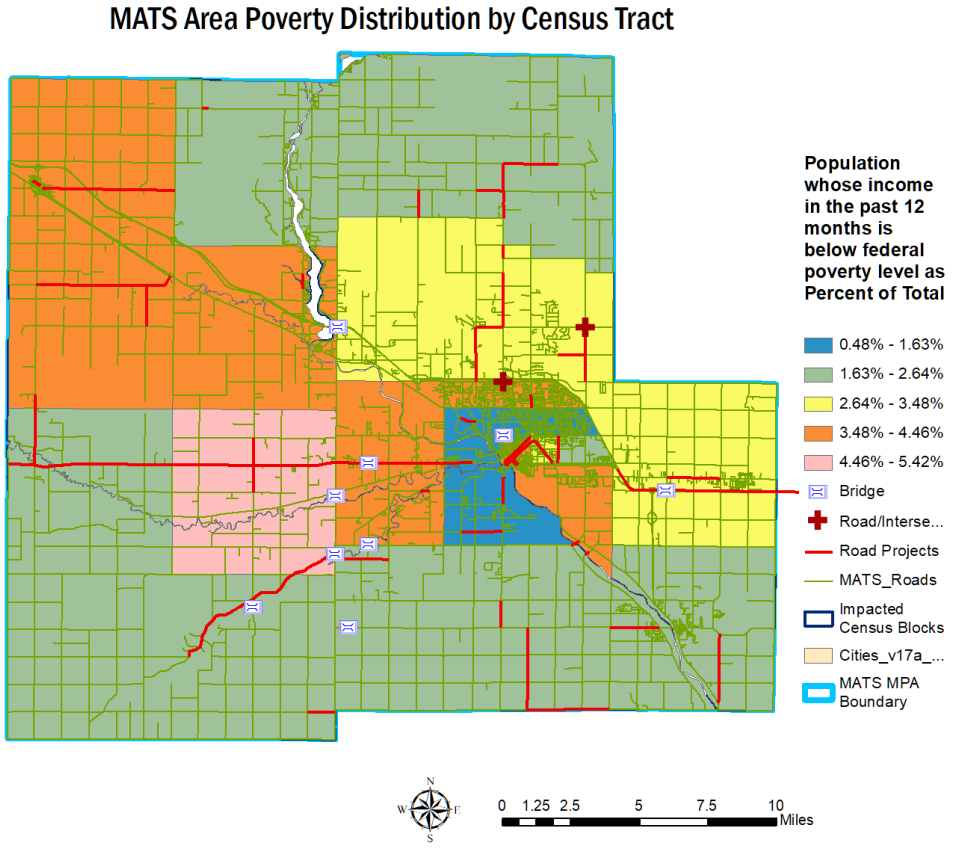


Exhibit 48 - Poverty Distribution



Chapter 14 - Performance Measures & Plan Evaluation

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

In general, performance measures must be directly relatable to goals, utilize available data that is trackable over time, and measure progress. According to the Federal Highway Administration (FHWA), "*Performance measures are a qualitative or quantitative measure of outcomes, outputs, efficiency, or cost effectiveness.*"

National Performance Measures

National goals, more accountability, and improved transparency are all part of MAP-21, and continued in the FAST Act as well as the new IIJA. These modifications enhance decision-making by allowing for more accurate planning and programming. Under MAP-21, the US DOT is responsible for establishing performance measures and state DOTs and MPOs are responsible for developing performance targets in cooperation with other stakeholders. MPOs must include these performance measures and targets into their Transportation Improvement Programs (TIPs) and Long Range Transportation Plans, and state investments must make progress toward these performance targets. MATS is actively collaborating with MDOT and other Metropolitan Planning Organizations with regard to setting these targets.

National Goal Areas for Performance Management

Nationally, MAP 21 sets seven goal areas for performance measures:

Safety: To achieve reduction in fatalities and serious injuries on all public roads.

Infrastructure Condition: To maintain highway infrastructure assets in state of good repair.

Congestion Reduction: To achieve reduction in congestion on the National Highway System.

System Reliability: To improve the efficiency of the surface transportation system.

Freight Movement and Economic Vitality: To improve freight networks, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.

Environmental Sustainability: To enhance the performance of the transportation system while protecting and enhancing the environment.

Reduced Project Delivery Delays: Reduce project costs, boost the economy, and speed up the movement of people and products by expediting project completion by removing delays in the project planning and delivery process, which includes lowering regulatory burdens and enhancing agency work practices.

The Infrastructure Investment and Jobs Act (IIJA), our current federal surface transportation legislation, emphasizes performance goals previously established in MAP-21. By focusing on national goals, increasing accountability, and improving transparency, the IIJA improves decision-making through better-informed transportation planning.

The table below (Exhibit 50) indicates the status of the various frameworks for performance measures for national transportation planning activities.

Exhibit 50 – FHWA Performance Management Schedule

PERFORMANCE AREAS	NPRM	FINAL RULE	Effective Date	FEDERAL AGENCY
Safety Performance Measures	March 11, 2014	Published March 16, 2016	April 14, 2016	FHWA
Highway Safety Improvement Program	March 28, 2014	Published March 16, 2016	April 14, 2016	FHWA
Statewide and Metro Planning; Non-Metro Planning	June 2, 2014	Published May 27, 2016	June 27, 2016	FHWA and FTA
Transit Asset Management	September 30, 2015	Published July 26, 2016	October 1, 2016	FTA
Public Transportation Safety Program	August 14, 2015	Published August 11, 2016	September 12, 2016	FTA
Highway Asset Management Plan	February 20, 2015	Published October 24, 2016	October 2, 2017 except for Part 667 which is effective November 23, 2016	FHWA
Pavement and Bridge Condition Measures	January 5, 2015	Published January 18, 2017	Original Effective Date February 17, 2017 Delayed Effective Date May 20, 2017	FHWA
System Performance Measures	April 22, 2016	Published January 18, 2017	Original Effective Date February 17, 2017 Delayed Effective Date May 20, 2017	FHWA

As a result, States, MPOs, and Local agencies will invest resources in projects to achieve individual targets that will collectively make progress towards these national goals. The FHWA enacts performance measures and targets that guide the selection of transportation projects and programs based on the previous goals.

State Performance Measures and Targets

The Michigan Department of Transportation established a Transportation System Condition Team in April 2010 that has continued to review and evaluate measures to assess the condition of Michigan's transportation system. MDOT maintains a performance-based planning process at the state level and helps coordinate the selection of measures by linking planning and programming to performance targets. Driven by Excellence: A Report on Transportation Performance Measurement at MDOT, includes performance measures for four primary areas of the Michigan Long Range Transportation Plan:

- Stewardship (system condition; maintain service)
- Safety and Security (safety; reduced risk)
- System Improvement (modernization; expand access)
- Efficient and Effective Operations (reducing delays)

Since national performance requirements were finalized in 2016-2017, MDOT has been acting within the Federal framework of these eight areas, developing methodologies and targets, annually evaluating those targets and setting new or adjusted targets for each of the eight performance areas.

MPO Performance Measures and Targets

Under the regulations, MPOs may either develop their own targets or support the state developed targets. MATS has determined that supporting state targets in all eight areas was the best course of action given the limitations on available data and staff resources. Performance-based planning is relevant to the Goals and Objectives identified in Chapter 2, and guides development of both this Long Range Plan, and future TIP documents as well.

The overall method and resultant MATS-supported targets are presented in the Appendix to this Plan, as part of the Transportation System Performance Report. As that report is updated, it will be presented on the MATS website as opposed to issuing a new update to this entire Long Range Plan.

Chapter 15- Public Involvement & Consultation

MAP-21 states that:

MPO's shall include a proactive public involvement process that provides complete information, timely public notice, full public access to key decisions, and supports early and continuing involvement of the public in development plans and TIPs and meets the requirements and criteria as specified.

MATS strives to ensure that public input plays a considerable role in the transportation planning process. This goal is predominantly met by providing opportunities for stakeholders and the public to contribute input during the development of programs and reports. Our Public Participation Plan sets out guidelines regarding public involvement and how they are incorporated into the Long Range Plan.

Public Notices

During the development of the 2045 Long Range Transportation Plan, public notices were posted on the MATS website, social media pages, and printed in the local newspaper to promote involvement in our open house, and solicit comment on the draft document. These notices provided brief information regarding the plan, content that would be discussed at the open house and encouraged members of the public to comment or participate. The public was given the opportunity to provide feedback regarding the LRTP in person, via telephone or email, and the MATS website.

Public Hearing

The official public hearing for the MATS 2045 Long Range Transportation Plan was held March 1, 2022. After this public hearing, the MATS Long Range Transportation Plan was officially adopted by the MATS Policy Committee.

Public Involvement Activities

A brief survey was developed to provide community members another opportunity to give feedback regarding the area's transportation system. This survey was published electronically on the MATS website and links to the site were distributed during the public open house.

The survey attempted to gauge public perception regarding the importance of specific transportation development strategies, the quality of the transportation infrastructure in the area, and other critical transportation issues. The Exhibit below displays one of the questions included on the public input survey. The question asks for an individual's opinion on the quality of different transportation related components within the MATS area.

Exhibit 51 On a scale of 1 to 5, RATE the quality of transportation components (1 being the lowest and 5 being the highest):

	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Roads and Streets	0.0% 0	0.0% 0	64.3% 9	21.4% 3	14.3% 2	14	3.50
Bike Paths and Sidewalks	0.0% 0	20.0% 3	40.0% 6	33.3% 5	6.7% 1	15	3.27
Public Transit Services	33.3% 5	33.3% 5	26.7% 4	6.7% 1	0.0% 0	15	2.07
Traffic Signs and Signals	0.0% 0	0.0% 0	46.7% 7	33.3% 5	20.0% 3	15	3.73
Parking and Bicycle Facilities	13.3% 2	20.0% 3	20.0% 3	33.3% 5	13.3% 2	15	3.13

Solicitation and Response to Comments

In order to represent the concerns of stakeholders and the general public in the transportation planning process, meaningful public participation is required. MATS is committed to actively involving the public in the identification and resolution of transportation issues. Per the requirements of the MATS Public Participation Plan, the development of the LRTP must involve the general public throughout the entire process by providing a public comment period and addressing any general public inquiries regarding the draft plan. These comments are taken into consideration while making changes to the draft document. Also, a public open house is held to solicit comments from the general public and affected agencies of the future transportation projects.

In accordance with requirements, MATS has solicited public comment on the proposed Long Range Plan and advertised the Open House related to this document. This was done by means of public notices in August of 2021 in the Midland Daily News as well as on the MATS website. MATS has also posted the LRTP and other related documents on the MATS website. An informational flyer regarding the LRP was provided to local agencies to post/advertise at their respective offices.

In addition, MATS conducted an extended public comment period for the LRTP, from December 15, 2021 to February 16, 2022.

Feedback was gathered through the activities and meetings held during the Long Range Plan's development. This feedback was reviewed and incorporated in the plan where appropriate.

Public Open House

In light of the relatively low turnout at planned public meetings and open houses in recent years, MATS staff felt that travelling to where the public is currently, or would be, would result in a higher level of input and participation from the general public. Therefore, a regularly staffed booth was set up by MATS at the 2021 Midland County Fair, held this year on August 15 – 21. Staff was available in the booth at scheduled times each day for all but one of the Fair days.

At the MATS booth there were copies of the previous edition of Towards 2045, informational flyers and pamphlets regarding the role of MATS and the plan, as well as comment cards, contact information, and profile-raising materials for the agency in general.

Although a low number of individuals left written comment cards, a higher number signed up to be on our mailing/contact list, and a tremendous number stayed to be educated regarding the plan and discuss their opinions on the contents. Several comments focused on the need for a full interchange at Waldo Road and US10, increased non-motorized trails for both recreational and personal use, and improving transportation infrastructure throughout the area. Public comments received, and the results of the online survey have been provided to MATS Technical and Policy committees.

Consultation

Since the Long Range Plan development process began, the MATS Technical & Policy Committees were updated regularly regarding the plan's development. They were closely involved in evaluating different components of the plan to create a document that would be both inclusive and relevant to the needs of the MATS area.

During the transportation planning process, there are certain agencies which are required to be included in the consultation process. This process is different from the public participation process in that the Federal Highway Administration and the Michigan Department of Transportation recommend certain agencies responsible for the following areas be contacted: Airport operators, conservation, economic growth and development, environmental protection, freight movement, historical preservation, human service transportation providers, land use management, and natural resources. Consulting with state, local, tribal, and private agencies with these responsibilities allows for a more streamlined approach in developing the LRTP. This process primarily helps to minimize conflict with other agencies' programs, plans, and policies.

List of Contacts

To better track consultation and outreach efforts, MATS staff created a list which includes all partner agencies, community organizations, interested businesses, and other key stakeholders that are a part of the consultation process. The Consultation List is as follows:

- Hope Township
- Village of Sanford
- City of Midland
- Larkin Township
- Edenville Township
- Mills Township
- Ingersoll Township
- Jasper Township
- Lee Township
- Geneva Township
- Warren Township
- Bay County Road Commission
- Saginaw County Road Commission
- Lincoln Township
- City of Auburn
- Jerome Township
- Williams Charter Township
- Greendale Township
- Mount Haley Township
- Tittabawassee Township
- Porter Township
- Homer Township
- City of Coleman
- Midland Charter Township
- Midland County Road Commission
- 211 Northeast Michigan
- Arnold Center
- Affordable Housing Alliance
- Chippewa Nature Center
- Community Mental Health
- Dial-A-Ride Transportation
- Disability Network
- Dow Gardens
- Faith Based Community
- Family and Children Services
- Grace Dow Library
- Greater Midland Community Center
- Legacy Center for Community Success
- Midland Area Chamber of Commerce
- Midland Area Community Foundation
- Midland Center City Authority
- Midland Center for the Arts
- County Connection of Midland
- Midland County Convention and Visitors Bureau
- Midland Downtown Development Authority
- Midland Tomorrow
- Momentum Midland
- Open Door
- United Way of Midland County
- Bay Metro Transit Authority
- East Michigan Council of Governments
- East Michigan Council of Governments
- Federal Highway Administration
- Jack Barstow Airport
- MBS International Airport
- Michigan Department of Transportation
  - Bay Region
- Michigan Department of Transportation
  - Mt. Pleasant TSC
- Michigan Department of Transportation
  - Urban Travel Analysis Section
- Michigan Department of Transportation
  - Statewide Planning Section
- Midland County GIS
- Midland County Road Commission
- Saginaw County Road Commission
- Saginaw Area Transportation Agency
- Michigan DNR
- Michigan DEQ - Great Lakes Office
- Michigan DEQ - Air Quality
- Michigan Department of Agriculture
- Saginaw Basin Land Conservancy

Chapter 16- Executive Summary

Towards 2045 fulfills federal mandates for having a MATS Long Range Plan to provide a regional view of transportation needs, and guide the year-to-year investments of federal funding in the MATS planning area transportation system. Thus participating governments in the region satisfy Federal requirements and continue to promote a regional view of transportation improvements.

LRP Process Overview

Many aspects of the plan-making process were included, starting with the vision, goals, and objectives. The background and history of the region, along with land use and demography, were all studied in relation to the transportation system. Previous reports on non-motorized transportation, air travel, freight, and traffic safety were examined. Data on the present and previous state of our streets and roads, as well as traffic volumes and patterns, was gathered.

Then, using travel demand modeling, we looked at network traffic conditions (existing and future), assessed areas of high capacity utilization and the impact of planned capacity improvements. The overall long-term plan was developed based on the findings from these elements, with an emphasis on important local factors. Finally, the implementation strategy was methodically produced, including a prioritized project list.

The projected revenues were compared to the project costs in a detailed financial resource analysis. This is a prerequisite for a long term strategy. As required, environmental mitigation and environmental justice analyses were carried out.

Finally, MATS has aimed to ensure a broad and inclusive level of public input for this plan. An open house, public notice of meetings, a survey, and advertising were all utilized in this process. The input gleaned from all of these interactions has been instrumental in the development of *Towards 2045*.

LRP Findings and Conclusions

This process supported the synergistic approach developed early in the visioning method for the LRP, and the analysis of the data gathered subsequently. The resulting four integrated core strategies of the Plan are: Preservation, Maintenance, Safety, and Livability. These stem from the seven primary goals derived from the planning process:

1. *Accessibility and Mobility*
2. *Safety and Security*
3. *Integration and Connectivity*
4. *Operations and System Management*
5. *Preservation of Transportation System*
6. *Environmental Protection and Enhancement*
7. *Economic Vitality*

The goals and objectives of the Plan therefore truly promote an integrated multi-modal transportation system focused on addressing the needs of all users.

The Plan also identifies the investments that we will need to make in our transportation system to achieve such a future. Due to the expansiveness and the age of our transportation system, this transportation investment plan leans heavily toward projects that rebuild and preserve our existing system. It also identifies prioritized projects that help our system operate more efficiently, and new facilities that help expand our system's capacity and connectivity. The project deemed most important to the MATS region is the full interchange at Waldo Road and US-10.

The conclusions reached from this process clearly indicated that the existing network was not urgently in need of expansion; that operations, i.e. traffic volumes etc. were overall very good; and that demographic forecasts predicted low but steady growth.

The travel demand model forecasted only occasional capacity issues, with few segments showing over 75% capacity utilization. This largely validates the focus on maintenance and reconstruction and led to the development of the prioritized project list, which strives to address the goals of the plan by utilizing the four core strategies. The prioritized projects in this plan thus address the primary issue of aging infrastructure, and have an identified source of funding, thereby ensuring a fiscally constrained plan.

The environmental review showed that no environmental resources are disproportionately neglected or overexposed in relation to these projects, concluding that there would be no impact both due to the MATS region currently being in attainment for Federal air quality, and the geography of the proposed projects. Furthermore, the programmed 2022-2045 transportation projects are located throughout the MATS planning area, thus no population groups are disproportionately neglected or overexposed in relation to these projects. The needs of the minority and low-income population are being taken into consideration with respect to future transportation improvements.

In light of Federal requirements laid out in both the most recent and the previous transportation funding legislation, performance measures were introduced that, over time, have been fully integrated into the MATS planning process. This further reflects the fact that plans are more effective if their results can be measured, and therefore implementation steps and planned projects can be more effectively programmed.

Lastly, the plan presents a large number future transportation projects which fall outside of estimated reasonably expected transportation revenues, but which are still needed to maintain the transportation infrastructure at adequate levels. This strongly indicates that needs will continue to exceed resources in the near term at least.

Achieving the goals presented in the pages of *Towards 2045* will require a concerted, coordinated effort on behalf of elected officials, local agencies, and the public. The result will be a more sustainable, equitable, and innovative region that is ready to compete and prosper on the national and global stage.

TOWARDS 2045 – A LONG RANGE TRANSPORTATION PLAN

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MATS
Midland Area
Transportation Study
A Metropolitan Planning Organization
APPENDIX
MIDLAND AREA
TRANSPORTATION
STUDY
TOWARDS
2045
Long Range Transportation
Plan

Appendix Table of Contents

Terms & Definitions

ANALYSIS AREA - Any geographic area such as a TAZ or group of TAZs combined for the purpose of making an analysis.
ANNUAL AVERAGE DAILY TRAFFIC (AADT) - The total number of vehicles passing a given location on a roadway over the course of one year, divided by 365 (days in the year).
AVERAGE DAILY TRAFFIC (ADT) - The average number of vehicles passing a specified point during a 24-hour period, calculated from an approximation of AADT based on a limited number of 24-hour counts, adjusted for known variation in levels of travel by month of year and day of week.

BASE YEAR - The year selected to which the major portion of data is related.
BLOCKS - The smallest Census Geographic area used as basic tabulation units in urbanized areas with populations of 10,000 or more.

CALIBRATION - The procedure used to adjust travel models to simulate base year travel.
CAPACITY RESTRAINT - The process by which the assigned volume on a link is compared with the practical capacity of that link and the speed of the link adjusted to reflect the relationship between speed, volume, and capacity. The procedure is iterative until a realistic balance is achieved.
CAPACITY - The maximum number of vehicles that can pass over a given section of a lane or roadway in one direction (or in both directions for a two-lane or three-lane highway) during a given time period under prevailing roadway and traffic conditions. It is the maximum rate of flow that has a reasonable expectation of occurring. The terms "capacity" and "possible capacity" are synonymous. In the absence of a time modifier, capacity is an hourly volume. The capacity would not normally be exceeded without changing one or more of the conditions that prevail. In expressing capacity, it is essential to state the prevailing roadway and traffic condition under which the capacity is applicable. Refer to the revised edition of the "Highway Capacity Manual" for more detail.
CENSUS TRACT - Small areas into which large cities and adjacent areas are divided for the purpose of providing comparable small area population and housing census tabulations.
CENTROID - An assumed point in a TAZ that represents the origin or destination of all trips to or from the TAZ. Generally, it is the center of trip ends rather than a geometrical center of the zonal area.
COUNT - A volume counted on the street, which may be used for comparison with the present traffic volume assigned to the corresponding link. The count may be directional or total two-way, peak period - morning and/or afternoon - and/or a 24 hour value.

DESTINATION - The TAZ in which a trip terminates.
DRIVING TIME - The time to traverse the distance between TAZs, not including terminal time at each end of the trip.
DWELLING UNIT - A room or group of rooms occupied or intended for occupation as separate living quarters by persons or a group of persons. Includes houses, flats, apartments, or other places thought of as homes.

FACILITY - A specific road, road segment, route, or route segment.
FHWA - Federal Highway Administration
FISCAL YEAR (FY) - For Federal and State of Michigan agencies, and MATS, the time period beginning October 1 and ending September 30 of the subsequent calendar year. Fiscal years are designated by the calendar year in which they end.
FORECASTING - The process of determining the future values of land use, socio-economic, and trip making variables within the study area.
FTA - Federal Transit Administration
FUNCTIONAL CLASSIFICATION - An identification and categorization of segments of the street and highway system according to the character of service they provide.

GROWTH FACTOR - A ratio of future trip ends divided by present trip ends.

LABOR FORCE - The number of persons residing in a designated area assumed to be employable and actively seeking work.
LEVEL OF SERVICE (LOS) - The term used to indicate the quality of service provided by a facility under a given set of operating conditions.

MDOT - Michigan Department of Transportation
METROPOLITAN PLANNING ORGANIZATION (MPO) - The organization designated by the Governor responsible, together with the State, for comprehensive transportation planning according to 23U.S.C. 134, 23U.S.C. 104(f)(3), and 49U.S.C. 1602(a)(2) and (c)(a)1, 49U.S.C. 1603(a), and 49U.S.C. 1064(g)(1) and (1). This organization shall be the forum for cooperative decision making by principal elected officials of general local government.

MICHIGAN TRANSPORTATION ECONOMIC DEVELOPMENT FUND(TEDF) - Special fund of transportation monies for projects promoting economic development. There are several categories of funds available, all with specific requirements and restrictions. Administered at the MDOT, calls for projects not on a predetermined schedule.
MODE OF TRAVEL - Means of travel such as auto driver, vehicle passenger, mass transit passenger, or walking.

NETWORK - A system of links describing a transportation system for analysis.

ORIGIN - The location of the beginning of a trip or the TAZ in which a trip begins.

PEAK PERIOD - That period during which the maximum amount of travel occurs. Generally, there is a morning peak and an afternoon peak.
PRODUCTIONS - That number of home based trip eds in the TAZ of residence. For all non-home based trips, productions are synonymous with origins.

ROUTE - That combination of street and freeway sections connecting an origin and destination. In traffic assignment, a continuous group of links connecting centroids that nor- mally require the minimum time to traverse.

TRAFFIC ANALYSIS ZONE (TAZ) - The basic analysis unit into which all socio-economic, land use, and trip generation used to determine origin and destination of travel are summarized. Their development is based on land use, human activity, natural boundaries, and compatibility with the street system.
TRAFFIC ASSIGNMENT - The process of determining route or routes of travel and allocating the TAZ-to-TAZ trips to these routes.
TRANSPORTATION IMPROVEMENT PROGRAM (TIP) - A staged multi-year program of planned transportation improvement projects.
TRAVEL DEMAND FORECAST MODEL (TDFM) - A series of computer programs used to analyze and evaluate motor vehicle travel on a highway network. It uses various data on the location and characteristics of a population and its employment to predict travel demand, which can ultimately be used to identify highway deficiencies.
TRAVEL TIME - The time required to travel between two points, including the terminal time at both ends of the trip.
TRIP - A one-direction movement which begins at the origin at the start time, ends at the destination at the arrival time, and is conducted for a specific purpose.
TRIP DISTRIBUTION - The process by which the movement of trips between TAZs is estimated. The data for each distribution may be measured or be estimated by a growth factor process, or by synthetic model.
TRIP GENERATION - A general term describing the analysis and application of the relationships which exists between the trip-makers, the urban area, and the trip making. It relates to the number of trip ends in any part of the urban area.
TRIP PURPOSE - The reason for making a trip. Normally, one of ten possible purposes each trip may have a purpose at each end. For example, home to work.

URBAN AREA - An urban place as designated by the Bureau of the Census having a population of 50,000 or more and not within any other urbanized area.
URBAN AREA BOUNDARY - The boundaries of the area that encompass the entire urban place as designated by the U.S. Bureau of Census plus that adjacent area as agreed upon by local officials in cooperation with the State.
URBANIZED AREA (UA) - An urban place containing a city (or twin cities) of 50,000 or more (central city) plus the surrounding closely settled incorporated area which meets certain criteria of population size or density, as designated by the Bureau of the Census, and not within any other urbanized area. As defined by minimum population density, the urbanized area can include the central city, suburbs, and the closely settled fringe of development.

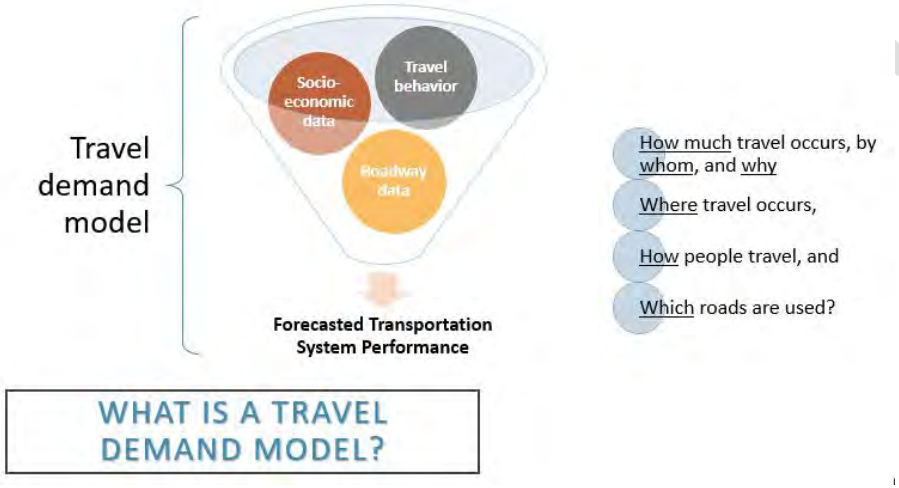
VEHICLE-MILES OF TRAVEL (VMT) - Generally used as an area-wide measure. May be calculated by summing data on a link basis or by multiplying average trip length (in miles) times the total number of vehicle trips.
VOLUME - The number of vehicles using a facility.
VOLUME TO CAPACITY RATIO (V/C) - A measure of the level of service on a facility.

Travel Demand Model

The travel demand model used for the MATS 2045 Long Range Transportation Plan is a regional model, referred to as the Great Lakes Bay Region (GLBR) Model that includes Midland, Saginaw, and Bay Counties. Because of the interaction between these three areas, travel patterns can be better modeled as a regional model instead of modeling each area separately. This effort required coordination between MATS, Bay City Area Transportation Study (BCATS), and Saginaw Area Transportation Agency (SATA).

MDOT Statewide and Urban Travel Analysis Section provided the lead role in the process and assumed responsibility for modeling activities with both entities reaching consensus on selective process decisions. The urban area travel demand modeling process for the MATS portion of the GLBR Model was a cooperative effort between MATS and SUTA.

Travel demand forecasting models (TDMs) are a major analysis tool for the development of long-range transportation plans. These mathematical models are designed to calculate the number of trips, connect their origins and destinations, forecast the mode of travel, and identify the roadways or transit routes most likely to be used in completing a trip.



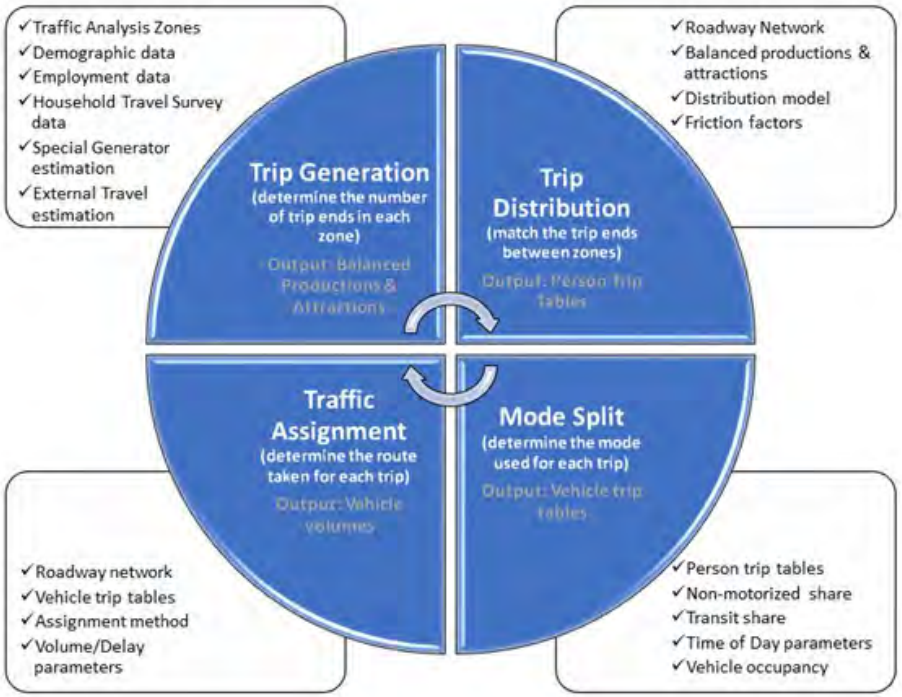
Models are used to determine where future transportation problems are likely to occur, as indicated by modeled roadway congestion. Once identified, the model can test the ability of roadway and transit system improvements to address those problems. The model is a computer estimation of current and future traffic conditions and is built and ran through TransCAD software.

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

How the Model Works:

1. The model generates a synthetic population of households based on the aggregate characteristics of the population encoded in the traffic analysis zones (TAZ).
2. The level of vehicle ownership is applied to the household.
3. The number of trips of various purposes (work, school, other, etc.) are predicted for each household.
4. The dominant mode of travel (private automobile, bus, walking/biking) is modeled for the household's trip of each purpose.
5. Probable destinations of each trip type are chosen.
6. Finally, the trips are assigned to the roadway network and routes are chosen such that travelers minimize their travel time and costs.

Components of the Model



Traffic Analysis Zone (TAZ)

The Traffic Analysis Zone (TAZ) is the primary geographical unit of analysis of the travel demand model. This represents the origins and destinations of the travel activity within the model area. TAZ's 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. TAZ's vary in size depending on population, employment, and road network density. Each TAZ includes population and employment data (aggregated from census blocks) which is fed into the Travel Demand Model.

Road Network

Using the TransCAD software, a traffic network is built to represent the existing road system. The 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 availability, national functional classification and traffic counts (based on availability). The network attributes were provided by MDOT staff and reviewed by MATS staff. 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 traffic conditions.

Socio-Economic (SE) Data & Population Synthesis

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 each TAZ. These characteristics are generally referred to as socioeconomic data (SE-Data). The collection and verification of the SE Data was a collaborative effort between MATS, MATS committee members, and MDOT.

For the base year of the model, household, population, and employment data from the 2010 U.S. Census, the American Community Survey, and the Nielson employment databases were presented to the MPO and Technical and Policy Committees. Committee members were asked to provide detailed information about new development and where employers or population had been reduced. For the future years of the model, multiple sources were utilized including the Regional Economic Models Incorporated (REMI) TranSight Model, the MDOT Statewide Travel Demand Model, and input from MATS & local agencies.

The travel demand model generates a synthetic population of households based on the demographic information associated with the traffic analysis zones. For each zone, individual households are created. Each household has a total number of persons, workers, and students. Each household also has an income variable that indicates whether the household belongs to the lower, middle, or upper income category. The number of vehicles available to each household is modeled separately, after the population synthesis, based on these variables and other variables describing the zone in which the household is located.

Trip Generation

The trip generation process calculates the number of person-trips produced from or attracted to a zone, based on the socio-economic characteristics of that zone. The relationship between person-trip making and land activity are expressed in equations for use in the modeling process. The formulas were derived from MI Travel Counts Michigan travel survey data and other research throughout the United States. Productions were generated with a cross-classification look-up process based on household demographics. Attractions were generated with a regression approach based on employment and household demographics. To develop a trip table, productions and attractions must be balanced. Walk/bike trips are calculated using a factor for each trip purpose derived from the MI Travel Counts travel survey data. The walk/bike trips are removed from the production/attraction table before trip distribution is performed. The travel demand model also has a simple truck model that estimates commercial and heavy truck traffic based on production and attraction relationships developed from the Quick Response Freight Manual. The QRFM uses the employment data from the TAZ layer in calculating the percentage of trucks.

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

Trip Distribution

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

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

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

The primary inputs to the gravity model are the normalized productions (P's) and attractions (A's) by trip purpose developed in the trip generation phase. The second data input is a measure of the temporal separation between TAZs. This measure is an estimate of travel time over the transportation network from TAZ to TAZ, referred to as "skims." In order to more closely approximate actual times between TAZs and to account for the travel time for intra-zonal

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

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

Mode Choice

The number of person trips and their trip starting and ending point have been determined in the trip generation and trip distribution steps. The mode choice step determines how each person trip will travel. The travel demand model uses a simplified mode choice to predict mode choice. The process uses a qualitative measure of transit network service at the zonal level to estimate transit mode shares. The transit trips are accounted for but not assigned to a specific route. The split between single occupancy vehicles (SOV) and shared ride trips (SR2 & SR3+) is based on the average auto occupancy for the applicable trip purpose. The output to this step is a vehicle trip matrix by trip purpose. The external trips and the truck trips, which are originally developed as vehicle trips which eliminates the need of the mode choice step for these trip purposes, are added to the vehicle trip matrix.

Assignment

Traffic assignment is the final step in the traditional four step TDM process. In this step, trips are assigned to a "route" (or path) on the roadway network between each trip origin and destination. The basic premise of trip assignment is that trip makers will choose the "best" path between each origin and destination. The determination of the "best" path is based upon selecting the route with the least "impedance". Impedance, in this application, is based upon travel time – calculated as a function of link distance and speed (and later as a function of link volume and capacity). Essentially, trip makers on the roadway network will choose the route, between each trip origin and destination, which minimizes travel time.

The "User Equilibrium" algorithm (a commonly used algorithm) is employed in the traffic assignment component. User equilibrium is based on the principle that while selecting the "best" route, trip makers will use "all" possible paths between an origin and destination that have equal travel time – so that altering paths will not save travel time. This algorithm attempts to optimize the travel time between all possible paths, reflecting the effects of system congestion.

Thus, the product of the traffic assignment component is a series of vehicle-trip (volume) tables, by mode, for each link in the model roadway network. These "assigned" link volumes are then compared to "observed" traffic data as part of the model calibration, validation and reasonability checking phase of the overall modeling process.

The GBLR model has 4 time periods that were developed to match the peak periods observed in traffic counts. The following period were used: AM Peak (7am - 9am), Mid-Day (9am - 3pm), PM Peak (3pm - 6pm), Nighttime (6pm - 7am).

Applications of the Validated Model

Generally, three distinct alternative scenarios are developed for a LRTP:

1. Simulated Base Year (2017) volumes assigned to the Base Year (2017) Roadway Network; this scenario includes the assignment of 2017 model volumes, generated using 2017 SE data, onto the roadway network representing 2017 conditions. This is referred to as the "validated", existing network scenario, or "base-year" alternative, and is a prerequisite for the other two scenarios.

2. Simulated Forecast Year (e.g. 2045) volumes assigned to a Modified Base Year Roadway Network; this scenario includes the assignment of 2045 volumes, generated using 2045 SE data, onto an amended

roadway network representing 2017 conditions, and including any improvements completed since 2017 and future (near term) improvements for which funds have been "committed". This alternative characterizes future capacity and congestion problems if no further improvements to the transportation system are made. This "congestion analysis" on the "existing plus committed" (E+C) network is also called the "do nothing", or "no-build" alternative, and includes only the E+C roadway system.

3. Simulated Forecast Year (e.g. 2045) volumes on a proposed Forecast Year (e.g. 2045) Roadway Network; this scenario includes the assignment of 2045 volumes, generated using 2045 SE data, onto the roadway network as it is proposed to exist in the forecast year of 2045. This scenario is the long range transportation plan "build" alternative. It includes the E+C roadway network, plus proposed capacity improvement and expansion projects.

System Analysis

Once the base and future trips have been estimated, a number of transportation system analyses can be conducted:

- Roadway network alternatives to relieve congestion can be tested as part of the LRTP. Future traffic can be assigned to an amended, existing roadway network (i.e. “No Build” Network) to represent the future impacts to the transportation system if no improvements were made. From this, improvements and/or expansions can be planned that could help alleviate demonstrated capacity issues.

- The impact of planned roadway improvements or expansions can be assessed.

- Individual links can be analyzed to determine which TAZs are contributing to the travel on that link (i.e. the link's service area). This can be shown as a percentage breakdown of total link volume, thus aiding in the analysis of traffic assignment.

- The impacts of land use changes on the roadway network can be evaluated (e.g. what would be the impact of a new major retail establishment).

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

Congestion Analysis

At the end of the model run cycle, capacity utilization of each segment in the network are identified based on the volume to capacity ratios of the segment. This means that the higher the V/C ratio, the higher the chances are that the roadway could experience congestion. The regional travel demand model identifies areas where traffic congestion is currently occurring, or projected to occur in the future year (in the years 2017 and 2045). This allows broader analysis of the entire system operations.

It is important to understand that the modeling process is most effective for system level analysis. Although detailed volumes for individual intersection and roadway segments are an output of the model, additional analysis may be required for project level analysis. The accuracy of the model is heavily dependent on the accuracy of the socio-economic data and network data.

Fiscal Constraint Demonstration Tables

Local STP Urban Program
(MPO STUL/HIP/HIPS Allocations and related local funds)

Estimated Revenues

Year	STUL Funding	HIP & HIPS Funds	Local Funding	Total Funding
2022	$ 952,850	$ 300,000	$ 273,150	$ 1,526,000
2023	$ 970,954	$ 156,000	$ 548,046	$ 1,675,000
2024	$ 989,402	$0	$ 1,960,598	$ 2,950,000
2025	$ 1,008,200	$0	$ 1,671,800	$ 2,680,000
2026	$ 1,027,356	$0	$ 442,644	$ 1,470,000
2027	$ 1,046,876	$0	$ 563,702	$ 1,610,578
2028	$ 1,066,766	$0	$ 574,412	$ 1,641,178
2029	$ 1,087,035	$0	$ 585,327	$ 1,672,362
2030	$ 1,107,688	$0	$ 596,447	$ 1,704,135
2031	$ 1,130,949	$0	$ 608,973	$ 1,739,922
2032	$ 1,154,699	$0	$ 621,761	$ 1,776,461
2033	$ 1,178,948	$0	$ 634,818	$ 1,813,766
2034	$ 1,203,706	$0	$ 648,149	$ 1,851,855
2035	$ 1,228,984	$0	$ 661,761	$ 1,890,744
2036	$ 1,254,792	$0	$ 675,657	$ 1,930,450
2037	$ 1,281,143	$0	$ 689,846	$ 1,970,989
2038	$ 1,308,047	$0	$ 704,333	$ 2,012,380
2039	$ 1,335,516	$0	$ 719,124	$ 2,054,640
2040	$ 1,363,562	$0	$ 734,226	$ 2,097,788
2041	$ 1,392,197	$0	$ 749,644	$ 2,141,841
2042	$ 1,421,433	$0	$ 765,387	$ 2,186,820
2043	$ 1,451,283	$0	$ 781,460	$ 2,232,743
2044	$ 1,481,760	$0	$ 797,871	$ 2,279,631
2045	$ 1,512,877	$0	$ 814,626	$ 2,327,503
Total:	**$ 28,957,024**	**$ 456,000**	**$ 17,823,764**	**$ 47,236,787**

TIP projects used for FY 2022-2026 or selected projects per MATS process
Assumptions for years 2027-2045:
35% local match on average annually (2027-2045)
STUL funding: 1.9% annual growth rate 2022-2030, 2.1% annual growth rate 2031-2045

STP-Urban Revenue Estimates:

	Federal Funds	Local Funds	Total Revenues
2022-2025	$ 4,377,406	$ 4,453,594	$ 8,831,000
2026-2035	$ 11,233,008	$ 5,937,995	$ 17,171,003
2036-2045	$ 13,802,610	$ 7,432,175	$ 21,234,785
Total:	**$ 29,413,024**	**$ 17,823,764**	**$ 47,236,787**

STP-Urban Expenditure Estimates:

	Federal Funds	Local Funds	Total Expenditures
2022-2025	$ 4,377,406	$ 4,453,594	$ 8,831,000
2026-2035	$ 11,233,008	$ 5,937,995	$ 17,171,003
2036-2045	$ 13,802,610	$ 7,432,175	$ 21,234,785
Total:	**$ 29,413,024**	**$ 17,823,764**	**$ 47,236,788**

All available revenues assumed to be utilized, always more projects than available revenues

LRP fiscally constrained based on comparison of prioritized expenditures versus expected revenues:

	Total Cost:		
2022-2025 Prioritized Projects:	$ 1,526,000		
	$ 375,000		
	$ 1,300,000		
	$ 1,800,000		
	$ 1,150,000		
	$ 1,900,000		
	$ 780,000		Revenues:
	$ 8,831,000	compared to:	$ 8,831,000
2026-2035 Prioritized Projects:	$ 750,000		
	$ 720,000		
	$ 666,000		
	$ 888,000		
	$ 444,000		
	$ 1,776,000		
	$ 888,000		
	$ 3,500,000		Revenues:
	$ 9,632,000	compared to:	$ 17,171,003
2036-2045 Prioritized Projects:			Revenues:
None specified at this time	$0.00	compared to:	$ 21,234,785

Local STP Rural and EDD Program

(Funds assigned through Rural Task Force to MCRC, BCRC and SCRC for projects in MATS area)

Estimated Revenues

Year	STL/ER Funding	EDD (State) Funds	Local Funding	Total Funding	
2022	$ 592,000	$ 73,388	$ 224,212	$ 889,600	
	$ 1,642,369	$0	$ 410,594	$ 2,052,963	ER Funds due to flood
2023	$ 603,248	$ 74,636	$ 234,612	$ 912,496	
	$ 653,800	$ 20,000	$ 196,200	$ 870,000	SCRC RTF project
2024	$ 614,710	$ 75,905	$ 234,612	$ 925,227	
2025	$ 626,389	$ 77,195	$ 234,612	$ 938,196	
2026	$ 638,291	$ 78,508	$ 234,613	$ 951,411	
2027	$ 650,418	$ 79,842	$ 270,383	$ 1,000,643	
2028	$ 662,776	$ 81,199	$ 275,680	$ 1,019,655	
2029	$ 675,369	$ 82,580	$ 281,080	$ 1,039,029	
2030	$ 688,201	$ 83,984	$ 286,586	$ 1,058,770	
2031	$ 702,653	$ 85,579	$ 292,772	$ 1,081,005	
2032	$ 717,409	$ 87,205	$ 299,092	$ 1,103,706	
2033	$ 732,474	$ 88,862	$ 305,547	$ 1,126,884	
2034	$ 747,856	$ 90,551	$ 312,141	$ 1,150,548	
2035	$ 763,561	$ 92,271	$ 318,877	$ 1,174,710	
2036	$ 779,596	$ 94,024	$ 325,758	$ 1,199,379	
2037	$ 795,968	$ 95,811	$ 332,787	$ 1,224,565	
2038	$ 812,683	$ 97,631	$ 339,967	$ 1,250,281	
2039	$ 829,749	$ 99,486	$ 347,302	$ 1,276,537	
2040	$ 847,174	$ 101,376	$ 354,794	$ 1,303,345	
2041	$ 864,965	$ 103,303	$ 362,448	$ 1,330,715	
2042	$ 883,129	$ 105,265	$ 370,266	$ 1,358,660	
2043	$ 901,675	$ 107,265	$ 378,252	$ 1,387,192	
2044	$ 920,610	$ 109,303	$ 386,410	$ 1,416,323	
2045	$ 939,943	$ 111,380	$ 394,743	$ 1,446,065	
Total:	**$ 20,287,014**	**$ 2,196,551**	**$ 8,004,339**	**$ 30,487,905**	

Assumptions for years 2022-2045:

Federal funds representing approx 65% of total funds, with state/local match equal to approx 35%, annually

STL funding: 1.9% annual growth rate 2023-2030, 2.1% annual growth rate 2031-2045

EDD funding: 1.7% annual growth rate 2023-2030, 1.9% annual growth rate 2031-2045

TIP projects used for FY 2022-2026 or selected projects per RTF/MATS processes

STP-Rural Revenue Estimates:

	Federal Funds	State Funds	Local Funds	Total Revenues
2022-2025	$ 4,732,516	$ 321,124	$ 1,534,842	$ 6,588,482
2026-2035	$ 6,979,008	$ 850,582	$ 2,876,771	$ 10,706,361
2036-2045	$ 8,575,490	$ 1,024,846	$ 3,592,726	$ 13,193,062
Total:	**$ 20,287,014**	**$ 2,196,551**	**$ 8,004,339**	**$ 30,487,905**

STP-Rural Expenditure Estimates:

	Federal Funds	State Funds	Local Funds	Total Expenditures
2022-2025	$ 4,732,516	$ 321,124	$ 1,534,842	$ 6,588,482
2026-2035	$ 6,979,008	$ 850,582	$ 2,876,771	$ 10,706,361
2036-2045	$ 8,575,490	$ 1,024,846	$ 3,592,726	$ 13,193,062
Total:	**$ 20,287,014**	**$ 2,196,551**	**$ 8,004,339**	**$ 30,487,905**

All available revenues assumed to be utilized, always more projects than available revenues

LRP fiscally constrained based on comparison of prioritized expenditures versus expected revenues:

	Total Cost:		
2022-2025 Prioritized Projects:	$ 889,600		
	$ 2,052,963		
	$ 870,000		
	$ 900,000		
	$ 900,000		
	$ 900,000		Revenues:
	$ 6,512,563	compared to:	$ 6,588,482
2026-2035 Prioritized Projects:	$ 900,000		
	$ 740,000		
	$ 592,000		
	$ 740,000		
	$ 444,000		
	$ 1,332,000		
	$ 592,000		
	$ 444,000		
	$ 888,000		
	$ 2,750,000		Revenues:
	$ 9,422,000	compared to:	$ 10,706,361
2036-2045 Prioritized Projects:	$ 3,650,000		Revenues:
	$ 3,650,000	compared to:	$ 13,193,062

Non-Motorized Program

(TAUL federal funds, DNR funds, ACT 51 funds, foundation grants, corporate donations, general funds, etc)

Federal funding allocated per competitive grant basis. Funding varies significantly from year to year.

Local funding for non-motorized projects varies significantly from year to year and could be from a variety of sources (Act 51 funds, foundation grants, corporate donors, general funds, etc.)
Local funding for non-motorized projects representing anywhere from 20% to 100% of total project costs.
Funding for 5 projects by 2025 has been secured through majority of local sources, some federal funding is expected to be available (applications approved or pending).
Due to extreme variability, $500,000, representing a conservative annual average for all funding sources for all NMT projects within MATS, used as a base FY 2026 funding amount.

Estimated Revenues

Year	Total Funding (Federal plus State plus Local)
2022	$0
2023	$ 3,824,604
2024	$0
2025	$ 10,175,400
2026	$ 500,000
2027	$ 509,500
2028	$ 519,181
2029	$ 529,045
2030	$ 539,097
2031	$ 550,418
2032	$ 561,977
2033	$ 573,778
2034	$ 585,827
2035	$ 598,130
2036	$ 610,691
2037	$ 623,515
2038	$ 636,609
2039	$ 649,978
2040	$ 663,627
2041	$ 677,563
2042	$ 691,792
2043	$ 706,320
2044	$ 721,153
2045	$ 736,297
Total:	**$ 26,184,500**

Additional assumptions:
Funding: 1.9% annual growth rate 2027-2030, 2.1% annual growth rate 2031-2045

Non-Motorized Program Revenue Estimates:

	(Federal, State & Local)
2022-2025	$ 14,000,004
2026-2035	$ 5,466,952
2036-2045	$ 6,717,544
Total:	**$ 26,184,500**

Non-Motorized Program Expenditure Estimates:

	(Federal, State & Local)
2022-2025	$ 14,000,004
2026-2035	$ 5,466,952
2036-2045	$ 6,717,544
Total:	**$ 26,184,500**

All available revenues assumed to be utilized, always more projects than available revenues

LRP fiscally constrained based on comparison of prioritized expenditures versus expected revenues:

	Total Cost:		
2022-2025 Prioritized Projects:	$ 3,824,604		
	$ 1,000,000		
	$ 5,000,000		
	$ 2,510,400		
	$ 1,665,000		Revenues:
	$ 14,000,004	compared to:	$ 14,000,004
2026-2035 Prioritized Projects:	$ 500,000		
	$ 1,200,000		
	$ 750,000		
	$ 1,500,000		Revenues:
	$ 3,950,000	compared to:	$ 5,466,952
2036-2045 Prioritized Projects:	$ 1,800,000		
	$ 150,000		
	$ 7,500		
	$ 500,000		Revenues:
	$ 2,457,500	compared to:	$ 6,717,544

Local Safety Program
(HSIP, HRRR-related projects)

Funding allocated per competitive grant basis. Funding varies significantly from year to year.

$200,000, representing a conservative annual average, used as a base FY 2024 federal funding amount. 0% state match and 20% local match assumed.

Estimated Revenues

Year	Federal Funding	State Funding	Local Funding	Total Funding
2022	$ 600,000	$0.0	$ 150,017	$ 750,017
2023	$ 200,000	$0.0	$ 50,000	$ 250,000
2024	$ 200,000	$0.0	$ 50,000	$ 250,000
2025	$ 203,800	$0.0	$ 50,950	$ 254,750
2026	$ 207,672	$0.0	$ 51,918	$ 259,590
2027	$ 211,618	$0.0	$ 52,904	$ 264,522
2028	$ 215,639	$0.0	$ 53,910	$ 269,548
2029	$ 219,736	$0.0	$ 54,934	$ 274,670
2030	$ 223,911	$0.0	$ 55,978	$ 279,889
2031	$ 228,613	$0.0	$ 57,153	$ 285,766
2032	$ 233,414	$0.0	$ 58,353	$ 291,767
2033	$ 238,316	$0.0	$ 59,579	$ 297,894
2034	$ 243,320	$0.0	$ 60,830	$ 304,150
2035	$ 248,430	$0.0	$ 62,107	$ 310,537
2036	$ 253,647	$0.0	$ 63,412	$ 317,059
2037	$ 258,973	$0.0	$ 64,743	$ 323,717
2038	$ 264,412	$0.0	$ 66,103	$ 330,515
2039	$ 269,965	$0.0	$ 67,491	$ 337,456
2040	$ 275,634	$0.0	$ 68,908	$ 344,542
2041	$ 281,422	$0.0	$ 70,356	$ 351,778
2042	$ 287,332	$0.0	$ 71,833	$ 359,165
2043	$ 293,366	$0.0	$ 73,341	$ 366,707
2044	$ 299,527	$0.0	$ 74,882	$ 374,408
2045	$ 305,817	$0.0	$ 76,454	$ 382,271
Total:	**$ 6,264,562**	**$0.0**	**$ 1,566,158**	**$ 7,830,720**

Additional assumptions:
TIP projects used for FY 2022-2023
Federal funding: 1.9% annual growth rate 2022-2030, 2.1% annual growth rate 2031-2045
0% state and 20% local match on average annually (2024-2045)

Local Safety Program Revenue Estimates:

	Federal Funds	State Funds	Local Funds	Total Revenues
2022-2025	$ 1,203,800	$0	$ 300,967	$ 1,504,767
2026-2035	$ 2,270,668	$0	$ 567,667	$ 2,838,335
2036-2045	$ 2,790,094	$0	$ 697,524	$ 3,487,618
Total:	**$ 6,264,562**	**$0**	**$ 1,566,158**	**$ 7,830,720**

Local Safety Program Expenditure Estimates:

	Federal Funds	State Funds	Local Funds	Total Expenditures
2022-2025	$ 1,203,800	$0	$ 300,967	$ 1,504,767
2026-2035	$ 2,270,668	$0	$ 567,667	$ 2,838,335
2036-2045	$ 2,790,094	$0	$ 697,524	$ 3,487,618
Total:	**$ 6,264,562**	**$0**	**$ 1,566,158**	**$ 7,830,720**

All available revenues assumed to be utilized, always more projects than available revenues

LRP fiscally constrained based on comparison of prioritized expenditures versus expected revenues:

	Total Cost:		Revenues:
2022-2025 Prioritized Projects:	$ 750,017		
	$ 250,000		
	$ 1,000,017	compared to:	$ 1,504,767
2026-2035 Prioritized Projects:			Revenues:
None specified at this time	$0.00	compared to:	$ 2,838,335
2036-2045 Prioritized Projects:			Revenues:
None specified at this time	$0.00	compared to:	$ 3,487,618

Local Bridge Program
(Bridge Replacement, Rehabilitation, CPM)

Funding allocated per competitive grant basis. Funding varies significantly from year to year.

$400,000, representing a conservative annual average, used as a base FY 2024 federal funding amount.

Federal funding assumed to account for 80% of annual revenues, with 10% state match and 10% local match, respectively.

Estimated Revenues

Year	Federal Funding	State Funding	Local Funding	Total Funding
2022	$ 2,600,800	$ 261,900	$ 388,300	$ 3,251,000
2023	$ 347,200	$ 65,100	$ 21,700	$ 434,000
2024	$ 400,000	$ 50,000	$ 50,000	$ 500,000
2025	$ 407,600	$ 50,950	$ 50,950	$ 509,500
2026	$ 415,344	$ 51,918	$ 51,918	$ 519,181
2027	$ 423,236	$ 52,904	$ 52,904	$ 529,045
2028	$ 431,277	$ 53,910	$ 53,910	$ 539,097
2029	$ 439,472	$ 54,934	$ 54,934	$ 549,340
2030	$ 447,822	$ 55,978	$ 55,978	$ 559,777
2031	$ 457,226	$ 57,153	$ 57,153	$ 571,532
2032	$ 466,828	$ 58,353	$ 58,353	$ 583,535
2033	$ 476,631	$ 59,579	$ 59,579	$ 595,789
2034	$ 486,640	$ 60,830	$ 60,830	$ 608,300
2035	$ 496,860	$ 62,107	$ 62,107	$ 621,075
2036	$ 507,294	$ 63,412	$ 63,412	$ 634,117
2037	$ 517,947	$ 64,743	$ 64,743	$ 647,434
2038	$ 528,824	$ 66,103	$ 66,103	$ 661,030
2039	$ 539,929	$ 67,491	$ 67,491	$ 674,911
2040	$ 551,268	$ 68,908	$ 68,908	$ 689,085
2041	$ 562,844	$ 70,356	$ 70,356	$ 703,555
2042	$ 574,664	$ 71,833	$ 71,833	$ 718,330
2043	$ 586,732	$ 73,341	$ 73,341	$ 733,415
2044	$ 599,053	$ 74,882	$ 74,882	$ 748,817
2045	$ 611,633	$ 76,454	$ 76,454	$ 764,542
Total:	**$ 13,877,124**	**$ 1,693,141**	**$ 1,776,141**	**$ 17,346,405**

Additional assumptions:

TIP projects used for FY 2022-2023

Federal funding: 1.9% annual growth rate 2022-2030, 2.1% annual growth rate 2031-2045

10% state and 10% local match on average annually (2024-2045)

Local Bridge Program Revenue Estimates:

	Federal Funds	State Funds	Local Funds	Total Revenues
2022-2025	$ 3,755,600	$ 427,950	$ 510,950	$ 4,694,500
2026-2035	$ 4,541,336	$ 567,667	$ 567,667	$ 5,676,670
2036-2045	$ 5,580,188	$ 697,524	$ 697,524	$ 6,975,236
Total:	**$ 13,877,124**	**$ 1,693,141**	**$ 1,776,141**	**$ 17,346,405**

Local Bridge Program Expenditure Estimates:

	Federal Funds	State Funds	Local Funds	Total Expenditures
2022-2025	$ 3,755,600	$ 427,950	$ 510,950	$ 4,694,500
2026-2035	$ 4,541,336	$ 567,667	$ 567,667	$ 5,676,670
2036-2045	$ 5,580,188	$ 697,524	$ 697,524	$ 6,975,236
Total:	**$ 13,877,124**	**$ 1,693,141**	**$ 1,776,141**	**$ 17,346,405**

All available revenues assumed to be utilized, always more projects than available revenues

LRP fiscally constrained based on comparison of prioritized expenditures versus expected revenues:

	Total Cost:		
2022-2025 Prioritized Projects:	$ 3,251,000		
	$ 434,000		Revenues:
	$ 3,685,000	compared to:	$ 4,694,500
2026-2035 Prioritized Projects:			Revenues:
None specified at this time	$0.00	compared to:	$ 5,676,670
2036-2045 Prioritized Projects:			Revenues:
None specified at this time	$0.00	compared to:	$ 6,975,236

Local Capital Program
(ACT 51 funds, millages, general funds, etc)

These funds represent Local funds not already accounted for as a match for federal funds in previous Local Programs. Funds used for capital projects on federal-aid roads (not for O & M).

$1,000,000, representing a conservative annual average for all local agencies within MATS, used as a base FY 2022 funding amount.

Estimated Revenues

Year	Federal Funding	State Funding	Local Funding	Total Funding
2022	$0.0	$0.0	$ 1,000,000	$ 1,000,000
2023	$0.0	$0.0	$ 1,017,000	$ 1,017,000
2024	$0.0	$0.0	$ 1,034,289	$ 1,034,289
2025	$0.0	$0.0	$ 1,051,872	$ 1,051,872
2026	$0.0	$0.0	$ 1,069,754	$ 1,069,754
2027	$0.0	$0.0	$ 1,087,940	$ 1,087,940
2028	$0.0	$0.0	$ 1,106,435	$ 1,106,435
2029	$0.0	$0.0	$ 1,125,244	$ 1,125,244
2030	$0.0	$0.0	$ 1,144,373	$ 1,144,373
2031	$0.0	$0.0	$ 1,166,116	$ 1,166,116
2032	$0.0	$0.0	$ 1,188,272	$ 1,188,272
2033	$0.0	$0.0	$ 1,210,850	$ 1,210,850
2034	$0.0	$0.0	$ 1,233,856	$ 1,233,856
2035	$0.0	$0.0	$ 1,257,299	$ 1,257,299
2036	$0.0	$0.0	$ 1,281,188	$ 1,281,188
2037	$0.0	$0.0	$ 1,305,530	$ 1,305,530
2038	$0.0	$0.0	$ 1,330,335	$ 1,330,335
2039	$0.0	$0.0	$ 1,355,612	$ 1,355,612
2040	$0.0	$0.0	$ 1,381,368	$ 1,381,368
2041	$0.0	$0.0	$ 1,407,614	$ 1,407,614
2042	$0.0	$0.0	$ 1,434,359	$ 1,434,359
2043	$0.0	$0.0	$ 1,461,612	$ 1,461,612
2044	$0.0	$0.0	$ 1,489,382	$ 1,489,382
2045	$0.0	$0.0	$ 1,517,681	$ 1,517,681
Total:	**$0.0**	**$0.0**	**$ 29,657,979**	**$ 29,657,979**

Additional assumptions:
Local funding: 1.7% annual growth rate 2022-2030, 1.9% annual growth rate 2031-2045
Local Capital FY 2022 funding projection for MATS area estimated in coordination with MCRC, BCRC, SCRC, City of Midland

Local Capital Program Revenue Estimates:

	Federal Funds	State Funds	Local Funds	Total Revenues
2022-2025	$0	$0	$ 4,103,161	$ 4,103,161
2026-2035	$0	$0	$ 11,590,137	$ 11,590,137
2036-2045	$0	$0	$ 13,964,681	$ 13,964,681
Total:	**$0**	**$0**	**$ 29,657,979**	**$ 29,657,979**

Local Capital Program Expenditure Estimates:

	Federal Funds	State Funds	Local Funds	Total Expenditures
2022-2025	$0	$0	$ 4,103,161	$ 4,103,161
2026-2035	$0	$0	$ 11,590,137	$ 11,590,137
2036-2045	$0	$0	$ 13,964,681	$ 13,964,681
Total:	**$0**	**$0**	**$ 29,657,979**	**$ 29,657,979**

All available revenues assumed to be utilized, always more projects than available revenues

LRP fiscally constrained based on comparison of prioritized expenditures versus expected revenues:

Total Cost:

2022-2025 Prioritized Projects: Revenues:
None specified at this time $0.00 compared to: $ 4,103,161

2026-2035 Prioritized Projects:

$ 1,470,000
$ 1,150,000
$ 2,500,000
$ 2,500,000
$ 500,000
$ 500,000
$ 8,620,000 compared to: $ 11,590,137

2036-2045 Prioritized Projects: Revenues:
None specified at this time $0.00 compared to: $ 13,964,681

Trunkline Capital Program

Federal and state funds available for trunkline preservation and capacity projects, excluding CI, NR, TM and Rebuilding Michigan Bonds
Includes Road Rehabilitation/Reconstruction projects, Bridge Replacement/Rehabilitation/CPM projects, Traffic Safety projects, other capital projects

Estimated Revenues

Year	Total Funding (Federal and State funds)
2022	$ 11,600,000
2023	$ 5,700,000
2024	$ 11,100,000
2025	$ 8,600,000
2026	$ 8,800,000
2027	$ 9,000,000
2028	$ 9,700,000
2029	$ 9,900,000
2030	$ 9,900,000
2031	$ 10,300,000
2032	$ 10,700,000
2033	$ 14,700,000
2034	$ 11,800,000
2035	$ 12,100,000
2036	$ 12,200,000
2037	$ 15,800,000
2038	$ 15,000,000
2039	$ 15,200,000
2040	$ 14,900,000
2041	$ 16,600,000
2042	$ 17,100,000
2043	$ 17,500,000
2044	$ 17,900,000
2045	$ 17,700,000
Total:	**$ 303,800,000**

Revenue estimates received from MDOT Statewide Planning (heidi Phaneuf)

Trunkline Capital Program Revenue Estimates:

	(Federal & State)
2022-2025	$ 37,000,000
2026-2035	$ 106,900,000
2036-2045	$ 159,900,000
Total:	**$ 303,800,000**

Trunkline Capital Program Expenditure Estimates:

	(Federal & State)
2022-2025	$ 37,000,000
2026-2035	$ 106,900,000
2036-2045	$ 159,900,000
Total:	**$ 303,800,000**

All available revenues assumed to be utilized, always more projects than available revenues

LRP fiscally constrained based on comparison of prioritized expenditures versus expected revenues:

	Total Cost:		
2022-2025 Prioritized Projects:	$ 23,857,237	Road Projects FY 22	
	$ 1,149,866	Traffic safety projects FY 22	
	$ 3,250,265	Bridge Projects FY 22	
	$ 316,914	Traffic safety projects FY 23	
	$ 725,748	Bridge Projects FY 23	
	$ 268,087	Traffic safety projects FY 24	
	$ 5,595,286	Bridge Projects FY 24	
	$ 352,107	Traffic safety projects FY 25	
	$ 35,515,510	compared to:	Revenues: $ 37,000,000
2026-2035 Prioritized Projects:	$ 35,757,939	Road Projects FY 26	
	$ 226,737	Traffic safety projects FY 26	
	$ 1,342	Traffic safety projects FY 27	
	$ 35,986,018	compared to:	Revenues: $ 106,900,000
2036-2045 Prioritized Projects:			Revenues:
None specified at this time	$0.00	compared to:	$ 159,900,000

State and Local Operations and Maintenance Program

Operations and maintenance defined as those items necessary to keep the road infrastructure functional for vehicle travel, excluding repair/replacement of capital assets.
O and M covers activities like grass cutting, trash removal, snow removal, other winter activities.
Only O and M expenditures on federal-aid network represented. Federal funds cannot be used for O and M.

Estimated Revenues

Year	Federal Funding	State Funding (Trunklines)	Local Funding (Federal-Aid Roads)	Total Funding
2022	$0.0	$ 5,389,046	$ 5,640,000	$ 11,029,046
2023	$0.0	$ 5,480,660	$ 5,735,880	$ 11,216,540
2024	$0.0	$ 5,573,831	$ 5,833,390	$ 11,407,221
2025	$0.0	$ 5,668,586	$ 5,932,558	$ 11,601,144
2026	$0.0	$ 5,764,952	$ 6,033,411	$ 11,798,363
2027	$0.0	$ 5,862,956	$ 6,135,979	$ 11,998,935
2028	$0.0	$ 5,962,627	$ 6,240,291	$ 12,202,917
2029	$0.0	$ 6,063,991	$ 6,346,376	$ 12,410,367
2030	$0.0	$ 6,167,079	$ 6,454,264	$ 12,621,343
2031	$0.0	$ 6,284,254	$ 6,576,895	$ 12,861,149
2032	$0.0	$ 6,403,654	$ 6,701,856	$ 13,105,510
2033	$0.0	$ 6,525,324	$ 6,829,191	$ 13,354,515
2034	$0.0	$ 6,649,305	$ 6,958,946	$ 13,608,251
2035	$0.0	$ 6,775,642	$ 7,091,166	$ 13,866,808
2036	$0.0	$ 6,904,379	$ 7,225,898	$ 14,130,277
2037	$0.0	$ 7,035,562	$ 7,363,190	$ 14,398,752
2038	$0.0	$ 7,169,238	$ 7,503,091	$ 14,672,329
2039	$0.0	$ 7,305,453	$ 7,645,649	$ 14,951,103
2040	$0.0	$ 7,444,257	$ 7,790,917	$ 15,235,174
2041	$0.0	$ 7,585,698	$ 7,938,944	$ 15,524,642
2042	$0.0	$ 7,729,826	$ 8,089,784	$ 15,819,610
2043	$0.0	$ 7,876,693	$ 8,243,490	$ 16,120,183
2044	$0.0	$ 8,026,350	$ 8,400,116	$ 16,426,466
2045	$0.0	$ 8,178,851	$ 8,559,719	$ 16,738,569
Total:	**$0.0**	**$ 159,828,213**	**$ 167,271,001**	**$ 327,099,214**

Additional assumptions:
State and Local funding: 1.7% annual growth rate 2022-2030, 1.9% annual growth rate 2031-2045

State O & M FY 2021 funding estimate for MATS area provided by Bay Region TSC ($5,298,964).
Derived as 7.96% (MATS percentage of trunkline lane miles in Bay Region) of Bay Region O & M 2021 budget (PDD & SOM: $10,706,776 + STO: $55,843,431)

Local O & M FY 2022 funding projections for MATS area estimated in coordination with MCRC, City of Midland, others
Derived as $1,882,000 for City of Midland, +$3,337,000 for rest of Midland County, + $421,000 for Auburn, Tittabawassee Twp and Williams Twp

State and Local Operations and Maintenance Program Revenue Estimates:

	Federal Funds	State Funds (Trunklines)	Local Funds (Federal-Aid Roads)	Total Revenues
2022-2025	$0	$22,112,123	$ 23,141,828	$ 45,253,950
2026-2035	$0	$62,459,783	$ 65,368,375	$ 127,828,158
2036-2045	$0	$75,256,306	$ 78,760,799	$ 154,017,105
Total:	**$0**	**$159,828,212**	**$ 167,271,002**	**$ 327,099,213**

State and Local Operations and Maintenance Program Expenditure Estimates:

	Federal Funds	State Funds (Trunklines)	Local Funds (Federal-Aid Roads)	Total Expenditures
2022-2025	$0	$22,112,123	$23,141,828	$ 45,253,950
2026-2035	$0	$62,459,783	$65,368,375	$ 127,828,158
2036-2045	$0	$75,256,306	$78,760,799	$ 154,017,105
Total:	**$0**	**$159,828,212**	**$167,271,002**	**$327,099,213**

All available revenues assumed to be utilized, usually more needs than available revenues

LRP fiscally constrained based on comparison of projected expenditures versus expected revenues.

O and M activities/projects not prioritized nor individually listed in MATS LRP or TIP

Urban Transit Program

(Operating and Capital Funding for City of Midland Dial-A-Ride Transportation)

Estimated Revenues

Year	Federal Funding		State Match	State Funding	Local Funding	Total Funding
	5307	5339	re bus replacement or CPM	CTF	(General Funds, other)	
2022	$ 1,074,299	$ 97,502	$ 82,000	$ 829,673	$ 600,000	$ 2,683,473
2023	$ 1,095,785	$ 99,452	$ 122,400	$ 843,777	$ 610,200	$ 2,771,614
2024	$ 1,117,700	$ 101,441	$ 65,545	$ 858,122	$ 620,573	$ 2,763,381
2025	$ 1,140,054	$ 103,470	$ 46,693	$ 872,710	$ 631,123	$ 2,794,050
2026	$ 1,162,855	$ 105,539	$ 47,627	$ 887,546	$ 641,852	$ 2,845,420
2027	$ 1,186,113	$ 107,650	$ 70,000	$ 902,634	$ 652,764	$ 2,919,160
2028	$ 1,209,835	$ 109,803	$ 71,400	$ 917,979	$ 663,861	$ 2,972,877
2029	$ 1,234,031	$ 111,999	$ 72,828	$ 933,584	$ 675,146	$ 3,027,589
2030	$ 1,258,712	$ 114,239	$ 74,285	$ 949,455	$ 686,624	$ 3,083,315
2031	$ 1,285,145	$ 116,638	$ 75,845	$ 967,495	$ 699,670	$ 3,144,792
2032	$ 1,312,133	$ 119,087	$ 77,437	$ 985,877	$ 712,963	$ 3,207,499
2033	$ 1,339,688	$ 121,588	$ 79,063	$ 1,004,609	$ 726,510	$ 3,271,458
2034	$ 1,367,821	$ 124,141	$ 80,724	$ 1,023,697	$ 740,313	$ 3,336,697
2035	$ 1,396,546	$ 126,748	$ 82,419	$ 1,043,147	$ 754,379	$ 3,403,239
2036	$ 1,425,873	$ 129,410	$ 84,150	$ 1,062,967	$ 768,713	$ 3,471,112
2037	$ 1,455,816	$ 132,128	$ 85,917	$ 1,083,163	$ 783,318	$ 3,540,342
2038	$ 1,486,389	$ 134,902	$ 87,721	$ 1,103,743	$ 798,201	$ 3,610,957
2039	$ 1,517,603	$ 137,735	$ 89,563	$ 1,124,714	$ 813,367	$ 3,682,983
2040	$ 1,549,472	$ 140,628	$ 91,444	$ 1,146,084	$ 828,821	$ 3,756,449
2041	$ 1,582,011	$ 143,581	$ 93,364	$ 1,167,860	$ 844,569	$ 3,831,385
2042	$ 1,615,234	$ 146,596	$ 95,325	$ 1,190,049	$ 860,615	$ 3,907,819
2043	$ 1,649,153	$ 149,675	$ 97,327	$ 1,212,660	$ 876,967	$ 3,985,782
2044	$ 1,683,786	$ 152,818	$ 99,371	$ 1,235,700	$ 893,629	$ 4,065,304
2045	$ 1,719,145	$ 156,027	$ 101,458	$ 1,259,179	$ 910,608	$ 4,146,417
Total:	**$ 32,865,200**	**$ 2,982,798**	**$ 1,973,906**	**$ 24,606,424**	**$ 17,794,787**	**$ 80,223,116**

Additional assumptions:
FY 2021 Federal 5307 funding of $1,053,234 and federal 5339 funding of $95,590 used as a base.
MDOT OPT derived CTF funding of $829,673 for FY 2022
Federal funding and state match: 2.0% annual growth rate 2022-2030, 2.1% annual growth rate 2031-2045
State & Local funding: 1.7% annual growth rate 2022-2030, 1.9% annual growth rate 2031-2045

Details of Capital projects within MATS area provided by City of Midland' DART

State Match is calculated at $25,000 for capital preventive maintenance and $19,000 per bus for FY 2022-2026, plus growth rate.
State Match for FY 2027 is based on $30,000 for CPM and $40,000 for replacement of 2 buses. Thereafter, growth rate applied.

Urban Transit Program Revenue Estimates:

	Federal Funds	State Funds	Local Funds	Total Revenues
2022-2025	$ 4,829,702	$ 3,720,920	$ 2,461,897	$ 11,012,519
2026-2035	$ 13,910,313	$ 10,347,652	$ 6,954,082	$ 31,212,047
2036-2045	$ 17,107,983	$ 12,511,759	$ 8,378,808	$ 37,998,550
Total:	**$ 35,847,998**	**$ 26,580,331**	**$ 17,794,787**	**$ 80,223,116**

Urban Transit Program Maximum Expenditure Estimates:

	Federal Funds	State Funds	Local Funds	Total Expenditures
2022-2025	$ 4,829,702	$ 3,720,920	$ 2,461,897	$ 11,012,519
2026-2035	$ 13,910,313	$ 10,347,652	$ 6,954,082	$ 31,212,047
2036-2045	$ 17,107,983	$ 12,511,759	$ 8,378,808	$ 37,998,550
Total:	**$ 35,847,998**	**$ 26,580,331**	**$ 17,794,787**	**$ 80,223,116**

Most of available revenues assumed to be utilized, usually more operating/capital needs than available revenues

LRP fiscally constrained based on comparison of prioritized expenditures versus expected revenues:

	Total Cost:		
2022-2025 Prioritized Projects:	$ 285,000	3 replacement buses in FY 2022	
	$ 475,000	5 replacement buses in FY 2023	
	$ 15,400	equipment	
	$ 220,000	2 replacement buses in FY 2024	
	$ 110,000	1 bus replacement in FY 2025	
	$ 500,000	preventive maintenance 2022-2025	
	$ 2,300,000	general operations 2022	
	$ 2,300,000	general operations 2023	
	$ 2,300,000	general operations 2024	
	$ 2,350,000	general operations 2025	Revenues:
	$ 10,855,400	compared to:	$ 11,012,519
2026-2035 Prioritized Projects:	$ 110,000	1 bus replacement in FY 2026	
	$ 2,000,000	on average 2 bus replacements per year 2027-2035	
	$ 2,000,000	Transit Facility Improvements	
	$ 500,000	equipment	
	$ 1,500,000	preventive maintenance 2026-2035	
	$ 25,000,000	general operations 2026-2035	
	$ 31,110,000	compared to:	$ 31,212,047
2036-2045 Prioritized Projects:	$ 2,700,000	on average 2 bus replacements per year 2036-2045	
	$ 2,500,000	Transit Facility Improvements	
	$ 700,000	equipment	
	$ 2,000,000	preventive maintenance 2036-2045	
	$ 30,000,000	general operations 2036-2045	
	$ 37,900,000	compared to:	$ 37,998,550

Rural Transit Program
(Operating and Capital Funding for County Connection of Midland)

Estimated Revenues

Year	Federal Funding				State Match	State Funding	Local Funds	Total Funding
	CRRSAA	5311	5339	5310	re 5339 & 5310	CTF		
2022	$ 1,138,939	$ 512,523	$ 74,578	$ 112,000	$ 36,645	$ 996,155	$ 961,806	$ 3,832,646
2023		$ 519,630	$ 74,578	$ 112,000	$ 36,645	$ 1,083,575	$ 978,157	$ 2,804,585
2024		$ 530,023	$ 76,070	$ 114,240	$ 37,378	$ 1,101,996	$ 994,785	$ 2,854,491
2025		$ 540,623	$ 77,591	$ 116,525	$ 38,125	$ 1,120,730	$ 1,011,697	$ 2,905,291
2026		$ 551,436	$ 79,143	$ 118,855	$ 38,888	$ 1,139,782	$ 1,028,896	$ 2,956,999
2027		$ 562,464	$ 80,726	$ 121,232	$ 39,666	$ 1,159,158	$ 1,046,387	$ 3,009,633
2028		$ 573,714	$ 82,340	$ 123,657	$ 40,459	$ 1,178,864	$ 1,064,175	$ 3,063,209
2029		$ 585,188	$ 83,987	$ 126,130	$ 41,268	$ 1,198,905	$ 1,082,266	$ 3,117,744
2030		$ 596,892	$ 85,667	$ 128,653	$ 42,094	$ 1,219,286	$ 1,100,665	$ 3,173,256
2031		$ 609,426	$ 87,466	$ 131,355	$ 42,978	$ 1,242,453	$ 1,121,578	$ 3,235,254
2032		$ 622,224	$ 89,302	$ 134,113	$ 43,880	$ 1,266,059	$ 1,142,887	$ 3,298,466
2033		$ 635,291	$ 91,178	$ 136,929	$ 44,802	$ 1,290,114	$ 1,164,602	$ 3,362,916
2034		$ 648,632	$ 93,093	$ 139,805	$ 45,742	$ 1,314,627	$ 1,186,730	$ 3,428,628
2035		$ 662,253	$ 95,047	$ 142,741	$ 46,703	$ 1,339,604	$ 1,209,278	$ 3,495,627
2036		$ 676,161	$ 97,043	$ 145,738	$ 47,684	$ 1,365,057	$ 1,232,254	$ 3,563,937
2037		$ 690,360	$ 99,081	$ 148,799	$ 48,685	$ 1,390,993	$ 1,255,667	$ 3,633,585
2038		$ 704,858	$ 101,162	$ 151,924	$ 49,707	$ 1,417,422	$ 1,279,524	$ 3,704,597
2039		$ 719,660	$ 103,287	$ 155,114	$ 50,751	$ 1,444,353	$ 1,303,835	$ 3,777,000
2040		$ 734,772	$ 105,456	$ 158,371	$ 51,817	$ 1,471,796	$ 1,328,608	$ 3,850,820
2041		$ 750,203	$ 107,670	$ 161,697	$ 52,905	$ 1,499,760	$ 1,353,852	$ 3,926,087
2042		$ 765,957	$ 109,931	$ 165,093	$ 54,016	$ 1,528,255	$ 1,379,575	$ 4,002,827
2043		$ 782,042	$ 112,240	$ 168,560	$ 55,151	$ 1,557,292	$ 1,405,787	$ 4,081,071
2044		$ 798,465	$ 114,597	$ 172,100	$ 56,309	$ 1,586,880	$ 1,432,497	$ 4,160,847
2045		$ 815,233	$ 117,003	$ 175,714	$ 57,491	$ 1,617,031	$ 1,459,714	$ 4,242,186
Total:	**$ 1,138,939**	**$ 15,588,027**	**$ 2,238,235**	**$ 3,361,344**	**$ 1,099,790**	**$ 31,530,147**	**$ 28,525,222**	**$ 83,481,703**

Assumptions:
MDOT OPT derived FY 2021 Federal 5311 funding of $499,452 and CTF funding of $1,041,498 used as a base.

Federal funding and state match of those funds: 2.0% annual growth rate 2022-2030, 2.1% annual growth rate 2031-2045
State & Local funding: 1.7% annual growth rate 2022-2030, 1.9% annual growth rate 2031-2045

Details of Capital projects within MATS area derived in coordination with County Connection of Midland
Number of buses being replaced varies from year to year, consequently conservatively assumed 1 bus replacement per year

2021	Base	$ 499,452	$ 1,041,498	$ 945,729	

Urban Transit Program Revenue Estimates:

	Federal Funds	State Funds	Local Funds	Total Revenues
2022-2025	$ 3,999,319	$ 4,451,249	$ 3,946,445	$ 12,397,013
2026-2035	$ 8,218,937	$ 12,775,332	$ 11,147,464	$ 32,141,733
2036-2045	$ 10,108,288	$ 15,403,356	$ 13,431,314	$ 38,942,957
Total:	**$ 22,326,544**	**$ 32,629,936**	**$ 28,525,222**	**$ 83,481,703**

Urban Transit Program Maximum Expenditure Estimates:

	Federal Funds	Local Funds	Local Funds	Total Expenditures
2022-2025	$ 3,999,319	$ 4,451,249	$ 3,946,445	$ 12,397,013
2026-2035	$ 8,218,937	$ 12,775,332	$ 11,147,464	$ 32,141,733
2036-2045	$ 10,108,288	$ 15,403,356	$ 13,431,314	$ 38,942,957
Total:	**$ 22,326,544**	**$ 32,629,936**	**$ 28,525,222**	**$ 83,481,703**

All or most of available revenues assumed to be utilized, usually more operating/capital needs than available revenues

LRP fiscally constrained based on comparison of prioritized expenditures versus expected revenues:

	Total Cost:		
2022-2025 Prioritized Projects:	$ 376,000	on average 1 bus replaced annually 2022-2025	
	$ 50,000	equipment	
	$ 100,000	preventive maintenance 2022-2025	
	$ 500,000	transit facility improvements	
	$ 2,500,000	general operations 2022	
	$ 2,600,000	general operations 2023	
	$ 2,700,000	general operations 2024	
	$ 2,800,000	general operations 2025	Revenues:
	$ 11,626,000	compared to:	$ 12,397,013
2026-2035 Prioritized Projects:	$ 1,000,000	on average 1 bus replacement per year 2026-2035	
	$ 1,000,000	transit facility improvements	
	$ 500,000	equipment	
	$ 1,500,000	preventive maintenance 2026-2035	
	$ 30,000,000	general operations 2026-2035	
	$ 34,000,000	compared to:	$ 32,141,733
2036-2045 Prioritized Projects:	$ 1,300,000	on average 1 bus replacement per year 2036-2045	
	$ 1,500,000	transit facility improvements	
	$ 800,000	equipment	
	$ 2,000,000	preventive maintenance 2036-2045	
	$ 35,000,000	general operations 2036-2045	
	$ 40,600,000	compared to:	$ 42,269,260

Endangered Species

Explanation of Federal Status, State Status, Global Rank, and State Rank

FEDERAL LEGAL STATUS
LE=Listed Endangered LT=Listed Threatened
LELT=partly Listed Endangered & partly Listed Threatened
PDL=Proposed De-List
E(S/A)=Endangered based on Similarities/Appearance
PS=Partial Status (only in part of range)
C=species being Considered for federal status

STATE STATUS
E= Endangered T=Threatened SC=Special Concern

GLOBAL RANK
G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
G4 = Apparently secure globally (may be rare in parts of range).
G5 = Demonstrably secure globally.
GH = Of historical occurrence throughout its range, may be rediscovered
GX = Believed to be extinct throughout range.
GXC = Extirpated from the wild but still known from captivity or cultivation.
G#? = Tentative rank (e.g., G2?).
G#G# = Range of rank; insufficient data to assign specific global rank (e.g., G2G3).
G#T# = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1).
G#Q = Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q).
G#T#Q = Same as above, but validity as subspecies or variety is questioned.

STATE RANK
S1 = critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.
S2 = imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.
S3 = rare or uncommon in state (on the order of 21 to 100 occurrences). S4 = apparently secure in state, with many occurrences.
S5 = demonstrably secure in state and essentially ineradicable under present conditions.
Legal status information provided for information only. For official definitions and lists of protected species, consult the relevant federal agency.

Midland County Species Review List

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Accipiter gentilis	Northern goshawk	PS	SC	G5	S3
Alasmidonta marginata	Elktoe		SC	G4	S3?
Alasmidonta viridis	Slippershell		T	G4G5	S2S3
Aristida longespica	Three-awned grass		SC	G5	S2
Buteo lineatus	Red-shouldered hawk		T	G5	S4
Carex haydenii	Hayden's sedge		X	G5	SX
Carex seorsa	Sedge		T	G5	S2
Chlidonias niger	Black tern		SC	G4G5	S2
Cypripedium arietinum	Ram's head lady's-slipper		SC	G3	S3
Diarrhena obovata	Beak grass		SC	G4G5	S2
Eleocharis engelmannii	Engelmann's spike rush		SC	G4G5	S2S3
Epioblasma triquetra	Snu ox	LE	E	G3	S1S2
Eurybia furcata	Forked aster		T	G3	S1
Falco peregrinus	Peregrine falcon	PS:LE	E	G4	S3
Glyptemys insculpta	Wood turtle		SC	G3	S2
Haliaeetus leucocephalus	Bald eagle		SC	G5	S4
Ligumia recta	Black sandshell		E	G4G5	S1?
Lithospermum latifolium	Broad-leaved puccoon		SC	G4	S2
Lycopus virginicus	Virginia water-horehound		T	G5	S2
Pleurobema sintoxia	Round pigtoe		SC	G4G5	S3
Ptychobranchus fasciolaris	Kidneyshell		SC	G4G5	S2
Sterna hirundo	Common tern		T	G5	S2
Stylurus amnicola	Riverine snaketail		SC	G4	S2S3
Tradescantia virginiana	Virginia spiderwort		SC	G5	S2
Venustaconcha ellipsiformis	Ellipse		SC	G4	S3
Villosa iris	Rainbow		SC	G5Q	S3

Source: Michigan Natural Features Inventory.

Bay County Species Review List

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Accipiter gentilis	Northern goshawk	PS	SC	G5	S3
Alasmidonta marginata	Elktoe		SC	G4	S3
Alasmidonta viridis	Slippershell		T	G4G5	S2S3
Ammodramus henslowii	Henslow's sparrow		E	G4	S3
Arnoglossum plantagineum	Prairie indian-plantain		SC	G4G5	S3
Asclepias hirtella	Tall green milkweed		T	G5	S2
Astragalus neglectus	Cooper's milk vetch		SC	G4	S3
Beckmannia syzigachne	Slough grass		T	G5	S2
Botaurus lentiginosus	American bittern		SC	G5	S3
Callophrys irus	Frosted elfin		T	G3	S2S3
Carex lupuliformis	False hop sedge		T	G4	S2
Charadrius melodus	Piping plover	LE	E	G3	S2
Chlidonias niger	Black tern		SC	G4G5	S2
Cincinnatia cincinnatiensis	Campeloma spire snail		SC	G5	S3
Circus cyaneus	Northern harrier		SC	G5	S4
Cistothorus palustris	Marsh wren		SC	G5	S3
Cyclonaias tuberculata	Purple wartyback		T	G5	S2
Emydoidea blandingii	Blanding's turtle		SC	G4	S2S3
Epioblasma torulosa rangiana	Northern riffleshell	LE	E	G2T2	S1
Erynnis persius persius	Persius dusky wing		T	G5T1T3	S3
Falco peregrinus	Peregrine falcon	PS:LE	E	G4	S3
Galearis spectabilis	Showy orchis		T	G5	S2
Gallinula galeata	Common gallinule	PS	T	G5	S3
Haliaeetus leucocephalus	Bald eagle		SC	G5	S4
Hydroprogne caspia	Caspian tern		T	G5	S2
Ixobrychus exilis	Least bittern		T	G5	S3
Ligumia nasuta	Eastern pondmussel		E	G4	S2
Ligumia recta	Black sandshell		E	G4G5	S1?
Lycopus virginicus	Virginia water-horehound		T	G5	S2
Nycticorax nycticorax	Black-crowned night-heron		SC	G5	S3
Pisidium amnicum	Greater European pea clam		SC	G5	SNA
Platanthera ciliaris	Orange- or yellow-fringed orchid		E	G5	S1S2
Platanthera leucophaea	Prairie white-fringed orchid	LT	E	G2G3	S1
Rallus elegans	King rail		E	G4	S2
Sander canadensis	Sauger		T	G5	S1
Silene virginica	Fire pink		E	G5	S1
Sterna forsteri	Forster's tern		T	G5	S2
Sterna hirundo	Common tern		T	G5	S2
Trichophorum clintonii	Clinton's bulrush		SC	G4	S3
Xanthocephalus xanthocephalus	Yellow-headed blackbird		SC	G5	S2

Saginaw County Species Review List

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Alasmidonta marginata	Elktoe		SC	G4	S3?
Alasmidonta viridis	Slippershell		T	G4G5	S2S3
Ammodramus henslowii	Henslow's sparrow		E	G4	S3
Ammodramus savannarum	Grasshopper sparrow	PS	SC	G5	S4
Botaurus lentiginosus	American bittern		SC	G5	S3
Chlidonias niger	Black tern		SC	G4G5	S2
Circus cyaneus	Northern harrier		SC	G5	S4
Cistothorus palustris	Marsh wren		SC	G5	S3
Clemmys guttata	Spotted turtle		T	G5	S2
Emydoidea blandingii	Blanding's turtle		SC	G4	S2S3
Epioblasma triquetra	Snu ox	LE	E	G3	S1S2
Falco peregrinus	Peregrine falcon	PS:LE	E	G4	S3
Galearis spectabilis	Showy orchis		T	G5	S2
Gallinula galeata	Common gallinule	PS	T	G5	S3
Glyptemys insculpta	Wood turtle		SC	G3	S2
Haliaeetus leucocephalus	Bald eagle		SC	G5	S4
Hetaerina titia	Smokey rubyspot		SC	G5	S4
Isotria verticillata	Whorled pogonia		T	G5	S2
Jeffersonia diphylla	Twinleaf		SC	G5	S3
Ligumia nasuta	Eastern pondmussel		E	G4	S2
Ligumia recta	Black sandshell		E	G4G5	S1?
Notropis texanus	Weed shiner		X	G5	S1
Obliquaria reflexa	Threehorn wartyback		E	G5	S1
Obovaria olivaria	Hickorynut		E	G4	S1
Pantherophis gloydi	Eastern fox snake		T	G3	S2
Pantherophis spiloides	Gray ratsnake		SC	G4G5	S2S3
Percina copelandi	Channel darter		E	G4	S1
Percina shumardi	River darter		E	G5	S1
Platanthera leucophaea	Prairie white-fringed orchid	LT	E	G2G3	S1
Pleurobema sintoxia	Round pigtoe		SC	G4G5	S3
Potamilus ohiensis	Pink papershell		T	G5	SNR
Protonotaria citrea	Prothonotary warbler		SC	G5	S3
Ptychobranchus fasciolaris	Kidney shell		SC	G4G5	S2
Pycnanthemum pilosum	Hairy mountain mint		T	G5T5	S2
Rallus elegans	King rail		E	G4	S2
Sistrurus catenatus	Eastern massasauga	LT	SC	G3	S3
Toxolasma parvum	Lilliput		E	G5	S1
Truncilla truncata	Deertoe		SC	G5	S2S3
Utterbackia imbecillis	Paper pondshell		SC	G5	S2S3
Venustaconcha ellipsiformis	Ellipse		SC	G4	S3
Xanthocephalus xanthocephalus	Yellow-headed blackbird		SC	G5	S2

Transportation System Performance Report

Part One: Federal Aspects of the Process

Legislation, Background, and Goals

A key feature of the Infrastructure Investment and Jobs Act (IIJA) is the continuation of a performance and outcome-based program originally introduced through the Moving Ahead for Progress in the 21st Century (MAP-21) Act. The objective of this performance-based program is for states and MPOs to invest resources in projects that collectively will make progress toward the achievement of national transportation goals.

National Goal Areas for Performance Management for Roads and Highways

23 CFR 490 outlined the national goals for the federal aid highway program around which the federally required performance measures were created. Below is a listing of those seven areas followed by a brief description of each goal. They are:

1. **Safety**: To achieve a reduction in fatalities and serious injuries on all public roads.
2. **Infrastructure Condition**: To maintain highway infrastructure assets in a state of good repair.
3. **Congestion Reduction**: To achieve a reduction in congestion on the National Highway System.
4. **System Reliability**: To improve the efficiency of the surface transportation system.
5. **Freight Movement and Economic Vitality**: To improve freight networks, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
6. **Environmental Sustainability**: To enhance the performance of the transportation system while protecting and enhancing the environment.
7. **Reduced Project Delivery Delays**: To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

MAP-21 focused on national goals, increasing accountability, and improving transparency. These changes improved decision-making through better-informed planning and programming. In general, performance measures must be directly relatable to goals, utilize available data that is trackable over time, and measure progress. According to the Federal Highway Administration (FHWA), *"Performance measures are a qualitative or quantitative measure of outcomes, outputs, efficiency, or cost-effectiveness."* Under MAP-21, U.S. DOT was to establish performance measures and state DOTs

then develop performance targets in consultation with metropolitan planning organizations (MPOs) and others. State investments must make progress toward these performance targets, and MPOs must incorporate these performance measures and targets into their Transportation Improvement Programs (TIPs) and Long Range Transportation Plans.

A specific sequence of events is necessary to convert Federal transportation authorization legislation into action. First, the Federal Highway Administration and/or the Federal Transit Agency takes the legislative goals enumerated by Congress and proceeds to rulemaking, issued via the Federal Register. The result of the rulemaking is specific Performance Measures for each area covered by the rules as they are issued. For each Performance Measure, as applicable, State DOT's and MPOs create targets, set up a methodology to evaluate progress towards those targets through assessment of data, and review and/or update the targets according to a cycle indicated in each rule.

TMP Rules Overview and Deadlines

Performance Rule	Measures	Targets	
		MDOT	MATS
Safety Performance	Fatalities, Serious Injuries, Non-Motorized Fatalities and Serious Injuries	Initial Targets due 8/31/2017	Initial Targets Due 2/27/2018 MATS Adoption 12/06/2017 Annual Cycle
Pavement and Bridge Condition	Bridges in Good & Poor cond., Interstate Pavement in Good & Poor cond., non-Interstate NHS pavement in Good & Poor cond.	Initial Targets due 5/20/2018	Initial Targets Due 11/16/2018 2 to 4 year cycle
Statewide and Non-Metro Planning; Metro Planning	TIP & LRTP must be compliant with the rule after May 27, 2018. TIP Report to be revised to include Performance Measures chapter.	Compliant by 5/27/2018	No Targets, MPO process to be compliant by 5/27/2018 TIP Report - 3 year cycle LRTP - 4 to 5 year cycle
Performance of the NHS, Freight, and CMAQ;	Interstate Travel Time reliability Measure, Non-Interstate Travel Time reliability Measure, Truck Travel Time Reliability Index,	Initial Targets due 5/20/2018	Initial Targets Due 11/16/2018 2 to 4 year cycle
Greenhouse Gas	% Change in tailpipe CO2 Emissions (NHS Only)	Initial Targets due 9/27/2018	Initial Targets Due 3/27/2019 2 to 4 year cycle
Highway Asset Management Plans for NHS	Development of MDOT NHS Asset Management Plan	Compliant by 4/30/2018	Not Applicable
Transit Asset Management (State of Good Repair)	Rolling Stock ULB, Infrastructure, Equipment, Facilities	Initial Targets due 1/1/2017	Initial Targets Due 6/2017 MATS Adoption 7/11/2017 Annual Cycle

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

The Table on this page lays this out broadly, showing the Performance Rule (called a Final Rule), specifically what measures were included in the rule, when the Michigan Department of Transportation was required to promulgate initial targets, and when MATS was originally required to adopt targets.

Rulemaking Areas and Performance Measures

Rulemaking is the process that Federal agencies use to create or promulgate regulations. In general, legislatures first set broad policy mandates by passing statutes, then agencies create more detailed regulations through rulemaking. These specific rulemaking areas then, serve to fulfill the goals established in MAP-21 and the FAST Act.

Safety Performance

Safety Performance Management (Safety PM) is part of the overall Transportation Performance Management (TPM) program, a strategic approach that uses system information to make investment and policy decision to achieve national performance goals. The Safety PM Final Rule supports the Highway Safety Improvement Program (HSIP), as it establishes safety performance measure requirements to assess fatalities and serious injuries on all public roads. The Safety PM Final Rule, effective April 14, 2016, establishes five performance measures, presentable as five-year rolling averages:

1. Number of Fatalities
2. Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT)
3. Number of Serious Injuries
4. Rate of Serious Injuries per 100 million VMT
5. Number of Non-motorized Fatalities and Non-motorized Serious Injuries

The Safety PM Final Rule also establishes the process for State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) to establish and report their safety targets, and the process that FHWA will use to assess whether State DOTs have met or made significant progress toward meeting their safety targets. The Safety PM Final Rule also establishes a common national definition for serious injuries.

Pavement and Bridge Condition Performance

On May 20, 2017, the FHWA's Final Rule on pavement and bridge condition performance measures took effect. This Pavement and Bridge Condition Performance Measures final rule establishes measures for State DOTs to carry out the NHPP and to assess the condition of pavements on the non-Interstate NHS; pavements on the Interstate System; and bridges carrying the NHS, including on- and off-ramps connected to the NHS. This final rule includes six measures which are:

1. Percentage of pavements on the Interstate System in Good condition
2. Percentage of pavements on the Interstate System in Poor condition
3. Percentage of pavements on the NHS (excluding the Interstate System) in Good condition
4. Percentage of pavements on the NHS (excluding the Interstate System) in Poor condition
5. Percentage of NHS bridges in Good condition
6. Percentage of NHS bridges in Poor condition

Statewide and Nonmetropolitan Transportation Planning; Metropolitan Transportation Planning

This Final Rule, effective June 27, 2016, updates and modifies a rule originally issued as part of MAP-21. Jointly issued by FHWA and FTA, it updates regulations concerning the Long Range Transportation Plan (LRTP), a new mandate for States and MPOs like MATS to take a performance-based approach to planning and programming; new authority for the integration of the planning and environmental review processes; and a process for programmatic mitigation plans, among other elements.

Any Transportation Improvement Program (TIP) and Long Range Plan (LRTP) document must comply with performance reporting requirements beginning on May 27, 2018.

Performance of the NHS, Freight, and CMAQ

On May 20, 2017, a Federal Highway Administration (FHWA) final rule took effect regarding Performance of the NHS, Freight, and CMAQ. The rule establishes performance measures that State Departments of Transportation (DOTs) and metropolitan planning organizations (MPOs) will use to report on the performance of the Interstate and non-Interstate National Highway System (NHS) to carry out the National Highway Performance Program (NHPP); freight movement on the Interstate system to carry out the National Highway Freight Program (NHFP); and traffic congestion and on-road mobile source emissions for the purpose of carrying out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program. The rule addresses requirements established by the MAP-21. Specific measures associated with this rule are:

1. Percent of the Interstate System Providing for Reliable Travel;
2. Percent of the Interstate System Where Peak Hour Travel Times Meet Expectations;
3. Percent of the Non-Interstate NHS Providing for Reliable Travel; and
4. Percent of the Non-Interstate NHS Where Peak Hour Travel Times Meet Expectations.

Highway Asset Management Plans for the NHS

The FHWA issued this Final Rule, effective October 2, 2017, to address three new requirements established by the MAP-21. First, as part of the National Highway Performance Program (NHPP), MAP-21 adopted a requirement for States to develop and implement risk-based asset management plans for the National Highway System (NHS) to improve or preserve the condition of the assets and the performance of the system. Second, for the purpose of carrying out the NHPP, MAP-21 requires FHWA to establish minimum standards for States to use in developing and operating bridge and pavement management systems. Third, to conserve Federal resources and protect public safety, MAP-21 mandates periodic evaluations to determine if reasonable alternatives exist to roads, highways, or bridges that repeatedly require repair and reconstruction activities. This rule establishes requirements applicable to States in each of these areas. The rule also reflects the passage of the Fixing America's Surface Transportation (FAST) Act, which added provisions on critical infrastructure to the asset management portion of the NHPP statute.

Transit Asset Management Performance

MAP-21 mandated the Federal Transit Administration (FTA) to develop a rule establishing a strategic and systematic process of operating, maintaining, and improving public capital assets effectively through their entire life cycle. The Transit Asset Management (TAM) Final Rule 49 CFR part 625 became effective Oct. 1, 2016, and established four performance measures, also known as State of Good Repair. The performance management requirements outlined in 49 CFR 625 Subpart D are a minimum standard for transit operators. Providers with more sophisticated analysis expertise are allowed to add additional transit performance measures and utilize those advanced techniques in addition to the required national performance measures. Specific measures associated with this rule are:

1. Rolling Stock - means a revenue vehicle used in providing public transportation, including vehicles used for carrying passengers on fare-free services
2. Equipment - means an article of non-expendable, tangible property has a useful life of at least one year
3. Facilities - means a building or structure that is used in providing public transportation
4. Infrastructure - means the underlying framework or structures that support a public transportation system

Transit Safety Performance Measures

Published June 29, 2021, the Public Transportation Agency Safety Plan (PTASP) regulation, at 49 CFR Part 673, requires covered public transportation providers and State Departments of Transportation (DOT) to establish Safety Performance Targets (SPTs) to address the Safety Performance Measures (SPMs) identified in the National Public Transportation Safety Plan (49 CFR § 673.11(a)(3)).

A Safety Performance Target is a quantifiable level of performance or condition expressed as a value for the measure related to safety management activities to be achieved within a set time period (§ 673.5). A Safety Performance Measure is a quantifiable indicator of performance or condition that is used to establish targets related to safety management activities, and to assess progress toward meeting the established targets (§ 673.5). Transit providers may choose to establish additional targets for the purpose of safety performance monitoring and measurement. Specific measures associated with this rule are:

1. Total number of reportable fatalities.
2. Rate of reportable fatalities per total vehicle revenue miles by mode.
3. Total number of reportable injuries.
4. Rate of reportable injuries per total vehicle revenue miles by mode.
5. Total number of reportable safety events.

Part Two: MDOT Aspects of the Process

Data, Baselines, and Targets

In order to implement the various rules promulgated by the FHWA and the FTA, the Michigan Department of Transportation disseminated targets for measures found under many of the individual rules issued, over the last three years. The rules clearly delineate a process for States and MPOs to establish and report targets, as well as a process for FHWA to assess whether a State has met or made significant progress toward achieving those targets.

Data and Factors

The process of establishing targets must be a data-driven one. Data-driven means informed by a systematic review and analysis of quality data sources when making decisions related to planning, target establishment, resource allocation and implementation.

In addition, other data is gathered, relating to external factors that may affect the accuracy of any forecast. This data includes such things as the relationship between vehicle miles of travel and fatalities, modal split tracking over time, and household income distribution. The data gathered may apply to one or more individual performance measure target setting processes across the various performance rule areas.

This level of complexity is utilized because while basic trends provide a way of looking at the direction current data, these trends do not account for external factors and variations between data sources. In this way, larger and more comprehensive data sets create a clearer picture of events.

Baseline Generation and Target Promulgation

For setting the original targets, States used data from 2016 and prior years where available. This iterative and ongoing process was used to create a data trend line. The trend line was then extrapolated and used to forecast 5-year averages for each, to set the CY 2018 target. In following years the same process was followed.

In addition to this, model data such as that from the University of Michigan Transportation Research Institute (UMTRI) can be used to better refine various factors and the resulting baseline.

Once the baseline has been established and projections made, MDOT issues the targets and the MPOs begin to finalize their deliberations regarding support of MDOT targets or development of MPO-specific targets.

Part Three: MPO Aspects of the Process

Performance-Based Planning

This new version of ***Towards 2045*** is the first to fully incorporate the performance measure requirements. Over the previous three years, MATS has utilized performance-based planning in MPO planning processes, supported the targets promulgated by MDOT for the relevant performance areas, along with developing MATS targets as needed. This is shown in the table below, clearly indicating that MATS has fulfilled the federal requirements pertaining to this issue.

In this process, MATS evaluated the progress towards meeting the relevant performance measure targets. To that end, MATS has analyzed the projects prioritized to review their linkage with each performance area. The second table on the next page is a summary of dollar amounts associated with the prioritized projects, as shown in Chapter 10, presented in a simplified manner by project category. It should be noted that the funding in these categories can rise and fall in any given year due to varying levels of grants and discretionary funds awarded. For example, local agencies apply for funds for bridge, transit, safety, system performance, and non-motorized programs which are competitive on a statewide level.

Therefore, our list of prioritized projects, and the funding associated with the list, demonstrates that targets for all performance rules are being pursued. This illustrates our understanding of the importance of these performance rules, and the targets promulgated thereby.

Going forward, each new Long Range Plan and subsequent TIP will demonstrate the amount of investment being made towards each performance goal on either a per-project basis or more broadly across project categories. Furthermore, ongoing utilization of this Long Range Plan will place continued emphasis on meeting the targets. MATS staff will also continue to work with other MPOs on best practices for performance-based programming of projects and analysis of performance measure data.

In addition, through the LRTP and TIP, MATS will endeavor to broadly correlate future funding projections with the various projects proposed and the applicable performance rule areas. Finally, MATS will also continue to gather selected primary data for the implementation of performance measures such as pavement and bridge condition, and secondary data from a variety of sources (such as MDOT) for traffic volumes, traffic flow, level of congestion, and safety.

MATS Progress Towards Performance Based Planning

Performance Rule	Measures	MATS Progress 2017-2021
Safety Performance	Fatalities, Fatality Rate, Serious Injuries, Serious Injury Rate, Nonmotorized Fatalities & Serious Injuries	Adopted to Support State Targets
Bridge Condition	% NHS Deck Area in Good & Poor Conditions	Adopted to Support State Targets
Pavement Condition	% of Interstate Pavement in Good & Poor Conditions, % of Non-Interstate NHS in Good & Poor Conditions	Adopted to Support State Targets
Statewide and Non-Metro Planning; Metro Planning	TIP & LRTP compliant with Rule after May 27, 2018, incorporating Performance Measure Chapter and System Performance Report.	Incorporated performance-based planning into LRP and TIP development, Developed Performance Dashboard, Developed 1st System Performance Report in 2021
Performance of the NHS, Freight, and CMAQ	Interstate Travel Time Reliability, Non-Interstate Travel Time Reliability, Truck Travel Time Reliability Index	Adopted to Support State Targets
Greenhouse Gas	% change in tailpipe CO2 Emmissions on NHS	Not Applicable
Highway Asset Management Plans for NHS	Development of NHS Asset Management Plans by DOTs	Not Applicable
Transit Asset Management (State of Good Repair)	Rolling Stock, Infrastructure, Equipment, Facilities	Developed and Adopted TAM Targets for MPO
Public Transportation Safety Plan	System reliability, Safety events, Fatalities, Injuries	Developed and Adopted Transit Safety Targets for MPO

Evaluation of Progress Towards Performance Targets

Project Category	MATS Long Range Plan Funding for Prioritized Projects 2022-2045	Impact on Condition
Safety (Trunkline)	$2,315,053	Reduce potential for motor vehicle/pedestrian/bicycle crashes, injuries and fatalities
Safety (Non-Trunkline Federal-Aid)	$1,000,017	Reduce potential for motor vehicle/pedestrian/bicycle crashes, injuries and fatalities
Non-Motorized	$15,742,504	Reduce potential for pedestrian/bicycle crashes, injuries and fatalities Eliminate, decrease or improve conflict points with motor vehicles
Bridge Preservation (Trunkline)	$9,571,299	Reduce number of structrually deficient or functionally obsolete bridges
Bridge Preservation (Non-Trukline Federal-Aid)	$3,685,000	Reduce number of structrually deficient or functionally obsolete bridges
Pavement Preservation (Trunkline)	$77,615,176	Improve surface condition and IRI, eliminate issues with cracking, rutting anf faulting
Pavement Preservation (Non-Trunkline Federal-Aid)	$43,596,963	Improve surface condition and IRI, eliminate issues with cracking, rutting anf faulting
System Performance (Reconfiguration/Congestion)		
Trunkline	$18,000,000	Network operational improvements, system connectivity enhancements
Non-Trunkline Federal-Aid	$12,900,000	Network operational improvements, system connectivity enhancements
Transit Capital Improvements	$8,576,000	Reduce percentage of vehicles, equipment and facilities that are past useful life benchmark

Targets & Evaluation

The key decision to be made by the MPO once State targets have been released is whether to support those targets, either on a per-measure basis or for an entire performance area, or to develop targets that are specific to the MPO planning area. This initial process is based on three variables.

1. Availability of data, i.e. can data be gathered and meaningfully used at the appropriate geographic scale that represents the planning area, even if assembled from smaller geographic areas.
2. Availability of manpower, i.e. does the MPO have the staff available and capable in the appropriate time frame to create the targets.
3. Local distinctiveness i.e. is there sufficient differentiation between data quintiles, trend lines, and projected results for the planning area versus the State as a whole.

In addition, an MPO should coordinate on target development with MDOT to ensure consistency. MPOs, therefore, have the flexibility to establish targets using the methodology and data sets they determine are most appropriate.

Based on this assessment, MATS Policy Committee determined that support of state targets for each of the performance areas was the right approach for MATS.

Safety Performance Targets

As of November 2021, MATS Policy Committee supported the state Safety Targets as shown below.

Calendar Year 2022 Safety Targets	5-yr. rolling average	Baseline (2016-2020)
Fatalities	1,028.2	1,065.2
Fatality Rate Per 100 million Vehicle Miles Traveled (VMT)	1.051	1.098
Serious Injuries	5,673.2	5,733.2
Serious Injury Rate per 100 million VMT	5.778	5.892
Nonmotorized Fatalities and Serious Injuries (Pedestrian and Bicycle)	762.8	791.6

Note: Current and historical targets are maintained on file at MATS, and on our website at www.midlandmpo.org.

Safety Performance Measures Role in the LRTP Process

MATS considers safety while developing the prioritized project list. Several projects, including Eastman Road at Schaffer Road, Gordonville Road, Poseyville Road, US-10, M-47, and several regional MDOT projects, have been specifically focused on safety or been funded with safety targeted resources. Other examples are Non-Motorized projects, which were evaluated for safety and conformity with the Americans with Disabilities Act. This includes taking into account the project's ability to decrease conflict areas between automobiles and non-motorized modes of transportation. Such projects should also reduce the risk of collisions, injuries, and fatalities.

Additionally, the Regional Safety Data Plan of the East Michigan Council of Governments identifies major focus areas and systematic methodologies that local agencies can use when applying for safety-specific funding for designated projects. This allows MATS to maintain its focus on the safety plan's key emphasis areas, such as intersections, lane departure, and pedestrian and bicycle safety. As a result, MATS will continue to support MDOT targets in a number of ways. Furthermore, the MPO will continue to use its collaborative process for ranking and selecting projects to account for safety targets as well as the remaining performance measures. MATS will continue ongoing coordination with the State and other safety stakeholders to address areas of concern, and agreeing to plan and program projects that contribute toward meeting the State safety targets.

Pavement Performance/Bridge Condition/Travel Time Reliability Targets

As of Nov. 2021, MATS Policy Committee supported the Pavement Performance/Bridge Condition/Travel Time Reliability Targets as shown below.

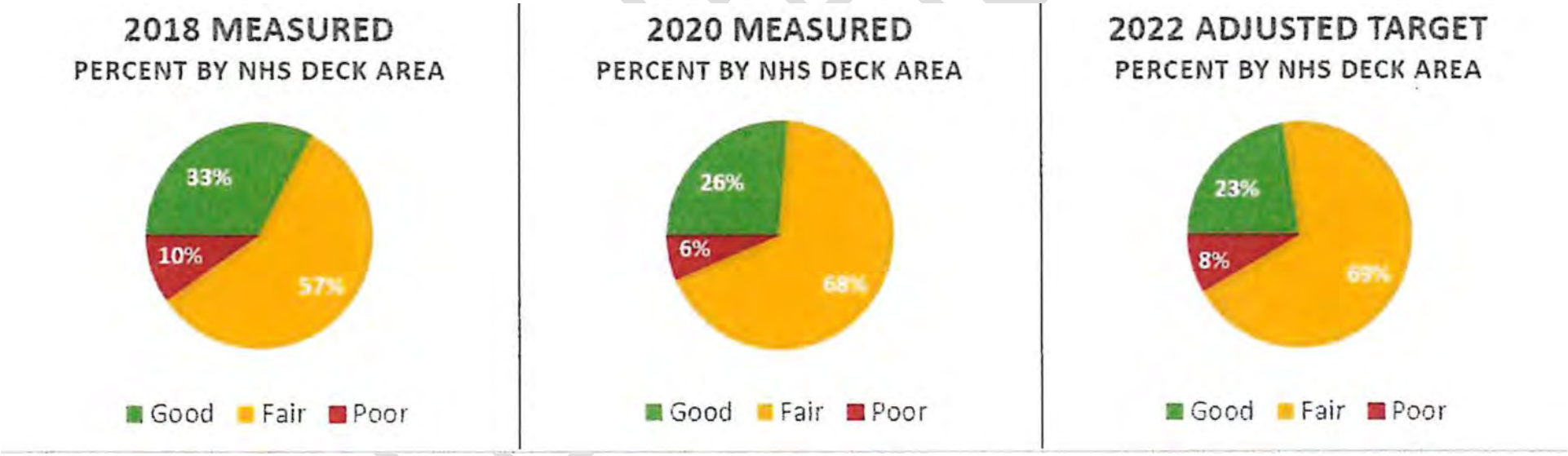
State Targets for First Performance Period				
Performance Area	Measures	Baseline (Calendar Year 2017)	Targets 2-Year	Targets 4-Year
Bridge	% NHS Deck Area in Good Condition;	32.7%	27.2%	26.2%
	% NHS Deck Area in Poor Condition	9.8%	7.2%	7.0%
Pavement	% of Interstate Pavement in Good Condition	56.8%	N/A	47.8%
	% of Interstate Pavement in Poor Condition	5.2%	N/A	10.0%
	% of Non-Interstate NHS in Good Condition	49.7%	46.7%	43.7%
	% of Non-Interstate NHS in Poor Condition	18.6%	21.6%	24.6%
Reliability	Interstate Travel Time Reliability Level	85.1%	75.0%	75.0%
	Non-Interstate Travel Time Reliability Level,	85.8%	N/A	70.0%
	Freight Reliability Measure on the Interstate	1.38	1.75	1.75

Pavement Performance/Bridge Condition/Travel Time Reliability Performance Measures Role in the LRTP Process

Pavement Performance target achievement is aided through annual PASER ratings, result reporting, and the dissemination of data in the form of maps and graphs. MATS works closely with local implementing agencies regarding pavement performance monitoring. Furthermore, bridge preservation is also a key concern in the MATS region. Numerous bridge projects in our area, such as the M-20 bridge replacement project, have resulted in an overall improvement in the MATS region's bridge condition.

The MPO will continue to use its collaborative process for ranking and selecting projects to account for Pavement/Bridge/Travel Time Reliability targets as well as the remaining performance measures. MATS will continue ongoing coordination with the State and other stakeholders to address areas of concern, and agreeing to plan and program projects that contribute toward meeting these State targets.

Please note that the graphic below represents the revised state 4-year bridge targets, supported by MATS as of 2020.



Note: Current and historical targets are maintained on file at MATS, and on our website at www.midlandmpo.org.

Transit Asset Management State of Good Repair Targets

As of Nov. 2021, MATS Policy Committee supported the Transit Asset Management State of Good Repair Targets as shown below.
Targets were developed with the cooperation of both DART and CCM. DART targets were self-derived (as required for each urban transit provider), whereas MDOT derived group and individual targets for rural transit providers and thus CCM. MATS group targets were essentially an average between the DART targets and the CCM targets in the applicable target areas.

	2022 Transit Asset Management Targets
Rolling Stock:	**Overall, not more than 10% will meet or exceed the FTA ULB** **(For each transit agency: not more than 20% will meet or exceed the FTA ULB)**
Infrastructure:	**Not Applicable, not owned by CCM or DART**
Equipment (support service or maintenance vehicles)	**50% may meet or exceed the FTA ULB**
Facilities:	**Not Applicable, not owned by CCM or DART**

Note: Current and historical targets are maintained on file at MATS, and on our website at www.midlandmpo.org.

Transit Asset Management Plan

Federal regulations require urban transit systems to prepare Transit Asset Management Plans, and to present these documents to the local MPO. In our case, DART has transmitted its Transit Asset Management Plan to MATS, where it will be kept on file, and utilized when making project selections. It can be found on the MATS website at www.midlandmpo.org.

Transit Safety Performance Targets

Federal regulations require covered Public Transportation Providers and State Departments of Transportation (DOT's) to establish Safety Performance Targets to address the Safety Performance Measures identified in the National Public Transportation Agency Safety Plan (49 CFR § 673.11(a)(3)). Additionally, once Metropolitan Planning Organizations (MPOs) receive the Transit Safety Performance Targets from the local Public

Transportation Providers they are also required to establish Transit Safety Targets for the MPO Planning Area. As MATS only has one covered transit provider, the table below depicts MATS Transit Safety Performance Targets, which are identical to the DART targets. These were reviewed and supported by MATS Policy Committee in 2021.

MATS Transit Safety Performance Targets
1. Reduce at-fault Safety Events and at-fault Near Miss Safety Events by 15%
2. Maintain System Reliability above 25,000 miles for Major System Failures
3. Maintain Fatality Rate of Zero (0)
4. Maintain Injury Rate of less than .0000092964 injuries/mile

Note: Current and historical targets are maintained on file at MATS, and on our website at www.midlandmpo.org.

Transit Safety Plan

Federal regulations require urban transit systems to prepare Transit Safety Plans, and to present these documents to the local MPO. In our case, DART has transmitted its Plan to MATS, where it will be kept on file. It can be found on the MATS website at www.midlandmpo.org.

Transit Performance Measures Role in the LRTP Process

Both DART and CCM currently meet the Asset Management targets for all 4 measures and have done so over the last 3 years. There has been no significant change in the active rolling stock for either DART or CCM recently, and same applies to the condition of both equipment and facilities. This illustrates consistent target support by these systems in the MATS area.

DART meets the Transit Safety Performance Target for all 4 measures as well. DART closely monitors conditions and safety events to better identify issues and make any necessary adjustments in safety policies and procedures.

During deliberations regarding future transit efforts, MATS will refer to, and measure progress towards each of these performance measure targets. This will be done via the process utilized to determine the group targets, and ongoing coordination and consultation. These performance measures and their associated targets will be taken into account both by the individual transit systems, and by MATS as future efforts are evaluated.

Certified Resolution of Adoption