

Draft  
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# 2050 Metropolitan Transportation Plan

## Kalamazoo Area Transportation Study

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# CHAPTER 1: INTRODUCTION

The Kalamazoo Area Transportation Study (KATS) is the Metropolitan Planning Organization (MPO) for the Kalamazoo urbanized area which includes all of Kalamazoo County and four townships in Van Buren County including Almena Township, Antwerp Township, Paw Paw Township, and Waverly Township, and the villages of Lawton, Paw Paw, and Mattawan. The purpose of the Study is to fulfill the Federal, State, and Policy Committee directives to ensure distribution of transportation funding in the Metropolitan Planning Area to best benefit the transportation system, as well as plan for the future of the transportation network with financially feasible goals.

Within the federal guidelines of the Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) act and continuing with the Fixing America's Surface Transportation (FAST) Act, KATS is responsible for the development of a Metropolitan Transportation Plan (MTP). The Metropolitan Transportation Plan discusses the goals, investment decisions, policies, and priorities for the transportation system in the KATS Metropolitan Planning Area. Overall, this plan provides the backbone for the KATS planning activities and the future transportation system of the Metropolitan Planning Area.

## Kalamazoo Area Transportation Study History

Planning for transportation systems has always been a part of the transportation planning process, but to varying degrees. It was not until 1962 that there was a benchmark federal legislation for urban transportation planning (Federal-Aid Highway Act of 1962). In summary, the Act mandated that:

***“...after July 1, 1965, the Secretary of Transportation shall not approve...any project in any urban area of more than 50,000 population unless he/she finds such projects are based on a continuing, comprehensive transportation planning process carried on cooperatively by the state and local communities.”***

Features of the Act emphasized:

- The requirement of creating an intergovernmental committee made up of principal elected officials of general-purpose local government to facilitate cooperation and coordination.
- The identification of a formal comprehensive process with inherent flexibility to reflect local issues, goals and principles.
- All activities be fully coordinated between the State (Michigan Department of Transportation) and local governments to assure proper integration of the respective state and local systems.

In response to the regulations, in 1966, the Kalamazoo Area Transportation Study Policy Committee was created through agreements by and between local units of government in the Kalamazoo urban area and the Michigan Department of Transportation (MDOT). At that time, MDOT was officially the

Michigan Department of State Highways and Transportation (MDSHT). This organizational effort was led by MDOT. Although fully vested with responsibility for carrying out the requirements of the legislation, the Policy Committee was not formally designated as the Metropolitan Planning Organization until 1978. Prior to that action, the Kalamazoo Area Transportation Study Policy Committee acted as an “Intermunicipality Committee” under Act 200 of the Public Acts of Michigan 1957.

The Intermunicipality Committee Act provides for the cooperative establishment of a forum (the KATS Policy Committee) by local units of government for the purposes of conducting specifically designated intergovernmental activities in a coordinated manner. KATS continues to be organized under the Intermunicipality Committee Act. In 1993, under the provision of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, the KATS Policy Committee extended its area boundaries to include all of Kalamazoo County within the Metropolitan Area Boundary (MAB). In 2012, the Policy Committee took action to extend the planning area to include Almena Township, Antwerp Township, Paw Paw Township, and Waverly Township, and the villages of Lawton, Paw Paw, and Mattawan in Van Buren County.

The organization and concept of an Intermunicipality Committee fully supports and addresses the clear intent of the federal legislation’s references to “cooperative.” The KATS Policy Committee represents “principal elected officials of general-purpose local government” working cooperatively in the transportation decision making process.

All work and activities of the Kalamazoo Area Transportation Study are initiated and conducted under the policy direction of the KATS Policy Committee. Activities are conducted cooperatively either working with the Technical Committee or, as appropriate, with the individual planning or public transportation agencies. Agency staffs work in the cooperative conduct of these activities within this framework. Their efforts are integral to the successful conduct of the process.

The Policy Committee organizational emphasis is on the representation of the units of general-purpose local government. Although they work in cooperation and coordination with an array of other forums, decision making is the collective responsibility of these elected and appointed officials.

The Technical Committee, made up of professional and technical representatives of local transportation agencies, acts both collectively and individually to provide evaluation, analysis, and projects for the consideration of the Policy Committee. The individuals and agencies jointly making up the Technical Committee are involved in the Study on a continuing basis.

## Policy Committee Voting Membership

Michigan Department of Transportation Bureau of Transportation Planning

Michigan Department of Transportation Kalamazoo Transportation Service Center

City of Kalamazoo

City of Parchment

City of Portage

Almena Township

Antwerp Township

Brady Township

Charleston Township

Comstock Township

Cooper Township

Kalamazoo Township

Oshtemo Township

Pavilion Township

Prairie Ronde Township

Richland Township

Schoolcraft Township

Texas Township

Village of Augusta

Village of Climax

Village of Lawton

Village of Mattawan

Village of Paw Paw

Village of Richland

Village of Schoolcraft

Village of Vicksburg

Central County Transportation Authority

Kalamazoo County Transportation Authority

Kalamazoo County

Road Commission of Kalamazoo County

Van Buren County

Van Buren County Road Commission

Van Buren Public Transit

Western Michigan University

## Technical Committee Voting Membership

(Indicates more than 1 individual representing the organization)

Michigan Department of Transportation Bureau of Transportation Planning

Michigan Department of Transportation Southwest Region Office

Michigan Department of Transportation Service Center

City of Kalamazoo (4)

Department of Public Services

Department of Community Planning &

Economic Development

City of Parchment

City of Portage (3)

Transportation & Utilities

Community Development

Almena Township

Antwerp Township

Brady Township

Charleston Township

Comstock Township

Cooper Township

Kalamazoo Township

Oshtemo Township

Pavilion Township

Prairie Ronde Township

Richland Township

Schoolcraft Township

Texas Township

Village of Augusta

Village of Climax

Village of Lawton

Village of Mattawan

Village of Paw Paw

Village of Richland

Village of Schoolcraft

Village of Vicksburg

Kalamazoo County Transportation Authority

Kalamazoo County

Road Commission of Kalamazoo County (2)

Van Buren County

Van Buren County Road Commission

Van Buren Public Transit

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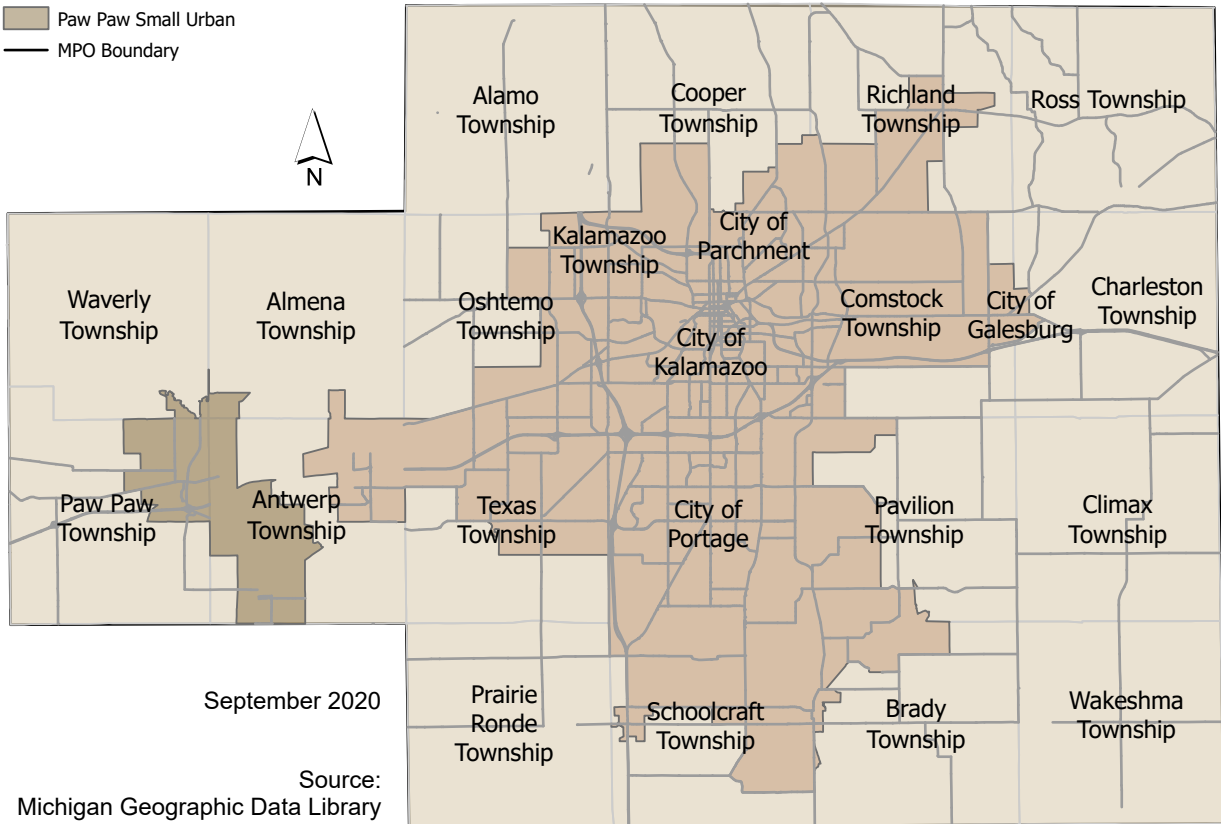
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# Map 1: KATS Urban, Rural and Small Urban Funding Areas

## Legend

- Federal Aid Eligible Roads
- Kalamazoo Urbanized Area
- Paw Paw Small Urban
- MPO Boundary



0 3.25 6.5 13 19.5 26 Miles



KATS Urban Funds can be spent anywhere within the Planning Area

Rural Funds can ONLY be spent outside of Urban and Small Urban areas (Programmed through Rural Task Force)

Small Urban Funding can only be spent within the small urban area

All federal funding in the planning area is subject to the Kalamazoo Area Transportation Study transportation planning process.



## Financial Outlook

The Kalamazoo MPO is committed to investing in a transportation system that enhances the livability of our region and adds value for our residents and visitors. The MPO will continue to look for new and innovative funding sources through fostering partnerships between agencies to fund mutually beneficial transportation projects.

Making improvements to transportation infrastructure and services represents an investment in our community. Major interstate and highway infrastructure projects are expensive and depend heavily on federal funding. Federal transportation funds for roads, bridges, transit, rail, and bikeways come from the Highway Trust Fund (HTF). Our region also funds transportation projects through state funding sources, millages, and local funding sources.

The cost to realize our region's transportation needs over the next 30 years exceeds \$2.217 billion. However, to maintain a "good" highway system, the estimated funding shortfall over those 30 years is more than \$500 million. This shortfall in transportation funding requires our region to make strategic policy and project selection decisions to maximize our investments. Further financial analysis is outlined in Chapter 13.

## Performance Based Planning

Performance-based planning is a strategic approach to transportation planning that uses analyzed data to determine how effectively transportation investments are working toward achieving the identified transportation goals.

The FAST Act is the current federal transportation funding and policy bill. It emphasizes performance-based planning, establishes performance measures and targets, and identifies seven national goals that states and MPOs are to work toward. Agencies seeking federal funds will demonstrate their progress toward achieving local goals and the national goals included in MAP-21. States and MPOs that don't demonstrate adequate progress toward achieving the goals will be required to take corrective action.

### *MAP-21*

Seven national goal areas:

- Safety
- Infrastructure condition
- Congestion reduction
- System reliability
- Freight movement and
- Economic vitality
- Environmental sustainability
- Project delivery delays

Kalamazoo metro area's transportation system brings value to many aspects of our personal lives and community including personal mobility, movement of goods, public health, economic

vitality, and preservation of our environment. Funding to maintain and upgrade our system is limited. Performance-based planning affords a structure for this MTP to ensure that scarce resources are used effectively and equitably. The community values of transportation are woven into the goals, objectives, performance measures, and ultimately, evaluation criteria used to identify high priority transportation projects.

Emerging trends that affect the way we travel have been considered in developing this MTP. Many of the trends signify an increased emphasis on alternative travel modes, such as bicycling, walking, and transit. Performance-based planning is a new approach for our region that helps evaluate our system and prioritize our investments. This MTP includes a range of performance measures that reflect the expressed community values of our region, while honoring national and state standards. The vision of this plan is to move the Kalamazoo region forward with a sustainable, interconnected, multimodal network that aims to provide safe and secure access for all users.

# CHAPTER 2: VISION & GOALS

## Our Vision

Community outreach efforts for this plan were broad based, inclusive, and encouraged active participation in identifying the vision, goals, and needs of the area. To create a vision that reflects the needs and desires of the residents of the Kalamazoo urbanized area, KATS reached out to thousands of stakeholders across the region through internet surveys, open houses, stakeholder meetings, and many other means. Many agencies participated in the development of this plan, as did local transit, MDOT, and many community-based organizations and advocacy groups representing the diverse interests of the Kalamazoo area.

## Public Engagement

Considering the needs and desires of all populations is critical to the development of a transportation plan that creates access to opportunity for people of all ages, incomes, and abilities. Public engagement lays the foundation for the development and implementation of an integrated multimodal transportation system that supports community development and furthers the region's cultural, environmental and social goals.






## Equity

The Kalamazoo MPO made a concerted effort in this planning process to consider the impacts and benefits of the transportation plan on often-times underserved populations, such as the socioeconomically disadvantaged, people with disabilities, and racial and ethnic minorities. Equity is a theme throughout this plan; from setting performance measures that consider the impacts of the transportation system on vulnerable populations to considering the need of the transportation system to provide mobility options that allow access to affordable housing, healthy food, jobs, recreation, and social opportunities.

Further details on public engagement efforts are outlined in Chapter 8.

## Goals

The creation of a performance framework for the transportation plan allows us to better understand how different projects and policies might affect our region's future. The goals listed below are formulated to represent our community's vision and the desired state for our region's transportation system. These five goals are the foundation for performance measures, performance targets, recommended policy, and project implementation actions described in later chapters of this MTP.

	<p><b>Goal 1</b>  <b>Safety</b> - a safe and secure transportation system for all users.</p>
	<p><b>Goal 2</b>  <b>System Preservation</b> - a well maintained transportation system.</p>
	<p><b>Goal 3</b>  <b>Multimodal Mobility &amp; Accessibility</b> - an accessible, equitable, and integrated transportation system.</p>
	<p><b>Goal 4</b>  <b>Partnership &amp; Funding</b> - regional collaboration in transportation planning, funding, and implementation.</p>
	<p><b>Goal 5</b>  <b>Environmental Stewardship</b> - a transportation system that protects and enhances the natural, cultural, and built environment.</p>

**Goal 1: a safe and secure transportation system for all users.**

**Objectives:**

- Promote a balanced transportation system that stimulates and supports long-term economic vitality, travel and tourism, global competitiveness, productivity, and efficiency through directed investments across modes.
- Implement strategies to promote efficient and reliable system management and operation that result in the reliable and safe movement of people and freight.

**Measures:**

- 5 year rolling average of the total number and rate of fatal and serious (type A) injuries for the number of serious car crashes.

**Objectives:**

- Apply transportation asset management principles and techniques to identify, assess, and maintain existing transportation infrastructure in support of federal performance measures.
- Support the State of Good Repair federal performance measures and the priorities established by local transit agencies.
- Identify strategies and recommend investments that preserve and enhance regional transit systems.

**Measures:**

- Percent of National Highway System bridge deck areas in “good” and “poor” condition using established International Roughness Index (IRI) measures.
- Percent of interstate pavement in “good” and “poor” condition using established IRI measures.
- Percent of non-interstate pavement in “good” and “poor” condition using established IRI measures.
- Increase the percentage of transit vehicles operating within their remaining service life.

**Goal 3: an accessible, equitable, and integrated transportation system.**

**Objectives:**

- Provide access to employment, education, medical facilities, housing, services, neighborhoods, recreation and fresh food for all people, regardless of age, ability, or economic status.
- Foster Environmental Justice through the maintenance of a planning process that does not unfairly affect any one segment of our community.
- Implement improvements for all transportation system users that foster increased accessibility, economic development and vitality.

**Measures:**

- Percentage of population within walking distance of fixed route transit. Updated with changes to fixed route transit systems.
- Increase in annual transit ridership.
- Level of travel time reliability of the interstate, non-interstate and freight on the interstate. Travel time reliability is a measure of travel time consistency over a period of time.

**Goal 4: regional collaboration in transportation planning, funding, and implementation.**

**Objectives:**

- Provide continual and transparent opportunities for stakeholders and the public to actively participate in the transportation decision making process.
- Employ the Congestion Management Process to systematically monitor, measure, diagnose, and recommend travel management alternatives for current and future congestion on our region’s multimodal transportation system.
- Encourage agencies to plan and coordinate projects to maximize funding opportunities and reduce overall project costs.

**Measures:**

- Views across social media platforms to show public engagement success.
- Percent of funding spent on roads, transit and non-motorized transportation for projects in the Metropolitan Transportation Plan and the Transportation Improvement Program.
- Number of projects that are tied with other infrastructure work.

**Goal 5: a transportation system that protects and enhances the natural, cultural, and built environment.**

**Objectives:**

- Increase the availability of modes other than single occupant motor vehicles through public transit, ridesharing and non-motorized usage.
- Reduce on-road mobile source emission affecting air quality.
- Encourage the development of policies and programs that promote context sensitive roadway design that preserves a community’s aesthetic and natural resources.

**Measures:**

- Increase percentage of work trips using alternative modes such as transit, bicycling and walking.
- Increase percentage of total federal funds invested in environmental justice tracts.

**Relating Planning Factors to MTP Goals**

The table below shows how the goals and objectives for the 2050 MTP support FAST Act planning factors.

FAST Act Planning Factors	Related MTP Goal(s)	Incorporation of FAST Act Planning Factors
1). Support the economic vitality of the metropolitan area, especially by enabling global	Goal 1 Goal 2	The projects contained in this plan preserve and enhance access by all modes to employment centers.

competitiveness, productivity, and efficiency	Goal 3 Goal 4	
2). Increase the safety of the transportation system for all users	Goal 1	In support of federal performance measures, safety improvements for all modes are encouraged in this plan.
3). Increase the security of the transportation system or all users	Goal 1 Goal 3	Employ strategies and collaborate with other agencies to increase the security of the transportation system.
4). Increase the accessibility and mobility of people and freight	Goal 1 Goal 2 Goal 3 Goal 4	Mobility options for nonmotorized, transit, and roadway users are increased under this plan. Accessibility is improved, but it is also recognized that additional activities should be considered to increase the accessibility of the transportation system for all users.
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.	Goal 1 Goal 2 Goal 3 Goal 4 Goal 5	The MTP seeks to minimize any negative environmental impacts as a result of programs/projects. The implementation of the programs/projects contained in this plan will reduce gaps in the system and a reduction in the number of congested miles. Consistency is achieved by developing the MTP in conjunction with KATS members, road agencies, Metro, and MDOT, and by increasing the accuracy of socio-economic data input into the Transportation Model.
6). Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight	Goal 1 Goal 2 Goal 3	The programs/projects in the plan seek to enhance connectivity and integration between modes, for example transit and nonmotorized.
7). Promote efficient system management and operation	Goal 2 Goal 3 Goal 4	The programs/projects in this plan were developed with KATS members, state and local transportation providers, and the general public. Such input helps ensure that the system is efficiently

		managed and operated, and the projects proposed support the continuation of a system that is efficiently managed and operated.
8). Emphasize the preservation of the existing transportation system	Goal 2	The MTP considered preservation of the existing transportation system through the financial analysis; maintaining the system in a state of good repair is a federal performance measure and a high priority for our members.
9). Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation	Goal 1 Goal 2 Goal 3 Goal 5	System reliability is a federal performance measure and therefore a high priority. Reduce congestion through the congestion management process, and the projects in this plan must be congestion-deficient to be eligible for federal funding.
10). Enhance travel and tourism	Goal 1 Goal 2 Goal 3 Goal 4 Goal 5	Enhancing and preserving the system, including our environmental resources, leads to a much more appealing travel destination. Strengthening land use and transportation decisions with the economy and tourism in mind can increase the desirability of our area as a must visit location.



# CHAPTER 3: CURRENT TRANSPORTATION SYSTEM

Mobility has a significant impact on quality of life in the Kalamazoo Metropolitan Planning area. Our transportation system consists of a historically significant and complex network of state and federal highways, local streets and roadways, transit services, a series of bicycle and pedestrian multi-use paths, a railway line, and the Kalamazoo - Battle Creek International Airport. It is of utmost importance that the transportation system satisfies mobility needs and provides convenient, safe, and efficient transportation choices.

## Roadway System

The MPO is primarily concerned with roadways of “Regional Significance” - those roadways eligible to receive federal funding. The MPO is also interested in the connectivity and functionality of the network as a whole and how that may impact the “Regionally Significant” roadway network. Federal statutes in the Code of Federal Regulations (CFR) require that public roadways be classified based on the characteristics of the service (mobility and access) they provide. Functional Classification is an analytic tool that the MPO uses to plan roads and highways and to determine the needs and priorities for transportation funds. Functional Classification affects some design and access features, the rules regulating a roadway’s use, and in some cases the land use adjacent to it. The higher the level of motor vehicle mobility required of a facility, the higher its Functional Classification.

Figure 4-1 shows Functional Classifications defined by the level of mobility versus access that the roads provide, as follows:

- Interstate: Highest mobility for vehicular traffic
- Arterials (Principal and Minor): High mobility
- Collectors (Urban, Rural Major, Rural Minor): Lower mobility/higher access for vehicular traffic
- Local: Lowest mobility; highest access for vehicular traffic

Functional Classifications recognize the need to accommodate vehicular traffic in a manner that reduces congestion and increases connectivity to regional and urban destinations. They also assist in defining eligibility for federal funding sources. An inverse relationship exists between high mobility for vehicular traffic and mobility for pedestrian, bicycle, and in many cases, transit



A REGIONALLY SIGNIFICANT PROJECT IS A TRANSPORTATION PROJECT THAT IS ON A FACILITY THAT SERVES REGIONAL TRANSPORTATION NEEDS AND WOULD NORMALLY BE INCLUDED IN THE MODELING OF THE METROPOLITAN AREA’S TRANSPORTATION NETWORK.  
23 CFR Sec. 450.104

usage. The MPO recognized this relationship and is committed to planning for and implementing a balanced transportation network that effectively accommodates vehicles, pedestrians, bicyclists, and transit riders.

### **Transportation Corridors**

The U.S. Department of Transportation (USDOT), in cooperation with the states, local officials, and MPOs, developed the National Highway System (NHS) with the purpose of identifying the core road network that was considered critical to the nation's economy, defense, and mobility. The U.S. Congress approved the NHS in 1995, with the intent that the United States would prioritize federal-aid funds appropriately to ensure the NHS was adequately maintained. Figure 4-2 shows the NHS routes in our region.

# Map 2: National Function Classification for the KATS MPO Boundary



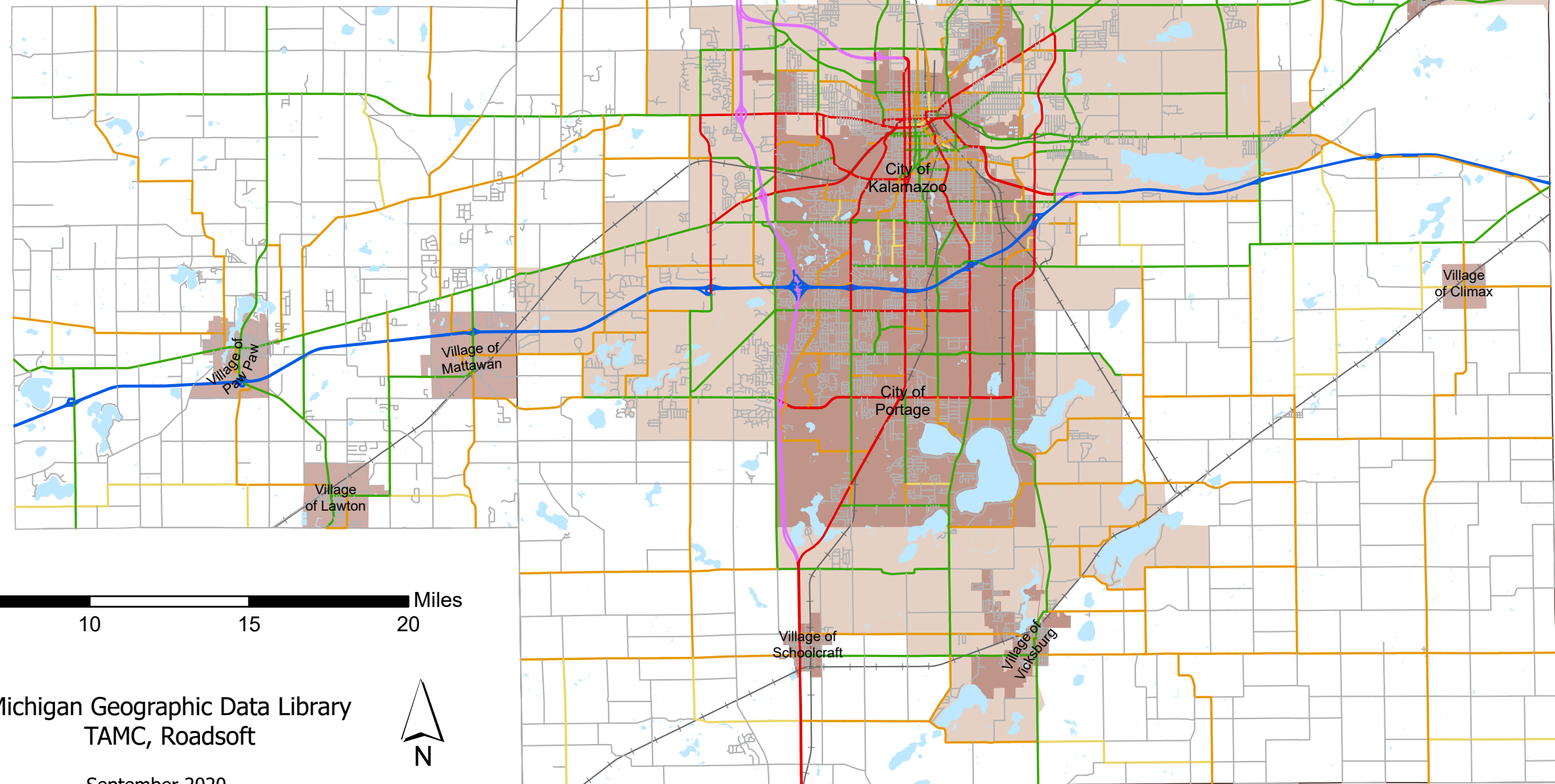
## Legend

— Railroads

## National Function Classification

### NFC

- Interstate
- Other Freeways
- Other Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local
- Water Features
- Cities and Villages
- ACUB
- MPO Boundary









Michigan Geographic Data Library  
TAMC, Roadsoft

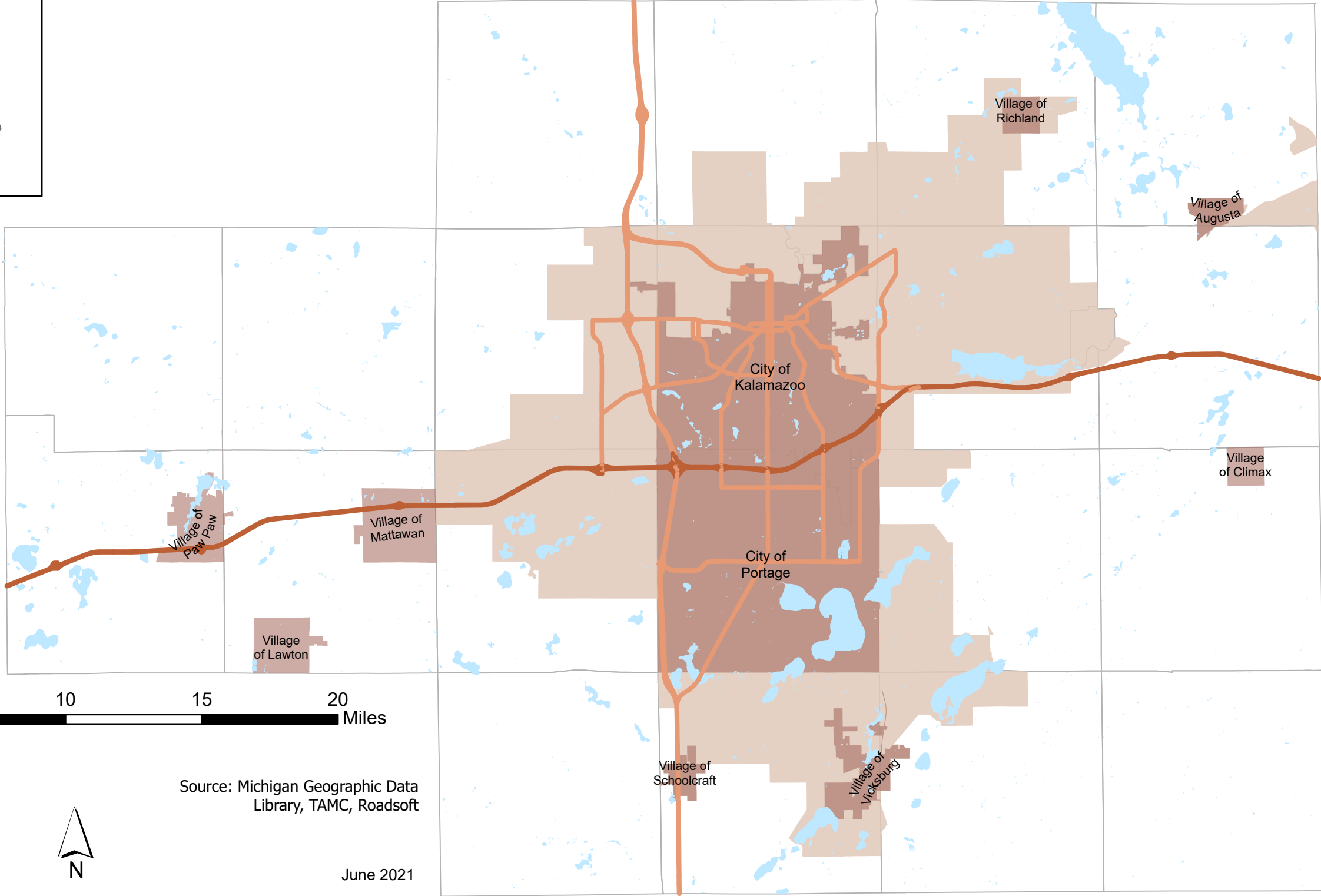
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Map 3: National Highway System for the KATS MPO Area



**Legend**

-  Interstate
-  Principal Freeway
-  Water Features
-  Cities and Villages
-  ACUB
-  MPO Boundary



0 2.5 5 10 15 20 Miles



Source: Michigan Geographic Data Library, TAMC, Roadsoft

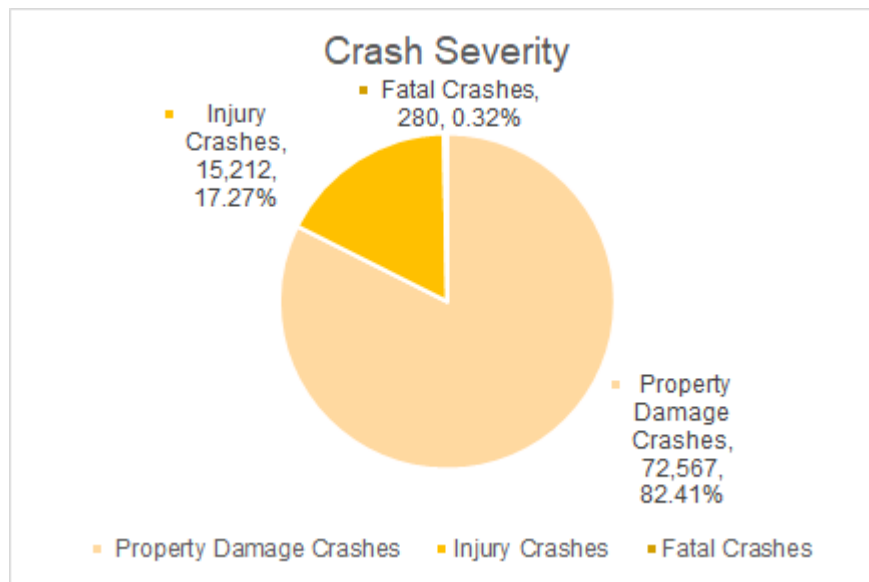
June 2021

## Crash History

Safety is a top priority not only for the greater Kalamazoo metropolitan area, but also at the State and Federal levels. To identify how we can make our transportation system safer, we must understand the crash patterns that have occurred over time. Crash data collected over the ten-year time period between 2010 and 2019 show that there were over 88,000 crashes, an average of nearly 8,800 crashes per year.

Figure 4-3 shows the severity of crashes in our region. Over the ten-year period, there were 280 fatal crashes and over 15,000 crashes resulting in an injury.

Figure 4-3: Crash Severity pie chart



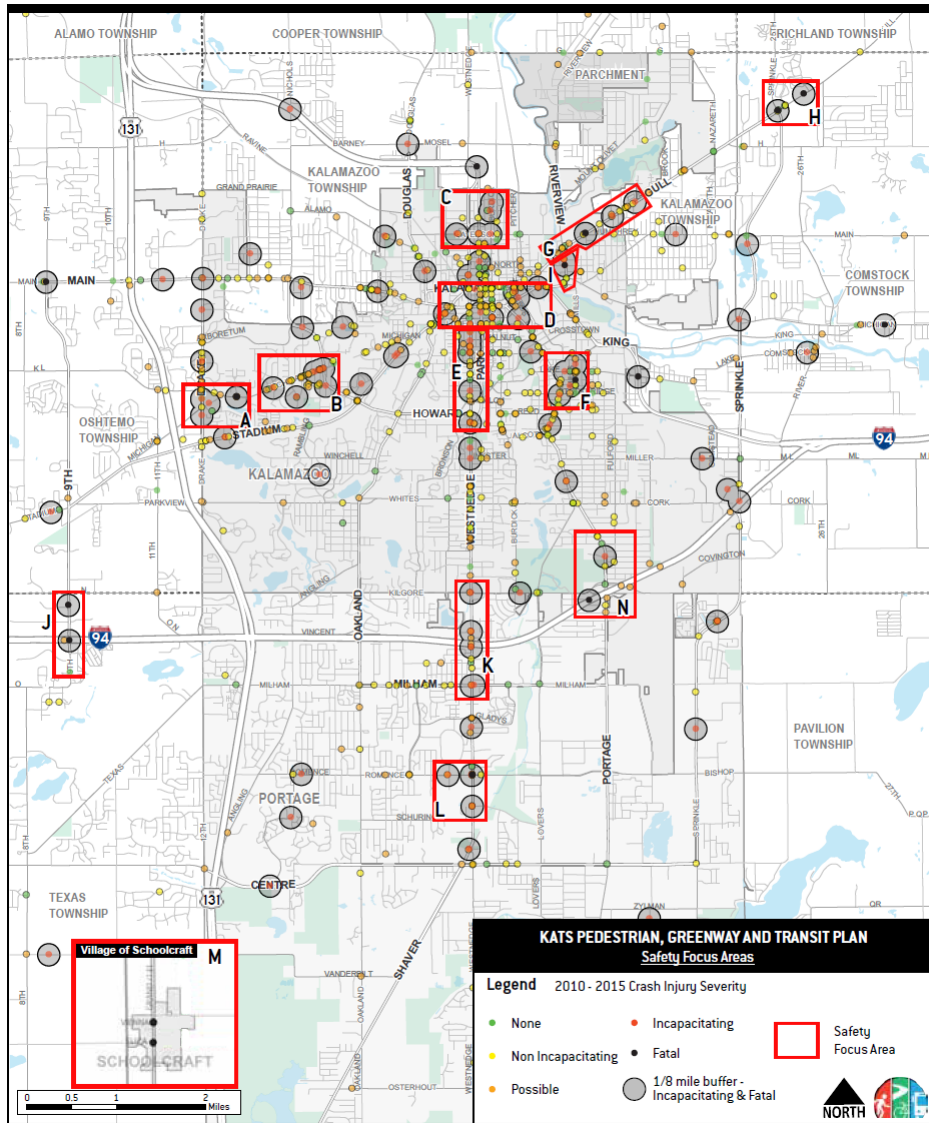
To identify the highest frequency locations, the crashes were sorted by intersections, which were then ranked according to the highest number of crashes. In 2017, the KATS Pedestrian, Greenways, and Transit Plan looked at advancing projects that address existing safety issues since it emerged as the highest priority from the initial public engagement efforts for this study. While completing a network of trail and shared-use paths would provide safer options for many, they will not necessarily improve safety in the high activity, high incident zones that currently exist. Bicycle and pedestrian crash patterns were reviewed for the years 2010 - 2019, and the resulting trends show pockets of high crash locations throughout the KATS Region that deserve priority for facility improvements. Pedestrian and bicyclist crash data was obtained through the Michigan Traffic Crash Facts website, which aggregates, and hosts detailed data about reported crashes. This data was compiled and mapped to locate the densest areas of crash activity. The densest sites became "Safety Focus Areas" and are listed below:

- A - Michigan Avenue & Drake Road
- B - Michigan Avenue & Howard Street
- C- Paterson Street and Burdick Road

- D - Downtown Kalamazoo
- E - Westnedge Avenue from Cedar Street to Maple Street
- F - Stockbridge Avenue to Vine Street
- G - Gull Road from Riverview Drive to Inverness Lane
- H- Gull Road & Sprinkle Road
- I - Riverview Drive & Michigan Avenue
- J - 9th Street & I-94
- K - Westnedge Avenue from Kilgore Road to Milham Avenue
- L - Westnedge Avenue & Romence Road
- M - N Grand Street & Eliza Street
- N - Portage Road & I-94

The majority of bicyclist crashes, 63%, occurred in the City of Kalamazoo followed by the City of Portage at 15% and Kalamazoo Township with 8%. The remaining municipalities each account for fewer than 3% of region-wide bicyclist crashes. Most crashes occurred on smaller, lower speed roads (68%). The majority of pedestrian crashes, 68%, occurred in the City of Kalamazoo followed by the City of Portage at 8% and Kalamazoo Township at 6%. The remaining municipalities each account for fewer than 4% of region-wide bicyclist crashes. The majority crashes occurred on smaller, lower speed roads (67%). Overall, high bicycle and pedestrian crash areas tend to be located in areas where cycling and walking are more popular, like Downtown Kalamazoo and near Western Michigan University. Figure 4-4 shows the resulting list of the top hazardous intersections. These intersections represent high priorities for safety improvements. For a more detailed view and analysis of safety focus areas, please refer to the KATS Pedestrian, Greenways and Transit Plan on the website: <https://katsmpo.org/documents/>.

Figure 4-4: Safety Focus Areas



## Transit and Rail System

### Transit

The Kalamazoo Transportation Center is located on Kalamazoo Avenue between North Burdick Street and Rose Street and houses Metro, Amtrak, and intercity bus passenger services. The facility is the downtown transfer center for Metro’s fixed route bus system and has a space for food and convenience purchases. Dedicated taxicab pick-up spaces are provided near the building. Sidewalk connections provide pedestrian access. Figure 4-5 shows the Metro fixed route bus system.

Van Buren Transit does not operate fixed route service and therefore does not have a transfer center.

Two intercity bus companies operate regularly scheduled passenger services in and out of the metropolitan area. Greyhound Bus Lines and Indian Trails Motorcoach are both stationed at the Kalamazoo Transportation Center. Charter bus service is provided by approximately seven local companies.

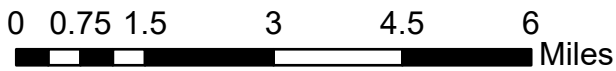
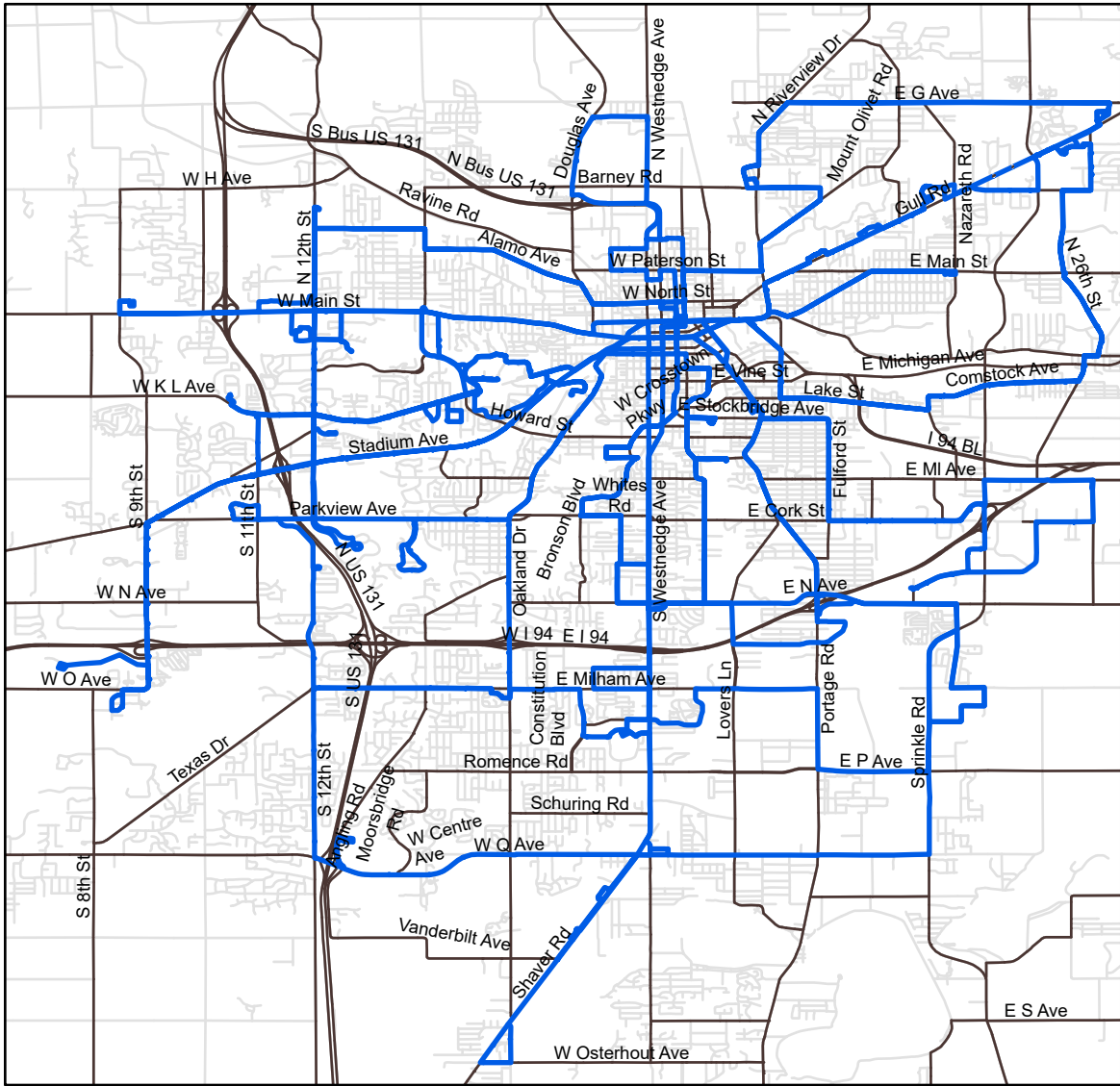
The Kalamazoo area is served by several locally based, independently owned taxi companies and one limousine service. Rides are available on an on-call basis, seven days a week, 24 hours a day for most taxi services. Due to its more rural nature, taxicab service is limited with Van Buren County.

Metro serves as the community ridesharing office for Kalamazoo, Barry, Branch, Calhoun, and St. Joseph counties. The office coordinates and provides updated names and address information for people requesting ridesharing information to locations within and out of the county area. Other activities of the community ridesharing program include contacts with local employers to set up carpool/vanpool programs within their companies and surveys and interviews with users of the carpool lots in the Kalamazoo area. MDOT maintains several carpool lots in the metropolitan area.

Several organizations, including church groups, senior care centers, and special interest providers maintain small scale transportation services for their members or clients.



# Map 4: Transit Existing Routes



- Legend**
- Transit Routes
  - Federal Aid Roads
  - Non-Federal Aid Roads



Source: Metro Transit, KATS

October 2020

## **Rail**

Rail freight service to the Kalamazoo area is provided by three rail carriers. Norfolk Southern, operating on both north-south and east-west rail lines through the mid-section of the urban area, provides freight movements between Detroit and northern Indiana (and points beyond). Norfolk Southern also maintains a switching yard near the east side of the city of Kalamazoo's central business district. Grand Trunk/CN North America operates freight movement from two rail lines which serve Kalamazoo from the southwest, with continued service through Battle Creek and onto Detroit and Canada. A main line connects at the southern urban area which runs to Battle Creek. Grand Trunk maintains a switching yard near South Sprinkle Road. Grand Elk Railroad also leases north/south track rights from Norfolk Southern Railroad and provides freight service along this corridor between Elkhart, Indiana and Grand Rapids, Michigan. Small spur lines serve major industrial locations near the Pfizer facilities east of Portage Road and along the Fulford Street industrial area.

Rail passenger service is provided by Amtrak using the east-west Amtrak/Norfolk Southern corridor between Detroit and Kalamazoo. The Amtrak station is housed in the Kalamazoo Transportation Center located on the north side of the City of Kalamazoo's central business district. Passengers can reach numerous national destinations using the Amtrak Wolverine and Blue Water routes that pass-through Kalamazoo.

In 2012, the Michigan Department of Transportation (MDOT), Federal Railroad Administration (FRA) and Norfolk Southern Railway Co. signed a sales agreement that transferred ownership of 135 miles of Norfolk Southern railroad to MDOT for \$140 million. The line is part of Amtrak's Wolverine and Blue Water passenger rail services between Kalamazoo and Dearborn. This purchase was one step in a multi-step process that will pave the way for track improvements designed to accommodate passenger train speeds up to 110 mph. This will reduce travel time between Detroit and Chicago, reducing the overall trip time between the two cities to about five hours. MDOT has aggressively promoted the development of this corridor and has completed work towards high-speed train service including in-cab signaling and improved road crossings between Kalamazoo and the state line west of Kalamazoo. Details of passenger and freight rail planning activities are included in MDOT's MI Transportation Plan which is available from the Michigan Department of Transportation's website.

## **Active (Non-Motorized) Transportation**

Active transportation (bicycle and pedestrian) elements are now integral components of this 2020-2050 MTP. As a result of specific needs identified in the 2045 MTP, the MPO has adopted the KATS Pedestrian, Greenways, and Transit Plan. Active transportation offers several options to improve our existing transportation system efficiently and cost effectively through a variety of

systematic enhancements while simultaneously providing benefits, including safety to all roadway users. The Non-Motorized facilities can be found in Chapter 5 and the KATS Pedestrian, Greenways, and Transit Plan can be found on the KATS website ([www.katsmpo.org](http://www.katsmpo.org)).

## **Freight**

Freight is vital to the Kalamazoo MPO's economy, as well as the Michigan economy. Most raw and furnished goods and major parcel deliveries are moved via interstate motor freight carriers and a variety of freight class vehicles. Efficient freight mobility is crucial to the economic resilience of the area.

Within the area, the W.E. Upjohn Institute's REMI (Regional Economic Model Incorporated) model projects over twenty-four billion dollars in gross regional product generated by 2035 in three areas directly tied to freight and freight movement. However, ease of freight movement can conflict with compact urban development. As the Kalamazoo urbanized area continues to develop, KATS will need to weigh many of the other issues identified in the area and in our transportation, survey results against the needs of the freight community.

At the state level, trucking moves approximately 70 percent of the freight tonnage into, out of, and within Michigan according to the MDOT Long Range Transportation Plan's Freight Profile Technical Report. The I-94 corridor going through Kalamazoo County carries approximately 100 million tons of freight annually and is the highest freight volume highway facility in Michigan. Kalamazoo County is the ninth highest Michigan county for originating intrastate truck freight movements with 6.32 million tons annually leaving the county.

## **Aviation**

Located on Portage Road, south of I-94 in the east central urban area, the Kalamazoo/Battle Creek International Airport provides both commercial (three airlines) and general aviation services to the metropolitan and southwest Michigan areas. This airport primarily provides passenger services. The W.K. Kellogg Regional Airport in Battle Creek handles much of the air freight into and out of this region. The Kalamazoo/Battle Creek International Airport is one of the 14 air carrier airports in Michigan and is classified by the Federal Aviation Administration as a Class 1 airport. Airport facilities are owned and operated by Kalamazoo County. In addition to scheduled commercial passenger services, the airport facilities support a broad range of aviation activities, including instructional flight schools, corporate aircraft facilities, flying clubs, military operations, charter services, air freight, and air ambulance.

Land use surrounding the airport facility is primarily dedicated to commercial/retail and industrial purposes. A mobile home park is located adjacent to the northeastern edge of the airfield. The industrial and commercial areas serve as a buffer between airfield activities and larger residential areas located north of I-94, west of Portage Road, and east of South Sprinkle Road.

Portage Road is the main link that connects the airport to the rest of the surface transportation system. The airport is accessible by major transportation corridors linking to Portage Road from I-94, Kilgore Road, East Milham Avenue, and East Centre Avenue. Long- and short-term parking areas have been reconfigured along with an access/regress road to improve connections to the major street network. A new terminal building was built to improve airport customer service and airport operations. Intermodal services linking to the facility include several taxi companies, limousine services, a variety of specialized transportation providers, and the public transportation providers with Metro Connect and Metro services. Metro maintains a fixed route bus stop at the airport, providing interconnected bus service from all routes within their service area during normal operating hours.

## **Maintenance**

***Road Commission of Kalamazoo County:*** The Road Commission of Kalamazoo County (RCKC) maintains 1,269 miles of road throughout the 576 square mile county. The primary road system consists of 446 miles; the remaining 823 miles comprise the local system. Along with our maintenance operations, we maintain 63 bridges, over 24,566 signs, 48 traffic signals and 41 flashing beacons at intersections. Working with other governmental units, the RCKC works hard to locate and maximize every dollar available for infrastructure maintenance and construction. The RCKC current has an Asset Management Plan, which includes inventory of the pavement and bridge conditions in Kalamazoo County.

***Van Buren County Road Commission:*** These Local Road Professionals operate a variety of equipment to maintain a county road system of 1,330 miles, 379 miles within the KATS boundary. The Van Buren County Road Commission provides maintenance operations on all Act 51 certified roads, including Primary Roads (all roads with the "CR" designation, Red Arrow Highway, and Blue Star Highway), Township Local Roads, including streets, avenues and roadways within certified subdivisions.

The Van Buren County Road Commission is also responsible for funding special and heavy maintenance projects on all Primary Roads (all roads with the "CR" designation, Red Arrow Highway, and Blue Star Highway). As partners in transportation, the Van Buren County Road Commission and its Local Township Officials are in close contact throughout the year to improve the quality and safety of our roads, determine maintenance priorities, and discuss various road related issues. Townships are responsible for funding road construction projects and upgrades

on all Township Local Roads (certified streets, avenues and roadways within certified subdivisions). The Road Commission assists its Township Partners in the surveying, engineering, bidding and construction process of these construction projects.

***Michigan Department of Transportation:*** KATS is serviced by MDOT's Southwest Region. The Southwest Region Engineer is responsible for roadway construction, roadway maintenance, engineering support, technical support, traffic operations, bridge maintenance, safety operations, equipment management, and administration operations.

***Locals:***

Local streets are maintained by the cities and townships in which they reside. It is not uncommon for local agencies to coordinate projects to help with the cost of road maintenance.

***Asset Management Plans:*** The RCKC currently has an adopted asset management plan that includes an inventory of the pavement and bridge conditions in Kalamazoo County.

## **Issues Facing the Region**

As a growing metropolitan area, there are many transportation issues facing the region. Many of these issues are identified in our Transportation Survey, while others are national or global in scale. The following list is not exhaustive, it is meant to highlight areas that KATS has identified throughout the transportation planning process as overarching issues facing the region.

### **Aging Population**

The number of adults (age 65 and older) in the greater Kalamazoo Metropolitan Statistical Area is expected to increase from 15% of the population in 2018 to 33% of the population in 2050. Across the United States, older adults (age 65 and older) are putting more emphasis on how and where they choose to age. While many older adults want to "age in place," many are also now making purposeful decisions about where they want to spend their retirement years based on the availability of public transportation and access to goods and services. When older adults are able to easily and safely access public transportation, they are able to continue to meet their basic needs such as medical appointments, shopping, and recreation without having to drive or rely on others.

### **People with Disabilities**

All transportation improvements must be constructed based on the Americans with Disabilities Act and all transportation facilities and amenities must be constructed for all legal users. KATS should work with local advocates of people with disabilities to identify areas that do not meet the needs of all legal users and take steps to fix them. In 2014, KATS adopted a Complete Streets Policy to help strengthen the ties between funding priorities and the needs of all users of the roadway.

## **National Security**

The Department of Homeland Security and Federal Highway Administration have charged transportation agencies with evaluating transportation infrastructure security. Michigan's Department of Transportation (MDOT) is responsible for a relatively large and diverse number of critical transportation facilities. These facilities support supply chains, passenger movement, and assets so vital to the people and businesses of the state of Michigan. The nation that their incapacity or destruction would have a debilitating impact and seriously weaken the state's security, economic stability and public safety. More than 25% of all trade between the United States and Canada passes through Detroit's international crossing. To protect these important economic assets, MDOT, Michigan State Police and local agencies regularly cooperate to identify contraband security issues and potential targets.

### **Security**

Security of the streets and highways portion of the transportation system is provided in part by arrangements between enforcement and street departments to provide temporary traffic control at critical locations in the event of an inoperable traffic signal and response to incidents that disrupt operations on critical locations in the system. On the transit side, security is provided using onboard communications and video equipment. Video and public safety patrols are used at the main transportation center in downtown Kalamazoo.

## **Climate Change and Natural Environment**

During the past century, the Earth has experienced a gradual warming trend. Human induced greenhouse gases, largely from fossil fuel combustion, are recognized as one of the major causes. To mitigate the effects of urbanization and development, Federal Highway Administration (FHWA) regulations require transportation agencies to include the environment in the planning process. FHWA supports environmental planning through its Planning and Environmental Linkages program. Planning and Environmental Linkages (PEL) represents a collaborative and integrated approach to transportation decision making that:

1. Considers environmental, community, and economic goals early in the transportation planning process.
2. Uses the information, analysis, and products developed during planning to inform the environmental review process.

Waterways, wetlands, woodlands, and other natural elements have a great impact on the greater Kalamazoo environmental landscape. Preservation of these natural areas is important to maintaining wildlife in the area and reducing the negative environmental footprint caused by things like vehicle emissions. Planning entities must work in collaboration to be aware of environmental challenges by monitoring adequacy of wetlands, stormwater management, endangered species, habitats, and invasive species.

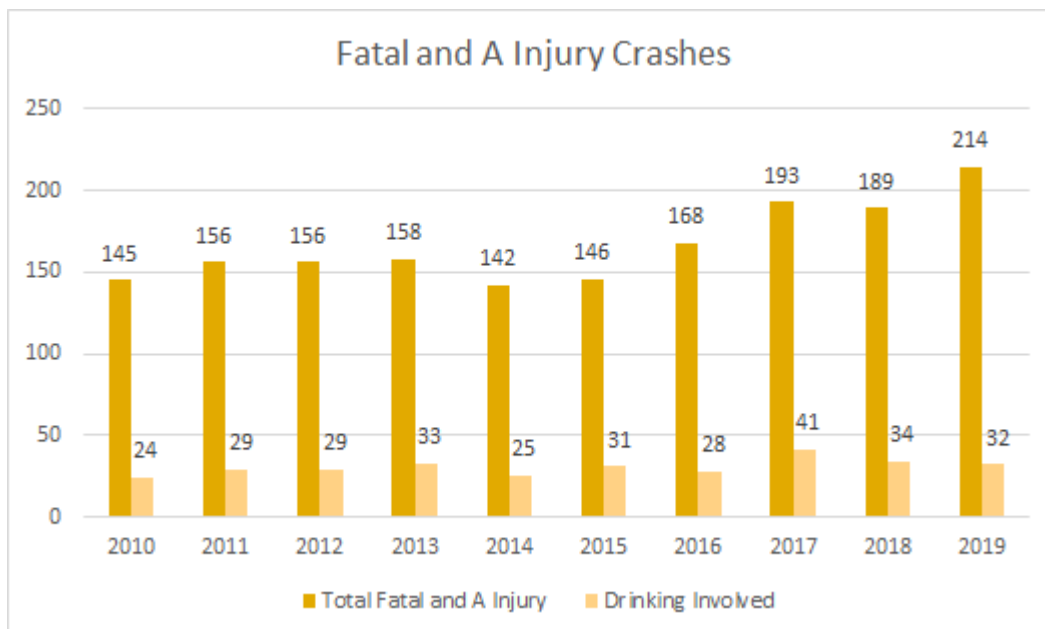
## Health, Livability and Access

Addressing livability issues in transportation planning, development and implementation ensures that transportation investments support both mobility and broader community goals. A well-crafted transportation project can be the catalyst for achieving these goals, including economic growth and job creation based on the Transportation Survey results, there is growing demand to design facilities that meet the needs for all users while balancing the different access and mobility needs of motorists, freight, bicyclists, pedestrians, and transit riders at the same time.

## Safety

Tens of thousands of people die each year in automobile crashes across the United States. In the State of Michigan, nearly 1,000 die each year. While the overall number of fatalities has been trending down, the Metropolitan Area should make investing in safety a priority. Congestion, alternative transportation modes, driving habits, and changing design standards can render infrastructure functionally outdated. Crashes are a critical indicator when this happens, allowing engineers and planners to identify high frequency traffic conflicts. Since most crashes occur due to human error, no level of improvement can prevent all crashes. The process of using crash data to justify improvements to mitigate human error remains an important part of developing a safer roadway system.

The Kalamazoo Area Transportation Study supports the State of Michigan's Strategic Highway Safety Plan. The fatal and incapacitating (A) injury crash history in the KATS area from 2010 to 2019 shows a somewhat static pattern between 2010 and 2013, although the pattern begins to increase from 2014 until 2019. The number of drinking involved crashes followed a less linear pattern, although there was a decline between the years 2017 and 2019.



These types of crashes that comprised the fatal and incapacitating (A) injury crashes in the KATS area involved fixed object or off-road crashes and on-road crashes with other vehicles, bicyclists or pedestrians. The percentage of all fatal and incapacitating (A) injury crash types for the 2010 through 2019 period is shown in the table below. Overwhelmingly, the two crash types that resulted in fatal and (A) injury crashes involve rear end straight collision and collisions with fixed objects. Pedestrian and bicycle involved crashes combined only represent 2% of these crashes, but still have the potential to be reduced.

KATS and its members continue to review the road system to identify locations with correctable crash patterns and develop countermeasures to address identified correctable sites. Public education and enforcement actions are also part of an effective safety improvement program.



<b>2010 to 2019 Fatal and A Injury Crashes</b>	
Crash Type	% of Crashes
Rear end straight	28.46%
Fixed Object	16.22%
Side swipe same	14.05%
Angle Straight	10.47%
Misc. multiple vehicle	4.15%
Angle turn	3.71%
Angle drive	3.06%
Head on left turn	2.69%
Backing	2.59%
Rear end driveway	2.10%
Overturn	1.89%
Misc. single vehicle	1.73%
Parking	1.46%
Head on	1.25%
Rear end left turn	1.20%
Other drive	1.14%
Other object	1.01%
Rear end right turn	0.97%
Pedestrian	0.94%
Bicycle	0.86%
Hit train	0.03%

# CHAPTER 4: DEMOGRAPHICS

## Why Demographics Matter

Demographics are a key component of understanding our transportation system and anticipating where new or improved facilities may be located. Population, housing, and employment are the three main demographic categories used in forecasting travel demand. Not only does the sheer number of people living and working in our area affect our transportation needs, but where we choose to live, and work greatly influences the demand for transportation infrastructure and services. Understanding our area's existing and future housing and employment trends can help to inform and guide our transportation investment decisions. Today's decisions must consider the changing needs of our population and align with future transportation needs.

## Households and Population

The Kalamazoo Area Transportation Study has an estimated population of 288,453 with over 103,000 households. The four largest ethnic groups are White (Non-Hispanic) (77.1%), Black or African American (10%), Hispanic (3.33%) and Asian (2.37%). The MPO planning area is expected to experience just over 22 percent population growth during the 30-year period between 2020 and 2050. During this period, the MPO area is expected to grow from 288,453 people to 354,672 people, which results in an estimated 66,219 additional people living in our region. The number of older adults (age 65 and older) in the Kalamazoo MPO is expected to increase from 13.5% of the population in 2016 to 18% of the population in 2050, according to the U.S. Census Bureau Population and Employment Projections.

## Employment

The KATS region currently employs over 166,000 people in a range of industries. Average commute to work time is 20 minutes with over 82% driving alone. Carpooling is estimated at 7.6% and public transportation accounts for 1.7% of those traveling to work. It is unclear at this time how COVID-19 will affect future work commutes with the rise of stay-at-home employees during the year 2020, according to the Census Community Profile quick facts.

Employment forecasts estimate a 4 percent increase by the year 2050. According to University of Michigan forecasts, educational and accommodation services is the largest employing industry in the greater Kalamazoo area, followed by manufacturing, retail trade, and health care. Employment in health care is projected to grow the most of all major industries over the next several years. Other industries anticipated to experience growth rates are education and accommodation services and retail trade. It is expected that manufacturing will decrease by the year 2050.

# CHAPTER 5: AIR QUALITY

As part of its transportation planning process, the Kalamazoo Area Transportation Study (KATS) completed the transportation conformity process for KATS' 2050 Metropolitan Transportation Plan (MTP) and the FY2020-2023 Transportation Improvement Program (TIP) and relevant portions of the State Transportation Improvement Plan (STIP). The Transportation Conformity Determination Report for the 1997 Ozone NAAQS (National Ambient Air Quality Standards) demonstrates that KATS' 2050 MTP and the associated FY2020-2023 TIP, as well as the State Transportation Improvement Program (STIP) in Kalamazoo and Van Buren Counties, meet the federal transportation conformity requirements in 40 CFR Part 93. A summary of the report is below.

## History of Transportation Conformity

The concept of transportation conformity was introduced in the Clean Air Act (CAA) of 1977, which included a provision to ensure that transportation investments conform to a State Implementation Plan (SIP) for meeting the federal air quality standards. Conformity requirements were made substantially more rigorous in the CAA Amendments of 1990. The transportation conformity regulations that detail implementation of the CAA requirements was first issued in November 1993 and have been amended several times. The regulations establish the criteria and procedures for transportation agencies to demonstrate that air pollutant emissions from LRTPs, TIPs, and projects are consistent with ("conform to") the state's air quality goals in the SIP.

The Clean Air Act (CAA) section 176(c) (42 U.S.C. 7506(c)) requires federally funded or approved highway and transit activities to be consistent with ("conform to") the purpose of the State Implementation Plan (SIP). Conformity to the purpose of the SIP means Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funding and approvals are given to highway and transit activities that will not cause new KATS 2050 Metropolitan Transportation Plan 197 air quality violations, worsen existing air quality violations, or delay timely attainment of the relevant air quality standard, or any interim milestone. 42 U.S.C. 7506(c)(1) United States Environmental Protection Agency's (EPA's) transportation conformity rule establishes the criteria and procedures for determining whether MTPs, TIPs, and federally supported highway and transit projects conform to the SIP, 40 CFR Parts 51.390 and 93.

## South Coast Air Quality Mgmt. District v. EPA

On Feb. 16, 2018, the United States Court of Appeals for the District of Columbia Circuit in *South Coast Air Quality Mgmt. District v. EPA* ("South Coast II," 882 F.3d 1138) held that transportation conformity determinations must be made in areas that were either nonattainment

or maintenance for the 1997 ozone NAAQS and attainment for the 2008 ozone NAAQS when the 1997 ozone NAAQS was revoked. These conformity determinations were required in these areas after Feb. 16, 2019. The Grand Rapids area (Kent and Ottawa counties) was in maintenance at the time of the 1997 ozone NAAQS revocation on April 6, 2015, and was also designated attainment for the 2008 ozone NAAQS on May 21, 2012. It was also designated attainment for the 2015 ozone NAAQS on Aug. 3, 2018. Therefore, per the South Coast II decision, a conformity determination must be made for the 1997 ozone NAAQS on the LRTPs and TIPs.

### **Criteria and Procedures for Determining the Transportation Conformity Determination**

A report was completed consistent with CAA requirements, existing associated regulations at 40 CFR Parts 51.390 and 93, and the South Coast II decision, according to EPA's Transportation Conformity Guidance for the South Coast II Court Decision issued on Nov. 29, 2018, and followed the criteria and procedures outlined below.

The transportation conformity regulation at 40 CFR 93.109 sets forth the criteria and procedures for determining conformity. The conformity criteria for MTPs and TIPs includes latest planning assumptions (93.110), latest emissions model (93.111), consultation (93.112), transportation control measures (93.113(b) and (c)), and emissions budget and/or interim emissions (93.118 and/or 93.119). For the 1997 ozone NAAQS areas, transportation conformity for MTPs and TIPs for the 1997 ozone NAAQS can be demonstrated without a regional emissions analysis, per 40 CFR 93.109(c). This provision states that the regional emissions analysis requirement applies one year after the effective date of EPA's nonattainment designation for a NAAQS and until the effective date of revocation of such NAAQS for an area. The 1997 ozone NAAQS revocation was effective on April 6, 2015, and the South Coast II court upheld the revocation. As no regional emission analysis is required for this conformity determination, there is no requirement to use the latest emissions model, budget, or interim emissions tests.

Therefore, transportation conformity for the 1997 ozone NAAQS for the KATS 2050 MTP and the 2020-2023 TIP, and the rural STIP in Kalamazoo and Van Buren counties can be demonstrated by showing the following requirements have been met:

- Latest planning assumptions (93.110)
- Consultation (93.112)
- Transportation control measures (TCMs) (93.113)
- Fiscal constraint (93.108)

### **Latest Planning Assumptions**

The use of latest planning assumptions in 40 CFR 93.110 of the conformity rule generally applies to regional emissions analyses. In the 1997 ozone NAAQS areas, the use of the latest

planning assumptions requirement 198 KATS 2050 Metropolitan Transportation Plan applies to assumptions about transportation control measures (TCMs) in an approved SIP. The Michigan SIP does not include any TCMs.

### **Consultation**

The consultation requirements in 40 CFR 93.112 were addressed both for interagency consultation and public consultation. Interagency consultation was conducted with the Battle Creek Area Transportation Study, Kalamazoo Area Transportation Study and the Michigan Department of Transportation. A Michigan Transportation Conformity Interagency Workgroup (MITC-IAWG) meeting was held on December 17, 2018. Interagency consultation was conducted consistent with Michigan's conformity SIP. Public consultation will be conducted consistent with planning rule requirements in 23 CFR 450. The Public Participation Plan adopted by KATS' Policy Committee establishes the procedures by which KATS engages the public. The same procedures were followed for this document, ensuring that the public has an opportunity to review and comment before the MPOs make a determination. IAWG met on September 15, 2021, to assess capacity projects for conformity requirements and members were in agreement with the assessment done. A formal public comment period for the draft conformity report was held from September 29 to November 24, 2021. The KATS Policy Committee will make a formal conformity determination through a resolution at their meeting on November 24, 2021.

### **Timely Implementation of Transportation Control Measures (TCMs)**

The Michigan SIP does not include any TCMs. Fiscal Constraint Transportation conformity requirements in 40 CFR 93.108 state that transportation plans and TIPs must be fiscally constrained consistent with the metropolitan planning regulations at 23 CFR part 450. The LRTPs and 2020-2023 TIPs are fiscally constrained, as demonstrated in:

- KATS 2050 MTP, Chapter 14: Moving Forward
- KATS 2020-2023 TIP, Financial Plan as updated to include the most current amendment.
- 2020-2023 STIP, including latest amendments for Kalamazoo and Van Buren counties

### **Conformity Determination**

The transportation conformity process determined and demonstrated that the KATS 2050 MTP, the FY2020-2023 TIP, and the FY2020-2023 STIP for Kalamazoo and Van Buren counties meet the CAA and Transportation Conformity rule requirements for the 1997 ozone NAAQS.

# CHAPTER 6: ENVIRONMENTAL JUSTICE

Title VI of the 1964 Civil Rights Act (42 U.S.C. 2000d-1) states that “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

The Kalamazoo Area Transportation Study (KATS) assures that no person shall be discriminated against, on the grounds of race, color, and national origin, as provided by Title VI of the Civil Rights Act of 1964 and the Civil Rights Restoration Act of 1987 (P.L. 100.259). Specifically, 42 USC 2000d states that “No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.” KATS further assures every effort will be made to ensure nondiscrimination in all its programs and activities, whether those programs and activities are federally funded or not. In addition to Title VI, there are other non-discrimination statutes that afford legal protection. These statutes include the following: Section 162 (a) of the Federal-Aid Highway Act of 1973 (23 USC 324) (sex), Age Discrimination Act of 1975 (age), and Section 504 of the Rehabilitation Act of 1973/Americans with Disabilities Act of 1990 (disability).

More specifically, the KATS assures that efforts will be made to prevent discrimination through the impacts of its programs, policies, and activities on minority and low-income populations. KATS uses delineation and mapping, as well as subsequent analysis of impacts on minority areas and low-income areas. While requirements for Environmental Justice only include the analysis of minority and low-income areas, KATS has also included delineation, mapping, and analysis of aging population areas to further address issues identified through public comment. Additionally, the Kalamazoo Area Transportation Study will take reasonable steps to provide meaningful access to services for persons with Limited English Proficiency.

## **Delineation of Environmental Justice Areas**

Environmental Justice (EJ) areas were identified to determine what areas could be impacted by projects being identified in the 2050 Metropolitan Transportation Plan. To determine what areas are considered low-income, minority, or aging population areas in the Metropolitan Planning Area, Demographic Indicators in the Environmental Protection Agency’s web based EJSCREEN were used.

KATS set a standard of the 80<sup>th</sup> percentile in each area of analysis through the EJSCREEN tool. Through the Planning Process, it was felt that this standard provided the appropriate level of emphasis within the Planning Process while still reaching the defined EJ emphasis areas.

The EJSCREEN tool uses the following definitions for these categories:

**Percent Minority:** Percent of individuals where minority is defined as all but Non-Hispanic White Alone. Calculated from the Census Bureau's American Community Survey 2015-2019.

**Percent Low-Income:** Percent of individuals whose ratio of household income to poverty level in the past 12 months was less than 2 (as a fraction of individuals whom ratio was determined). Calculated from the Census Bureau's American Community Survey 2015-2019.

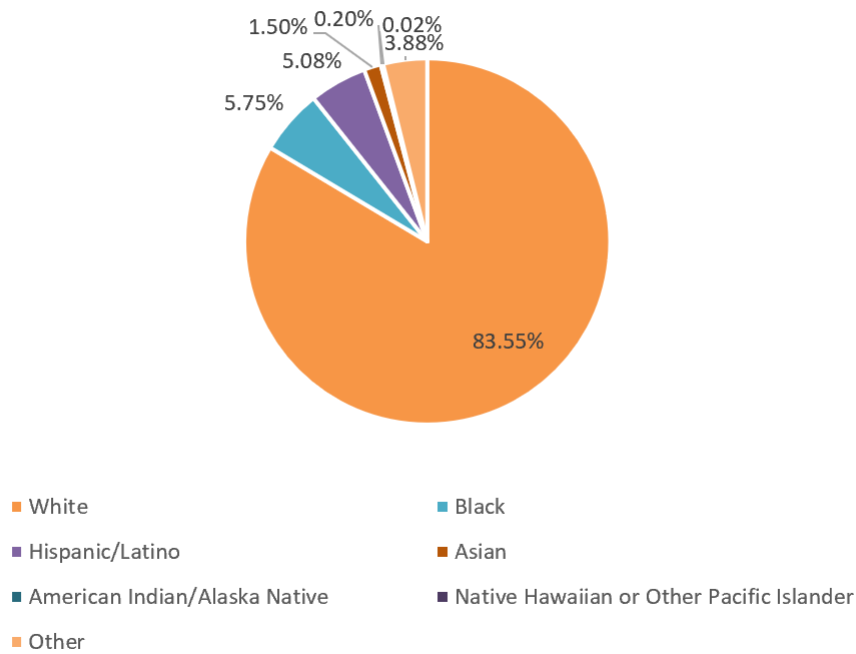
**Aging Population:** Percent of individuals over age 64 as a fraction of the population. Calculated from the Census Bureau's American Community Survey 2015-2019.

While the EJSCREEN tool provides a solid basis for decision making, KATS further analyzed the demographic data. Understanding the makeup of any community is the starting point for understanding its unique characteristics. Knowledge of the nature and makeup of the community will assist in fine tuning the importance of transportation projects in the MPO area and assessing their impact on EJ populations.

Being aware of age characteristics of the MPO areas can also assist planning and funding decisions by indicating the specific economic, transportation, recreational, educational and other community needs each age will require. By examining the demographic mix of residents, the MPO and local agencies can better plan for transportation services and needs.

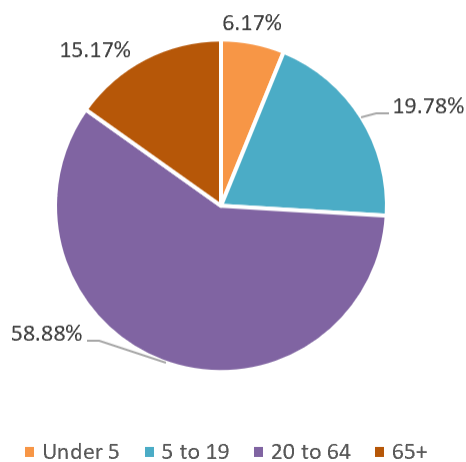
The Federal Office of Management and Budget's (OMB) 1997 Policy Directive 15, Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity, established five minimum categories for data on race. The minimum categories are White; Black/African American; American Indian and Alaskan Native; Asian, Pacific Islander and Hawaiian; and Hispanic and Latino. KATS incorporated these categories with those listed for the American Community Survey's Demographic and Housing Estimates to conduct the Minority EJ Analysis. To determine the effects of any Federal-aid transportation project, it was necessary to identify areas within the MPO that met the above criteria for the identified population groups.

### KATS Area Racial Characteristics (2015-2019)



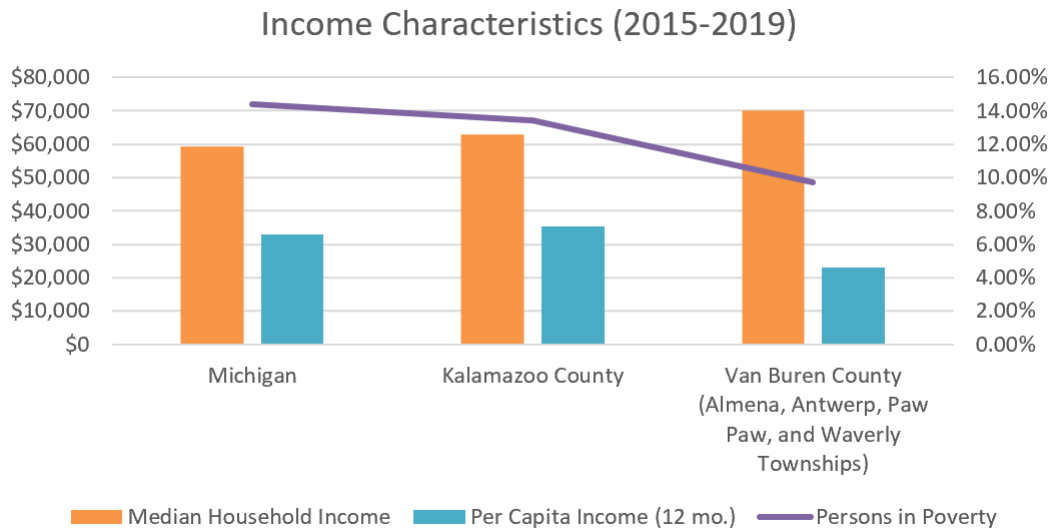
A breakdown of age groups within the Planning Area is useful when the age groups are broken into four main categories: under 5, 5-19, 20-64, and 65 and older. This provides a better sense of the needs and desires of the population, especially those who are unable to drive themselves. A significant percentage of the population within the KATS Planning Area is 65 or older.

### KATS Area Age Distribution (2015-2019)



Median household income, per capita income, and percent poverty level for the KATS Planning Area have been collected for 2015-2019 and are shown below in 2021 dollars. The data is compared to the average in Michigan to illustrate that the MPO area is above the average range in the state.





*Maps of the identified locations follow this chapter, along with a summary table identifying capacity projects located in the Environmental Justice areas.*

### Analysis of Impacts on Minority, Low Income, and Aging Population Areas

Once Minority, Low Income, and Aging Population were identified, KATS analyzed projects based on their implications to each group. In order to conduct the analysis, several assumptions were made:



Furthermore, for purposes of this analysis, staff assumes that the improvement of the condition of the transportation system through preservation projects, transit projects, non-motorized projects, and safety projects are improving the overall well-being of the community. KATS makes this assumption, in part, because of the MPO’s adopted Complete Street Policy’s requirements to address all users within project development.

## Potential Positive Impacts

Throughout the EJ Analysis, staff considered a variety of improvement types and related impacts. Resurfacing projects are the main project type in the 2050 Plan throughout the MPO area. It is important to note that potential low levels of investment do not necessarily reflect unfair treatment but may rather reflect that an area's existing transportation system is complete and in good condition or may only need minor investments to maintain the condition of the system.

Since the 2050 Metropolitan Transportation Plan is multi-modal in nature, it contains expenditures on road, transit, and illustrative non-motorized projects that when built will provide access to additional modes of transportation to the EJ Areas.

KATS also reviewed the public transportation fixed route service to determine if adequate coverage of the populations are being served. Maps showing the fixed bus routes and the EJ Areas follows this chapter. Since the creation of the Central County Transportation Authority (CCTA), there has been increased transit frequency (excluding a temporary reduction in service due to effects of the COVID-19 pandemic). In addition to fixed route services, demand response public transportation access is available throughout the EJ areas and the entire metropolitan planning area. Based on the current fixed public transportation system, areas that are typically used by these identified populations have access to public transportation.

Due to the dispersed nature of the aging population, demand response transit service plays a critical role. The 2050 Metropolitan Transportation Plan identifies continued support for demand response service across the MPO area to help address the needs of the aging population and assist their ability to age in place.

Analysis shows the 2050 Metropolitan Plan includes a larger percentage of identified "positive" improvements throughout the MPO area, many in or adjacent to EJ areas. All roadway projects are planned to be contained with existing right-of-way and foster improvements to non-motorized and transit accessibility. KATS will encourage the local road agencies to inform residents of upcoming projects through various sources, including public meetings, newsletters, and website information.

The following table shows the capacity projects in the identified EJ areas.

<b>Project</b>	<b>Limits</b>	<b>Description</b>	<b>Year</b>
Howard St.	Crosstown to Oakland	Restore and Rehabilitate	2026-2030
Gull Road	Ampersee to North	Restore and Rehabilitate	2026-2030
Michikal	Main St/Michigan Ave to Kalamazoo Ave	New Route/Structure	2026-2030
Miller Rd	River to Portage	Roadside Facility	2026-2030
Oakland Drive	Kilgore to Lovell	Roadside Facility	2026-2030
Burdick St	Reed and Burdick Intersection	Roadside Facility	2031-2035
Paterson St	Riverview to Porter	Restore and Rehabilitate	2031-2035
Paterson St	Riverview to Douglas	Roadside Facility	2031-2035
Rose St	Crosstown to Paterson	Roadside Facility	2031-2035
Burdick St	North and Burdick Intersection	Roadside Facility	2031-2035

### **Potential Negative Impacts**

Through the Environmental Justice Analysis, the Kalamazoo Transportation Study has identified three potential projects that may have a negative impact on EJ Populations. The only capacity expansion project that adds lanes / roads is:

- 1) Michikal from Main St/Michigan Ave to Kalamazoo Ave

### **Environmental Justice Finding**

Noting the three potential negative impacts, the overall Metropolitan Transportation Plan has a largely positive impact on the identified EJ Areas. Identified road projects have generally accepted benefits to all areas including the identified EJ Areas.

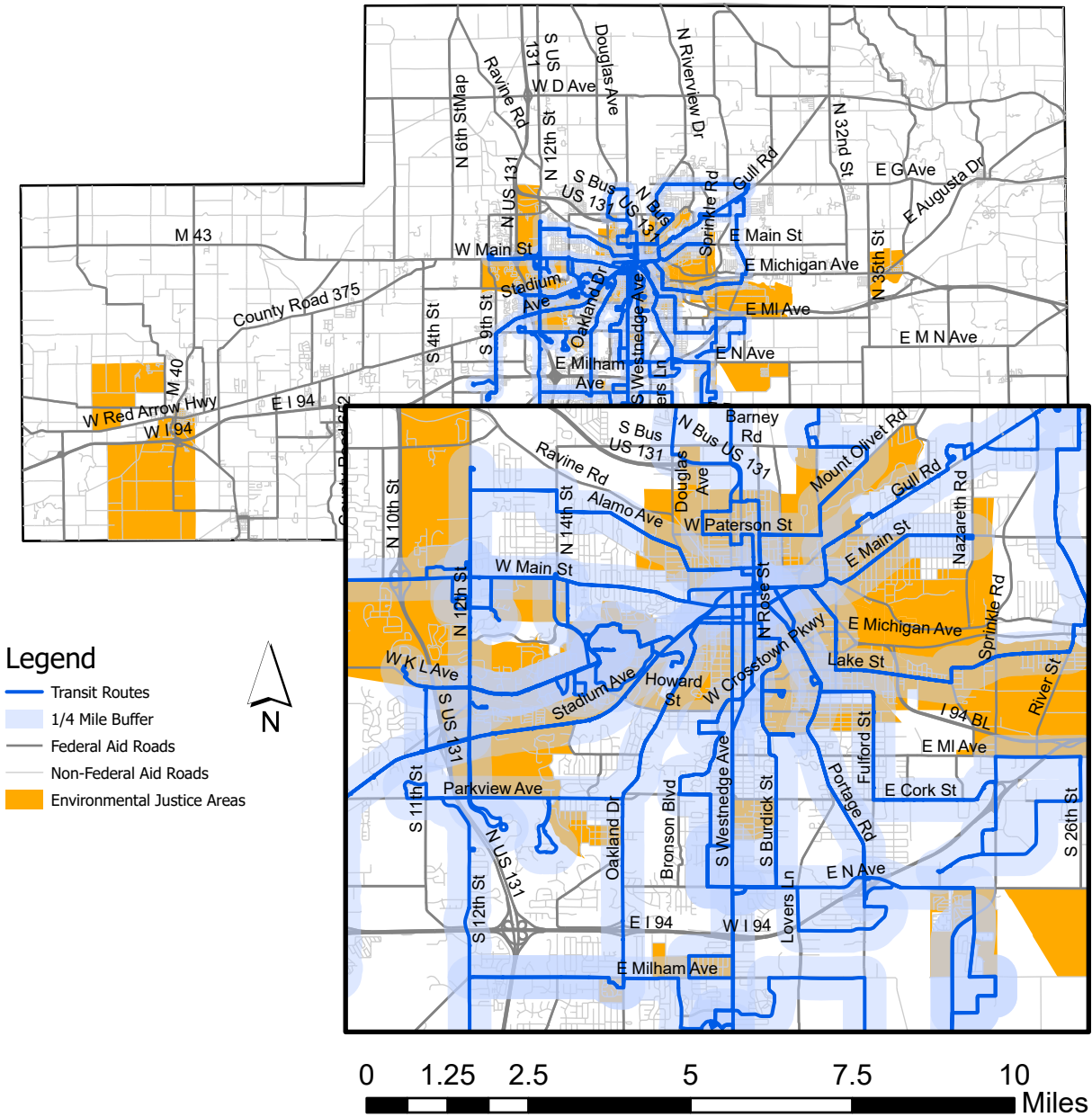
There have been no negative comments received from the EJ areas on the 2050 Metropolitan Transportation Plan and its potential impact on the Environmental Justice population areas. Therefore, the analysis of impacts on residents in the Environmental Justice areas, as a result of implementing the 2050 Transportation Plan, shows there is not a disproportionately negative impact in the Environmental Justice areas in regard to high and adverse health impacts,

minimization of access to the transportation system: or any neglect, reduction, or delay in the receipt of transportation benefits or restriction of public access to public transit services. These findings demonstrate that implementing the projects contained in the MTP do not result in any violations of Executive Order 12898 and the overall principles of Environmental Justice.

### **Process Improvements**

KATS, through its Consultation Process, contacted all known neighborhood associations, including those in the identified Environmental Justice areas, requesting feedback on proposed projects. However, KATS was unable to engage these neighborhoods at a high level. As KATS looks to improve its EJ Analysis, special attention will be placed on outreach activities in the future.

# Map 5: Transit & Environmental Justice Areas



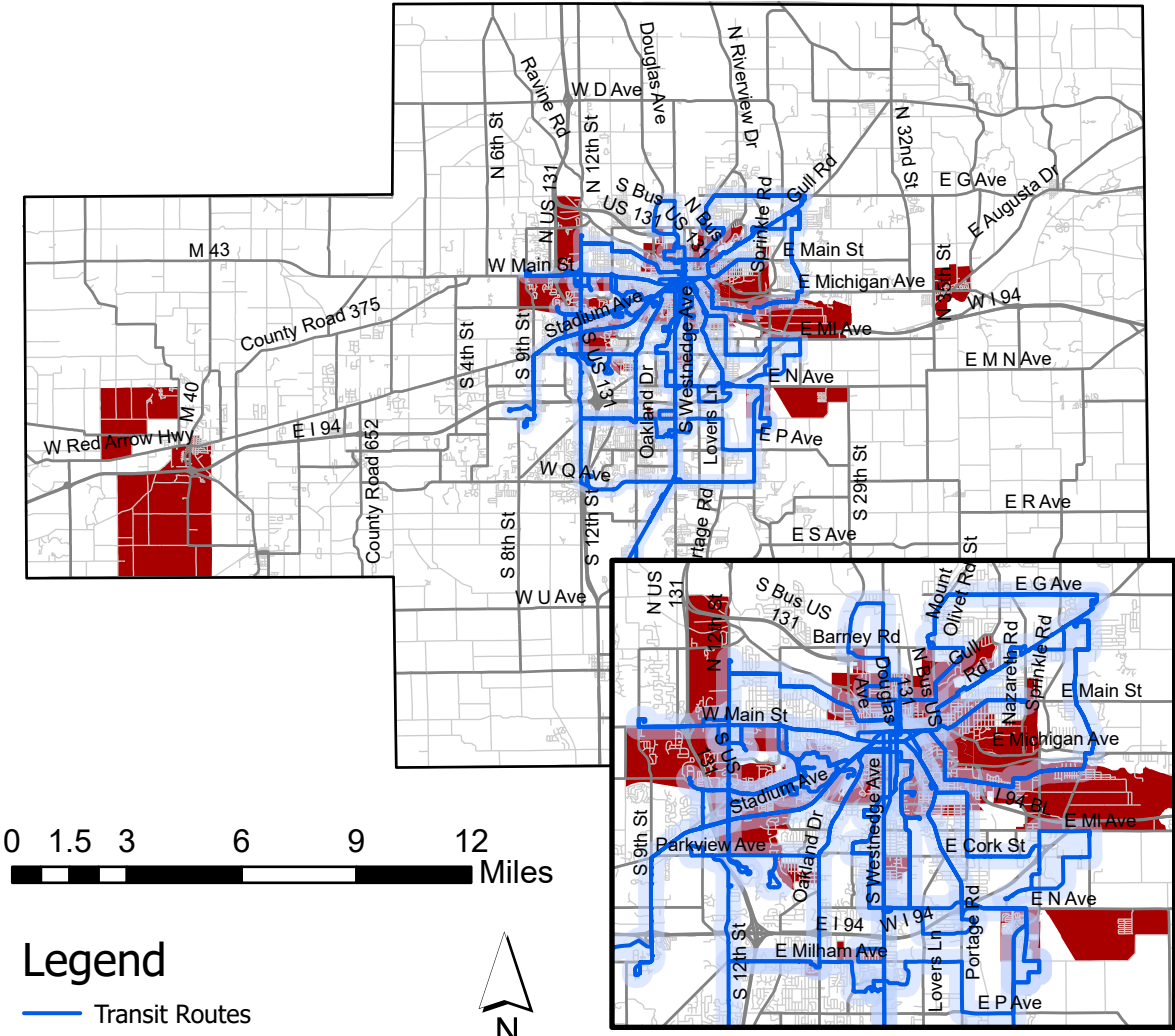
Environmental Justice Areas include block groups that are either minority or low-income in the 80-100 percentile. Please refer to the Environmental Justice chapter of the plan for more information regarding these demographic indicators.



Source: Metro Transit, KATS, EPA EJSCREEN

September 2020

# Map 6: Transit & Low-Income Areas



- Legend**
- Transit Routes
  - 1/4 Mile Buffer
  - Federal Aid Roads
  - Non-Federal Aid Roads
  - Low Income Areas

Percent of individuals whose ratio of household income to poverty level in the past 12 months was less than 2 (as a fraction of individuals for whom ratio was determined). Selected are block groups in the 80-100 percentile. Please refer to the Environmental Justice chapter of the plan for more information regarding this demographic indicator.

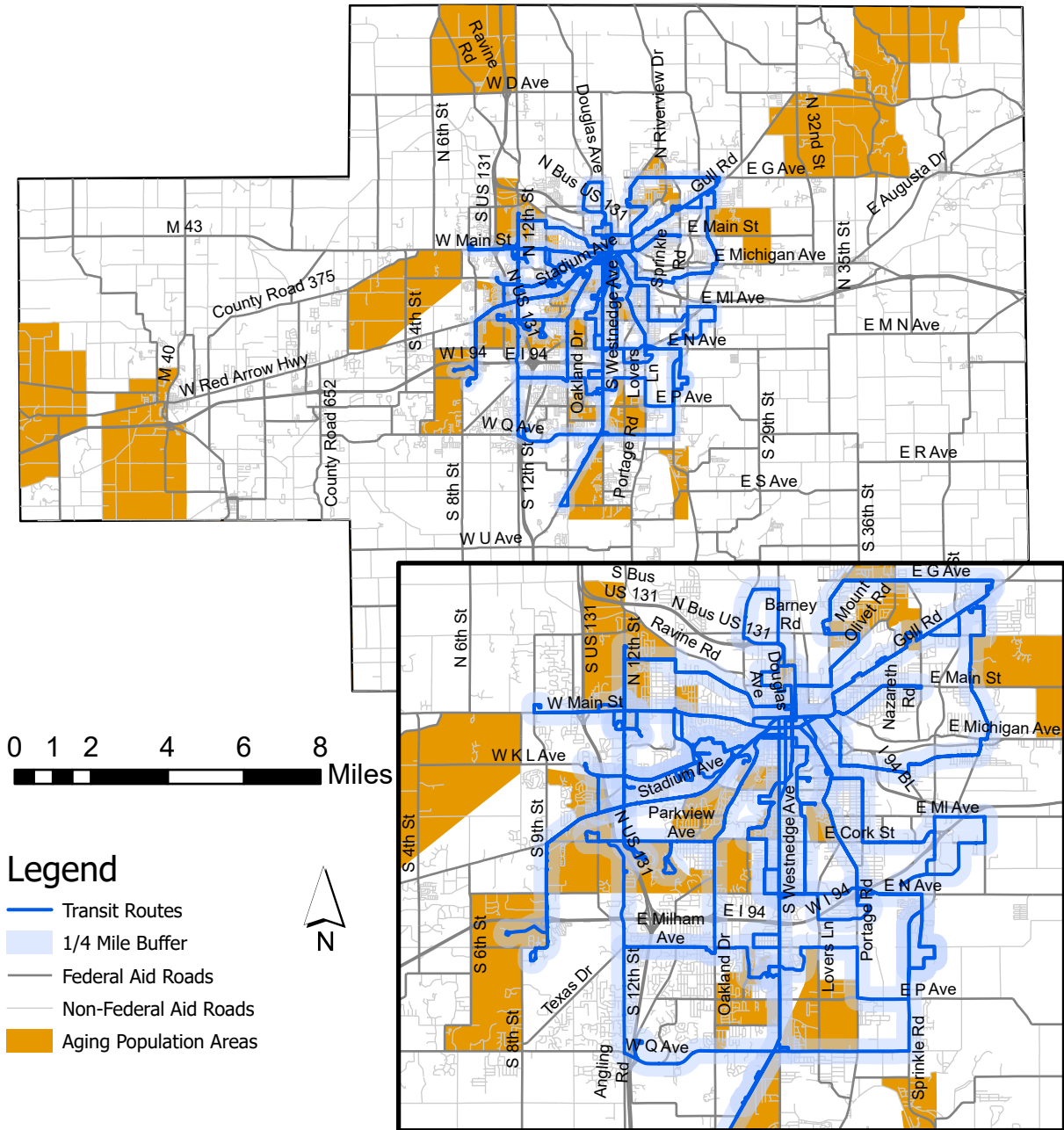


Source: Metro Transit. KATS, EPA EJSCREEN

September 2020



# Map 8: Transit & Aging Population Areas



Percent of individuals over age 64 as a fraction of the population. Selected areas are in the 80-100 percentile. Please refer to the Environmental Justice chapter of the plan for more information regarding this demographic indicator.

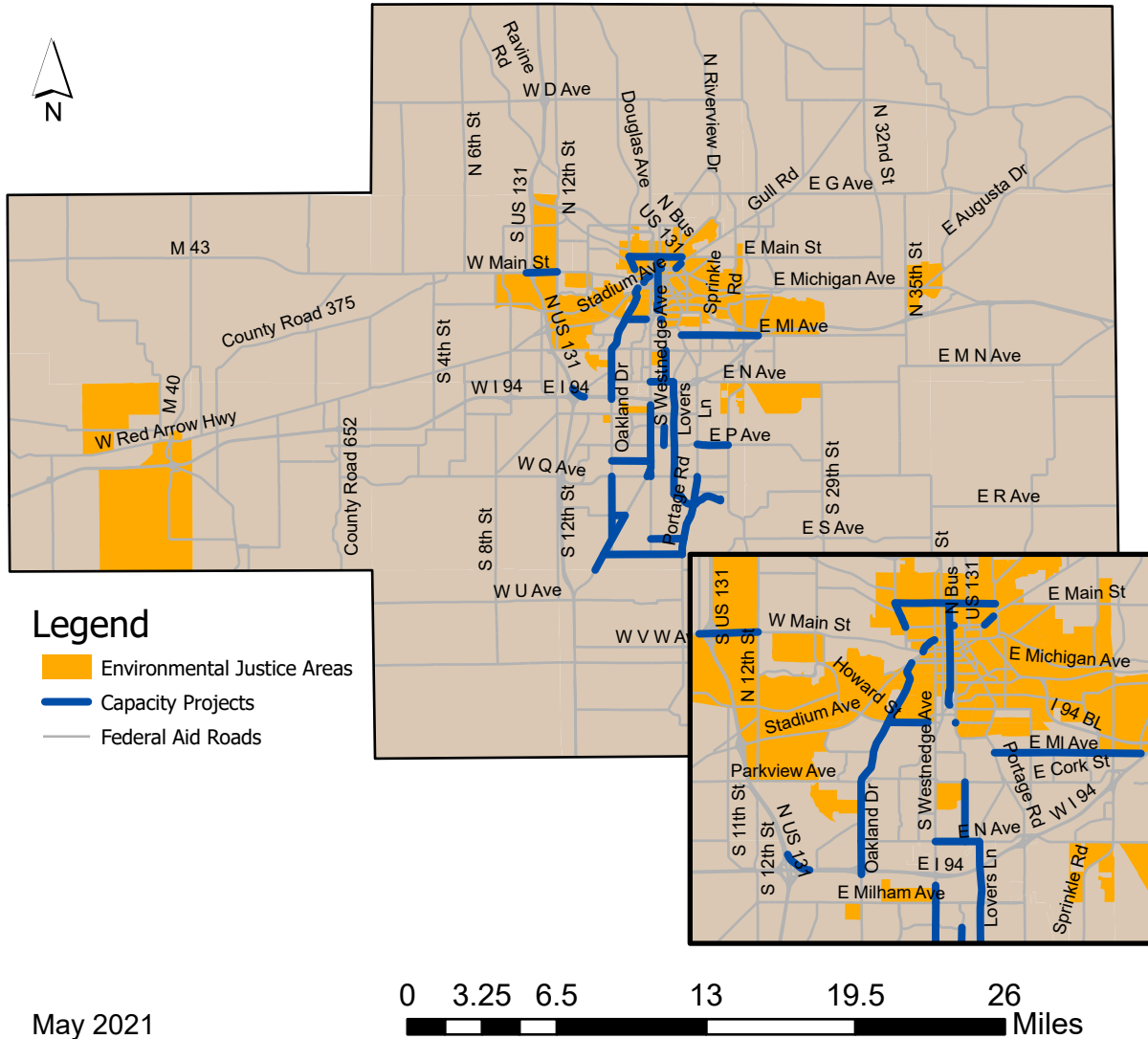


Source: Metro Transit, KATS, EPA EJSCREEN

September 2020

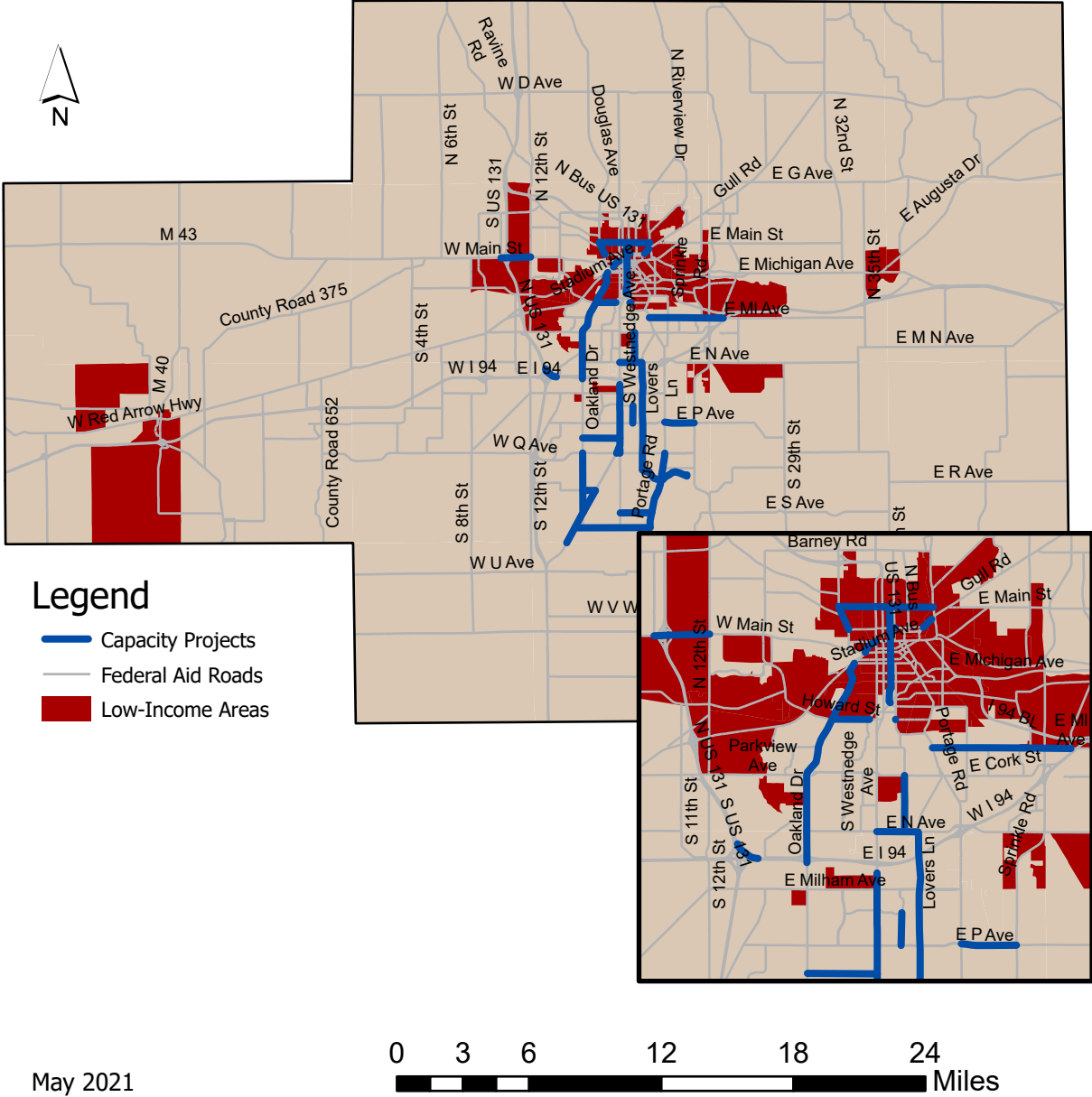


# Map 9: Capacity Projects & Environmental Justice Areas



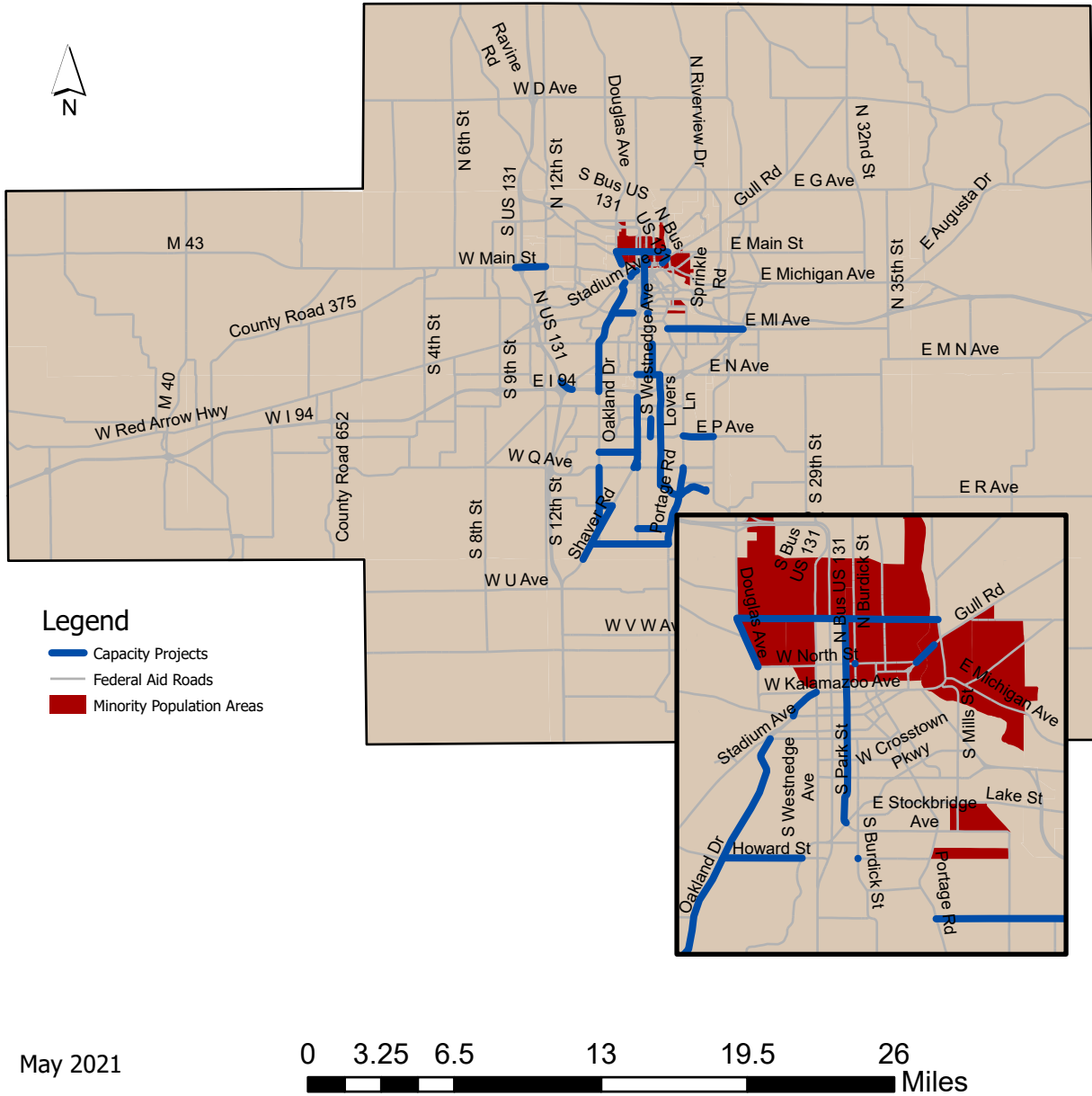
Source: KATS, EPA EJSCREEN

# Map 10: Capacity Projects & Low-Income Areas

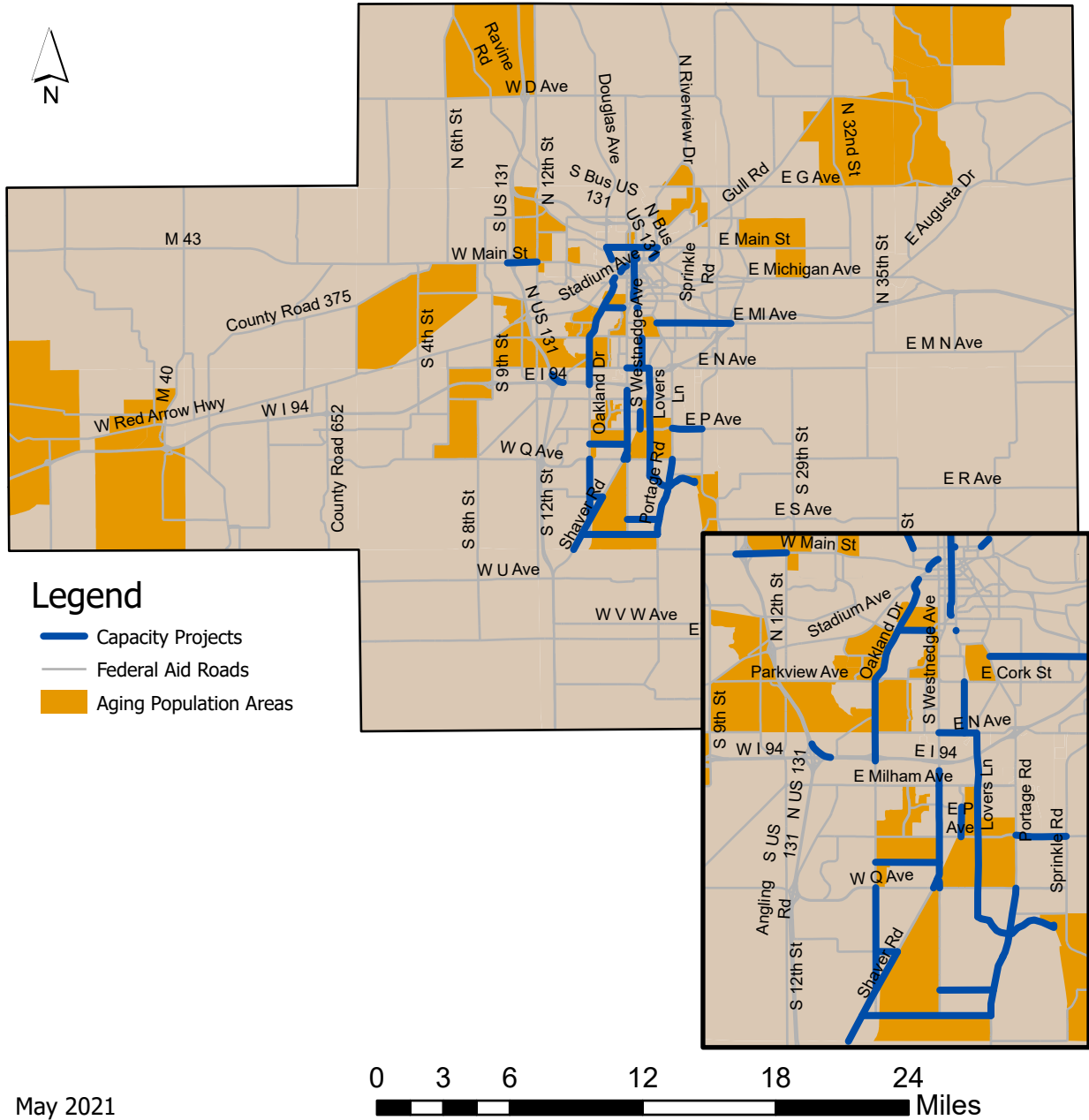


Source: KATS, EPA EJSCREEN

# Map 11: Capacity Projects & Minority Areas



# Map 12: Capacity Projects & Aging Population Areas



Source: KATS, EPA EJSCREEN

# CHAPTER 7: NON-MOTORIZED TRANSPORTATION

## Introduction

The Kalamazoo Area Transportation Study (KATS) is the federally designated Metropolitan Planning Organization (MPO) for all of Kalamazoo County and seven communities in eastern Van Buren County. In this capacity, the KATS must maintain a Metropolitan Transportation Plan (MTP) and Transportation Improvement Program (TIP) to facilitate collaboration between local jurisdictions and determine investment priorities for federal transportation funds.

Metropolitan areas, those areas with populations of more than 50,000, are required to plan for the “development and integrated management and operation of transportation facilities (including accessible pedestrian walkways and bicycle transportation facilities) that will function as an intermodal transportation system...” (23 U.S.C 134(c)(2) and 135(a)(2)) (see Appendix D for 23 U.S.C.). Indeed, 23

U.S.C. 217 calls for the planning for bicyclists and pedestrians to be an integral part of the ongoing transportation planning process, and that projects and programs identified in the planning process should be implemented:

*“Bicyclists and pedestrians shall be given due consideration in the comprehensive transportation plans developed by each metropolitan planning organization and State.”*

*“Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction and transportation facilities, except where bicycle and pedestrian use are not permitted.”*

*“Transportation plans and projects shall provide due consideration for safety and contiguous routes for bicyclists and pedestrians.”*

In essence, the development of a MTP requires consideration of all modes of transportation as part of this planning process. The KATS is therefore responsible for developing a non-motorized transportation plan chapter for non-motorized travel.

Bicycle and pedestrian projects may be on-road or off-road facilities. All such facilities that serve a transportation function must be incorporated into the MPO planning process. Bicycle and pedestrian projects using Federal-aid transportation funds must be included in the MPO Transportation Improvement Program.

The Non-Motorized chapter of the MTP contains information about existing non-motorized facilities as well as recommended projects for improving pedestrian and bicycle accessibility. The primary focus being threefold: to identify regionally significant projects, to enhance cooperation and coordination between jurisdictions for non-motorized facility development, and to address some of the challenges to non-motorized transportation facility development. Notable changes from the 2045 MTP include incorporating bike routes into the planned and proposed facilities to show a complete and more integrated network.

## **Chapter Organization**

The Non-Motorized chapter of the KATS Metropolitan Transportation Plan identifies existing bicycle and pedestrian facilities, reviews improvements for a future network, and provides funding information. The non-motorized system is envisioned as a single unit and therefore it should be noted that these plans and project recommendations are macro in nature. Prior to proceeding with any of the recommendations, a corridor level assessment should be completed in order to fully investigate the appropriateness of the proposed roadway, bicycle, or pedestrian facility modification. Further project refinement and precise alignments will be determined as projects are implemented.

After providing background information about benefits of and challenges to non-motorized transportation, this Plan document is split into three primary sections:

### **Existing Non-Motorized Transportation Network**

An inventory of non-motorized facilities that are currently on the ground were documented and mapped to aid in the identification of network deficiencies and opportunities for improvement.

### **Future Non-Motorized Transportation Improvements**

The KATS Non-Motorized Subcommittee developed a selection methodology and a future network map in order to provide a basis for future investment.

### **Non-Motorized Transportation Funding Options**

Research into the various opportunities for non-motorized transportation resources was conducted as a resource to those striving to increase these types of transportation investments.

### **Benefits of Non-Motorized Transportation**

Transportation is the act of delivering goods or people from location to location. Non-Motorized transportation consists of pedestrian (ex. walking and running) and bicycle travel and is the oldest form of transportation—physically moving from

location to location with “human” power. As technology has changed, an increasing array of options for movement of people and goods have presented themselves and non-motorized or “active” transportation has simply become one of many options.

### **Expands Transportation and Accessibility Options**

Non-Motorized facilities give people the option to walk, bike, or access public transit if they choose. With more than 50% of older Americans who do not drive staying home on a given day because they lack transportation options, a comprehensive non-motorized network is crucial to the mobility of some segments of the population (Complete Streets: Improve Mobility for Older Americans, 2016). In fact, the U.S. Census Bureau projects that by 2025, the portion of the population over the age of 65 will increase by 8%, totaling 62 million persons. As these individuals age, many will give up driving for safety’s sake, so nearly 20% of the entire U.S. population will rely upon alternative forms of transportation, particularly walking (Complete Streets: Improve Mobility for Older Americans, 2016).

Beyond the aging populace, there is a social equity component to providing forms of personal transportation. According to the National Household Transportation Survey, households below poverty level walked, biked, or used transit for almost twice as much of their trips as households above poverty (NHTS Workshop, 2018). Despite having a greater demand for such free facilities, low-income and vulnerable communities have fewer parks and recreational trails (Am J Public Health, 2011). The disabled community is also in dire need of pedestrian accommodation. A study in New Jersey found that many members of the disabled community were concerned with infrastructure issues between one’s home and the nearest transit stops. Those dissatisfied with sidewalks, street crossings, intersections, and street lighting outweighed those satisfied by 10 to 15 percent (Mineta Transportation Institute: Improving Pathways to Transit for Persons with Disabilities, August 2016). If additional non-motorized connections to transit stops are provided, accessibility options for disabled and elderly populations would be expanded. Having a more complete non-motorized network would increase viability of the pedestrian and bicycle transportation as options for everyone while providing a mode of transportation for those who are unable or unwilling to use motorized vehicles.

### **Supports Transit**

For people who choose to use transit as their preferred mode of travel and those for which it is the only option, non-motorized facilities support the transit system by providing access to transit stops. Walking and biking facilities that tie into the transit network are critical for optimal efficiency of the transit system. Locally, Kalamazoo Metro’s provision of bicycle racks on mainline bus routes emphasizes the connection between transit and non-motorized transportation. See Appendix A for more information about Metro Transit’s bus routes.

## **Improves Air Quality**

Regional air quality is an issue for West Michigan, especially considering the region previously being in “non- attainment” with the Environmental Protection Agency (EPA) for ground-level ozone pollution and population in the region growing. Greenhouse gases from human activity trap heat and warm the planet. The EPA estimates that motorized transportation provides 27% of US greenhouse gases.

Emissions can be derived from vehicle miles traveled (VMT), which provides a benchmark across jurisdictions. With VMT on the rise, providing travel alternatives (non-motorized and transit) can help reduce the pace at which VMT is increasing.

## **Boosts the Economy**

### **Reduces Traffic Congestion**

Traffic congestion creates an annual \$121 billion cost to the U.S. economy in the form of 5.5 billion lost hours and 2.9 billion gallons of wasted fuel. In Kalamazoo, the estimated annual cost per traveler for traffic congestion is \$345 every year (Urban Mobility Report, 2019). While some trips are not suited to non-motorized transportation, many trips could be diverted to this mode, and it does not take large reductions in driving to see dramatic improvements in traffic congestion. Every private automobile that is removed from the road reduces the traffic congestion.

### **Provides Potential Cost Savings**

According to the American Automobile Association (AAA), owning and operating a new sedan in 2016 cost an average of 57 cents per mile, or \$8,558 per year, when driven about 15,000 miles annually (What Does It Cost to Own and Operate a Car, 2016). The cost of ownership accounts for 17% of a typical household’s income (Consumer Expenditure [annual] News Release, Bureau of Labor Statistics, 2019). In contrast, the cost of operating a bicycle for a year is \$155 (The League of American Bicyclists, 2011).

In Michigan, one mile of 5-foot-wide concrete sidewalk costs approximately \$63,400 while one mile of 10-foot-wide asphalt shared-use path costs about \$160,000. Materials for installing a bicycle lane on both sides of the street cost \$1,700 per mile and four-foot-wide asphalt wide shoulders on existing roads run about \$100,000 per mile (Michigan Department of Transportation, Bicycle & Pedestrian Coordinator, 2019). The inclusion of bike lanes and shared use paths in the initial development and redevelopment of the road networks could save money in the long run by avoiding expensive retrofitting of these facilities later.

## **Economic Development**

There is an economic development component to expanding non-motorized transportation



that relates to the bicycle industry, as well as property value, tourism, and the overall quality of life of communities. The U.S. bicycle industry generated \$6.2 billion in sales in 2015 and approximately 4,000 specialty bike dealers do business across the nation (National Bicycle Dealers Association, 2015). Sales of bicycles tend to be around 15 to 20 million bicycle units annually, which includes parts, accessories and service. National trends such as sustainability, health and costs related to owning a personal vehicle on the rise, are indicators that the future of bike sales is likely to increase.

Non-Motorized transportation facilities have been used as a centerpiece to attract home buyers. According to the Bureau of Transportation Statistics, 79.1 million, or 38%, of all Americans rate as “very important” the availability of bikeways, walking paths, and sidewalks for getting to work, shopping, and recreation when choosing where to live (Bureau of Transportation Statistics, 2000). These preferences translate into higher property values.

Real estate market research has consistently shown that people are willing to pay more for homes and property within proximity to recreational parks and facilities. Research done for the 23-mile-long Capital Connector Trail in Ingham County; Michigan revealed that trails are one of the top amenities considered when purchasing a home.

With over 1,300 designated mountain bike and bicycle trails in the state of Michigan, a great deal of tourism is derived from the value of our trail systems. While the focus of this planning document is on bicycle and non-motorized transportation, recreational use of non-motorized facilities in our state is an important revenue generator for tourism (Pure Michigan). Above all, however, non-motorized transportation options promote connections that provide access to the jobs and shopping that make a community more attractive to both business, prospective employees and consumers.

## **Improves Health**

Walking or bicycling to work, school, or for pleasure is a convenient way people can incorporate exercise into their daily lives and improve their health.

In 2019, 51% of the Michigan population was considered obese, according to the Centers for Disease Control and Prevention. Obesity is expensive, in terms of health care costs, and it is preventable for the most part. Health care costs in 2019 dollars associated with obesity alone were estimated at \$175 billion. Moreover, an estimated 32% to 35% of all deaths in the United States attributable to coronary heart disease, colon cancer, and diabetes could have been prevented if all persons were highly active (Center for Disease Control and Prevention, 2007). Land use and transportation planning that encourages and supports physical activity can mitigate ill-health associated with inactivity and help lower these health costs. By offering

non-motorized transportation options, physical activity can be incorporated into everyday activities. For many Americans to achieve minimal exercise goals, providing an infrastructure for transportation that connects citizens with destinations and invites maintaining a healthier lifestyle is paramount.

The United States Surgeon General has recommended at least 30 minutes of moderate exercise every day to overcome weight problems in Americans, according to information published by the Department of Health and Human Services. The Centers for Disease Control handbook, *Promoting Physical Activity Among Adults*, praises the dual benefits of cycling and walking for improving health and serving a transportation function:

“The most effective activity regimens may be those that are moderate in intensity, individualized, and incorporated into daily activity. Bicycling and walking are healthy modes of transportation that incorporate these components. Bicycling or walking to work, school, shopping, or elsewhere as part of one’s regular day-to-day routine can be both a sustainable and a time-efficient exercise regimen for maintaining an acceptable level of fitness.”

The effects of physical activity extend beyond the short-term. Research shows that exercise can also help alleviate long-term depression. Some of the evidence for that comes from broad, population-based correlation studies. According to the American Psychological Association, there’s good epidemiological data to suggest that active people are less depressed than inactive people. And people who were active and stopped tend to be more depressed than those who maintain or initiate an exercise program.

### **Enhances Quality of Life**

Benefits of a comprehensive non-motorized transportation system extend beyond those enjoyed by users of the system. All citizens in a community benefit from a healthy non-motorized infrastructure. In addition to the air quality, health, and economic benefits, an improved non-motorized system reduces water and noise pollution associated with automobile use by shifting short trips from automobiles to pedestrian options. Also, more non-motorized transportation options could reduce the need for parking spaces and improve safety for current users, especially the young, old, and disabled. It also fosters community connections and interaction while reducing dependence on fossil fuels. Non-Motorized transportation, in addition to being an alternative to the automobile, indirectly enhances the quality of life for a community.

### **Challenges to Non-Motorized Transportation**

While pedestrian and bicycle trips are viable alternatives to moving about by automobile, several challenges deter people from utilizing non-motorized modes of transportation.

### **Cross Jurisdictional Cooperation**

Just as road networks are often constructed, maintained, and funded by several different entities, non-motorized facilities cross jurisdictional boundaries while simultaneously varying in form and type of user served. Constructing and maintaining compatible facilities requires a great deal of cooperation between adjoining jurisdictions and among all the municipalities in a region. The complexity of building and maintaining a network of this sort requires partnerships between various state and local departments such as:

- Cities, Villages, and Townships
- Parks and Recreation Departments
- Kalamazoo and Van Buren County Road Commissions
- Michigan Department of Transportation
- Michigan Department of Natural Resources

### **Coordination Among Multiple Users**

Another major impediment to planning for non-motorized transportation is the lack of a unified public sentiment for a particular form of facility. Bicycle enthusiasts, the disabled community, rails-to-trails advocates, and others each petition for “their” type of non-motorized facility. Conversations at local agency meetings feature opinions such as those in favor of bicycle lanes are generally opposed to spending limited financial resources on shared-use paths or sidewalks. Those who rely on sidewalks for mobility, on the other hand, cannot justify preferential spending on either bicycle lanes or the perceived more recreational shared-use paths while there remains a decidedly incomplete sidewalk network for accessing destinations and transit. The variety of non-motorized forms demanded by different groups can be daunting to municipalities as they choose where to prioritize limited resources.

### **Lack of Adequate Facilities**

Perhaps the principal deterrent to the public choosing to use non-motorized transportation is the lack of adequate facilities, such as sidewalks, transit accessibility, bicycle lanes, bicycle parking and storage, and shared-use paths. In particular, bridge crossings in key areas, especially over and beneath freeways and other limited-access thoroughfares, are a significant impediment to creating non-motorized infrastructure because they do not offer the width, shoulder, or railings necessary for pedestrians and bicyclists to traverse safely and create bottlenecks in an otherwise strong non-motorized network.

Results from public input during the KATS Pedestrian, Greenways and Transit plan development revealed that addressing areas with safety issues and connecting non-motorized facilities to major employment centers and regional destinations were top priorities.

Public input also showed that the health, safety and security of pedestrian, bicycle and transit facilities are of major concern.

## Seasonal Facilities

Living in Michigan poses another hurdle to non-motorized transportation. Seasonal weather, particularly snow and ice, hamper bicycling and pedestrian commutes. However, people can and do elect to bicycle and walk throughout the year.

Municipalities can make non-motorized options more appealing with regular snow plowing and other weather-related maintenance initiatives.

## Demand

The 2018 Michigan Progress Report shows that 0.4% of the workforce in Michigan commuted by bicycle in 2017. That number has decreased from 0.5% in 2012 (Michigan Bike League, 2018).

While millions of dollars and decades of research have gone into travel demand models for motor vehicles and transit, non-motorized travel demand models are virtually non-existent. KATS maintains a travel demand model to predict future vehicle volumes that allows for non-motorized trips in its calculations. However, it is analyzed as a mode shift. Therefore, the MPO cannot develop a “deficiency” list that suggests future non-motorized projects, for example where bicycle lanes would be most valuable. KATS non-motorized planning objectives are identified by their respective jurisdictions and these projects, facilities and plans are assumed to be representative of local demand. The accumulated suggested projects from KATS members make up the non-motorized projects mentioned in this plan.

Approximately 25% of walking trips are one mile or less, 37% are 2 miles or less, and 47% are 3 miles or less.  
– 2017 National Household Travel Survey

## Time and Distance

Time and distance are also perceived as a challenge to non-motorized transportation. Perceptions of citizens have been shaped over decades to favor motorized transportation because it seems to save time and affords opportunities to travel farther with less effort. According to the National Personal Transportation Survey, over 64% of all trips made by Americans, and 44% of all trips to work, are less than five miles in length. The short distances to work indicate that a person could walk or bicycle to destinations instead of driving a vehicle without adding significant time to their journey. For example, a person can walk three miles at a moderate pace of four miles-per-hour in 45 minutes and a bicyclist traveling at 10 mph can cover that distance in 18 minutes. Non-Motorized transportation is clearly an option that would often only add a few extra minutes, as well as the benefits of exercise, to the vast majority of short trips.

## Land Use Patterns

Density and pattern of land use greatly influences the likelihood of making non-motorized trips. Multi-use or mixed-use developments—those having residential, commercial and office or retail development interspersed or mixed throughout—encourage more walking trips as more destinations are located within a reasonable walking distance. Current zoning regulations in most communities group like uses together, houses next to houses, etc. While this practice increases land use compatibility, it discourages efficient and direct pedestrian or bicycle trips.

Locating residents on large lots separated from commerce, employment, and social institutions lengthens distances of most trips and reduces practicality of commuting by walking or bicycling. Developers, planners, and government agencies are evaluating these land-use issues and are beginning to recognize the value of designing communities for “walkability,” the guiding concept of location-efficiency, or having the ability and convenience of using non-motorized modes to get to work, school, or social centers. For example, older, traditional neighborhoods, for the most part, employ a grid street system. Population densities are higher in these areas, and more connectivity is maintained from one neighborhood to the next through a grid pattern of interconnected routes.

However, communities developed in the recent past were built without “walkability” in mind. These communities lack non-motorized facilities which can be expensive to retrofit. Nevertheless, missing links can be developed, and by being included in an original design, or redesign, non-motorized transportation modes become functional options for travel.

## Funding

Cost of retrofitting or creating non-motorized facilities is likely the largest deterrent to their development. Federal surface transportation law provides flexibility to Metropolitan Planning Organizations, such as the KATS, to fund bicycle and pedestrian improvements from a wide variety of programs. The Policies and Practices for Programming Projects approved by the KATS Board, states that “all non-motorized projects included in the KATS Metropolitan Transportation Plan/Non-Motorized Transportation Plan are eligible for funding as allowed under applicable federal-aid categories.” This means that virtually all federal funding sources are available to non-motorized transportation projects. However, these projects are not guaranteed funding and must compete with other road and transit projects when the TIP is programmed.

Non-Motorized funding policy prompted by changes from the MAP-21 legislation continued in the Fixing America’s Surface Transportation Act (FAST Act). The new legislation introduced

the Transportation Alternatives Program (TAP) which allows for allocation of funds at the MPO level that had been available through the highly competitive state coordinated Transportation Enhancements (TE) grant program. Since this spending power has been brought to the local units of government through the MPO, coordinating this spending through the MPO's organized committees is advantageous. The TAP program has many eligible activities identified for funding in MAP-21 but provides the most flexibility for funding bicycle and pedestrian projects. Since other funding options have been limited in the past for use on Non-Motorized improvements, the TAP funds are the best funding tool for implementing projects identified in the Non-Motorized Plan. However, other federal funding sources, such as the Surface Transportation Funds (STP) and Congestion Mitigation and Air Quality (CMAQ) programs, can be used to fund non-motorized projects.

## **Safety**

Riding bicycles and simply being a pedestrian is becoming increasingly dangerous. When viewed nationally, there were 857 bicyclists killed and an estimated 47,000 injured in motor vehicle traffic crashes in 2018. Bicyclist deaths accounted for 2.3 percent of all motor vehicle traffic fatalities, and injured bicyclists made up 2.7 percent of the people injured in traffic crashes during the year. The number of bicyclists killed in 2018 is 6 percent higher than the 743 bicyclists killed in 2013. The increase in 2018 is the fourth straight increase in Bicyclist fatalities, a 20-percent increase since 2010. In Michigan, bicyclist's fatalities represented 2.6% of total traffic fatalities, which is higher than the national average. Overall, Michigan ranked 11th in 2017 for Bicyclist fatalities per million population, according to the NHTSA Traffic Safety Facts.

The numbers for pedestrian related fatalities are also trending upwards. As total fatalities on the road- ways have decreased, pedestrian fatalities have increased from 14% of total fatalities in 2013 to 17% of total fatalities in 2018, according to the NHTSA Traffic Safety Facts.

In 2017, the KATS Pedestrian, Greenways, and Transit Plan looked at advancing projects that address existing safety issues since it emerged as the highest priority from the initial public engagement efforts for this study. While completing a network of trail and shared-use paths would provide safer options for many, they will not necessarily improve safety in the high activity, high incident zones that currently exist. Bicycle and pedestrian crash patterns were reviewed for the years 2010 - 2019, and the resulting trends show pockets of high crash locations throughout the KATS Region that deserve priority for facility improvements. Pedestrian and bicyclist crash data was obtained through the Michigan Traffic Crash Facts website, which aggregates, and hosts detailed data about reported crashes.

The majority of bicyclist crashes, 63%, occurred in the City of Kalamazoo followed by the City

of Portage at 15% and Kalamazoo Township with 8%. The remaining municipalities each account for fewer than 3% of region-wide bicyclist crashes. Most crashes occurred on smaller, lower speed roads (68%). The majority of pedestrian crashes, 68%, occurred in the City of Kalamazoo followed by the City of Portage at 8% and Kalamazoo Township at 6%. The remaining municipalities each account for fewer than 4% of region-wide bicyclist crashes. The majority crashes occurred on smaller, lower speed roads (67%). Overall, high bicycle and pedestrian crash areas tend to be located in areas where cycling and walking are more popular, like Downtown Kalamazoo and near Western Michigan University.

## **Maintenance**

Among the many sources of funding available for non-motorized transportation there is a marked lack of money for ongoing maintenance of facilities. Along with feasibility studies and engineering, regular maintenance cannot be paid for with the primary funding source for many non-motorized facilities, transportation alternatives grants. While some communities may support constructing pedestrian and bicycle resources, they are deterred from maintaining those facilities by having to fund the ongoing maintenance costs associated with these facilities.

## **Liability**

Local jurisdictions are often hesitant to include bicycle lanes in their non-motorized transportation plans and ongoing street improvements because of a perceived threat of legal action if someone gets injured when using those infrastructure features. Within the last decade, court decisions have increasingly protected the liability of road agencies and individual employee liability. The Michigan highway exemption from the *Wilson v. Alpena County Road Commission* case in 2006 states “...each governmental agency shall maintain the highway in reasonable repair so that it is reasonably safe and convenient for public travel.” This means municipalities and road commissions are required to repair and maintain only; there is no general duty to make roads “safe,” and there is no liability for whatever form or design a facility might take. In fact, by offering dedicated bicycle lanes, municipalities are not only free from liability for the design, but they are arguably providing a safer means of travel for both bicyclists and motorists. Communities are advised, however, to ensure that every non-motorized facility is designed and constructed per the AASHTO Guide for the Development of Bicycle Facilities.

## **Existing Non-Motorized Transportation Network**

The greater Kalamazoo metropolitan area has a variety of non-motorized resources. Comprising over 250 miles of on-road and off-road facilities, this non-motorized infrastructure was constructed primarily by local municipalities with help from the Road Commission of

Kalamazoo County (RCKC), Van Buren County Road Commission (VBCRC), Michigan Department of Transportation (MDOT), and Michigan Department of Natural Resources (DNR). There are several forms of non-motorized routes differentiated by user type and by the land use densities nearby. Understanding the mapped resources throughout this plan requires making distinctions among different types of non-motorized facilities.

**Non-Motorized Facility Types & Definitions**

The “Bicycle and Pedestrian Terminology” booklet, published by the MDOT in 2014, is a very helpful resource for understanding a common framework of definitions. This Non-Motorized chapter uses the definitions provided by the MDOT booklet, which can be found on [www.katsmpo.org](http://www.katsmpo.org) under the “Other Agency Documents” page.

Below are the commonly used definitions for this Plan Chapter described in the MDOT terminology guide and included in the “Proposed Non-Motorized Network” map and project list of this plan.



**Bicycle Boulevard**

A segment of street, or series of contiguous street segments, that has been modified to accommodate through-bicycle traffic and minimize through-motor traffic. Another common term for a bicycle boulevard is a Neighborhood Greenway.

**Bicycle Lane or Bike Lane**

A portion of roadway that has been designated for preferential or exclusive use by bicyclists with pavement markings and signs, if used. It is intended for one-way travel, usually in the same direction as the adjacent traffic lane, unless designed as a contra-flow lane.



**Bike Route**

A segment of road designated by a jurisdiction having authority with appropriate directional and informational markers but without striping, signing and pavement markings for the preferential or exclusive use of bicyclists. Within the KATS MPO area, bicycle routing is viewed as a cost-effective alternative to infrastructure improvements in low population areas.

**Shared Lane Marking (SLM or “Sharrow”)**

A pavement marking symbol that assists bicyclists with lateral positioning in lanes too narrow for a motor vehicle and a bicycle to travel side-by-side within the same traffic lane.





## Existing Non-Motorized Facilities

The Kalamazoo Area Transportation Study (KATS) has developed a comprehensive non-motorized facility inventory that includes sidewalk facilities along the Federal-Aid eligible roadway network, shared use paths, side paths, signed shared roadways or bicycle routes, sharrows and lanes, as well as Federal-Aid eligible roads with four foot or greater wide paved shoulders. The maps developed were produced by the KATS with data collected from local units of government and agencies, the Michigan Department of Transportation (MDOT), and the United States Census Bureau. The Federal-Aid eligible roadways within the KATS MPO area are, by virtue of their designation, the most strategic roads within the region. These roadways are among the most often traveled in the area and are often the most direct routes between important destinations. The KATS MPO is responsible for planning for these Federal-Aid eligible roadways.

Bike Routes in the 2045 MTP were included as a proposed facilities network known as Map 7, Proposed Bike Commuter Routes. Those bike commuter routes help illustrate a regional transportation-oriented bikeway whose network connects a set of node-to-node routes between major population centers. Since the 2045 MTP, some of those bike commuter routes have been signed (as shown on Map 2, "Signed Regional Bike Routes"). Remaining bike routes that have not been signed continue to be part of the proposed non-motorized facilities network (as shown on Map 6).

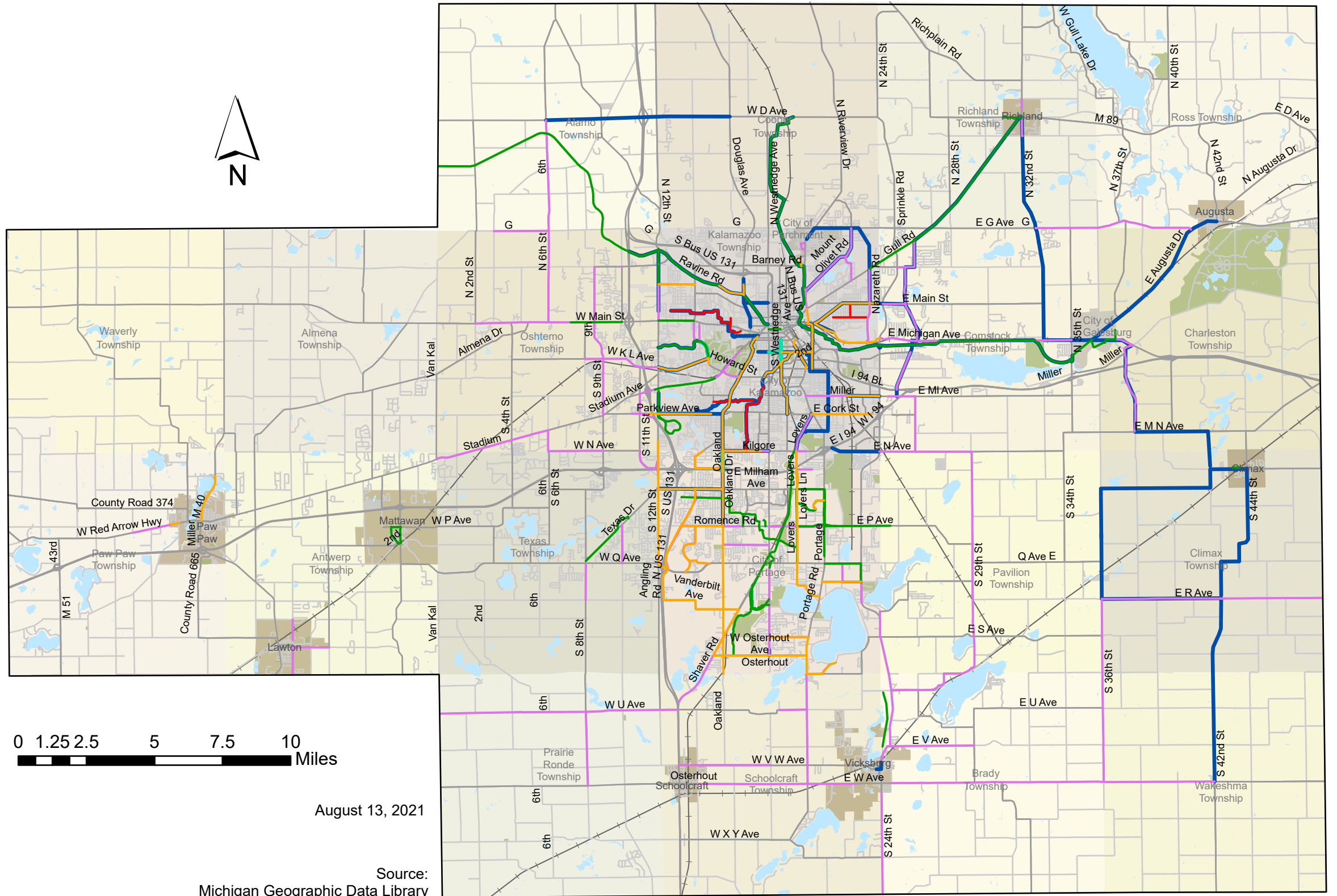
KATS staff works to maintain and update the non-motorized facility maps on a regular basis. However, because the level of detail in recording the location of facilities varies from community to community, locating every facility has been difficult. Conversely, in communities with miles and miles of sidewalks, not every sidewalk is identified on the regional map; indeed, only those sidewalk facilities alongside roads eligible to receive federal funding (Federal-Aid roads) may be recorded at the MPO level. The exception to this would be for improvements identified through the Safe Routes to School Program approved by MDOT for the use of federal funds. For planning purposes, the regional map on the following page depicts KATS's current 2021 existing non-motorized facilities inventory for our area.

# Map 13: Existing Non-Motorized Facilities

## Legend

- Bike Lanes
- Shared-Use Pathways
- Shoulders
- Bike Boulevard
- Sharrows
- Signed Regional Routes
- Federal Aid Roads
- Non-Federal Aid Roads
- Railroad
- Lakes
- Parks
- Villages
- MPO Boundary

Small Cities and Villages do have existing sidewalks. Due to their small scale, they are not shown on the map.



Source:  
Michigan Geographic Data Library  
Kalamazoo Area Transportation Study

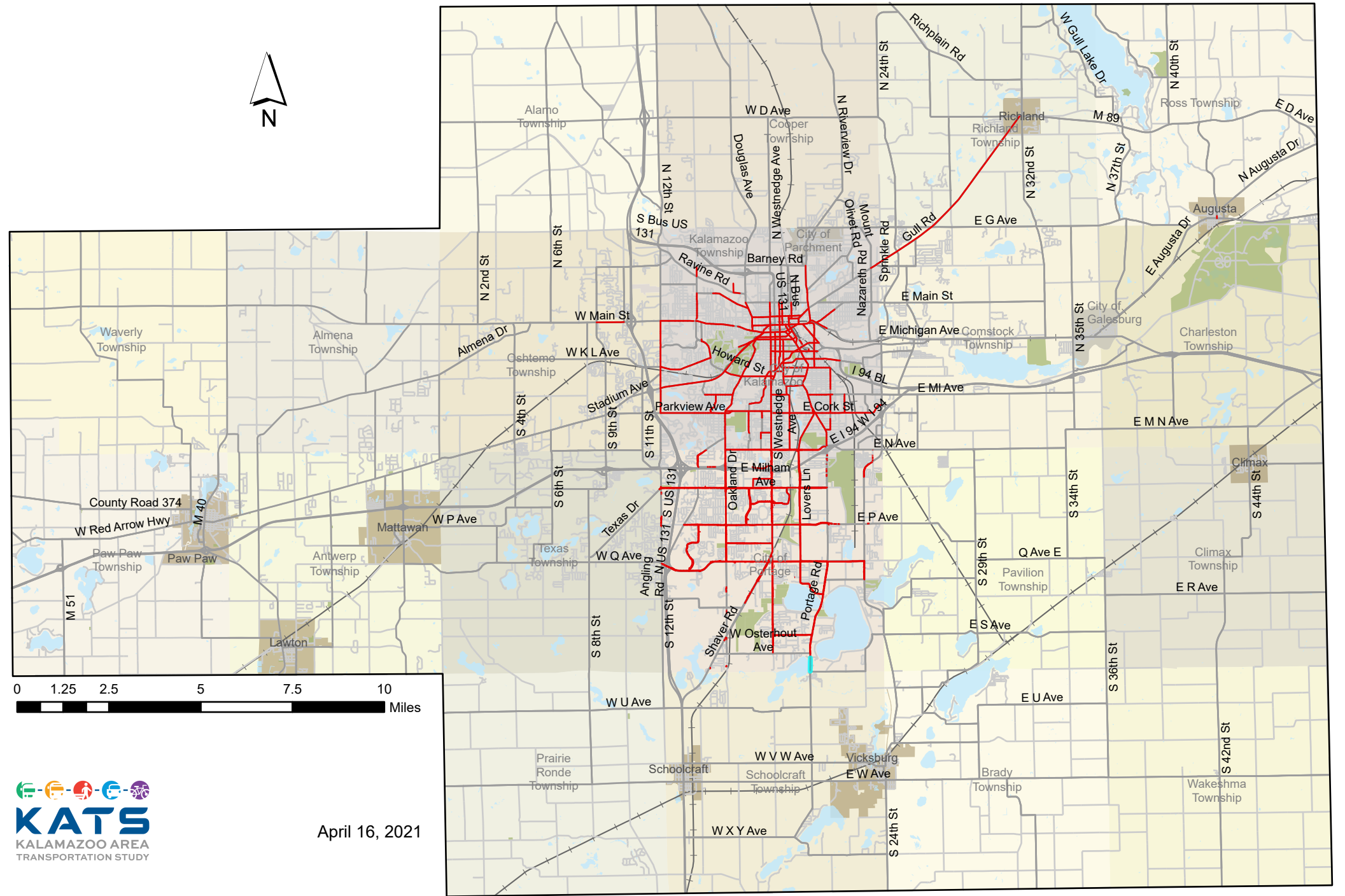
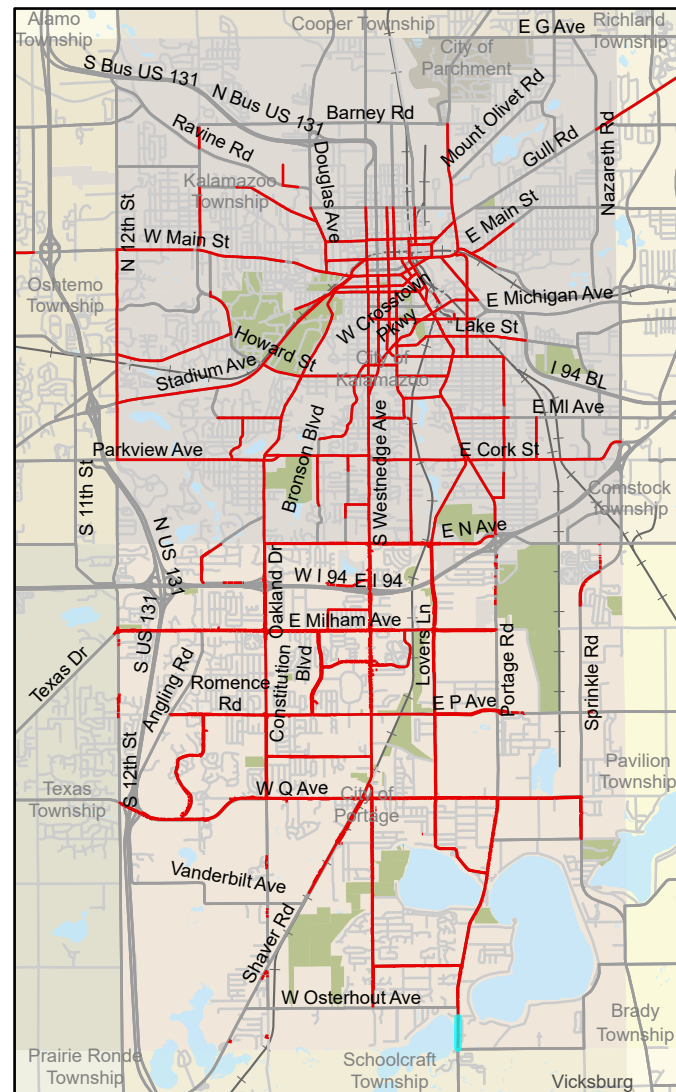


# Map 14: Existing Urban Area Sidewalks

## Legend

- Sidewalks
- Federal Aid Roads
- Non-Federal Aid Roads
- + Railroads
- Lakes
- Parks
- Villages
- MPO Boundary

### Urban Core



April 16, 2021

Source:  
Michigan Geographic Data Library  
Kalamazoo Area Transportation Study

In summary, the MPO contains over 250 miles of non-motorized facilities. The existing infrastructure, the majority of which was locally planned and funded, is a tremendous resource for our community and represents millions of dollars of investment in non-motorized transportation.

Most local jurisdictions now require new developments, both retail and residential, to provide sidewalks as part of their site-plan review process and zoning ordinances. Unfortunately, older developments and subdivisions were not required to provide pedestrian links and therefore the current sidewalk network is patchy and intermittent.

## **Measuring Demand for Non-Motorized Transportation**

Non-Motorized travel demand refers to how much the public uses non-motorized modes under various circumstances. Several factors can affect the level of demand for non-motorized transportation such as:

**Destinations** - Some of the major attractions for non-motorized travelers include retail areas, schools, colleges and universities, major employment centers, libraries, parks, and transit stops. See Map 5 for a graphic estimation of the location of some of these popular destinations.

**Trip distance** - The majority of walking trips are less than a mile long and bicycling trips are generally less than five miles.

**Demographics and Population Density** - Young (less than 18), elderly, and low-income people tend to rely more on non-motorized modes for transportation. In Kalamazoo County, the American Community Survey for 2019 estimates that 21.5% of the population is less than 18 years old and 15.4% of population is 65 years or older. These demographics indicate a significant share of the population that would be more likely to utilize non-motorized forms of transportation. Additionally, according to the 2010 Census, persons in low-income households are more likely to walk to work than persons of other income categories.

The population identified from the 2010 U.S. Census for the entire KATS MPO area is 277,100 people. The American Community Survey for 2019 estimates the population to be 288,453 people. For a graphic illustration of the population densities see Map 4 where each dot represents 100 people.

**Land use** - Walking and bicycling for transportation tend to increase with population density (i.e., the number of residents and businesses in each area) because higher densities mean that

destinations are closer together and these transportation modes become more efficient.

Not surprisingly, within the KATS MPO, the City of Kalamazoo has the greatest population density. The higher population density of the city provides a larger number of users for non-motorized modes of travel and the distances between destinations are shorter. For transportation planning purposes it is logical to focus non-motorized resources, especially sidewalks and bicycle lanes, in areas where the population density and potential users are the highest. In more suburban and rural portions of the MPO area, walking and biking as a transportation mode become more onerous due to the longer distances to destinations. The demand for suburban and rural non-motorized resources is still evident in our area, however, as the many existing and planned facilities indicate.

With increased population density as shown in Map 4, it makes sense that non-motorized transportation becomes a more viable option. However, data for our region to support the assumption that individuals are making a non-motorized mode choice for trips is scarce. Unlike traffic counts for

motor vehicles, it is difficult to monitor pedestrian movements without specialized equipment or real-time observation. For these reasons, most agencies rely on self-reported data about what modes of transportation people use most frequently.

Other than demographic information from the U.S. Census, the source used to estimate non-motorized transportation use in our area is the American Community Survey (ACS). The ACS is an ongoing statistical survey that samples a small percentage of the population each year. The ACS 2018 5-year survey estimates that approximately 6.2% of the workforce walked or biked to work within Kalamazoo County.

Anecdotal evidence from the Kalamazoo Area Transportation Study's planning processes has found enthusiasm for more non-motorized facilities in our area. Comments from individuals, disability groups, trail and bike advocacy groups and municipal transportation planners all point to additional demand for non-motorized facilities, particularly in busy commercial areas. Past and current survey data collected by the KATS also point to the importance of providing connected non-motorized facilities in an integrated network as a public priority. In summary, even though pedestrian and bicycle demand are not quantified in the same way as vehicular demand, there is evidence for a need to develop a better non-motorized infrastructure from a variety of sources.

It is important to note that the focus of this plan is more generalized due to the large scale and

scope of the MPO boundaries and the lack of the same kinds of explicit demand and deficiency data available for vehicular travel. For non-motorized transportation planning purposes, popular destinations and demographic factors along with existing non-motorized facilities were used to help identify those areas that are likely to be significant destinations and in need of a supporting non-motorized network. Map 5 helps illustrate those network destinations for non-motorized travelers. As the lists of non-motorized projects were developed, the KATS depended on our local municipalities for developing a good understanding of local non-motorized demand beyond the demographic and incident-based data collected. These perceived local demands are reflected in the projects suggested to the MPO.

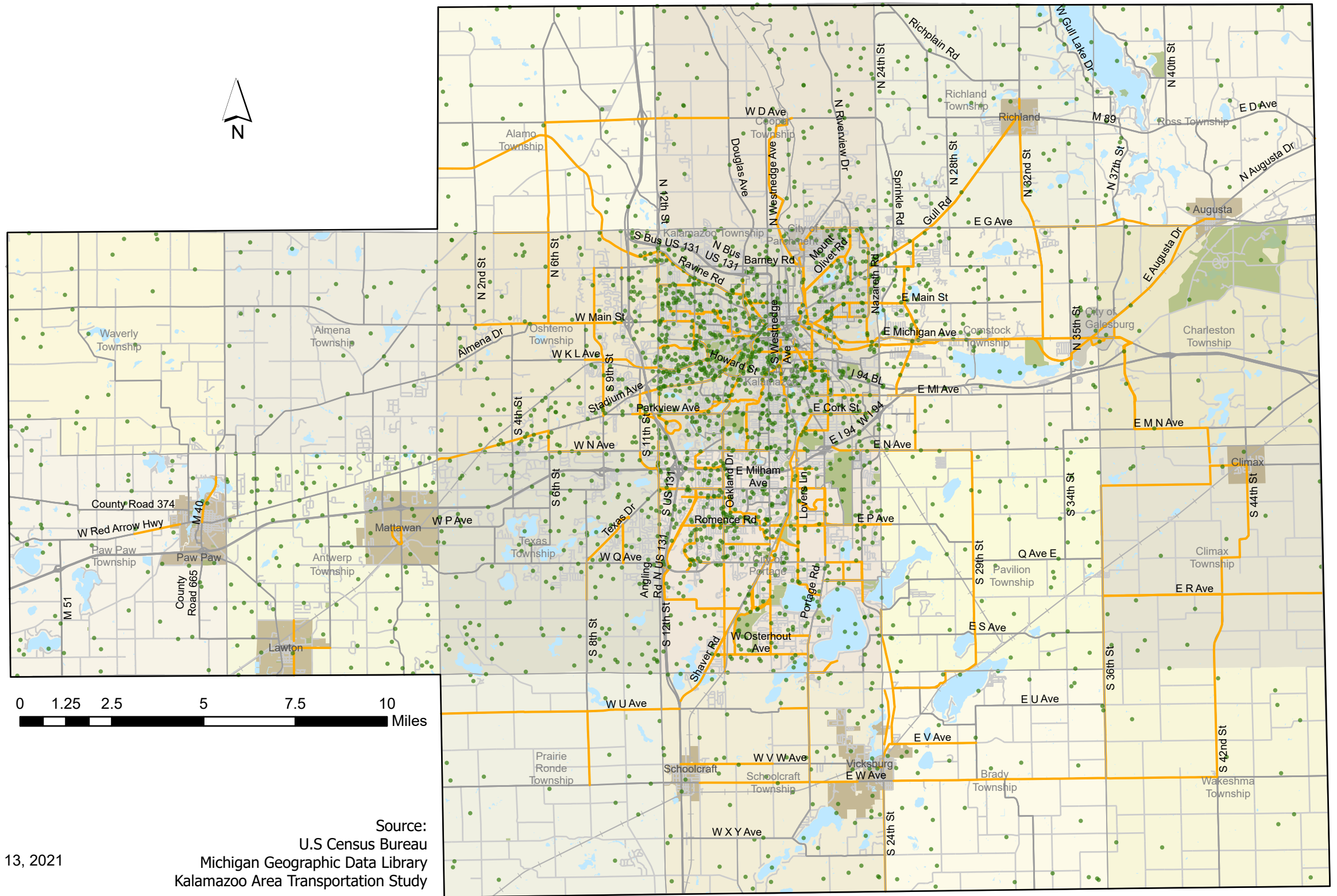
# Map 15: Non-Motorized Network Population Density

## Legend

1 Dot = 125

- Population
- Existing Non-Motorized Facilities
- Federal Aid Roads
- Non-Federal Aid Roads
- Railroad
- Lakes
- Parks
- Villages
- MPO Boundary

Total Population = 289,379



August 13, 2021

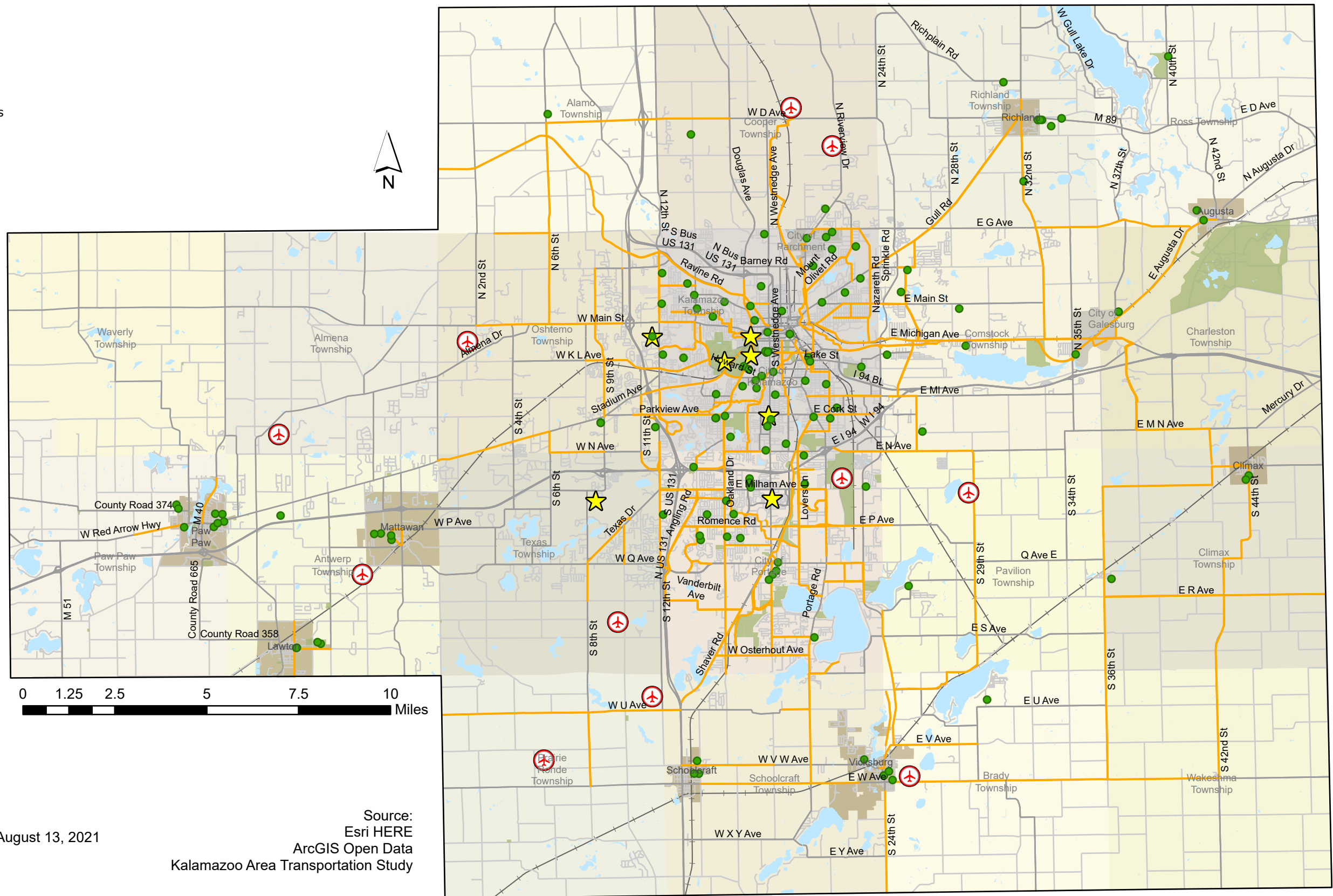
Source:  
U.S. Census Bureau  
Michigan Geographic Data Library  
Kalamazoo Area Transportation Study



# Map 16: Network Destinations with Existing Non-Motorized Facilities

## Legend

- Schools
- ★ Colleges & Universities
- ✈ Airports
- Existing Non-Motorized Facilities
- Federal Aid Roads
- Non-Federal Aid Roads
- Railroad
- Lakes
- Parks
- Villages
- MPO Boundary



August 13, 2021

Source:  
Esri HERE  
ArcGIS Open Data  
Kalamazoo Area Transportation Study

## Existing Policy Context

At the Federal and State levels, policy and existing legislation support continued development of non-motorized transportation options.

### Federal

The United States Department of Transportation Secretary of Transportation, Ray LaHood, signed a policy statement regarding bicycle and pedestrian accommodations, regulations, and recommendations on March 11, 2010.

Federal transportation policy calls for incorporating safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the multifarious individual and community benefits that walking, and bicycling provide – including health, safety, environmental, transportation, and quality of life – transportation agencies are encouraged to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities and utilize universal design characteristics when appropriate.

Transportation programs and facilities should accommodate people of all ages and abilities, including people too young to drive, people who cannot drive, and people who choose not to drive.

Federal transportation policy is based on various sections in the United States Code (U.S.C.) and the Code of Federal Regulations (CFR) in Title 23–Highways, Title 49–Transportation, and Title 42–The Public Health and Welfare. These sections, provided in the Appendix, describe how bicyclists and pedestrians of all abilities should be involved throughout the planning process, should not be adversely affected by other transportation projects, and should be able to track annual obligations and expenditures on non-motorized transportation facilities.

The DOT's transportation policy clearly supports development of fully integrated active transportation networks. Well-connected walking and bicycling networks are important components of livable communities. Walking and bicycling foster safer, more livable, family-friendly communities; promote physical activity and health; reduce vehicle emissions and fuel use. Accordingly, transportation agencies should plan, fund and implement improvements to their walking and bicycling networks, including linkages to transit. Clearly, designing and establishing non-motorized infrastructure should be a part of transportation projects developed with Federal-Aid.

## State

The State of Michigan has provisions for non-motorized transportation contained within Act 51 of 1951, Section 10k, and from the MDOT's State Transportation Commission's (STCT) Context Sensitive Solution and Complete Streets policies.

Act 51 of the Michigan Public Acts of 1951 is the state law that distributes the primary state sources of transportation funding in Michigan. The formulas in the act distribute approximately \$1.7 billion per year in state transportation revenues from the Michigan Transportation Fund to the state Department of Transportation, county road commissions, and cities and villages for maintenance and construction of roads and support of transit systems. Section 10k states that of the funds allocated from the Michigan Transportation Fund to the State Trunkline Fund and to the counties, cities, and villages, a reasonable amount but not less than 1% of those funds shall be expended for the construction or improvement of non-motorized transportation services and facilities. These funds can be used for adding sidewalks, paving shoulders for bicyclists and other facility development or redevelopment/repair.

In 2003, Governor Granholm issued an Executive Directive that requires MDOT to incorporate Context Sensitive Solutions (CSS) into transportation projects whenever possible and in the summer of 2005 the Michigan Department of Transportation approved CSS as state policy. Under CSS, MDOT solicits dialogue with local governments, road commissions, industry groups, land use advocates, and state agencies early in a project's planning phase. This dialogue helps ensure that bridges, interchanges, bicycle facilities, and other transportation projects "fit" needs of communities. The CSS approach results in projects that respect a community's scenic, aesthetic, historic, economic, and environmental character.

In 2010, Governor Granholm signed Complete Streets legislation (Public Acts 134 and 135) that gave responsibilities for planning and coordination of new projects to city, county and state transportation agencies across Michigan. The public act 135 provided for the appointment of a Complete Streets Advisory council to provide education and advice to the State Transportation Commission (STC), county road commissions, municipalities, interest groups, and the public on the development, implementation, and coordination of Complete Streets policies.

On July 26, 2012, the STC approved a Complete Streets policy that "...provides guidance to MDOT for the planning, design, and construction or reconstruction of roadways or other transportation in a manner that promotes complete streets as defined by the law, and that is sensitive to the surrounding context" (MDOT Complete Streets Policy). The Public Act 135 of 2010 defines complete streets as "...roadways planned, designed, and constructed to provide

appropriate access to all legal users in a manner that promotes safe and efficient movement of people and goods whether by car, truck, transit, assistive device, foot, or bicycle.” The policy on complete streets is intended to supplement the policy for CSS.

On December 31, 2013, MDOT developed the revised procedures and guidelines needed to implement this policy. MDOT reports back to the STC annually since the adoption of this policy to give a progress report on implementation to report any exceptions granted. This reporting will include the required CSS annual review as required by the STC policy adopted in 2005.

## Local

On September 24, 2014, the KATS Policy Committee approved a Complete Streets Policy. The purpose of this policy is to guide all parties including KATS staff, municipalities, townships, road agencies, public transit agencies, and the public when reviewing projects as they are being planned to help ensure that needed non-motorized improvements are included in the total project scope. Once local projects are included in the KATS Transportation Improvement Program with federal funding, the project scope is difficult to change, including non-motorized features in the project scope is paramount.

The Complete Streets Policy applies to those projects proposed for federal funding by local agencies within the Adjusted Census Urban Boundary (ACUB). This urban area includes the cities of Galesburg, Kalamazoo, Parchment, and Portage; the villages of Mattawan, Richland, Schoolcraft, and Vicksburg, and all or portions of Almena, Antwerp, Brady, Comstock, Cooper, Kalamazoo, Pavilion, Oshtemo, Richland, Schoolcraft, and Texas townships.

The KATS Complete Streets Policy also supports compliance with Federal law [United States Code, Title 23, Chapter 2, Section 217 (23 USC 217)] requiring consideration for bicycling and walking within transportation infrastructure. FHWA also *“encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities and utilize universal design characteristics when appropriate. (US DOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations- 2010).”*

For more information, please refer to the Kalamazoo Area Transportation Study [Complete Streets Policy](#).

## Future Non-Motorized Transportation Improvements

The non-motorized portion of the KATS Metropolitan Transportation Plan has three primary foci: (1) identify regionally significant priority projects, (2) enhance cooperation and

coordination among jurisdictions for facility development, and (3) address some of the challenges to non-motorized transportation facility development. Like committees working on the Metropolitan Transportation Plan (MTP) and the Transportation Improvement Program (TIP), the Kalamazoo Area Transportation Study Non-Motorized Subcommittee worked together to identify non-motorized projects for our MPO area.

### **Subcommittee Makeup**

A Non-Motorized Subcommittee was formed to help guide KATS staff and direct the planning process. Representatives from the KATS Technical and Policy Committees formed the Non-Motorized Subcommittee. Advocacy groups, concerned citizens, and other stakeholders were invited to provide comments throughout the planning process.

In addition to providing opportunities to share the latest information and maps of non-motorized facilities and local proposals with KATS staff, meetings served to identify partnership opportunities with neighboring jurisdictions and coordinate use of resources and plans. Through the Non-Motorized Subcommittee, previous bicycle and pedestrian planning efforts were analyzed, network deficiencies were identified, and a general course of action was outlined for addressing area priorities.

### **The KATS Non-Motorized Subcommittee Members**

Dick Skalski, Oshtemo Township

Jodi Lynch, Metro

Dave Rachowicz, Kalamazoo County Parks & Recreation

Kathleen Hoyle, City of Portage Parks Department

Paul Sotherland, KATS Citizens Advisory Committee

Marc Irwin, KATS Citizens Advisory Committee

Jamie Harmon, City of Portage

Katie Reilly, City of Kalamazoo

Ryan Minkus, Road Commission of Kalamazoo County

Mark Worden, Road Commission of Kalamazoo County

Paul Selden, Kalamazoo Region Bike Route Committee / Bike Friendly Kalamazoo

Ali Townsend, KATS Staff

Jesse Morgan, Hubble Roth & Clark

Jodi Stefforia, Comstock Township

### **Plan Vision, Goals, and Performance Measures**

The vision and goals for the plan evolved from our committee members reviewing previous iterations of the KATS Non-Motorized plan dating back to 1996. The plan goals are associated with objectives that will be used to assess the progress and outcomes of this plan's implementation by employing performance-based planning.

## Plan Vision

The vision for the Kalamazoo Area Transportation Study (KATS) Non-Motorized Transportation chapter of the Metropolitan Transportation Plan (MTP) is for the KATS region to have an area-wide network of interconnected, convenient, safe, and efficient non-motorized routes that will help non-motorized transport become an integral mode of travel for area residents.

## Plan Goals & Objectives

As a chapter of the KATS Metropolitan Transportation Plan, this Non-Motorized plan directly reflects the goals and objectives set forth in the overall MTP. Please refer to the MTP for further information regarding Goals, Objectives, and Performance Measures.

## Study Process and Project Evaluation Criteria

To understand which of the non-motorized projects are especially important for our region, the Kalamazoo Area Transportation Study began by examining where existing non-motorized facilities are located. Next, proposed and funded projects were mapped alongside the existing facilities to find gaps in the network. In parallel to identifying system deficiencies, the Non-Motorized Subcommittee also developed project evaluation criteria.

Recognizing the requirements set forth in the KATS Complete Streets Policy, adopted September 24, 2014, the following ratings system is designed to help facilitate funding priorities. Evaluation measures and scoring methodology has been adopted from the KATS Pedestrian, Greenways and Transit Plan and modified to fit the goals and objectives of the Non-Motorized Chapter. However, this rating system does not guarantee funding, construction, or implementation of those projects.

## Priority Rating System

**Connectivity/Continuity:** The project will fill a gap in relation to existing facilities and allow for the continuous flow of travel for a specific type of non-motorized travel (Up to 15 points).

### Methodology:

Evaluation Measure	Total Points	Scoring Methodology
Connects facilities to transit route	5	5 – connects to top 5 ridership route (>170,000 rides) 3 – connects route below top 5 in ridership

		( <b>&lt;170,000</b> ) 1 – does not connect to a route
<b>Connects facilities to transit stop</b>	<b>5</b>	<b>5 – connects to top 30 stops by activity (&gt;170,000 annual stops)</b> <b>3 – connects to stops 31-125 (6,000 -17,000)</b> <b>1 – connects to other stops or no stop at all</b>
<b>Connects existing non-motorized facilities to each other</b>	<b>5</b>	<b>5 – connects to existing facilities on both sides</b> <b>3 – connects to existing facility on one side</b> <b>1 – no connections</b>

**Safety/ADA:** The project will eliminate conflict points between vehicles and forms of non-motorized travel. This should minimize the incidents of crashes, injuries, and fatalities (up to 15 points).

**Methodology:**

<b>Evaluation Measure</b>	<b>Total Points</b>	<b>Scoring Methodology</b>
<b>Located in area with a high bike/pedestrian crash density</b>	<b>10</b>	<b>8 – located in high crash area (top 14)</b> <b>5 – located near severe crash outside of focus area</b> <b>1- located outside of all crash areas</b> <b>2 extra points if routed to avoid dangerous areas</b>
<b>Provides appropriate safety to all users</b>	<b>5</b>	<b>5 – above recommended facility (more protection)</b> <b>3 – recommended facility (some protection)</b> <b>1 – below recommended facility</b>

**Regional vs. Local Facility:** The project allows for the continuous flow of travel for users and transportation impacts are regional or multi-jurisdictional.

**Methodology:** Up to 5 points are awarded based on the regional impact of the project proposed with a minimum award of one point.

- 5 Points- Connects three or more municipalities or connects to another facility that travel through two or more municipalities.

- 3 Points- Connects two municipalities or bridges a gap from local system to regional network.
- 1 Point- Exists only in one municipality.

**High Use/Social Equity:** The project should satisfy local demand and expand the existing usage for pedestrians and/or bicyclists. Projects should travel through areas of high population density and/or areas with high equity population density will receive more points than those that are in less populated areas. Equity populations are defined as minority and low-income residents (up to 15 points).

**Methodology:**

<b>Evaluation Measure</b>	<b>Total Points</b>	<b>Scoring Methodology</b>
<b>Connects areas of high population density</b>	<b>5</b>	<b>5 – travels through population score of 5</b> <b>4 – travels through population score of 4</b> <b>3 – travels through population score of 3</b> <b>2 – travels through population score of 2</b> <b>1 – travels through population score of 1</b>
<b>Connects to equity populations</b>	<b>5</b>	<b>5 – travels though equity score of 9-10</b> <b>4 – travels though equity score of 7-8</b> <b>3 – travels though equity score of 5-6</b> <b>2 – travels through equity score of 3-4</b> <b>1 – travels though equity score of 1-2</b>
<b>Total employment along route</b>	<b>5</b>	<b>5 – total employment is greater than 2,000 jobs</b> <b>4 – total employment is between 1,001 and 2,000 jobs</b> <b>3 – total employment is between 501 and 1,000 jobs</b> <b>2 – total employment between 201 and 500 jobs</b> <b>1 – total employment is between 0 and 200 jobs</b>

Both population density and environmental justice density scores were developed using the same process. The total population and equity populations were retrieved from the US Census website and linked to the block groups in the KATS region. Each block group in the KATS region was then sorted into 5 groups based on its population density or equity population density assigned a score from 1-5 based on the sorting (the densest areas were scored 5). The potential projects were scored by selecting the surrounding block groups and averaging



the total score based on the length of each block group along the project. In order to determine the number of jobs along each route, 2014 employment data was obtained by census block for the region and mapped in GIS. The total employment for each project was determined by selecting the census blocks touching the potential projects, then adding up the total number of jobs in each.

**Cost and Feasibility:** Considers the cost of the project and the feasibility of completing the project.

Methodology: Projects will be ranked from most costly then split into four groups based on natural breaks then receive a score of 1 to 4. More costly projects will receive 1 point and the less costly projects will receive 4 points. Projects will also be ranked based on complexity or feasibility with a score of 0 to 2 with the most complex projects receiving 0 points.

This scoring system is to be used as a guide to show what the MPO's priorities might be for funding proposed projects with federal dollars in the future. Each project is listed in the project list with its derived rating based on the priority components presented. The full list of projects with priority ratings, not constrained by any dollar amount, will be presented in tabular format in the following section.

## Non-Motorized Project List

The Non-Motorized Project List developed far exceeds the historic levels of funding non-motorized transportation has received within this MPO area. Indeed, the levels of funding provided for non-motorized modes of transportation are inconsistent over time and vary with competition between projects for grant funds. Unlike the Metropolitan Transportation Plan list of projects for which federal funds are used and which must be financially constrained, the list of non-motorized projects is broad in scope and summarizes all the projects in the region unbound by projected funding levels.

The project list provided here brings together desires of transportation agencies, communities and the public for future non-motorized improvements. It is a living document that will be updated as the needs of the communities and their residents evolve. The list contains individually requested projects as well as mileage for projects previously identified by communities and recorded in our geographic database. It should be noted that some projects in the list have already been approved for funding but have been included in this needs list below to show the complete list of needed improvement.

## Summary of Proposed Non-Motorized Projects

Year	Project Name	Limits	Length	Facility	Estimated Cost	Total Score
2023	Drake Road	Stadium Drive to W. Michigan Avenue		5-8 Foot Sidewalk	\$375,000	50
2027	Kalamazoo Avenue	Main/Douglas Avenue to E. Michigan Avenue	1.5 miles	Bike Lane	\$6,000	48
2025	Lovell Street	Burrows to Eldred	.26 miles	Bike Lane	\$3,000	47
2027	Howard Street	Crosstown to Oakland	.66 miles	Bike Lane	\$4,000	46
2028	South Street	Michigan Avenue to Portage Street	.84 miles	Bike Lane	\$4,500	45
2031	Paterson Street	Riverview to Porter	.45 miles	Bike Lane	\$4,000	43
2030	Burdick Street	Kilgore Road to Lake Drive		Shared-Use Pathway	\$2,960,000	42
2022	Stadium Drive	8 <sup>th</sup> Street to 9 <sup>th</sup> Street		6 Foot Sidewalk	\$270,000	40
2021	Miller Road	Portage Street to Emerald	1 mile	Bike Lane	\$4,000	39
2024	Bronson Boulevard	Crosstown Parkway to Kilgore Road	2 miles	Bike Lane	\$6,000	39
2024	Sprinkle Road Bypass Trail North	Lexington Green Park to Bishop Road	1.2 miles	10 Foot Shared-Use Pathway	\$2,200,000	39
2021	Portage Street	Stockbridge Avenue to Portage/Pitcher Connection	1.2 miles	Bike Lane	\$4,488	37
2023	Cork Street	Westnedge Avenue to Burdick Street	.5 miles	Bike Lane	\$3,500	36
2026	Michigan Avenue	Main/Douglas to E. Michigan Avenue	1.3 miles	Bike Lane	\$5,000	36
2028	E. Michigan Avenue & Riverview	Harrison Street to Gull Road	.69 miles	Bike Lane	\$4,000	36

2021	Rose Street	Cedar Street to Kalamazoo Avenue	.5 miles	Bike Lane	\$2,000	34
2022	11th Street	N Avenue to Parkview		4 Foot Shoulders	\$45,000	33
2025	9th Street	Meridian to Quail Run		6 Foot Sidewalk	\$750,000	33
2022	E. Centre Trail	Garden Lane to Portage Road		Shared-Use Pathway	\$700,000	32
2023	Whites Road	Oakland Drive to Westnedge Avenue	1.25 miles	Bike Lane	\$4,500	32
2026	9th Street	Quail Run to W. Main Street		6 Foot Sidewalk	\$750,000	32
2022	Portage Street	Kilgore Road to Cork Street	1 mile	Bike Lane	\$4,500	31
2023	Bishop Road	Sprinkle Road to Pavilion Township	.5 miles	10 Foot Shared-Use Pathway	\$500,000	31
2024	KL Avenue	9th Street to Drake Road		10 Foot Shared-Use Pathway	\$904,000	30
2022	Romence Road Trail	Pfizer to Sprinkle Road	.5 miles	10 Foot Shared-Use Pathway	\$375,000	28
2023	Kilgore Road	Oakland Drive to Duke	1 mile	Bike Lane	\$4,000	28
2023	Winchell Avenue	Oakland Drive to Rambling Road	.75 miles	Bike Lane	\$3,500	28
2023	Austin Lake	Vicksburg Trail to Zylman Avenue	3 miles	10 Foot Shared-Use Pathway	\$2,800,000	27
2026	Sprinkle Road Bypass Trail South	Bishop Road and Ramona Park along Pavilion Twp. Border	1.8 miles	10 Foot Shared-Use Pathway	\$1,000,000	25
2026	NW Trail Connection	McGillicuddy Lane across US-131 to 12 <sup>th</sup> Street		Shared-Use Pathway	\$3,000,000	25
2023	Antwerp Township Regional Trail	Intersection of M-40 and CR665 to Western Street	5.4 miles	Shared-Use Pathway	\$3,203,158	18

2026	11 <sup>th</sup> Street (illustrative) Phase 1	Parkview Avenue to Stadium Drive		6 Foot Sidewalk	\$400,000	34
2026	11 <sup>th</sup> Street (illustrative) Phase 2	Stadium Drive to KL Avenue		6 Foot Sidewalk	\$400,000	32

The "Proposed Non-Motorized Facilities" shown in Map 6 found on the next page includes projects individually identified in the KATS Metropolitan Transportation Plan call for projects, as well as projects identified in local and regional non-motorized plans. The Proposed Facilities represent a high-level planning guide for project implementation. Their inclusion in the map does not guarantee funding.

Rather, they are included in the map to help the MPO identify regionally significant priority projects and to enhance the cooperation and coordination among jurisdictions for facility development. Changes in routing, facility type, location, and local priority will emerge as proposed projects move towards implementation.

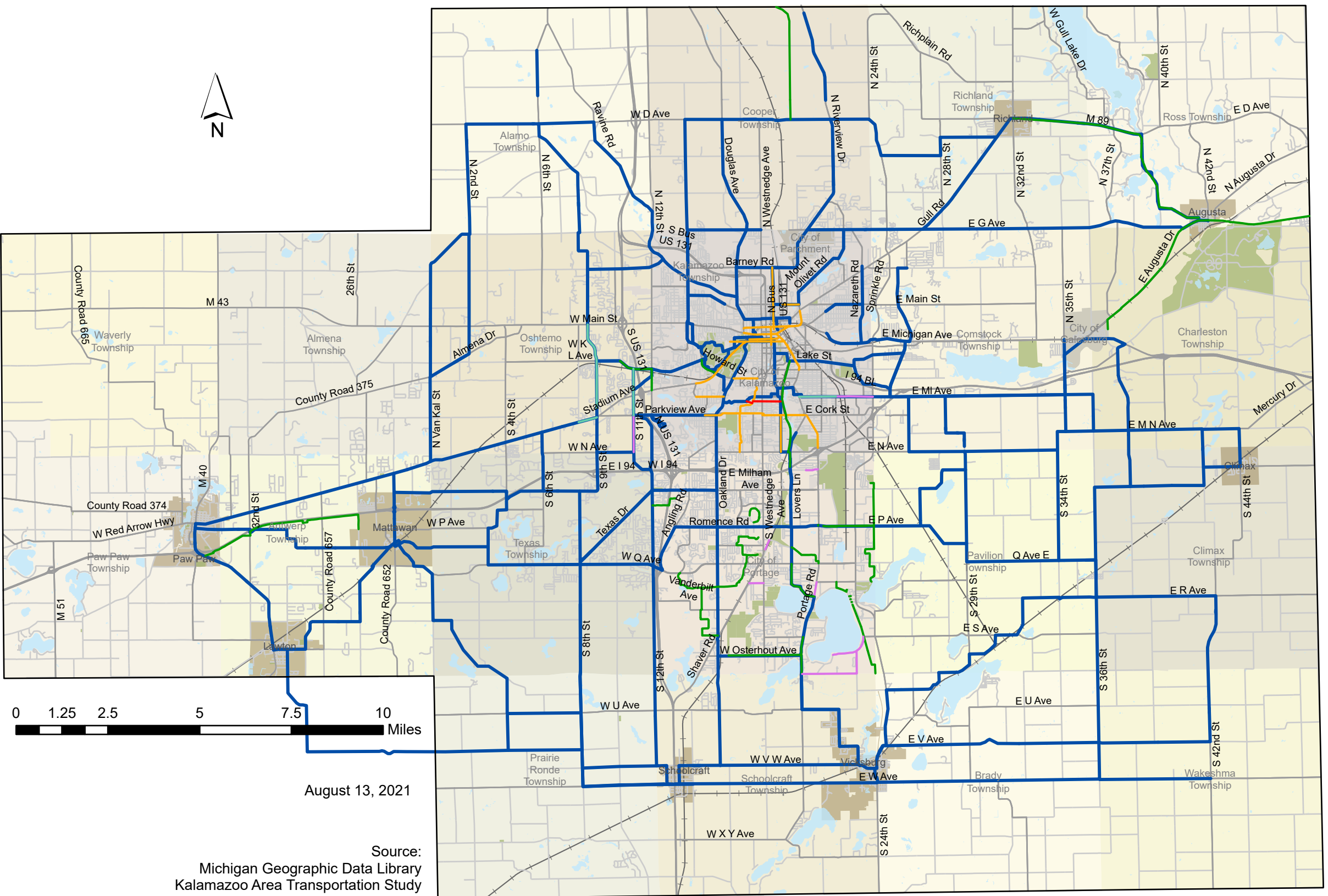
The Kalamazoo Region Bike Route Committee offers a plan that intends to serve as a helpful guide to implementing the bicycle route network proposed/shown in Map 7 of the Kalamazoo Area Transportation Study's 2045 Metropolitan Transportation Plan. The network is now also called and being signed as the "Southwest Michigan Bikeway." More on this plan can be found on [Bike Friendly Kalamazoo's website](#).

# Map 17: Proposed Non-Motorized Facilities

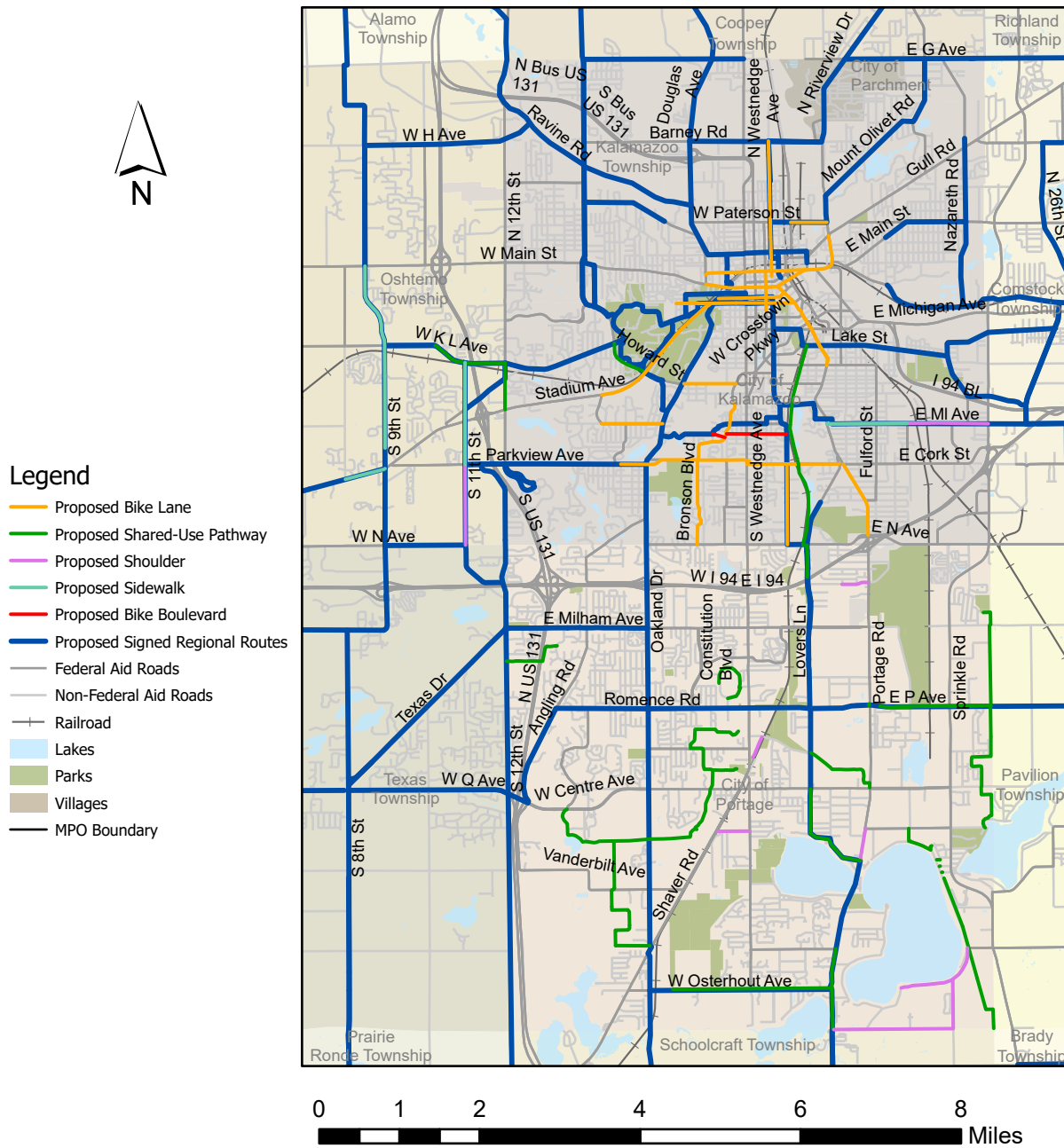
## Legend

- Proposed Bike Lane
- Proposed Shared-Use Pathway
- Proposed Shoulder
- Proposed Sidewalk
- Proposed Bike Boulevard
- Proposed Signed Regional Routes
- Federal Aid Roads
- Non-Federal Aid Roads
- + Railroad
- Lakes
- Parks
- Villages
- MPO Boundary

The proposed facilities represent a high level planning guide for project implementation and their inclusion does not guarantee funding. Their purpose is to help the MPO identify regionally significant priority projects and to enhance the cooperation and coordination between jurisdictions for facility development. Changes in routing, facility type, location, and local priority will change as proposed projects move towards implementation.



# Map 17A: Proposed Facilities in Urban Core



August 13, 2021

Source:  
Michigan Geographic Data Library  
Kalamazoo Area Transportation Study

## Non-Motorized Access and Transit

Many strategies need to be considered when integrating pedestrian and bicycle transportation with transit service. Bicycle racks on buses, bicycle parking and storage at transit facilities, pedestrian and bicycle facilities connecting origins with transit stops are all effective measures for promoting transit-non-motorized connections. Pedestrians, particularly pedestrians with disabilities who rely on transit for their mobility needs, often require smooth continuous surfaces to reach transit stops and ultimately their destinations. Sidewalks and other pedestrian facilities are therefore a critical component of our transportation system, enabling the use of transit service especially for disabled people.

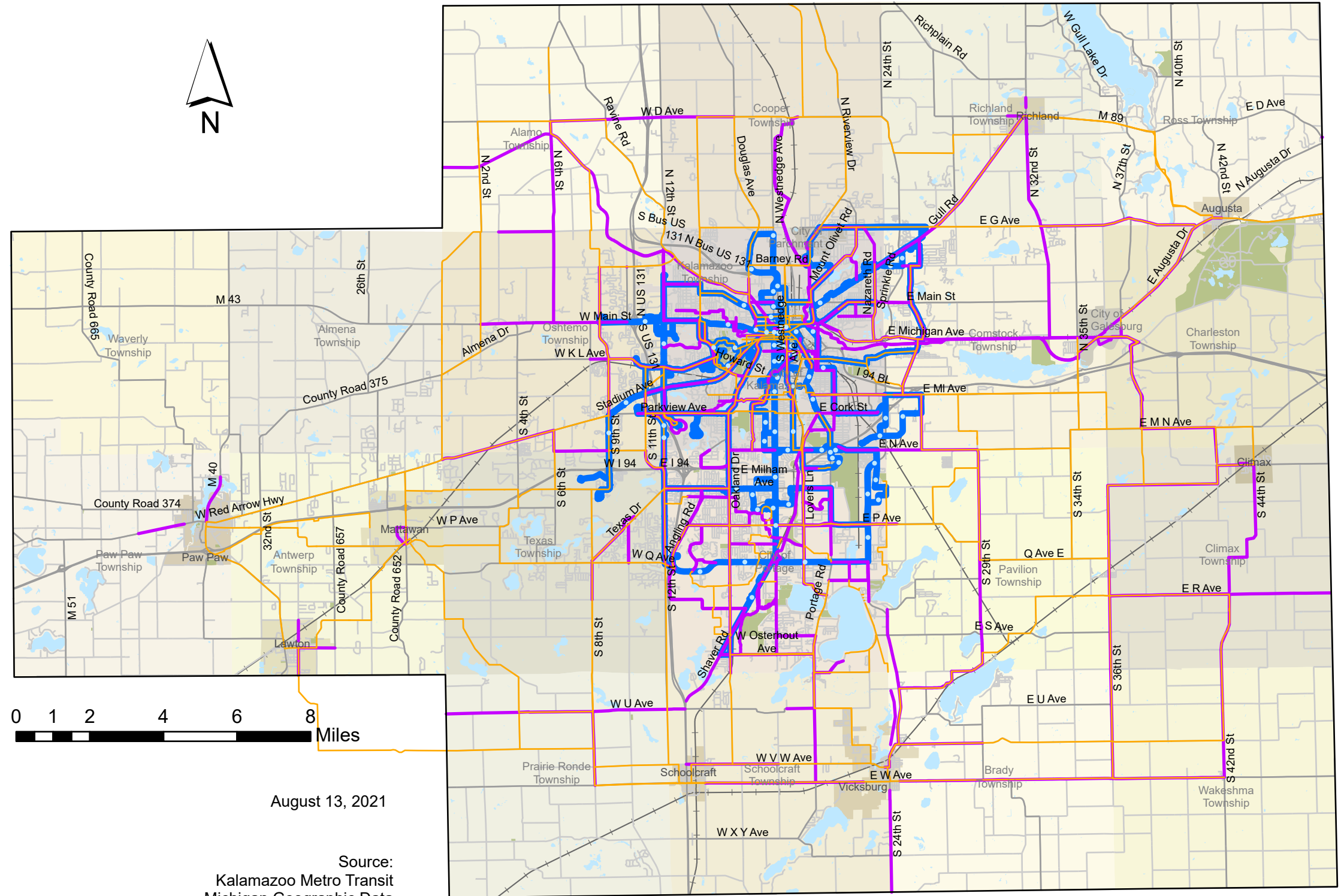
Map 7 depicts Metro's current bus routes along with existing and proposed non-motorized facilities in our region. As communities assembled non-motorized transportation projects for this document, one of the criteria used to evaluate projects was whether the proposed facility made connections to other modes of transportation, particularly transit.

Commonalities between the proposed bicycle and pedestrian projects and existing bus routes indicate multiple opportunities for making connections between the two modes that would ultimately complement each other and increase accessibility and mobility for area residents.

# Map 18: Metro Routes with Existing and Proposed Facilities

## Legend

- Proposed Non-Motorized Facilities
- Existing Non-Motorized Facilities
- Transit Routes
- Gaps in Non-Motorized Routing
- Federal Aid Roads
- Non-Federal Aid Roads
- Railroad
- Lakes
- Parks
- Villages
- MPO Boundary



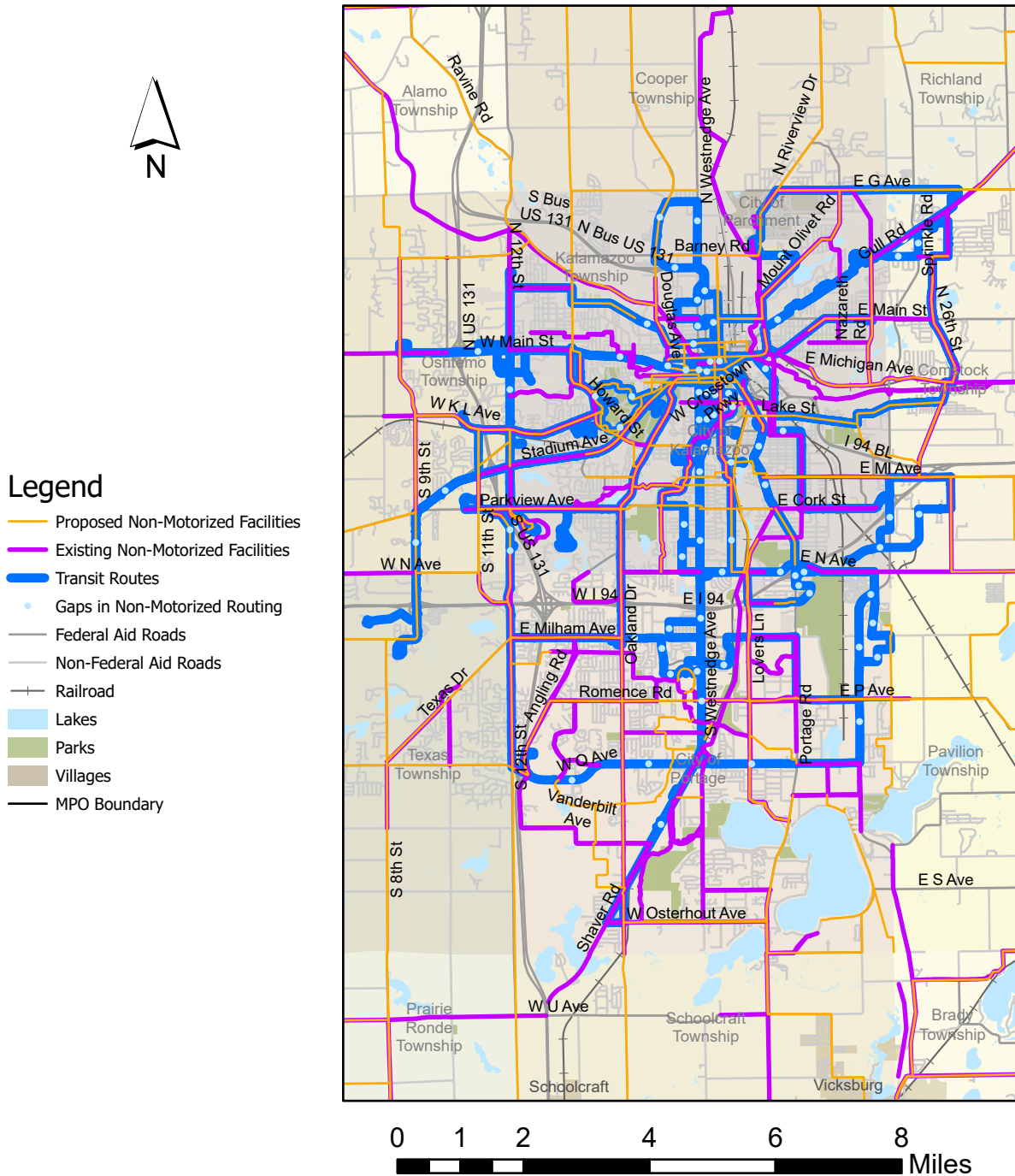
August 13, 2021

Source:  
Kalamazoo Metro Transit  
Michigan Geographic Data  
Kalamazoo Area Transportation Study





# Map 18A: Metro Routes with Existing and Proposed Facilities in Urban Core



August 13, 2021

Source:  
Kalamazoo Metro Transit  
Michigan Geographic Data  
Kalamazoo Area Transportation Study

## Non-Motorized Transportation Funding Options

The primary deterrent to developing infrastructure for non-motorized modes of transportation is cost. Much of the funding comes from local jurisdictions but there are several Federal and State funding sources available for facility development as well. Bicycle and pedestrian projects are broadly eligible for funding from nearly all major Federal-aid highways, transit, safety, and other programs. For federal funding, bicycle projects must be “principally for transportation, rather than recreation, purposes” and must be designed and located pursuant to the transportation plans required of states and Metropolitan Planning Organizations.

The funding category most often used in the past within the KATS MPO area besides locally raised money was Transportation Enhancement (TE) funds. Ten percent of a state’s Surface Transportation Fund, the largest transportation fund available for improvements of every sort, was set aside as TE funds. Within the State of Michigan, municipalities often apply for competitively awarded TE funds at the State level. Recently, the Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) transportation bill has changed the way of thinking with the creation of the Transportation Alternatives Program (TAP).

50% of the funds are still available at the state level for competitive grants, but with the introduction of the TAP, 50% of the spending power has been brought to the MPO level for programming non-motorized type projects in coordination with the TIP development. There are several categories of eligibility for TAP funds, many of which specifically relate to non-motorized transportation.

To better understand the funds available for non-motorized transportation, a summary of the leading funding sources is provided. While this is not an exhaustive list, these are the programs that KATS staff is aware of that have been used in our area for non-motorized facility development.

## Federal Highway Administration Funding Sources

### National Highway Performance Program

The National Highway System (NHS) is composed of 163,000 miles of urban and rural roads and highways serving major population centers, major travel destinations, international border crossings, and intermodal transportation facilities. The Interstate system is part of the National Highway System.



U.S. Department of Transportation  
**Federal Highway Administration**

**Purpose:** The NHPP provides funding for construction and maintenance projects located

on the National Highway System (NHS). The NHS system includes the entire Interstate system and all other highways classified as principal arterials.

***Eligible Projects:*** All eligible projects must be located on the Interstate or NHS.

- Construction, reconstruction, resurfacing, restoration, rehabilitation and preservation of high-ways and bridges
- Construction, rehabilitation, or replacement of existing ferry boats and facilities including approaches that connect road segments.
- Bridge and tunnel inspection and evaluation as well as the training of bridge and tunnel inspectors
- Safety projects
- Transit capital projects
- Federal-aid highway improvements
- Environmental restoration and mitigation
- Intelligent Transportation Systems
- Bicycle transportation and pedestrian walkways

***Eligible Recipients:*** Eligible recipients include the Michigan Department of Transportation, all county road commissions, and all city and village street agencies.

***Required Match:*** The NHPP funds will cover 90% of an eligible project's cost for most Interstate projects and 80 % for other projects on the NHS. There is also a sliding scale, but the remaining match comes from the eligible entity.

***Funding:*** MAP-21 Interstate Maintenance, Highway Bridge and NHS programs. \$21.75 B (Federal Total, MAP-21)

***Project Application/Selection:*** Projects are selected through the Metropolitan Planning Organization during the Transportation Improvement Plan (TIP) programming period.

## **Surface Transportation Program**

The Surface Transportation Program (STP) provides States with flexible funds which may be used for a wide variety of projects on any Federal-aid Highway including the NHS, bridges on any public road, and transit facilities.

***Purpose:*** The Surface Transportation Program is the most flexible of all the highway programs and historically one of the largest single programs. States and metropolitan regions may use these funds for highway, bridge, transit (including intercity bus terminals), and pedestrian and bicycle infrastructure projects.

***Eligible Projects:***

- Highway and bridge construction and rehabilitation
- De-icing of bridges and tunnels
- Federal-aid bridge repair
- Congestion pricing and travel demand management

- Off-system bridge repair
- Development of state asset management plan
- Transit capital projects
- Carpool projects and fringe and corridor parking
- Bicycle, pedestrian, and recreational trails
- Electric and natural gas vehicle infrastructure
- Construction of ferry boats and terminals
- Intelligent transportation systems
- Environmental mitigation
- Border infrastructure projects

**Eligible Recipients:** Eligible recipients include the Michigan Department of Transportation, all county road commissions, and all city and village street agencies.

**Required Match:** The STP funds can cover 80% of the total cost of a project, with the rest to be covered by the states or local entities. There is also a sliding scale on match dollars for this funding type.

**Funding:** \$10 B (Federal Total, MAP-21)

**Project Application/Selection:** Projects are selected through the Metropolitan Planning Organization during the Transportation Improvement Plan (TIP) programming period.

### Highway Safety Improvement Program (HSIP)

SAFETEA-LU established the Highway Safety Improvement Program (HSIP) in 2005. It replaced a previous set-aside of each State's STP apportionment for infrastructure safety activities. The recent adoption of MAP-21 continued the funding support for the HSIP.

**Purpose:** A safety program intended to reduce injuries and fatalities on all public roads, pathways or trails. There is an emphasis on enhanced data collection and performance. And with MAP-21, for the first time, a "road user" is defined as both a motorized and non-motorized user. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance.

**Eligible Projects:** Any project on a public road, trail or path that is included in a state's Strategic Highway Safety Plan and corrects a safety problem such as an unsafe roadway chapter or fixes a hazardous location.

- Intersection improvements
- Construction of shoulders
- High risk rural roads improvements
- Traffic calming
- Data Collection
- Improvements for bicyclists, pedestrians, and individuals with disabilities

**Eligible Recipients:** Eligible recipients include the Michigan Department of Transportation, all county road commissions, and all city and village street agencies.

**Required Match:** The HSIP grant covers 80% of the total cost of a project, with the rest to be covered by the states or local entities. There is also a sliding scale on match dollars for this funding type.

**Funding:** States administer the HSIP, with oversight by the Office of Highway Safety. \$2.4 B (Federal Total, MAP-21)

**Project Application/Selection:** This is a similar competitive grant process to that of Transportation Enhancements where a qualifying agency becomes the sponsor of a project and upon grant approval it is introduced to the TIP. Yearly there is a call for projects administered by the MDOT.

### **Congestion Mitigation and Air Quality Improvement Program**

The Congestion Mitigation and Air Quality Improvement (CMAQ) Program assists areas designated as non-attainment or maintenance under the Clean Air Act Amendments of 1990 to achieve and maintain healthful levels of air quality by funding transportation projects and programs.

**Purpose:** The CMAQ program provides funding for projects that will relieve congestion and reduce pollution levels to help states and metro regions meet federal air quality standards. Funds are directed toward projects, programs, and strategies that provide residents with possible transportation options that lead to lower pollution levels.

#### **Eligible Projects:**

- Establishment or operation of a traffic monitoring, management, and control facility
- Transit capital projects and improved transit services, including operational assistance for new or expanded service for up to 3 years.
- Projects that improve traffic flow, including projects to improve signalization, construct HOV lanes, improve intersections, and add turning lanes.
- Bicycle and pedestrian facilities
- Diesel retrofits of older engines
- Variable roadway pricing
- Construction of facilities serving electric or natural gas-fueled vehicles.
- Fringe and corridor parking facilities
- Projects that shift traffic demand to nonpeak hours or other transportation modes, increase vehicle occupancy rates, or otherwise reduce demand.
- Carpool and vanpool services
- Intelligent transportation systems
- Intermodal freight capital projects

**Eligible Recipients:** Eligible recipients include the Michigan Department of Transportation, all county road commissions, and all city and village street agencies.

**Required Match:** The CMAQ funds can cover 80% of the total cost of a project, with the rest to

becovered by the states or local entities. There is also a sliding scale on match dollars for this fundingtype.

**Funding:** MAP-21 made it available for states to transfer up to 50% of CMAQ program funds into other programs for other uses, compared to 20% from before. \$2.2 B (Federal Total, MAP-21)

**Project Application/Selection:** Projects are selected through the Metropolitan Planning Organization during the Transportation Improvement Plan (TIP) programming period.

A full list of pedestrian and bicycle funding opportunities from the U.S. Department of Transportation Federal Highway System can be found online:

[https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/funding/funding\\_opportunities.cfm](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/funding_opportunities.cfm)

## National Highway Traffic Safety Administration Funding Source

### State and Community Highway Safety Grant Program (Section 402)

The State and Community Highway Safety Grant Program supports State highway safety programs designed to reduce traffic crashes and resulting deaths, injuries, and property damage.

**Purpose:** The Section 402 program provides grants to states to improve driver behavior and reduce deaths and injuries from motorvehicle-related crashes.



**Eligible Projects:** Under MAP-21, states are required to have a highway safety program that is approved

by the Secretary. Funds can be spent in accordance with national guidelines for programs that:

- Reduce impaired driving.
- Reduce speeding.
- Encourage the use of occupant protection.
- Improve motorcycle safety.
- Improve pedestrian and bicycle safety.
- Reduce school bus deaths and injuries.
- Reduce Crashes from unsafe driving behavior.
- Improve enforcement of traffic safety laws.
- Improve driver performance.
- Improve traffic records.
- Enhance emergency services.

**Eligible Recipients:** States are eligible for Section 402 funds by submitting an annual Performance Plan with goals and performance measures, and a Highway Safety Plan

describing actions to achieve the Performance Plan.

**Match:** There is no local match required for funding used with this program.

**Funding:** Funds are apportioned to the states and at least 40% of funds must be spent by local governments or be used for the benefit of local governments. \$235 M (Federal Total, MAP-21)

**Project Application/Selection:** This is a competitive grant process that is administered by the Office of Highway Safety Planning. States are required to submit their Section 402 and Section 405 consolidated grant application by July 1 of each fiscal year. The National Highway Traffic Safety Administration (NHTSA) will have 60 days to review and approve or disapprove the consolidated grant application.

### **Transportation Alternatives program (TAP)**

The Transportation Alternatives Program (TAP) has been designated as a primary source for non-motorized facility funding for our MPO. The TAP was established by congress in 2012 and is funded through a proportional set-aside of the cored Federal-aid Highway Program. Eligible activities include most activities historically funded as Transportation Enhancements (TE), the recreational Trails Program, and the Safe Routes to School (SRS).

**Purpose:** Provide for a variety of alternative transportation projects, including many that were previously eligible activities under separately funded programs through SAFETEA-LU.

**Eligible Projects:** Most projects eligible under the former programs remain eligible for TAP funding.

- Bicycle and pedestrian facilities
- Safe routes projects for non-drivers
- Construction of turnouts and overlooks.
- Community improvement activities including vegetation management.
- Historic preservation
- Rails to trails
- Control of outdoor advertising
- Archeological activities related to transportation projects.
- Boulevard construction
  
- Any environmental mitigation activity

**Eligible Recipients:** Local and regional entities, including governments, transit agencies, transportation authorities, schools and natural resource agencies, may apply for TAP grants.

**Required Match:** The TAP grant covers 80% of the total cost of a project, with the rest to be covered by the states or local entities. There is also a sliding scale on match dollars for this funding type.

**Funding:** Transportation Alternatives (TA) funding will be awarded through a competitive grant process established and run by the states along with the Metropolitan Planning Organizations (MPO's) that represent over 200,000 in population. Half of the money allocated

for TAP will go to the States and half will be programmed by the MPO. The State has the right to transfer half of their share to fund other unrelated projects. A portion of funding equal to the former Recreation Trails Program will be set aside for recreational trails projects and be available at the state level for grant availability unless the state opts out and includes this slice in the TA funds. All approved TAP projects are required to become part of the Transportation Improvement Program (TIP). \$0.808 B (Federal Total, MAP-21(\$668 K for MPO in 2014))

**Project Application/Selection:** Projects are selected through the Metropolitan Planning Organization during the Transportation Improvement Plan (TIP) programming period for the MPO's portion of TA funds. The state's portion of TA funding is handled through a competitive grant process where submissions are reviewed and awarded quarterly.

## State of Michigan Funding Sources

### Michigan Department of Transportation



### Michigan Transportation Fund Act 51 - Section 10k

Public Act 51 of 1951 governs state appropriations for most Michigan highway and transportation programs at the state and local level. It describes transportation revenue sources, transportation programs, and how revenues can be used.

Revenues from the Michigan Transportation Fund are generated from state gas and taxes. The funding is divided among the Michigan Department of Transportation, county road commissions, cities, and villages. Each Act 51 agency is required by law to spend, at a minimum, 1% of the Act 51 dollars on non-motorized improvements. A recent change in State legislation eliminated the ability to use this money for paving gravel roads and maintenance, such as street sweeping, to increase the number of improvements constructed. This funding may be used to provide the match for federal funds.

In 1972, Act 51 of 1951 was amended (P.A. 327) to allow road agencies to expend funds on non-motorized transportation facilities, and since 1972 Act 51 has been amended several more times, the latest being P.A. 82 of 2006. Section 10k of P.A. 82 states:

1. Transportation purposes as provided in this act include provisions for facilities and services for non-motorized transportation including bicycling.
2. Allocates not less than 1% from the Michigan transportation fund for construction or improvement of non-motorized transportation services and facilities.
3. Improvements which facilitate non-motorized transportation shall be a qualified non-motorized facility for the purposes of this section.



4. Units of government need not meet the provisions of this section annually, provided the requirements are met, averaged over a period of 10 years.

**Purpose:** These funds are available for the construction and preservation of roadways for road agencies and for capital and operating support for public transit agencies. Revenues collected through highway user taxes (i.e., state motor fuels taxes, vehicle registration fees, etc.) are deposited in the MTF.

**Eligible Activities:** The maintenance of roadways to include snow removal, cleaning, patching, signing, marking, reservation, reconstruction, resurfacing, restoration, and rehabilitation.

**Eligible Recipients:** Eligible recipients include the Michigan Department of Transportation, transit agencies, all county road commissions, and all city and village street agencies.

**Match:** No match is necessary for general use funds. For local street construction projects there is a 50% match required. Also, these funds can be used for match dollars on other funding source grants.

**Funding:** A distribution formula exists to allocate transportation revenue between highway programs and public transportation programs, and highway program funds between MDOT and local road agencies. This formula is mainly determined by road classification and linear road mileage. Based on a ten-year average, a minimum of 1% of MTF's distributed must be used for non-motorized facilities. Such facilities can be in conjunction with or separate to the road. Projected MTF Distribution Totals for KATS in 2014: \$59.44 M.

**Project Selection/Application:** Act 51 creates several compliances and reporting requirements for MDOT and local road agencies for spending MTF's but is distributed monthly for use on eligible activities. There is currently an Act 51 Distribution and Reporting System (ADARS) system that allows for the application and tracking of Michigan Transportation Funds the agencies must report to yearly to secure future funding.

## Michigan Department of Natural Resources

### Michigan Natural Resources Trust Fund

Through funding derived from royalties on the sale and lease of State-owned mineral rights, the Michigan Natural Resources Trust Fund (MNRTF) began as the "Kammer Recreational Land Trust Fund Act of 1976". In 1984 Michigan residents voted and amended the State Constitution under Proposal B to create the MNRTF.

**Purpose:** The MNRTF objective is to provide grants to local units of government and to the state for acquisition and development of lands and facilities for outdoor recreation or the protection of Michigan's natural resources.

**Eligible Activities:** Priority project types defined by the MNRTF board are trails/greenways,



wildlife/ecological corridors and winter deeryard acquisitions, and projects located within urban areas. Activities for land acquisition include land or specific rights in land (development or easements). For public outdoor recreation uses or protection of the land for its environmental importance or scenic beauty. Activities for recreation facility development Include: fishing and hunting facilities, boating access, beaches, picnic areas, campgrounds, winter sports areas, playgrounds, ball fields, tennis courts, and trails. Note: All new construction and renovation must comply with all federal and state requirements regarding accessibility for people with disabilities.

**Eligible Recipients:** The state and counties, cities, townships, villages, school districts, the Huron-Clinton Metropolitan Authority, or any authority composed of counties, cities, townships, villages or school districts, or any combination thereof, which authority is legally constituted to provide public recreation. Local units of government must have a DNR-approved 5-year recreation plan on file with the Department prior to application.

**Match:** Local units of government must provide at least 25% of the projects total cost as local match.

**Funding:** Applications are evaluated using criteria established by the MNRTF Board of Trustees. Recommendations are made by the MNRTF Board of Trustees to the Governor, which are forwarded to the Michigan legislature for final approval and appropriation. Development project minimums and maximums are \$15 to \$300 thousand dollars. No minimum/maximum limits exist on land acquisition grants. In 2019, the City of Kalamazoo was awarded \$30 thousand for the development of the Kalamazoo River Valley Trail (KRVT) and in 2018, Kalamazoo County was awarded \$30 thousand for the KRVT Galesburg Connection.

**Project Selection/Application:** Local community recreation plans must be submitted to the DNR by the application due date. Applications must be postmarked by the U.S. Postal Service no later than April 1<sup>st</sup>. Grant awards are dependent on the appropriations process, but project agreements are normally distributed within 12 to 18 months after the application submission. The application process includes:

1. Submittal of a community recreation plan
2. Submittal of grant application
3. Evaluation by DNR staff
4. Recommendation of funding by the MNRTF board
5. Appropriation of project funds by the Legislature

## **Other Miscellaneous Funding Sources**

### **Millage**

A millage is a tax on property owners based on the value of their home. Millages are use-specific and approved by a vote of the residents. Millages can be utilized to hire staff, engineers, and construction firms, provide maintenance to facilities, or form the basis of a

bond issue to provide capital for the construction of non-motorized facilities. For example, in November 2006, Ada Township residents approved a dedicated millage for a period of 15 years to be used exclusively for expansion, operation, and maintenance of the township's non-motorized trail system. In August 2016, Ada Township renewed and combined two millages into one Parks, Recreation, and Land Preservation Program millage. Ada Township adopted a 5-year plan to guide its parks, recreation and land preservation program in 2017.

### **Special Assessment**

A special assessment is a special kind of tax on a subset of a community. Special assessments are placed on those adjacent landowners who will receive the greatest benefit from a project to be funded using a special assessment. Special assessments are a common way cities fund sidewalk construction and improvements.

### **General Funds**

A community's or road agency's general fund dollars have no restrictions placed on them that would prevent them from being used for non-motorized improvements. Indeed, general funds are among the most unrestricted funds at a community's discretion. The improvements do, however, need to be approved by a community's governing body such as a board of commissioners or city council. Locally, many municipalities have made exceptional use of general funds to leverage Transportation Enhancement grants for shared-use path development. Additionally, communities may repay bonds with general funds or with a dedicated millage.

### **Private Sources**

Thanks to the generosity of private donors in West Michigan several of the largest and most successful trail projects have been funded in large part by grants from private benefactors, notably Frederik Meijer. Additionally, some communities hold fund drives to raise private funds or other grants of labor and materials in small increments from the community.

Bike Friendly Kalamazoo, an organization behind much of the development of bike routes in the region, has become a chartered Michigan nonprofit 501c3 whose mission is to assist in making the greater community bicycle friendly. Grants provide assistance to local qualified entities, such as considering applications related to installing bike route signs.

### **Foundations**

Community and private foundations may also provide an important funding source for developing infrastructure to support non-motorized transportation. For example, MDOT Transportation Enhancement grants will pay for the construction of shared-use paths but not

for any feasibility studies or engineering work. Foundations can play an important part in filling the gaps left by other funds. Other facility amenities such as picnic grounds or boardwalks may also be paid in part with grants from foundations.

## **Non-Motorized Recommendations**

The project list provides a framework for moving forward with improvements to the region's non-motorized infrastructure that are recommended and endorsed by the local municipalities. With this information along with an understanding of the funding sources available, the next task is finding a variety of strategies to implement the plan. While the focus is transportation planning, some land use planning tools can be useful when searching for solutions to the ever-tightening rights-of-way and the spectrum of demands on our transportation system.

### **Local Plan Coordination**

KATS staff does its best to coordinate projects that meet the needs of local communities while striving to select projects that will have a regional effect. However, the best way for a member of the public to see what their community has planned for pedestrian or non-motorized facility construction is to view their local jurisdiction's plan. Therefore, coordinating locally selected projects with federal aid road construction whenever possible saves on construction costs. Listed below are the most current (as of March 2021) plans for, or that include, non-motorized infrastructure that exist throughout the metropolitan planning area. The plans identified below are great examples of jurisdictions working locally to fill gaps in infrastructure for bicyclists and pedestrians while enhancing opportunities in their communities.

2014 Kalamazoo Township Non-Motorized

Master PlanGO! Green Oshtemo Township

Master Plan

Imagine Kalamazoo 2025 Master Plan

2020 Texas Township Non-Motorized Network (as part of the Master

Plan, Page 87) 2014 City of Portage (as part of the Comprehensive Plan, page 23)

2020 Southwest Michigan Non-Motorized Transportation Plan (regional plan)

Copies of the plans are available on KATS website under the local documents' webpage at [www.KATSmpo.org](http://www.KATSmpo.org)

## Next Steps

The Kalamazoo Area Transportation Study will continue to encourage pedestrian and bicycle travel as a viable and desirable mode of transportation. We will also seek to leverage federal dollars from the available funding sources and implement proposed projects presented in this plan that are needed to fill gaps in the non-motorized network. Future products and activities could include the following:

### Future Products

- Update the map and the underlying inventory of bicycle and pedestrian facilities on a regular basis. Update links on the website on local agency plans and interactive maps.
- Maintain a bicycle and pedestrian planning page within the KATS website with news, maps, ~~acts~~ and information with regional significance.
- Update listings of proposed non-motorized projects as needed.

### Future Activities

- KATS will facilitate and participate in regional forums, ad hoc committees, or workgroups as issues pertaining to pedestrian and bicycle transportation arise.
- As necessary, KATS will participate in regional efforts that aid in implementing the specific projects and policies of the Non-Motorized Transportation Plan chapter of the Metropolitan Transportation Plan.
- Continue to refine and evaluate the Transportation Improvement Program (TIP) funding process as it pertains to pedestrian and bicycle projects.
- Participate in multi-community pedestrian, bicycle, and transit connectivity efforts and activities.
- Continue to assist jurisdictions in cooperative non-motorized transportation planning efforts, especially regarding closing gaps in the current non-motorized infrastructure.
- Continue to support Transportation Alternatives grant applications by Act 51 agencies in the KATS area.

Walking and bicycling are important chapters of an integrated, intermodal transportation system. Constructing sidewalks, striping bike lanes, building shared-use paths and side paths, installing bicycle parking at transit stops, educating children to ride and walk safely, and installing curb cuts and ramps for ~~walkways~~, all contribute to our national transportation goals of safety, mobility, economic growth, enhancement of communities and the natural environment. Implementing projects proposed here, as well as those proposed in local non-motorized plans, will enrich the lives of everyone.

# CHAPTER 8: PUBLIC ENGAGEMENT

Considering the needs and desires of all populations is critical to the development of a transportation plan that creates access to opportunity for people of all ages, incomes, and abilities. Public engagement lays the foundation for the development and implementation of an integrated multimodal transportation system that supports community development and furthers the region's cultural, environmental, and social goals.

## Equity

Kalamazoo MPO made a concerted effort in this planning process to consider the impacts and benefits of the transportation plan on oftentimes underserved populations, such as the socioeconomically disadvantaged, people with disabilities, and racial ethnic minorities. Equity is a theme throughout this plan; from setting performance measures that consider the impacts of the transportation system on vulnerable populations to considering the need of the transportation system to provide mobility options that allow access to affordable housing, healthy foods, jobs, recreation, and social opportunities.

### SURVEY RESPONSES

The 2050 Transportation Survey was conducted to help inform decisions; the response was strong with over 200 surveys completed.

### Voices Heard

The public's input helps guide and direct our vision for the future and brings to life what makes our region unique and the necessity of an effective transportation system to realize that vision. Community outreach activities were held for the Metropolitan Transportation Plan to maximize feedback and participation

and to obtain input from a broad cross section of the public. The public involvement process extended from March 2020 through July 2021.

The following public engagement strategies were used to garner input:

- Posted information on the Kalamazoo Area Transportation website
- Conducted online survey - 217 responses
- Included articles and/or announcements for upcoming events in the April, July, October, - and January quarterly KATS newsletters (posted on the KATS website)
- Posted updates on Facebook and Twitter
- Used distribution email lists to send survey, announce upcoming events, and encourage sharing of surveys and events with local constituents
- Held monthly meetings with the Technical and Policy Committees which are open to the public

- Held quarterly meetings with KATS Citizen Advisory Committee which are open to the public
- Hold a public open house at Metro.

### What the People Said

Public outreach helps the Kalamazoo MPO establish priorities, policies, and ultimately investment strategies that meet the vision and needs of the people. Information gathered throughout the public involvement process resulted in several themes as listed below.

**Question 1:** How satisfied are you with the condition of roads and bridges in the planning area?

**Responses:** 217

Very Satisfied	Satisfied	Somewhat satisfied	Neither satisfied nor dissatisfied	Somewhat dissatisfied	Dissatisfied	Very dissatisfied
2	13	56	17	83	32	14

**Question 2:** Which four components of the region’s transportation system should be the top priorities for improvement over the next 5-10 years? **Reponses:** 217

Pavement and bridge preservation	Safety improvements	Bicycle and pedestrian facilities	Environ-ment	Traffic conges-tion	Transit improve-ments	Advanced technology	Freight Move-ment
179	134	120	81	76	68	53	43

**Question 3:** Which four components of the region’s transportation system should be the top priorities for improvement over the next 1-5 years? **Responses:** 217

Pavement and bridge preservation	Safety improvements	Bicycle and pedestrian facilities	Traffic Conges-tion	Environ-ment	Transit improve-ments	Freight Move-ment	Advanced Technology
182	145	126	89	79	75	41	37

**Question 4:** Rank the following in items of importance with the most important aspect at the top. **Responses:** 217

	1	2	3	Score
<b>Minimizing water pollution</b>	83	93	41	2.19
<b>Minimizing flooding on roads</b>	92	40	85	2.03
<b>Minimizing air pollution</b>	42	84	91	1.71

**Question 5:** How should concerns of safety and mobility for the area’s aging population be addressed? (Select one option). **Responses:** 217

<b>Develop innovative mobility services</b>	81
<b>Improve coordination of land use development with transportation planning</b>	63
<b>Improve public transit</b>	59
<b>Other (please specify)</b>	14

**Question 6:** Do you use transit services? **Responses:** 217

<b>Yes</b>	42
<b>No</b>	175

**Question 7:** How satisfied are you with the transit access to jobs and important services, such as healthcare, food and education? (Skip if answered “no” to question 6). **Responses:** 97

Score	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
<b>Votes</b>	10	5	10	7	37	9	7	6	2	4



**Question 8:** Which future transportation investments are most important to you? Put the most important investment at the top. **Responses:** 216

	1	2	3	4	5	6	Score
<b>Road conditions</b>	116	49	24	20	5	3	5.12
<b>Traffic safety</b>	33	80	62	28	12	2	4.41
<b>Bike and pedestrian facilities</b>	45	36	45	25	21	45	3.65
<b>Public transit</b>	18	22	32	55	63	27	3.06
<b>Congestion reduction</b>	5	23	44	37	71	37	2.82
<b>Freight movement</b>	0	7	10	52	45	103	1.95

**Question 9:** Which mode of transportation do you use most often? **Responses:** 217

	Never	Rarely	Occasionally	Frequently	Weighted Average
Personal Motor Vehicle	4	2	17	153	3.81
Walking	0	44	64	29	2.89
Bicycle	18	25	59	26	2.73
Rail (Amtrak)	34	64	9	0	1.77
Transit	88	16	6	2	1.3

**Question 10:** How would you prioritize transportation funding for the following? (Put the highest priority at the top (#1)). **Responses:** 216

	1	2	3	4	5	6	Score
<b>Rehabilitation of roads and bridges</b>	122	24	16	18	19	13	4.82

<b>Safety improvements</b>	22	69	40	34	34	13	3.87
<b>Expansion of bicycle facilities</b>	42	37	32	27	23	58	3.54
<b>Expansion of pedestrian facilities</b>	6	43	37	39	69	15	3.2
<b>Enhancing transit</b>	18	21	39	55	35	42	3.08
<b>Technology (traffic signal, pedestrian counters, etc.)</b>	6	19	48	36	27	77	2.64

As a result of the 30-day public review process, Kalamazoo staff received multiple written comments sent via email, website comments and from comment sheets provided during the open houses. The comments were largely in support of the document. A list of those comments and responses to them may be found in Appendix C.

# CHAPTER 9: CONSULTATION

MAP-21 requires that the MPO establish a cooperative planning process in consultation with other agencies including Federal, State and local agencies, tribal governments, transit and human service providers, and other interested parties. In addition to outreach to the general public (as described in Chapter 4), this MTP planning process has been completed in coordination with the following entities:

Alamo Township	Education for the Arts/RESA
Almena Township	Environmental Protection Agency - Region 5
American Red Cross	Fish & Wildlife Service
Amtrak	Foundation for the Blind and Visually Impaired
Antwerp Township	Gazelle Sports
Area Agency on Aging	Grand Elk Railroad
Area Agency on Aging Kalamazoo	Greyhound Bus Lines
Bike Friendly Kalamazoo	Gun Lake Tribe
Brady Township	Housing Resources Inc.
Bronson Healthcare Group	Indian Trails Bus Lines
Bronson Hospital	Interfaith Strategy for Advocacy and Action in the Community (ISAAC)
Calhoun Conservation District	Kalamazoo Advocates for Senior Issues
Charleston Township	Kalamazoo \ Battle Creek International Airport
Citizens for Community Transportation	Kalamazoo Bicycle Club
City of Galesburg	Kalamazoo College
City of Kalamazoo	Kalamazoo Community College
City of Parchment	Kalamazoo Community Foundation
City of Portage	Kalamazoo Conservation District
City of Portage Environmental Board	Kalamazoo County
City of Portage Parks	Kalamazoo County Drain Commissioner's Office
Climax Township	Kalamazoo County Parks
Comstock Township	Kalamazoo Downtown Partnership
Consumers Energy	Kalamazoo Historic District Commission
Cooper Township	Kalamazoo Metropolitan Branch of the NAACP
County Parks Department	Kalamazoo Nature Center
Disability Network SW MI	Kalamazoo Neighborhood Housing
Discover Kalamazoo	Kalamazoo Public Schools
Douglass Community Association	
Eastside Neighborhood Association	
Edison Neighborhood Association	

Kalamazoo Regional Educational Service Agency  
Kalamazoo River Protection Association  
Kalamazoo River Watershed Council  
Kalamazoo Runners Club  
Kalamazoo Township  
Kalamazoo Valley Habitat for Humanity  
Kzoo Swift  
Legal Aid of Western Michigan  
MATCH-E-BE-NASH-SHE-WISH Band of Pottawatomi  
Metro  
MI Commission for the Blind  
MI Department of Environmental Quality - Kalamazoo District  
MI Department of Natural Resources - Plainwell Operations  
Northside Association for Community Development  
Northside Ministerial Alliance  
Nottawaseppi Huron Band of the Pottawatomi  
Oakwood Neighborhood Association  
Open Roads  
Oshtemo Township  
Pavilion Township  
Paw Paw Area Chamber of Commerce  
Paw Paw Township  
Pedal  
Pokagon Band of Pottawatomi  
Potawatomi RC&D Council  
Pottawatomi RC&D Council  
Prairie Ronde Township  
Richland Township  
Road Commission of Kalamazoo County  
Ross Township  
Schoolcraft Community Schools  
Schoolcraft Township  
Senior Services, Inc.

Sierra Club SW Michigan Group  
Southwest Michigan First Economic Development  
Southwest Michigan Land Conservancy  
Texas Township  
US Agricultural Department  
US Department of Agriculture Service Center  
US Federal Aviation Administration  
USDA Farm Service Agency  
Van Buren Conservation District  
Van Buren County Road Commission  
Van Buren Public Transit  
Vicksburg Area Chamber of Commerce  
Village Cyclery Schoolcraft  
Village of Augusta  
Village of Climax  
Village of Lawton  
Village of Mattawan  
Village of Paw Paw  
Village of Schoolcraft  
Village of Vicksburg  
Vine Neighborhood Association, Inc.  
Waverly Township  
Western Michigan University  
Zoo City Cycle & Sports

## **Consultation Agency Notification**

Once project lists were approved by the Technical and Policy Committees, KATS emailed our list of consultation agencies on May 18, 2021, asking them to provide insight into the MTP project list based on their areas of expertise. This email included the following information:

- An explanation of the consultation process, the Metropolitan Transportation Plan development process, and the role of the Kalamazoo Area Transportation Study
- The draft 2050 MTP Project List
- A map of the draft 2050 MTP projects
- Illustrative project list
- Directions on how to provide input on the project list and how to contact KATS staff for assistance.

KATS asked consultation agencies to provide their feedback by June 18, 2021. This feedback could include environmental issues for which mitigation measures could be proposed, impacts to historical sites, or whether MTP projects are compatible with the consultation agency's future plans. The length of the comment period was 30 days. KATS followed up this initial outreach effort with a reminder email halfway through the comment period.

## **Documentation of Consultation**

The email sent to our consultation agencies is included in Appendix F, as well as comments received.

## **Environmental Mitigation**

Transportation projects can have a significant impact on the surrounding landscape. The intent of the Environmental Mitigation process is to assure decision makers consider potential environmental impacts when adopting the transportation plan so that consideration is given to how such impacts might be mitigated. KATS will also inform and educate road agencies regarding the potential environmental factors. Road agencies will also be given "best practices" on how to properly mitigate environmental issues at the project level.

The Kalamazoo Area Transportation Study chose to analyze the projects within the 2050 Metropolitan Transportation Plan at a system wide level. Each of the proposed capacity projects were entered into a Geographic Information System (GIS), where they could then be compared to available Environmentally Sensitive Resources. Six Environmentally Sensitive Resources were identified and available in a digital format.

## Environmentally Sensitive Resources

- Well Heads
- Wetlands
- Parks and Recreation Areas
- Cemeteries
- Schools
- Probability of Rare Species or High-Quality Natural Communities

Using these six resources, KATS analyzed the likely impacts of proposed projects. Using GIS, projects were mapped and then buffered in order to display an area around the projects that might be affected. The buffer sizes used vary by environmental resource.

## Project Buffers by Resource Type

<b>Environmental Resource</b>	<i>Buffer Size</i>
Well Heads.....	2,500 Feet
Wetlands.....	¼ mile (1,320 feet)
Parks and Recreation Areas.....	¼ mile (1,320 feet)
Cemeteries.....	¼ mile (1,320 feet)
Schools.....	¼ mile (1,320 feet)
Probability of Rare Species or High-Quality Natural Communities.....	¼ mile (1,320 feet)

With these buffers in place, KATS was able to show which projects intersect an environmentally sensitive resource. While these intersections do not guarantee the project will impact an environmentally sensitive area, they were able to show policy makers the impact the projects may have. It is also possible that a project showing no intersections with any of the environmental resources may have an environmental impact or that an impact may occur outside the buffer area. Thus, potential impacts from planned transportation projects should not be used to justify the elimination of a project. It is simply intended to show the range of possible impacts while noting the importance of the environment in all phases of the project planning, design, construction, and maintenance. KATS will inform the road agencies of the noted potential environmental impacts appropriately during project design and construction.

For more information on the data and terms used on the following maps, please visit these websites:

- Michigan Geographic Data Library: <http://www.mcgi.state.mi.us/mgdl/>
- Michigan Natural Feature Inventory: <http://web4msue.msu.edu/mnfi/data/rarityindex.cfm>

## **Best Practices Guidelines**

Regardless of the type of project or the resource that may be impacted, these guidelines deserve consideration during the planning, design, construction, and maintenance of transportation projects. These “best practices” guidelines will help to ensure good planning that will assist in the overall environmental mitigation objectives.

### ***Planning and Design Guidelines***

- Employ the Context Sensitive Solutions (CSS) process. CSS identifies the physical, visual, and social context in which a project is situated while involving all stakeholders in a collaborative effort. A project using CSS is highly responsive to the environmental conditions, both cultural and natural, in which it occurs.
- Identify an area of potential impact related to each transportation project, regardless of project type or scope.
- Catalog areas of environmental sensitivity that may be impacted by proposed projects.
- Use the areas’ Hazard Mitigation Plan in coordination with the transportation plan to mitigate project impacts.
- Identify “historic properties” prior to construction. A “historic property” is a district, site, building, structure, or object included or eligible for the National Register of Historic Places. Historic buildings and archaeological sites are the best-known kinds of historic properties, but expansive urban and rural districts, landscapes, roads and trails, natural areas of traditional cultural importance, and even highways themselves may be eligible for the Register.
- If impacts cannot be avoided, mitigate them as much as possible. Coordinate the evaluation of impacts, alternatives, and mitigation strategies with the required federal, state, and local authorities.
- Design projects to accommodate wildlife, habitat connectivity, and safe crossings. Wildlife related concerns include habitat fragmentation and connectivity for wildlife, loss of habitat, increasing numbers of threatened and endangered species, and secondary and cumulative impacts. The federal Endangered Species Act prohibits harm to any listed species or adverse modification of designated critical habitat. Maintenance and construction staff are responsible for ensuring that no threatened or endangered species within areas they are working are injured, destroyed or their habitat impacted without proper permits.
- Design projects to minimize air quality issues. Air quality and pollution have been concerns in the United States for many years, especially in metropolitan areas.
- Integrate stormwater and erosion management into the design of the project.

- Design for sustainability and energy conservation. These decisions can be a factor in mode choice decisions made in Planning, as part of Major Investment Studies, or in Project Development as part of an alternative analysis for projects.
- Conduct pre-construction meetings with local community officials, contractors, and subcontractors to discuss environmental protection.

### ***Construction and Maintenance Guidelines***

- Include all special requirements that address environmentally sensitive resources into plans and estimates provided to construction contractors. Bring to attention the kinds of activities that are not appropriate in sensitive areas.
- Limit the size of construction and staging areas to the smallest necessary. Clearly mark our boundaries.
- Use fencing or flagging around sensitive areas where appropriate.
- Avoid disturbing the site as much as possible.
- Protect established vegetation.
- Implement sediment and erosion control.
- Protect water quality by preventing direct runoff, sweeping streets to reduce sediment, implementing salt management techniques, and controlling storm water drains to prevent construction debris from polluting waterways.
- Protect culture and historic resources by limiting impact and disturbance near them.
- Minimize noise and vibration.
- Provide for proper solid waste disposal.
- Conduct on-site during and after construction to ensure environmental resources are protected as planned.
- Keep equipment in good working condition and free of leaks. Avoid fueling or maintenance near environmentally sensitive areas.
- Reduce land disturbances by properly organizing construction activities.
- Use Integrated Pest Management techniques if using pesticides during maintenance operations.

### **Environmental Mitigation Finding**

The Environmental Mitigation consultation process has identified potential environmental impacts associated with the 2050 Transportation Plan road projects. These potential impacts are just that, potential, not confirmed.



The responsible road agencies have been informed of these potential environmental impacts so that they can investigate and determine if there will be actual impacts and evaluate how best to avoid or mitigate impacts.

These determinations and evaluations by the responsible road agencies will be made as the projects are scoped, designed, and constructed. No further findings can be made at this time with the information known.

### Environmental Factors Near Capacity Projects

Project	Limits	Wells	Schools	Parks	Cemeteries	Wetlands	Rare Species
Portage Road	Wetherbee Ave to Lakeview Drive	Yes	Yes	Yes		Yes	Low
Portage Road	Lakeview Drive to East Centre Avenue	Yes				Yes	Low
Howard Street	Crosstown to Oakland	Yes	Yes			Yes	Low/ Moderate
Douglas Street	North to Patterson	Yes	Yes				
Gull Road	Ampersee to North	Yes				Yes	Low
Michikal	Main Street/ Michigan Avenue to Kalamazoo Ave	Yes	Yes	Yes			Low
Miller Road	River to Portage	Yes				Yes	Low
Non-Motorized Path	Kilgore to Lake	Yes	Yes	Yes		Yes	Low/High

Oakland Drive	Kilgore to Lovell	Yes	Yes	Yes		Yes	Moderate/ Low
Burdick Street	Reed and Burdick Intersection	Yes				Yes	Low
Paterson Street	Riverview to Porter	Yes				Yes	Low
Paterson Street	Riverview to Douglas	Yes	Yes			Yes	Low
Rose Street	Crosstown to Paterson	Yes	Yes	Yes		Yes	Low
Burdick Street	North and Burdick Intersection	Yes	Yes			Yes	Low
Oakland Drive	I-94 to Kilgore Road	Yes				Yes	Moderate
Osterhout Avenue	Shaver Road to Portage Road	Yes		Yes	Yes	Yes	High
Portage Road	Lakeview Drive to East Osterhout Avenue	Yes	Yes	Yes		Yes	Low/High
Romence Road	Portage Road to Sprinkle Road	Yes		Yes		Yes	Low/ Moderate
South Westledge Avenue	Milham Avenue to Romence Road	Yes		Yes		Yes	High/Low
South Westledge Avenue/Shaver Road	Romence Road to West Centre Avenue	Yes		Yes	Yes	Yes	Low

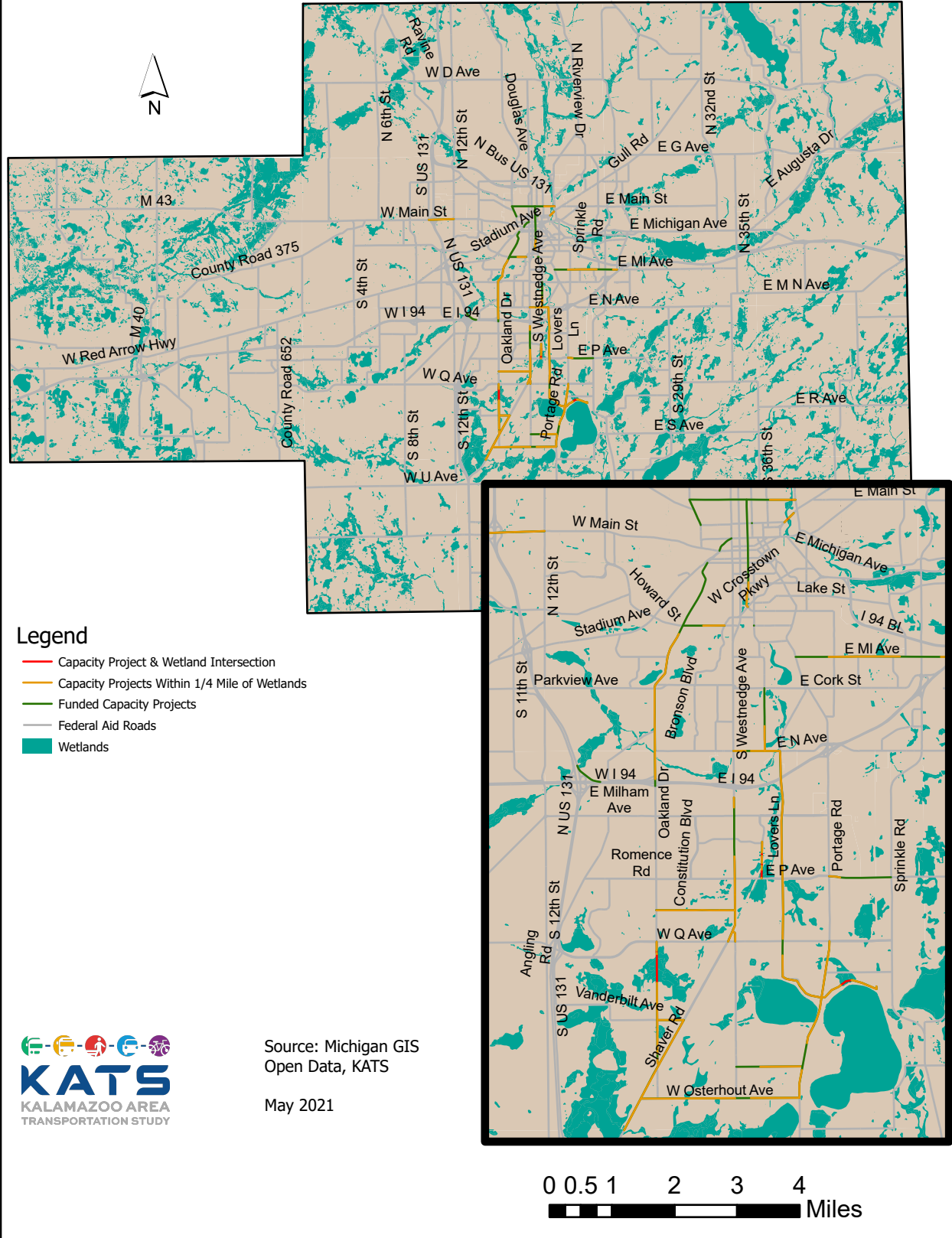
Shaver Road	Vanderbilt Avenue to South City Limits	Yes		Yes		Yes	High
Vanderbilt Avenue	Oakland Drive to Shaver Road	Yes				Yes	High
Burdick Street	Cork to Kilgore	Yes	Yes		Yes	Yes	Low
Bacon Ave	South Westnedge Ave to Portage Road	Yes	Yes			Yes	High
Kilgore Road	South Westnedge Ave to Lover's Lane	Yes	Yes			Yes	Low
Newport Avenue	Gladys Street to Romence Road Parkway	Yes		Yes		Yes	High/Low
Oakland Drive	Shaver Road to Centre Avenue	Yes				Yes	High/Low
South Westnedge Avenue	Dawnlee Avenue to West Milham Avenue	Yes				Yes	Low
Schuring Road	Oakland Drive to South Westnedge Avenue	Yes		Yes		Yes	Low/ Moderate

M-43/West Main	10 <sup>th</sup> Street to Drake Road	Yes				Yes	Low
M-43/West Main	10 <sup>th</sup> Street to Drake Road	Yes				Yes	Low
I-94 W/ US 131 N Ramp	I-94 Westbound Ramp to US 131 Northbound	Yes	Yes	Yes			High

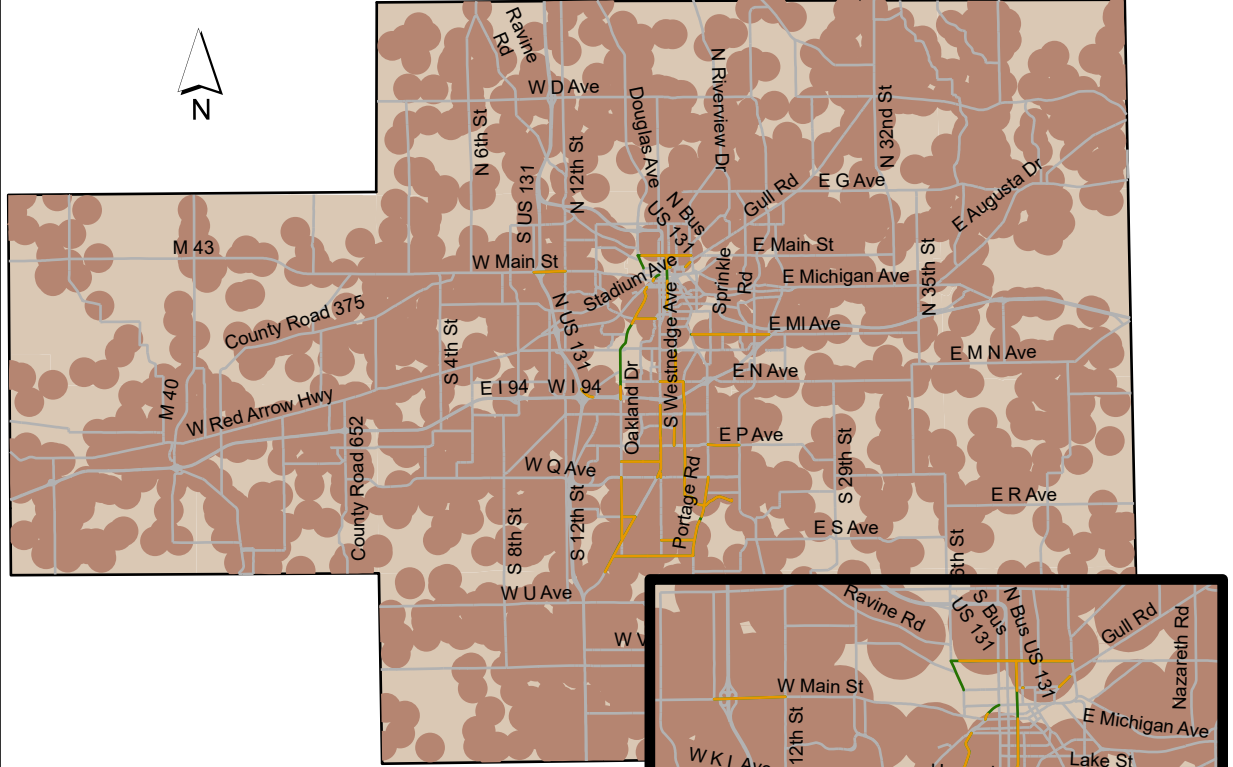
*The maps that follow only display the Metropolitan Planning Area where capacity projects are proposed.*



# Map 20: Capacity Projects Near Wetlands

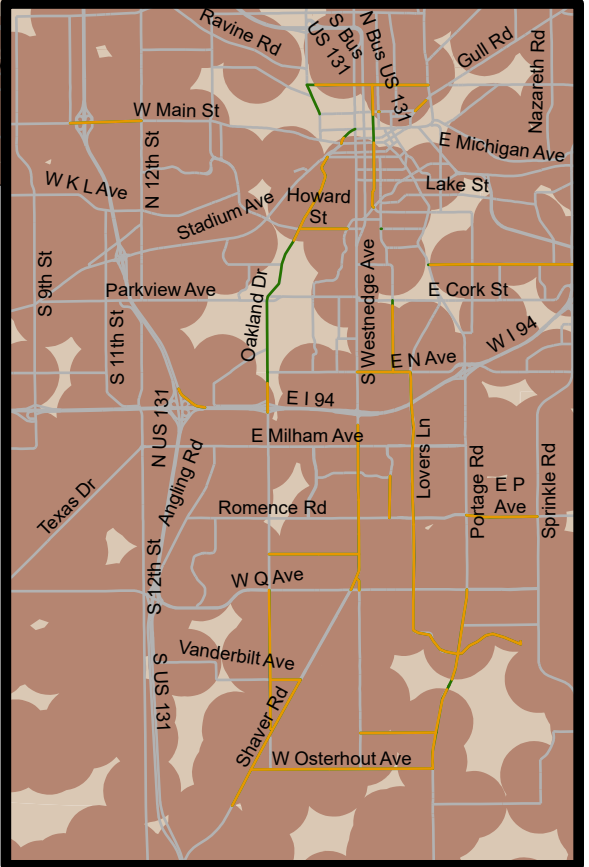


# Map 21: Capacity Projects Near Wells



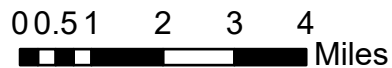
## Legend

- Capacity Projects Within 2500 Feet of Wells
- Funded Capacity Projects
- Federal Aid Roads
- Well Buffer (2500 Feet)



Data Source: Michigan GIS Open Data, KATS

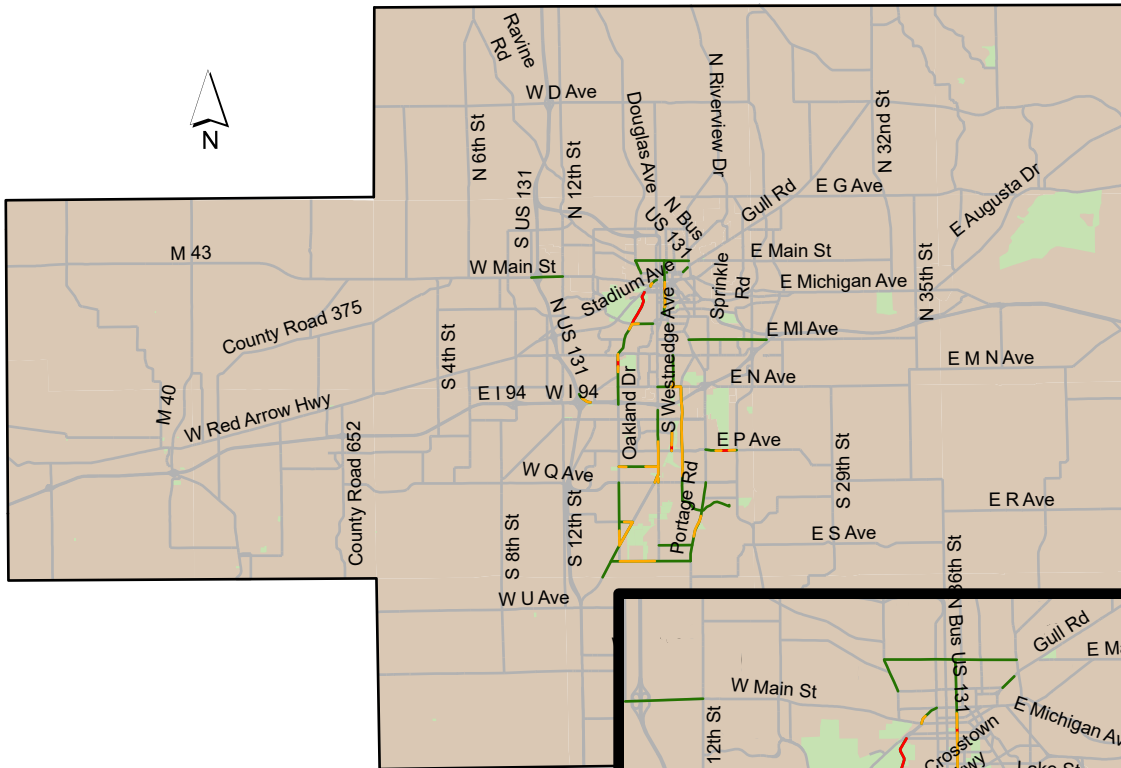
May 2021





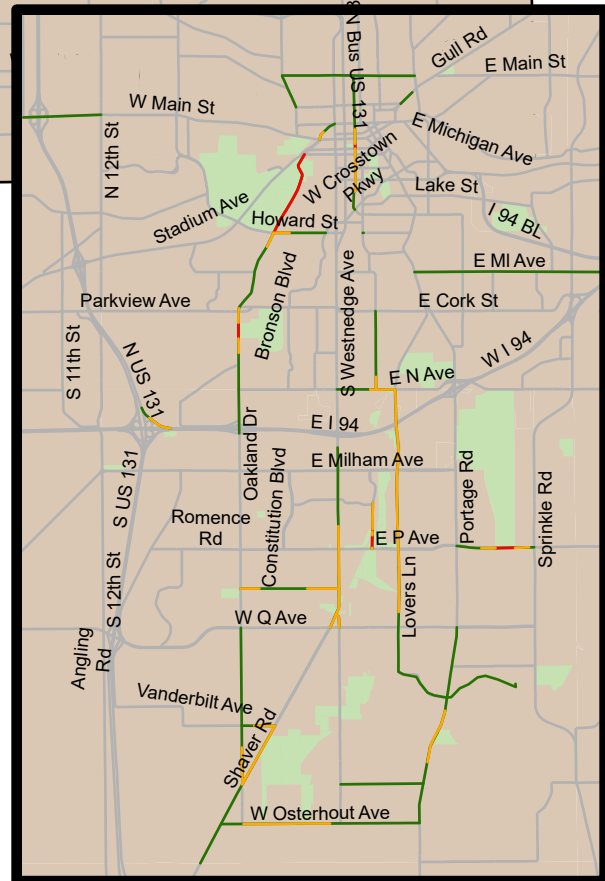


# Map 23: Capacity Projects Near Parks



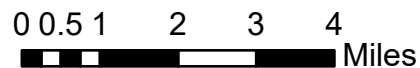
## Legend

- Capacity Projects & Parks Intersection
- Capacity Projects Within 1/4 Mile of Parks
- Funded Capacity Projects
- Federal Aid Roads
- Parks

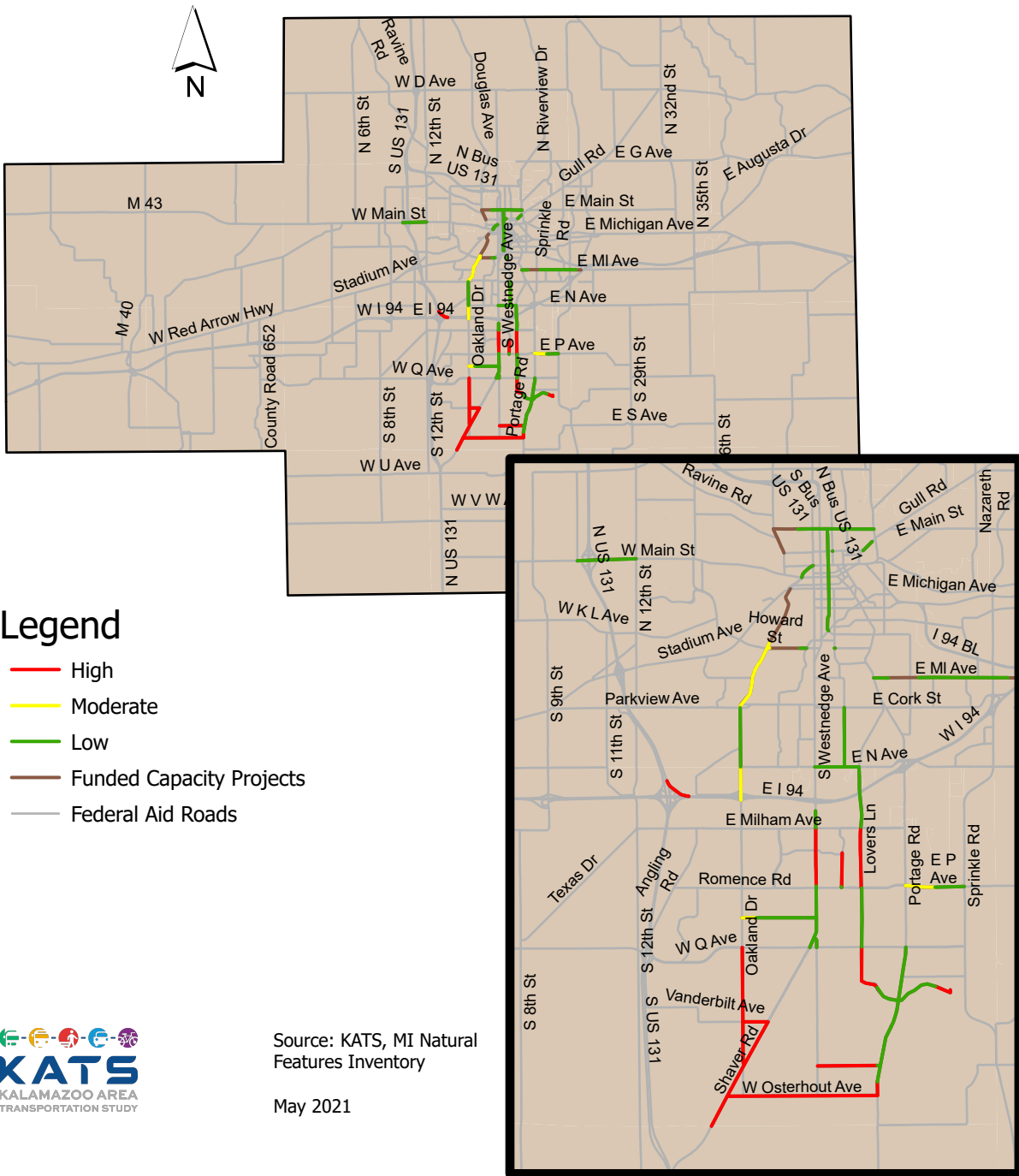


Source: Michigan Geographic Data Library, KATS

May 2021



# Map 24: Probability of Rare Species Community Within 1/4 Mile of Capacity Projects



# CHAPTER 10: CONGESTION & OPERATIONAL MANAGEMENT

## Congestion Management Process

A Congestion Management Process (CMP) is a regionally accepted, systematic approach for managing congestion. It is a multi-modal approach to assess alternative strategies for congestion management and move these strategies into the funding and implementation stages.

The CMP is a guideline for local agencies in the development of their capital improvement programs within the metropolitan planning area. Because of the limited financial resources available to communities to address roadway congestion, KATS carefully reviews projects to determine their suitability for widening, transit accessibility, and non-motorized access. KATS then selects only the most critical areas recommended by road and transit agencies to become part of the list of capacity improvement projects, intersection improvements, and travel demand management/operation strategies in the planning area. The CMP is a tool used by road and transit agencies to determine what level of capacity improvement is most suitable for a corridor and uses data from the KATS Travel Demand Model, verified and supported by real world data, to analyze submitted capacity improvement projects.

Federal Highway Administration lists the following as the major sources of traffic congestion in the United States:

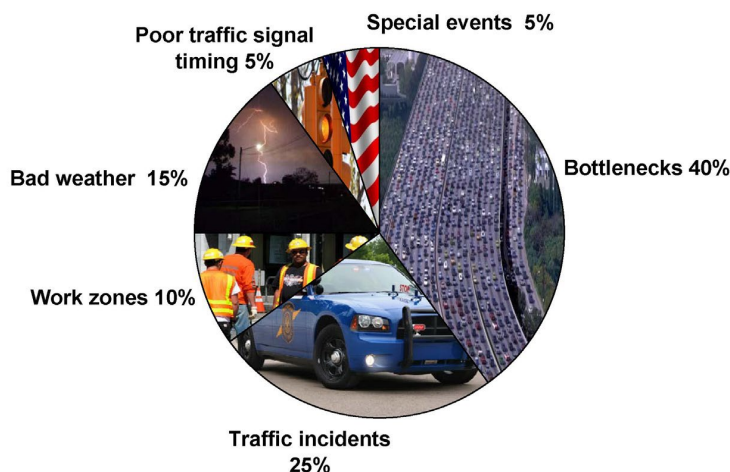
**Bottlenecks** are points where the roadway narrows, or regular traffic demands cause traffic to backup. These are the largest source of congestion (40%).

**Traffic incidents**, such as crashes, stalled vehicles, debris on the road cause about 1/4 of congestion problems (25%).

**Work zones** for new road building and maintenance activities like filling potholes are caused by necessary activities, but the amount of congestion caused by these actions can be reduced by a variety of strategies (10%).

**Bad weather** cannot be controlled, but travelers can be notified of the potential for increased congestion (15%).

**Causes of Congestion in the U.S.**



**Poor traffic signal timing** is a source of congestion on major and minor streets. This is the faulty operation of traffic signals or green/red lights where the time allocation for a road does not match the volume on that road (5%).

**Special events** cause "spikes" in traffic volumes and changes in traffic patterns. These irregularities either cause delay on days, times or locations where there usually is none, or add to regular congestion problems (5%).

## **Types of Congestion**

Highway (or roadway) congestion, very simply, is caused when traffic demand approaches or exceeds the available capacity of the highway system. Though this concept is easy to understand, congestion can vary significantly from day to day because traffic demand and available highway capacity is constantly changing. Traffic demands vary significantly by time of day, day of the week, and season of the year, and are also subject to significant fluctuations due to recreational travel, special events, and emergencies (e.g., evacuations). Available highway capacity, which is often viewed as being fixed, also varies constantly, being frequently reduced by incidents (e.g., crashes and disabled vehicles), work zones, adverse weather, and other causes.

To add even more complexity, the definition of highway congestion also varies significantly from time to time and place to place based on user expectations. An intersection that may seem very congested in a rural community may not even register as an annoyance in a large metropolitan area. A level of congestion that users expect during peak commute periods may be unacceptable if experienced on Sunday morning. Because of this, congestion is difficult to define precisely in a mathematical sense - it represents the difference between the highway system performance that users expect and how the system actually performs.

Congestion can also be measured in several ways - level of service, speed, travel time, and delay are commonly used measures. However, travelers have indicated that more important than the severity, magnitude, or quantity of congestion is the reliability of the highway system. People in a large metropolitan area may accept that a 20-mile freeway trip takes 40 minutes during the peak period, so long as this predicted travel time is reliable and is not 25 minutes one day and 2 hours the next. This focus on reliability is particularly prevalent in the freight community, where the value of time under certain just-in-time delivery circumstances may exceed \$5 per minute. System reliability data from the National Performance Measurement Research Data Set has recently become available and will be used to validate model assumptions (INRIX Data).

## Highway (Roadway) Congestion

Recurring Congestion occurs when traffic is greater than the roadway capacity; this can include peak hour congestion. The urban travel demand model predicts future recurring congestion and transportation planners use this tool to develop recurring capacity deficiencies which are then analyzed for the best transportation capacity improvement projects to alleviate the congested areas.

Non-recurring Congestion - Road closures, construction detours, traffic crashes, weather conditions, special events and disabled vehicles are the main causes of non-recurring congestion. Road closures and construction detours can be modeled for their effects on the transportation system and strategies to minimize the effects of road closures and construction detours are routinely developed on a project-by-project basis. The other types of non-recurring congestion (traffic crashes, weather conditions, and disabled vehicles) are difficult to forecast and require different strategies than recurring congestion.

In this plan we focus on the types of recurring highway congestion caused by:

- Intersection delays, turning movements, and signal timing issues.
- Travel demands greater than general roadway capacity for either the entire 24-hour period or more of the peak periods (AM, Midday, or PM) in the current roadway system, today and the future projections for the Kalamazoo metropolitan area out to 2050.

## Multi-Modal Congestion

The transportation system in the KATS Study Area is multi-modal and includes transit, bicycling, and walking as well as freight transportation. The KATS Travel Demand Model currently does not include a mode split with a full fixed route transit model. Future model development for the KATS 2050 Metropolitan Transportation Plan will include a transit component.

### Transit

Fixed route transit service, while reducing vehicle demand, can cause delays to the transportation system when a bus makes frequent stops on a roadway that does not include at least four travel lanes or a bus lane.

### Bicycling and Walking

In areas where appropriate, the addition of bicycling and walking facilities such as non-motorized pathways, bike lanes, and sidewalks can take traffic off congested roadways and move people onto alternative forms of transportation. This is one way in which traffic congestion can be alleviated with the incorporation of these forms of travel. See Chapter 5 for further details about these forms of travel in the MPO.

A more detailed look at congestion and the goals associated with its management can be found in the KATS Congestion Management Process document, available on the website or by requesting a hard copy.

## **Operational and Management Strategies**

Federal legislation emphasized the inclusion of operational and management strategies to improve the performance of existing transportation facilities to relieve congestion and maximize the safety and mobility of people and goods.

The management tools that the Kalamazoo Area Transportation Study uses outside of the Congestion Management Process for these activities are management systems in the following areas:

- Pavement (Asset)
- Bridge
- Safety
- Public Transportation
- Intermodal

The KATS uses the Michigan Department of Transportation's (MDOT) management system known as the Transportation Management System. Members of the KATS also maintain and use local transportation system management tools like the components of the Michigan Department of Transportation's system but containing local data exclusively.

# CHAPTER 11: FINANCIAL ANALYSIS

The KATS 2050 Metropolitan Transportation Plan (MTP) consists of the remaining portion of the FY 2020-2023 Transportation Improvement Program (TIP) and the 2050 Metropolitan Transportation Plan. The TIP is a subset of the MTP and contains the short-range list of road and transit projects communities and agencies plan to implement over a four-year period. The MTP contains the TIP and projects that will most likely be implemented from FY 2020 through FY 2050. Therefore, this transportation plan covers a period of 30 years. The MTP list of projects are required to be fiscally constrained; that is, the cost of projects listed in the MTP cannot exceed the amount of funding “reasonably expected to be available” during that time. The financial plan is the section of the MTP that documents the method used to calculate funds reasonably expected to be available and compares this amount to proposed projects to demonstrate that the MTP is fiscally constrained. The financial plan also identifies the costs of operating and maintaining the transportation system within KATS.

## Sources of Transportation Funding

The basic sources of transportation funding are motor fuel taxes and vehicle registration fees. Both the federal government and the State of Michigan tax motor fuel. The federal government taxed motor fuel, prior to the passage of the Fixing America’s Surface Transportation Act (FAST Act), at \$0.184 per gallon on gasoline and \$0.244 per gallon on diesel. Michigan prior to the Road Funding Package of bills taxed motor fuel at \$0.19 per gallon on gasoline and \$0.15 per gallon on diesel. Michigan also charges sales tax on motor fuel, but this funding is not applied to transportation. The motor fuel taxes are excise taxes, which mean they are a fixed amount per gallon. The Michigan fuel tax under the new package is at \$0.263 cents per gallon for both gasoline and diesel and will inflate with the Consumer Price Index after 2021.

The State of Michigan also collects annual vehicle registration fees when motorists purchase license plates or tabs. This is a very important source of transportation funding for the state. Currently, roughly half of the transportation funding collected by the state is in the form of vehicle registration fees.

## Cooperative Revenue Estimation Process

Estimating the amount of funding available for the MTP planning period is a complex process. It relies on several factors, including economic conditions, miles travelled by vehicles nationwide and in the State of Michigan, and federal and state transportation funding received in previous years. Revenue forecasting relies on a combination of data and experience and represents a “best guess” of future trends.

The revenue forecasting process is a cooperative effort. The Michigan Transportation Planning Association (MTPA), a voluntary association of public organizations and agencies responsible for the administration of transportation planning activities throughout the state, formed the Financial Working

Group (FWG) to develop a statewide standard forecasting process. FWG is comprised of members from the Federal Highway Administration (FHWA), the Michigan Department of Transportation (MDOT), transit agencies, and Metropolitan Planning Organizations, including KATS. It represents a cross-section of the public agencies responsible for transportation planning in our state. The revenue assumptions in this financial plan are based on the factors formulated by the FWG and approved by the MTPA. They are used for all financial plans in the state.

## **Highway Funding Forecast--Federal**

### **Sources of Federal Highway Funding**

Federal transportation funding primarily comes from motor fuel taxes (mostly gasoline and diesel). Receipts from these taxes are deposited in the Highway Trust Fund (HTF). Funding is then apportioned to the states. Apportionment is the distribution of funds through formulas in law, the FAST Act. Under this law, Michigan receives approximately \$1 billion in federal transportation funding annually. This funding is apportioned through several programs designed to accomplish different objectives, such as road repair, bridge repair, safety, and congestion mitigation. A brief description of the major funding sources follows.

**National Highway Performance Program (NHPP):** This funding is used to support condition and performance on the National Highway System (NHS) and to construct new facilities on the NHS. The National Highway System is the network of the nation's most important highways, including the Interstate and US highway systems. In Michigan, most roads on the National Highway System are state trunk lines (i.e., "I-," "US-," and "M- "roads. However, MAP-21 expanded the NHS to include all principal arterials (the most important roads after freeways), whether state or locally owned. As a result of this change, local agencies within KATS will receive approximately \$15.319 million through NHPP through FY2050.

**Surface Transportation Program (STP):** Funds for construction, reconstruction, rehabilitation, resurfacing, restoration, preservation, or operational improvements to federal-aid highways and replacement, preservation, and other improvements to bridges on public roads. Michigan's STP apportionment from the federal government is evenly split, half to areas of the state based on population and half that can be used in any area of the state. Over the 30-year period KATS will receive approximately \$132.879 million, which will be used by cities, villages, and county road commissions. STP can also be flexed (transferred) to transit projects.

**Highway Safety Improvement Program (HSIP):** Funds to correct or improve a hazardous road location or feature or address other highway safety problems. Projects can include intersection improvements; shoulder widening; rumble strips; improving safety for pedestrians, bicyclists, or disabled persons; highway signs and markings; guardrails; and other activities. The State of Michigan retains all Safety



funding and uses a portion on the state trunk line system, distributing the remainder to local agencies through a competitive process.

Local agencies within KATS have received \$4.329 million in HSIP funding between FY 2020 and 2022. Due to the competitive nature of the funding, future amounts cannot be guaranteed and are not included in the revenues of the MTP.

**Congestion Mitigation and Air Quality Improvement (CMAQ):** Intended to reduce emissions from transportation-related sources. MAP-21 has placed an emphasis on diesel retrofits, but funds can also be used for traffic signal retiming, actuations, and interconnects; installing dedicated turn lanes; roundabouts; travel demand management such as ride share and vanpools; transit; and non-motorized projects that divert non-recreational travel from single-occupant vehicles. The State of Michigan has allocated funding to KATS based on population. MDOT uses half of the funding for CMAQ-eligible projects on the state trunk line system; the other half is distributed by KATS to eligible projects. Traditionally, KATS has divided local funding between highway and transit projects. KATS's share of this funding traditionally used for street associated projects is estimated to be approximately \$20.193 million over the 30-year period of the plan.

**Transportation Alternatives Program (TAP):** Funds can be used for several activities to improve the transportation system environment, including (but not limited to) non-motorized projects, preservation of historic transportation facilities, outdoor advertising control, vegetation management in rights-of-way, and the planning and construction of projects that improve the ability of students to walk or bike to school. The funding will then be split, 50% being retained by the state and 50% to various areas of the state by population, much like the STP distribution. KATS's share of this funding is estimated to be approximately \$9.631 million over the 30-year period and will be distributed to local agencies on a competitive basis. In addition to its local allocation, local agencies may apply for a competitive, state-wide allocation of Transportation Alternatives Program funding.

In past years KATS has received statewide competitive TAP funds. Due to the competitive nature of the State-wide TAP funding, future amounts cannot be guaranteed and are not included in the revenues of the MTP.

### **Base and Assumptions Used in Forecast Calculations of Federal Highway Funds**

Each year, the targets (amount KATS is expected to receive) are calculated for each of these programs based on federal apportionment documentation and state law. Targets can vary from year to year due to many factors, including how much funding was actually received by the Highway Trust Fund, the authorization (the annual transportation funding spending ceiling), and the appropriation (how much

money is actually approved to be spent). Targets for fiscal year 2020, as provided by MDOT, are used as the baseline for the forecast. The Financial Work Group of the MTPA developed a 2.1% per year federal revenue growth rate for the FY 2025 through FY2050 period. For FY2023 through FY2025, revenue was held flat. If targets for the near-term TIP years are known (such as NHPP), those amounts were used without adjustment. While this is less than the 5% growth rate over the past 20 years, the decrease in motor fuel consumption (due to less driving and more fuel-efficient vehicles) and restructuring experienced by the nation in general made assumptions based on long-term historical trends unusable. Table 1 contains the federal transportation revenue projections available to local KATS agencies for the 2020-2050 MTP period.

**Table 1. Federal Highway Transportation Revenue Projections for the 2020-2050 MTP Available to Local Agencies (Thousands of Dollars).**

Fiscal Year(s)	STP	NHPP	CMAQ – Streets	TAP	Total
2020	\$3,593	\$444	\$1,175	\$238	\$5,450
2021	\$3,273	\$444	\$505	\$238	\$4,460
2022	\$3,331	\$475	\$505	\$238	\$4,549
2023	\$3,486	\$485	\$505	\$238	\$4,704
2024	\$3,486	\$485	\$505	\$238	\$4,704
2025	\$3,486	\$485	\$505	\$238	\$4,704
2026 - 2030	\$18,559	\$2,582	\$2,713	\$1,309	\$25,163
2031 - 2035	\$20,615	\$2,864	\$3,031	\$1,461	\$27,971
2036 - 2040	\$22,911	\$3,179	\$3,368	\$1,624	\$31,082
2041 - 2045	\$25,420	\$3,527	\$3,737	\$1,802	\$34,486
2046 - 2050	\$28,204	\$3,913	\$4,147	\$2,000	\$38,264
<b>Plan Total</b>	<b>\$136,366</b>	<b>\$18,884</b>	<b>\$20,699</b>	<b>\$9,631</b>	<b>\$185,537</b>

## Highway Funding Forecast—State Funding

### Sources of State Highway Funding

There are two main sources of state highway funding: the state motor fuel tax and vehicle registration fees. Prior to the Road Funding Package of bills, the fuel tax was set at \$0.19 per gallon on gasoline and \$0.15 per gallon on diesel. Michigan also charges sales tax on motor fuel, but this funding is not applied to transportation. The motor fuel taxes are excise taxes, which mean they are a fixed amount per gallon. The Michigan fuel tax under the new package is at 26.3 cents per gallon for both gasoline and diesel and will inflate with the Consumer Price Index after 2021.

The State of Michigan also collects annual vehicle registration fees when motorists purchase license plates or tabs. This is a very important source of transportation funding for the state. Currently, roughly half of the transportation funding collected by the state is in the form of vehicle registration fees. Under the new Michigan Road funding package General Fund dollars are scheduled to be included in road funding beginning in 2019.

The state law governing the collection and distribution of state highway revenue is Public Act 51 of 1951, commonly known as “Act 51.” All revenue from these sources is deposited into the Michigan Transportation Fund (MTF). Act 51 contains several complex formulas for the distribution of the funding, but essentially, once funding for certain grants and administrative costs are removed, 10% of the remainder is deposited in the Comprehensive Transportation Fund (CTF) for transit. The remaining funds are then split between the State Trunk-line Fund, administered by MDOT, county road commissions, and municipalities in a proportion of 39.1%, 39.1%, and 21.8%, respectively.

MTF funds are critical to the operation of the road system in Michigan. Since federal funds cannot be used to operate or maintain the road system (items such as snow removal, mowing grass in the right-of-way, paying the electric bill for streetlights and traffic signals, etc.), MTF funds are local communities’ and road commissions’ main source for funding these items. Most federal transportation funding must be matched with 20% non-federal revenue. In Michigan, most “match” funding comes from the MTF. Finally, federal funding cannot be used on local public roads, such as subdivision streets. Here again, MTF is the main source of revenue for maintenance and repair of these roads.

Funding from the MTF is distributed statewide to incorporated cities, incorporated villages, and county road commissions, collectively known as “Act 51 agencies.” The formula is based on population and public road mileage under each Act 51 agency’s jurisdiction.

### **Base and Assumptions Used in Forecast Calculations of State Highway Funds**

The base for the financial forecast of state funding is the FY 2020 distribution of MTF funding as found in MDOT Report 139. This report details distribution of funding to each eligible Act 51 agency in the state. Adding all the distributions to cities, villages, and county road commissions at KATS provides an overall distribution total for the region.

The Financial Work Group predicts an increase of 1.9% in state revenues for fiscal years 2020-2050. Table 2 shows the amount of MTF funding cities, villages, and road commissions within KATS are projected to receive during the FY2020-2050 period, based on the agreed-upon rates of increase.

**Table 2. Projected MTF Distribution to Local Act-51 Agencies for Highway Use, FY 2020 through FY 2050 (Thousands of Dollars)**

Fiscal Year	MTF to Locals
2020	\$41,793
2021	\$42,588
2022	\$43,397
2023	\$44,221
2024	\$45,061
2025	\$45,917
2026 - 2030	\$243,012
2031 - 2035	\$268,902
2036 - 2040	\$298,845
2041 - 2045	\$331,570
2046 - 2050	\$367,878
<b>Plan Total</b>	<b>\$1,773,187</b>

## Highway Funding Forecast—Hybrid State/Federal funding

### Sources of Hybrid State/Federal Funding

Michigan has several programs that use both state funding and federal funding. These programs are collectively known as the Transportation Economic Development Fund (TEDF). The TEDF is split into several categories, depending on what that category is designed to accomplish. The one category available to KATS is TEDF Category D: All-season Road network in rural counties.

Category D is a blend of state and federal funding. Act 51 specifies that \$36.8 million of each year’s MTF receipts be directed to the Transportation Economic Development Fund. The federal portion of TEDF was formerly derived from the Equity Bonus program, but this was discontinued under MAP-21. The State of Michigan has instead funded the TEDF Category D program with additional Surface Transportation Program funding.

The Local Bridge program is funded through a portion of the state motor fuel tax. It is supplemented with Surface Transportation Program (STP) funding retained by the state (for a discussion of local STP funding, see above). The Local Bridge program is competitive, with funds being awarded by Local Bridge Committees in each of the MDOT planning regions. For FY 2020-2023 KATS has been awarded \$1.716 million in Local Bridge Program funds. Due to the competitive nature of the funding, future amounts cannot be guaranteed and are not included in the revenues of the MTP.

KATS is located within the Southcentral Michigan Planning Region (Barry, Branch, Calhoun, Kalamazoo, and St. Joseph counties). Rural STP funding is provided to the regions five counties. The Kalamazoo County allocation contained within the TIP is the base source for the Rural STP amount in 2020-2023. The Small Urban Area includes Paw Paw and Lawton villages in Van Buren County within the KATS area. That area receives approximately \$375,000 every two years. The average of \$175,000 per year was

inflated and used for years 2026 and beyond. The programmed dollars in 2020 to 2023 are shown in the table below.

**Base and Assumptions Used in Forecast Calculations of Hybrid State/Federal Highway Funds**

Hybrid revenues estimated for the Plan include the programmed FY 2020 to 2023 funds for the Small Urban Program. The Rural STP, Small Urban and the State D funds were inflated at the same rates as approved by the MTPA and listed earlier.

**Table 3. Projected Transportation Economic Development Fund (Local Rural STP), State TEDF Category D, and Small Urban Funds, FY 2016 - FY 2050 (thousands of Dollars)**

Fiscal Year(s)	Rural STP	State D	Small Urban	Total
2020	\$1,106	\$580	\$303	\$1,989
2021	\$728	\$585	\$0	\$1,313
2022	\$657	\$79	\$375	\$1,111
2023	\$670	\$79	\$0	\$749
2024	\$670	\$79	\$375	\$1,124
2025	\$670	\$79	\$0	\$749
2026 - 2030	\$3,567	\$418	\$982	\$4,967
2031 - 2035	\$3,962	\$459	\$1,095	\$5,516
2036 - 2040	\$4,403	\$505	\$1,217	\$6,125
2041 - 2045	\$4,886	\$554	\$1,350	\$6,790
2046 - 2050	\$5,420	\$609	\$1,498	\$7,527
<b>Plan Total</b>	<b>\$26,741</b>	<b>\$4,026</b>	<b>\$7,198</b>	<b>\$37,965</b>

**Highway Funding Forecast—Local Funding**

**Sources of Local Highway Funding**

Local highway funding can come from a variety of sources, including transportation millages, general fund revenues, and special assessment districts. Locally funded transportation projects that are not of regional significance are not required to be included in the TIP or MTP. This makes it difficult to determine how much local funding is being spent for roads within KATS. Additionally, special assessment districts and millages generally have finite lives, so an accurate figure for local transportation funding would require knowledge of what millages and special assessment districts were in force in each year of the TIP/MTP

period. Given that there are two counties and 40 cities, villages, and townships within KATS, this level of accuracy is difficult to achieve.

**Base and Assumptions Used in Forecast Calculations of Local Highway Funds**

Local road agencies prepare Act 51 reports which include local revenues used on the road portion of the transportation system. A four-year average of those non-federal and non-state revenues for KATS local agencies was calculated as a base. These funds were increased 0.4% from 2020 to 2050 to be conservative and not having a good base of information to project from. The projected revenue for the Plan from these sources is \$163,907 million for the next 30 years.

**Table 4. Non-Federal and Non-MTF Projected Plan Revenues (thousands of Dollars)**

Year	Non-Federal, Non-MTF Revenue
2020	\$5,002
2021	\$5,022
2022	\$5,042
2023	\$5,062
2024	\$5,082
2025	\$5,103
2026 - 2030	\$25,822
2031 - 2035	\$26,258
2036 - 2040	\$26,660
2041 - 2045	\$27,197
2046 - 2050	\$27,657
Plan Total	\$163,907

**Highway Funding Forecast - MDOT**

The state of Michigan maintains an extensive network of highways across the state and within the KATS Region. All highways with an “I,” “M,” or “US” designation, such as I-94, US-131, or M-43 are part of this network, which is known as the State Trunkline System. The portion of the State Trunkline System in KATS is comprised of over 579 lane-miles of highway, hundreds of bridges and culverts, signs, traffic signals, safety barriers, sound walls, and other capital that must be periodically repaired, replaced, reconstructed, or renovated. The agency responsible for the State Trunkline System is the Michigan Department of Transportation (MDOT). This amount includes trunkline road and bridge rehabilitation and reconstruction, Capital Preventive Maintenance, CMAQ, Traffic/Safety and related preservation projects. The amount of funding projected by MDOT to be available for system preservation activities (such as road repaving, rehabilitation, or reconstruction) is shown in Table 5.

**Table 5. Long-Range Preservation Revenue Forecast, 2020-2050 (thousands of Dollars)**

Fiscal Year(s)	MDOT Preservation Revenue
2020	\$25,721
2021	\$16,300
2022	\$22,300
2023	\$11,000
2024	\$21,500
2025	\$16,600
2026 - 2030	\$91,300
2031 - 2035	\$114,800
2036 - 2040	\$141,300
2041 - 2045	\$167,400
2046 - 2050	\$199,206
<b>Plan Total</b>	<b>\$818,406</b>

**Base and Assumptions used by MDOT in its Highway Funding Forecast**

MDOT Statewide Transportation Planning Division analyzed historical state highway revenue and historical federal obligations. State revenue and federal revenue growth rates were calculated. The revenue growth used in the long-range revenue forecast for the near term has virtually flat rates to reflect the current economic conditions. For some years the state forecast assumes additional revenue through a variety of mechanisms to match federal aid. To take a conservative approach with the federal and state revenue forecasts beyond the near term, 90% of the 10-year average growth rates were used. The resulting rates beyond the near term are federal 2.1% annual growth, and state 1.9% annual growth.

**MDOT Revenue available for Capacity/New Roads Capital outlay**

MDOT has capacity projects in the 2020 to 2050 Plan and has earmarked funding for those Capacity/New Road projects. They include I-94 from east of Lovers Lane to West of Sprinkle Road widening from 4 to 6 lanes and an illustrative interchange reconfiguration at US-131 and US-131BR. Projected resources available for this New Roads/Capacity projects in the 2020 - 2050 Metropolitan Transportation Plan is \$103.163 million.

**Table 6. Long-Range Bond/Capacity/New Road Revenue Forecast, 2020-2050 (thousands of Dollars)**

Fiscal Year(s)	MDOT Bond/Capacity/New Roads
2020	\$0
2021	\$103,163
2022	\$40,900
2023	\$0
2024	\$0
2025	\$0
2026 - 2030	\$0
2031 - 2035	\$0
2036 - 2040	\$0
2041 - 2045	\$0
2046 - 2050	\$0
Plan Total	\$144,063

**Methodology for MPO Allocation of Capacity Improvement/New Road and Preservation Dollars**

Revenues available for local agency preservation and capacity/new roads projects in the 2050 Metropolitan Transportation Plan include the Federal sources discussed above, MTF distributions to Local Agencies, Hybrid revenues, and Non-federal/non-MTF revenues (milage, general fund, etc.). These include the following:

- Surface Transportation Program (STP)
- National High-Performance Program (NHPP)
- Congestion Mitigation Air Quality (CMAQ) portion used for street projects
- Transportation Alternatives Program (TAP)
- Michigan Transportation Fund (MTF)
- Rural Surface Transportation Program
- State Economic Development Category - D
- Small Urban, and
- Non-federal/Non-MTF funds

The total of these sources for local agencies was computed. All revenues were grown at the rates for 2020 through 2050 based on the MTPA procedure discussed above. The total of these sources was then



reduced to eliminate Secondary/Minor Road revenues, and Local Agency Operational and Maintenance costs to provide revenues that can reasonably be expected to be available for preservation and capacity/new road projects by local agencies (non-MDOT) during the life of the Plan. The result is that revenues available for local agency road projects contained in the KATS Plans total \$546,040,000.

**Table 7: Local Revenues Available for the 2050 Metropolitan Transportation Plan in Thousands of Dollars**

Fiscal Year(s)	STP	NHPP	CMAQ - Streets	TAP	MTF to Locals	Rural STP	State D	Small Urban	Non-Federal, Non-MTF Revenue	Local Agency Program Funding <sup>1</sup>	Total	Local O&M	Available for Plan
2020	\$3,593	\$444	\$1,175	\$238	\$41,793	\$1,106	\$580	\$303	\$5,002	\$1,358	\$55,592	\$38,813	\$16,779
2021	\$3,273	\$444	\$505	\$238	\$42,588	\$728	\$585	\$0	\$5,022	\$2,264	\$55,647	\$39,550	\$16,097
2022	\$3,331	\$475	\$505	\$238	\$43,397	\$657	\$79	\$375	\$5,042	\$0	\$54,099	\$40,301	\$13,798
2023	\$3,486	\$485	\$505	\$238	\$44,221	\$670	\$79	\$0	\$5,062	\$0	\$54,746	\$41,067	\$13,679
2024	\$3,486	\$485	\$505	\$238	\$45,061	\$670	\$79	\$375	\$5,082	\$0	\$55,981	\$41,847	\$14,134
2025	\$3,486	\$485	\$505	\$238	\$45,917	\$670	\$79	\$0	\$5,103	\$0	\$56,483	\$42,430	\$14,053
2026 - 2030	\$18,559	\$2,582	\$2,713	\$1,309	\$243,012	\$3,567	\$418	\$982	\$25,822	\$0	\$298,964	\$225,680	\$73,284
2031 - 2035	\$20,615	\$2,864	\$3,031	\$1,461	\$268,902	\$3,962	\$459	\$1,095	\$26,258	\$0	\$328,647	\$247,950	\$80,697
2035 - 2040	\$22,911	\$3,179	\$3,368	\$1,624	\$298,845	\$4,403	\$505	\$1,217	\$26,660	\$0	\$362,712	\$272,418	\$90,294
2041 - 2045	\$25,420	\$3,527	\$3,737	\$1,802	\$331,570	\$4,886	\$554	\$1,350	\$27,197	\$0	\$400,043	\$299,300	\$100,743
2045 - 2050	\$28,204	\$3,913	\$4,147	\$2,000	\$367,878	\$5,420	\$609	\$1,498	\$27,657	\$0	\$441,326	\$328,835	\$112,491
<b>Plan Total</b>	<b>\$136,366</b>	<b>\$18,884</b>	<b>\$20,699</b>	<b>\$9,631</b>	<b>\$1,773,187</b>	<b>\$26,741</b>	<b>\$4,026</b>	<b>\$7,198</b>	<b>\$163,907</b>	<b>\$3,622</b>	<b>\$2,164,231</b>	<b>\$1,618,191</b>	<b>\$546,040</b>

<sup>1</sup> Includes funding from competitive programs including the Highway Safety Improvement Program, the State-wide Transportation Alternatives Program, and the Local Bridge Program. Due to the competitive or short-term nature of these funds, only funding that has been awarded is included.

## **Discussion of Innovative Financing Strategies--Highway**

A few innovative financing strategies have been developed over the past two decades to help stretch limited transportation dollars. Some are purely public sector; others involve partnerships between the public and private sectors. Some of the more common strategies are discussed below.

**Toll Credits:** This strategy allows states to count funding they earn through tolled facilities (after deducting facility expenses) to be used as “soft match,” rather than using the usual cash match for federal transportation projects. States must demonstrate “maintenance of effort” when using toll credits—in other words, they must show that the toll money is being used for transportation purposes and that they’re not reducing their efforts to maintain the existing system by using the toll credit program. Toll credits have been an important source of funding for the State of Michigan in the past because of the three major bridge crossings and one tunnel crossing between Michigan and Ontario. Toll credits have also helped to partially mitigate the funding crisis in Michigan, since insufficient non-federal funding is available to match all the federal funding apportioned to the state.

**State Infrastructure Bank (SIB):** Established in many states, including Michigan. Under the SIB program, states can place a portion of their federal highway funding into a revolving loan fund for transportation improvements such as highway, transit, rail, and intermodal projects. Loans are available at 3% interest and a 25-year loan period to public entities such as political subdivisions, regional planning commissions, state agencies, transit agencies, railroads, and economic development corporations. Private and nonprofit corporations developing publicly owned facilities may also apply. In Michigan, the maximum per project loan amount is \$2 million.

**Transportation Infrastructure Finance and Innovation Act (TIFIA):** This nationwide program, significantly expanded under MAP-21, provides lines of credit and loan guarantees to state or local governments for development, construction, reconstruction, property acquisition, and carrying costs during construction. TIFIA enables states and local governments to use the borrowing power and creditworthiness of the United States to finance projects at far more favorable terms than they would otherwise be able to do on their own. Repayment of TIFIA funding to the federal government can be delayed for up to five years after project completion with a repayment period of up to 35 years. Interest rates are also low. The amount authorized for the TIFIA program in FY 2020 nationwide is \$1.0 billion.

**Bonding:** Bonding is borrowing, where the borrower agrees to repay lenders the principal and interest. Interest may be fixed over the term of the bond or variable. The amount of interest a

borrower will have to pay depends in large part upon its perceived credit risk, the greater the perceived chance of default, the higher the interest rate. In order to bond, a borrower must pledge a reliable revenue stream for repayment. For example, this can be the toll receipts from a new transportation project. In the case of general obligation bonds, future tax receipts are pledged.

States are allowed to borrow against their federal transportation funds, within certain limitations. While bonding provides money up front for important transportation projects, it also means diminished resources in future years, as funding is diverted from projects to paying the bonds' principal and interest. Michigan transportation law requires money for the payment of bond and other debts be taken off the top before the distribution of funds for other purposes. Therefore, the advantages of completing a project more quickly need to be carefully weighed with the disadvantages of reduced resources in future years.

**Advance Construct/Advance Construct Conversion:** This strategy allows a community or agency to build a transportation project with its own funds (advance construct) and then be reimbursed with federal funds in a future year (advance construct conversion). Tapered match can also be programmed, where the agency is reimbursed over a period of two or more years. Advance construct allows for the construction of highway projects before federal funding is available; however, the agency must be able to build the project with its own resources and then be able to wait for federal reimbursement in a later year.

**Public-Private Partnerships (P3):** Funding available through traditional sources, such as motor fuel taxes, is not keeping pace with the growth in transportation system needs. Governments are increasingly turning to public-private partnerships (P3) to fund large transportation infrastructure projects. An example of a public-private partnership is Design/Build/Finance/Operate (DBFO). In this arrangement, the government keeps ownership of the transportation asset, but hires one or more private companies to design the facility, secure funding, construct the facility and operate it, usually for a set period of time. The private-sector firm is repaid most commonly through toll revenue generated by the new facility. Sometimes, as in the case of the Chicago Skyway and the Indiana Toll Road, governments grant exclusive concessions to private firms to operate and maintain already-existing facilities in exchange for an up-front payment from the firm to the government. The firm then operates, maintains, and collects tolls on the facility during the period of the concession, betting that it will collect more money in tolls than it paid out in operations costs, maintenance costs, and the initial payment to the government.

## Highway Operations and Maintenance

Construction, reconstruction, repair, and rehabilitation of roads and bridges are only part of the total cost of the highway system. It must also be operated and maintained. Operations and maintenance are defined as those items necessary to keep the highway infrastructure functional for vehicle travel, other than the construction, reconstruction, repair, and rehabilitation of the infrastructure. Operations and maintenance include items such as snow and ice removal, pothole patching, rubbish removal, maintaining the right-of way, maintaining traffic signs and signals, clearing highway storm drains, paying the electrical bills for streetlights and traffic signals, and other similar activities, and the personnel and direct administrative costs necessary to implement these projects. These activities are as vital to the smooth functioning of the highway system as good pavement.

Federal transportation funds cannot be used for operations and maintenance of the highway system. Since the TIP and MTP only include federally funded transportation projects (and non-federally funded projects of regional significance), they do not include operations and maintenance projects. While in aggregate, operations and maintenance activities are regionally significant (individual projects do not rise to that level). However, federal regulations require an estimate of the amount of funding that will be spent operating and maintaining the federal-aid eligible highway system over the FY 2020-2050 MTP period. This section of the Financial Plan provides an estimate for KATS and details the method used to estimate these costs.

MDOT has provided KATS with its 2020 Operations and Maintenance budget expenditures in the KATS MPO area, of approximately \$11.023 million. This does not include road and bridge CPM, CSM, rehabilitation, reconstruction and/or bridge replacement projects, new roads, or capacity improvement/modernization projects, which are listed separately in the TIP/MTP. Since MDOT's operations and maintenance funding comes from state motor fuel taxes (the Michigan Transportation Fund), the agreed-upon rate of increase for state funds (1.9% annually) was applied to derive the operations and maintenance costs for FYs 2020-2050. *It is assumed that the revenues for MDOT Operations and Maintenance will be fully expended by MDOT during the Plan period.* The dollars budgeted by MDOT for Operations and Maintenance are assumed to equal the expenditures by MDOT on these activities and result is no net change in the revenues available for the Plan.

Local communities' and agencies' costs to operate and maintain their portions of the federal-aid highway system and local system determined using a four-year average of expenditures on the secondary/minor road system and any cost not considered preservation or construction/capacity on the primary/major road system as reported to Act 51. The primary/major road preservation or construction/capacity expenditures are considered to be available for the 2050 Metropolitan Transportation Plan projects. Much of local agencies' operations and maintenance funding comes from the Michigan Transportation Fund, so the agreed-upon rate of increase for state funds (1.9% annually) was applied to derive the operations and maintenance costs for FYs 2020 through 2050. MDOT and local operations and maintenance funding available is summarized in Table 8.

**Table 8. Projected Available Highway Operations and Maintenance (O&M) Funding, Federal Aid Eligible Roads, FY 2020 through FY 2050 (Thousands of Dollars).**

Year	MDOT O&M	Local O&M	Total O&M
2020	\$11,023	\$38,813	\$49,836
2021	\$11,154	\$39,550	\$50,704
2022	\$11,387	\$40,301	\$51,688
2023	\$11,625	\$41,067	\$52,692
2024	\$11,868	\$41,847	\$53,715
2025	\$12,116	\$42,430	\$54,546
2026 - 2030	\$64,490	\$225,680	\$290,170
2031 - 2035	\$71,250	\$247,950	\$319,200
2036 - 2040	\$79,319	\$272,418	\$351,737
2041 - 2045	\$87,973	\$299,300	\$387,273
2046 - 2050	\$97,014	\$328,835	\$425,849
Plan Total	\$469,219	\$1,618,191	\$2,087,410

The Local Operations and Maintenance costs are subtracted from the total Plan revenues to determine the revenues available for the Plan projects.

**Total Revenues Available for the Streets Part of the 2050 Plan in Thousands of Dollars:**

Fiscal Year(s)	Local Agency Available for Plan	MDOT Bond/ Capacity/New Roads	MDOT Preservation Revenue	Total Available for Plan
2020	\$16,779	\$0	\$25,721	\$42,500
2021	\$16,097	\$103,163	\$16,300	\$135,560
2022	\$13,798	\$40,900	\$22,300	\$76,998
2023	\$13,679	\$0	\$11,000	\$24,679
2024	\$14,134	\$0	\$21,500	\$35,634
2025	\$14,053	\$0	\$16,600	\$30,653
2026 - 2030	\$73,284	\$0	\$91,300	\$164,584
2031 - 2035	\$80,697	\$0	\$114,800	\$195,497
2036 - 2040	\$90,294	\$0	\$141,300	\$231,594
2041 - 2045	\$100,743	\$0	\$167,400	\$268,143
2046 - 2050	\$112,491	\$0	\$199,206	\$311,697
<b>Plan Total</b>	<b>\$546,040</b>	<b>\$144,063</b>	<b>\$818,406</b>	<b>\$1,508,509</b>

**Highway Commitments and Projected Available Revenue**

The MTP must be fiscally constrained; that is, the cost of projects programmed in the TIP/MTP cannot exceed revenues “reasonably expected to be available” during the 30-year period. Funding for core programs such as NHP, STP, HSIP, and CMAQ are expected to be available to the region based on historical trends of funding from earlier, similar programs in past federal surface transportation laws. Likewise, state funding from the Michigan Transportation Fund (MTF) and the hybrid state/federal programs, Transportation Economic Development Fund Category D, are also expected to be available between FY 2020-2050. Funds from other programs are generally awarded on a competitive basis and are therefore impossible to predict. In these cases, projects are not amended into the TIP or MTP until proof of funding availability (such as an award letter) are provided. Funds from federal competitive programs are not included in the revenue forecast.

All federally funded projects must be in the TIP/MTP. Additionally, any non-federally funded but regionally significant project must also be included. In these cases, project submitters demonstrate that funding is available and what sources of non-federal funding are to be utilized.

Total Revenues available for the 2050 Plan (Streets)	\$ 1,517,539,000
Total Expenditures in the 2050 Plan (Streets)	\$ 1,517,539,000
Difference	\$ 0

The Streets portion of the 2050 Plan is financially constrained.

## **Transit Financial Forecast— Federal**

### **Sources of Federal Transit Funding**

Federal revenue for transit comes from federal motor fuel taxes, just as it does for highway projects. Some of the motor fuel tax collected from around the country is deposited in the Mass Transit Account of the Highway Trust Fund (HTF). Federal transit funding is similar to federal highway funding in that there are several core programs where money is distributed on a formula basis and other programs that are competitive in nature. Here are brief descriptions of some of the most common federal transit programs.

**Section 5307:** This is the largest single source of transit funding that is apportioned to Michigan. Section 5307 funds can be used for capital projects, transit planning, and projects eligible under the former Job Access Reverse Commute (JARC) program (intended to link people without transportation to available jobs). Some of the funds can also be used for operating expenses, depending on the size of the transit agency. 1% of funds received are to be used by the agency to improve security at agency facilities. Distribution is based on formulas including population, population density, and operating characteristics related to transit service. Urbanized areas of 200,000 in population or larger receive their own apportionment. Areas between 50,000 and 199,999 population are awarded funds by the governor from the governor's apportionment.

**Section 5310, Elderly and Persons with Disabilities:** Funding for projects to benefit seniors and disabled persons when service is unavailable or insufficient and transit access projects for disabled persons exceeding Americans with Disabilities Act (ADA) requirements. Section 5310 incorporates the former New Freedom program. The State of Michigan allocates its funding on a per-project basis.

**Section 5311, Non-Urbanized Area Formula Grant:** Funds for capital, operating, and rural transit planning activities in areas under 50,000 population. Activities under the former JARC program



(see Section 5307 above) in rural areas are also eligible. The state must use 15% of its Section 5311 funding on intercity bus transportation. The State of Michigan operates this program on a competitive basis.

**Section 5337, State of Good Repair Grants:** Funding to state and local governmental authorities for capital, maintenance, and operational support projects to keep fixed guide-way systems in a state of good repair. Recipients will also be required to develop and implement an asset management plan. 50% of Section 5337 funding will be distributed via a formula accounting for vehicle revenue miles and directional route miles; 50% is based on ratios of past funding received.

**Section 5339, Bus and Bus Facilities:** Funds will be made available under this program to replace, rehabilitate, and purchase buses and related equipment, as well as construct bus-related facilities. Each state will receive \$1.25 million, with the remaining funding apportioned to transit agencies based on various population and service factors.

In addition to these funding sources, transit agencies can also apply for Surface Transportation Program and Congestion Mitigation and Air Quality Improvement (CMAQ) program funds. Within KATS, approximately one-half of each year's local CMAQ allocation is reserved for transit projects.

### **Base and Assumptions Used in Forecast Calculations of Federal Transit Funds**

The base for the federal portion of the transit financial forecast is the amount of federal funding each transit agency received in the region in FY 2020. It was determined (by the MTPA Financial Workgroup) to keep revenues at the FY2023 levels for FY2024 and 2025. For FY2026 through 2050, the annual growth rate will be 2.1% Table 9 shows the federal transit forecast for the FY2020-2050 MTP period.

**Table 9. Federal Transit Revenue Projections for the transit agencies in the KATS area FY2020-2050 MTP (Thousands of Dollars).**

Year	5307	5310	5311	5339	STL	STU	CMAQ	TOTAL
2020	\$3,099	\$735	\$16	\$313	\$0	\$0	\$45	\$4,208
2021	\$3,862	\$0	\$18	\$350	\$0	\$50	\$46	\$4,326
2022	\$2,700	\$200	\$30	\$356	\$105	\$0	\$46	\$3,437
2023	\$3,039	\$184	\$30	\$356	\$145	\$0	\$47	\$3,801
2024	\$3,039	\$184	\$30	\$356	\$0	\$0	\$48	\$3,657
2025	\$3,039	\$184	\$30	\$356	\$0	\$0	\$50	\$3,659
2026 - 2030	\$16,320	\$991	\$145	\$1,702	\$0	\$0	\$268	\$19,426
2031 - 2035	\$18,366	\$1,115	\$163	\$1,916	\$0	\$0	\$305	\$21,865
2036 - 2040	\$20,668	\$1,255	\$184	\$2,156	\$0	\$0	\$347	\$24,610
2041 - 2045	\$23,258	\$1,412	\$207	\$2,426	\$0	\$0	\$395	\$27,698
2046 - 2050	\$26,174	\$1,588	\$233	\$2,730	\$0	\$0	\$450	\$31,175
<b>Plan Total</b>	<b>\$123,564</b>	<b>\$7,848</b>	<b>\$1,086</b>	<b>\$13,017</b>	<b>\$250</b>	<b>\$50</b>	<b>\$2,047</b>	<b>\$147,862</b>

### **Transit Financial Forecast—State**

#### **Sources of State Transit Funding**

Most state-level transit funding is derived from the same source as state highway funding: the state tax on motor fuels. Act 51 stipulates that 10% of receipts into the MTF, after certain deductions, is to be deposited in a subaccount of the MTF called the Comprehensive Transportation Fund (CTF). This is analogous to the Mass Transit Account of the Highway Trust Fund at the federal level. Additionally, a portion of the state-level auto-related sales tax is deposited in the CTF. Distributions from the CTF are used by public transit agencies for matching federal grants and for operating expenses. Approximately \$196.8 million was distributed to the CTF in FY 2020.

#### **Base and Assumptions Used in Forecast Calculations of State Transit Funds**

The base for calculations of state transit funds is the amount transit agencies in the KATS area received in FY 2020. For state match funds, the MTPA Financial Workgroup determined that the growth rate will be the same as the state growth rates as discussed above. The state-level CTF distributions to the KATS transit agency is shown in Table 10, broken down by state match and state operating.

**Table 10. State Transit (CTF) Revenue Projections in the KATS area for the 2020-2050 MTP (Thousands of Dollars).**

Year	5307	5310	5311	5339	STL	STU	CMAQ	Total
2020	\$5,549	\$183	\$17	\$78	\$0	\$0	\$0	\$5,827
2021	\$5,803	\$0	\$19	\$87	\$0	\$12	\$0	\$5,921
2022	\$5,450	\$50	\$7	\$89	\$26	\$0	\$0	\$5,622
2023	\$5,450	\$51	\$8	\$91	\$36	\$0	\$0	\$5,636
2024	\$5,450	\$51	\$8	\$91	\$0	\$0	\$0	\$5,600
2025	\$5,450	\$51	\$8	\$91	\$0	\$0	\$0	\$5,600
2026 - 2030	\$28,843	\$270	\$42	\$482	\$0	\$0	\$0	\$29,637
2031 - 2035	\$31,689	\$296	\$46	\$529	\$0	\$0	\$0	\$32,560
2036 - 2040	\$34,816	\$329	\$52	\$587	\$0	\$0	\$0	\$35,784
2041 - 2045	\$38,252	\$370	\$58	\$660	\$0	\$0	\$0	\$39,340
2046 - 2050	\$42,026	\$410	\$64	\$732	\$0	\$0	\$0	\$43,232
Plan Total	\$208,778	\$2,061	\$329	\$3,517	\$62	\$12	\$0	\$214,759

### **Transit Financial Forecast—Local**

#### **Sources of Local Transit Funding**

Major sources of local funding for transit agencies include fare-box revenues, general fund transfers from city governments, and transportation millages. All transit agencies in the KATS area collect fares from riders. This fare-box funding totaled approximately \$2.234 million in 2020. Metro collected a millage of approximately \$6.659 million in 2020.

#### **Base and Assumptions Used in Forecast Calculations of Local Transit Funds**

The base amounts for fare-box, general fund transfers, and millages are derived directly from Metro Transit and Van Buren Public Transit. Due to the COVID-19 Pandemic, fare box revenue from FY 2019 was used. Presuming that transit agencies spend all money that they receive each year, this data can be used for revenue projections as well. In addition, the agencies provide data on other miscellaneous funding, such as advertising and contracts (Table 11). The local amounts include fare-box receipts, general fund transfers, millages, and miscellaneous income.

**Table 11. Local Transit Revenue Projections in the KATS area for the 2020-2050 MTP Period (Thousands of Dollars).**

Year	Local
2020	\$8,893
2021	\$8,213
2022	\$8,369
2023	\$ 8,528
2024	\$ 8,690
2025	\$ 8,855
2026 - 2030	\$ 46,865
2031 - 2035	\$ 51,489
2036 - 2040	\$ 56,571
2041 - 2045	\$ 62,153
2046 - 2050	\$ 68,286
Plan Total	\$ 336,915

### **Discussion of Innovative Financing Strategies--Transit**

Sources of funding for transit are not limited to the federal, state, and local sources previously mentioned. As with highway funding, there are alternative sources of funding that can be utilized to operate transit service. Bonds can be issued. (See discussion of bonds in the “Innovative Financing Strategies–Highway” section.) The federal government also allows the use of toll credits to match federal funds. Toll credits are earned on tolled facilities, such as the Blue Water Bridge in Port Huron. Regulations allow for the use of toll revenues (after facility operating expenses) to be used as “soft match” for transit projects. Soft match means that actual money does not have to be provided—the toll revenues are used as a “credit” against the match. This allows the actual toll funds to be used on other parts of the transportation system, thus stretching the resources available to maintain the system.

### **Transit Capital and Operations**

Transit expenditures are divided into two basic categories, capital, and operations. Capital refers to the physical assets of the agency, such as buses and other vehicles, stations and shelters at bus stops, office equipment and furnishings, and certain spare parts for vehicles. Operations

refers to the activities necessary to keep the system operating, such as driver wages and maintenance costs. Most expenses of transit agencies are operations expenses.

Data on capital and operating costs was provided directly from the TIP. The four-year average split (from previous TIPs) is 15% capital vs 85% operations for Metro Transit within KATS. It is assumed that this basic split will continue for the FY 2020 - 2050 MTP period. It is also assumed that the transit agencies are spending all available capital and operations funding, so that the amount expended on these items is roughly equal to the amount available. Table 10 shows the amounts estimated to be available for transit capital and operations during the FY 2020 - 2050 MTP period.

**Table 12. Anticipated amounts for transit agencies in the KATS area to expend on transit capital and transit operations for the 2020-2050 MTP (Thousands of Dollars).**

Year	Operating	Capital	Transit Total
2020	\$16,089	\$2,839	\$18,928
2021	\$15,691	\$2,769	\$18,460
2022	\$14,814	\$2,614	\$17,428
2023	\$15,270	\$2,695	\$17,965
2024	\$15,255	\$2,692	\$17,947
2025	\$15,397	\$2,717	\$18,114
2026 - 2030	\$81,539	\$14,389	\$95,928
2031 - 2035	\$90,027	\$15,887	\$105,914
2036 - 2040	\$99,420	\$17,545	\$116,965
2041 - 2045	\$109,812	\$19,379	\$129,191
2046 - 2050	\$121,289	\$21,404	\$142,693
Plan Total	\$594,603	\$104,930	\$699,533

### **Transit Commitments and Projected Available Revenue**

The MTP must be fiscally constrained; that is, the cost of projects programmed in the MTP cannot exceed revenues “reasonably expected to be available” during the 26-year MTP period. Funding for core programs such as Section 5307, Section 5339, Section 5310, and Section 5311 are expected to be available to the region based on historical trends of funding from earlier, similar programs in past federal surface transportation laws. Likewise, state funding from the Comprehensive Transportation Fund (CTF), and local sources of revenue such as fare-box, general fund transfers, and millages, are also expected to be available during the FY

2020 - 2050 MTP period. Funds from other programs are generally awarded on a competitive basis and are therefore impossible to predict. In these cases, projects are not amended into the MTP until proof of funding availability (such as an award letter) is provided. Funds from federal competitive programs are not included in the revenue forecast.

All federally funded projects must be in the MTP. Additionally, any non-federally funded but regionally significant project must also be included. In these cases, project submitters demonstrate that funding is available and what sources of non-federal funding are to be utilized.

**Table 13. Anticipated amounts for Streets (Local and MDOT) and Transit in the KATS the 2020-2050 MTP (Thousands of Dollars).**

Fiscal Year(s)	Streets Available for Plan	Transit Available for Plan	Plan Total
2020	\$42,500	\$18,928	\$61,428
2021	\$135,560	\$18,460	\$154,020
2022	\$76,998	\$17,428	\$94,426
2023	\$24,679	\$17,965	\$42,644
2024	\$35,634	\$17,947	\$53,581
2025	\$30,653	\$18,114	\$48,767
2026 - 2030	\$164,584	\$95,928	\$260,512
2031 - 2035	\$195,497	\$105,914	\$301,411
2036 - 2040	\$231,594	\$116,965	\$348,559
2041 - 2045	\$268,143	\$129,191	\$397,334
2046 - 2050	\$311,697	\$142,693	\$454,390
<b>Plan Total</b>	<b>\$1,517,539</b>	<b>\$699,533</b>	<b>\$2,217,072</b>

**Plan Expenditures**

Just as Plan revenues are projected at rates of growth, expenditures for the Plan must be changed to account for the year of expenditure. The MTPA Financial Workgroup has adopted a 4% annual increase in project costs to calculate the year of expenditure for Roads and Transit projects. Plan project costs have been adjusted for this factor.

**Financial Constraint Demonstration**

The Plan revenues are compared to the Plan commitments in Table 14 below. The revenues exceed the commitments, and the Plan is financially constrained.

**Table 14: Fiscal Constraint Demonstration (Thousands of Dollars)**

Fiscal Year(s)	Total Projected Revenue (\$1,000s)	Total Projected Costs (\$1,000s)	Difference (\$1,000s)
2020	\$61,428	\$61,428	\$0
2021	\$154,020	\$154,020	\$0
2022	\$94,426	\$94,426	\$0
2023	\$42,644	\$42,644	\$0
2024	\$53,581	\$53,581	\$0
2025	\$48,767	\$48,767	\$0
2026 - 2030	\$260,512	\$260,512	\$0
2031 - 2035	\$301,411	\$301,411	\$0
2036 - 2040	\$348,559	\$348,559	\$0
2041 - 2045	\$397,334	\$397,334	\$0
2046 - 2050	\$454,390	\$454,390	\$0
<b>Plan Total</b>	<b>\$2,217,072</b>	<b>\$2,217,072</b>	<b>\$0</b>

# CHAPTER 12: FUTURE TRANSPORTATION SYSTEM

A combination of regional trends, socioeconomic preferences, innovative transportation designs and plans being implemented are shedding light on what the greater Kalamazoo area may look like in 2050. The development and approval of The Pedestrian, Greenways and Transit Plan as well as other local transportation plans are excellent indicators that, if implemented, will go further to enhance the resiliency, safety, and mobility of the area.

This chapter highlights systemic and incremental changes, opportunities, and choices that local agencies will be faced with to honor the goals set forth in this plan. If each goal is fulfilled within a comprehensive systemwide approach, the transportation future imagined begins to look good. The goals, as discussed thoroughly in Chapter 2, include:

1. Safety - as safe and secure transportation system for all users.
2. System Preservation - a well maintained transportation system.
3. Multimodal Mobility & Accessibility - an accessible, equitable, and integrated transportation system.
4. Partnership & Funding - regional collaboration in transportation planning, funding, and implementation.
5. Environmental Stewardship - a transportation system that protects and enhances the natural, cultural, and built environment.

## **Travel Demand Model and the Forecasting Process**

The urban area travel demand modeling process for the greater Kalamazoo area was a cooperative effort between the Kalamazoo Area Transportation Study (KATS), the Michigan Department of Transportation (MDOT), Statewide and Urban Travel Analysis Section, and a consultant team lead by Cambridge Systematics. KATS provided the lead role in the process and assumed responsibility for modeling activities with both agencies reaching consensus on selective process decisions.

Transportation travel demand models are driven, in part, by the relationships of land use activities to the transportation network. Specific inputs of the modeling process are land use activity, including the number of households, vehicles, and employment located in each traffic zone. The modeling process translates this data into vehicle trips on the modeled transportation network. Sets of demographic data were developed to establish the 2016 base year transportation model, the 2050 forecast year travel demand model, and the intermediate target year models for 2020, 2025, 2030, 2035, 2040 and 2045. A



further discussion of the modeling process, including Network Development, Traffic Analysis Zone Structure, Household Survey Processing, and Socio-Economic Data Development is provided in Appendix H: Travel Demand Model.

Forecasting and distribution of future households and employment data cannot be made with pinpoint accuracy due to the nature of the data sources, changes in development plans, unforeseen economic or population factors, and the limits imposed by time and financial resources. Efforts were made to allocate the data as accurately as possible, although in a few instances, due to minor errors in address coding or unidentifiable employer names or addresses, some of the employment data allocated to one zone may belong in an adjacent zone. This does not change the overall effect of travel demand on the model because travel activity would be loaded onto the same adjacent network corridor. Therefore, household and employment data for individual zones should be considered as an estimate to be used as a guideline and not an exact total.

### **Deficiency Analysis**

Identification of system deficiencies is a prerequisite for the examination of alternatives and selection of projects for the Metropolitan Transportation Plan. Traditional transportation plan development processes addressed deficiency analysis exclusively through the modeling process. While this is still a key analytical tool, the management systems, basic traffic engineering analysis, and other approaches have advanced in relative importance. This advancement has been promoted by the increasing necessity to preserve, as well as improve, the structural and functional integrity of the existing system. Sensitivity to social, environmental, and economic factors place increased emphasis on making better use of the existing system.

Transportation demand was estimated for the 2050 transportation plan base year of 2016 and for interval years through 2050. Transportation demand was estimated and assigned to the Kalamazoo Area Transportation Study (KATS) transportation network of federal aid eligible roads using TransCAD software. Most of the segments showing capacity deficiencies are part of the trunkline system since these roads generally have higher volumes. Segments showing future volumes to capacities ratio greater than 1.00 will be segments considered to be deficient for capacity in the 2050 transportation plan. Many of the road segments that have future volume to capacity ratios greater than 1.00 are not included in the 2050 MTP proposed capacity project list. The following table includes capacity deficient road segments that, following review, were not included in capacity projects. Reasons for not including these projects for added lanes include limited right-of-way, fronting property uses that make widening impractical, financial difficulties, and other community goals and values.

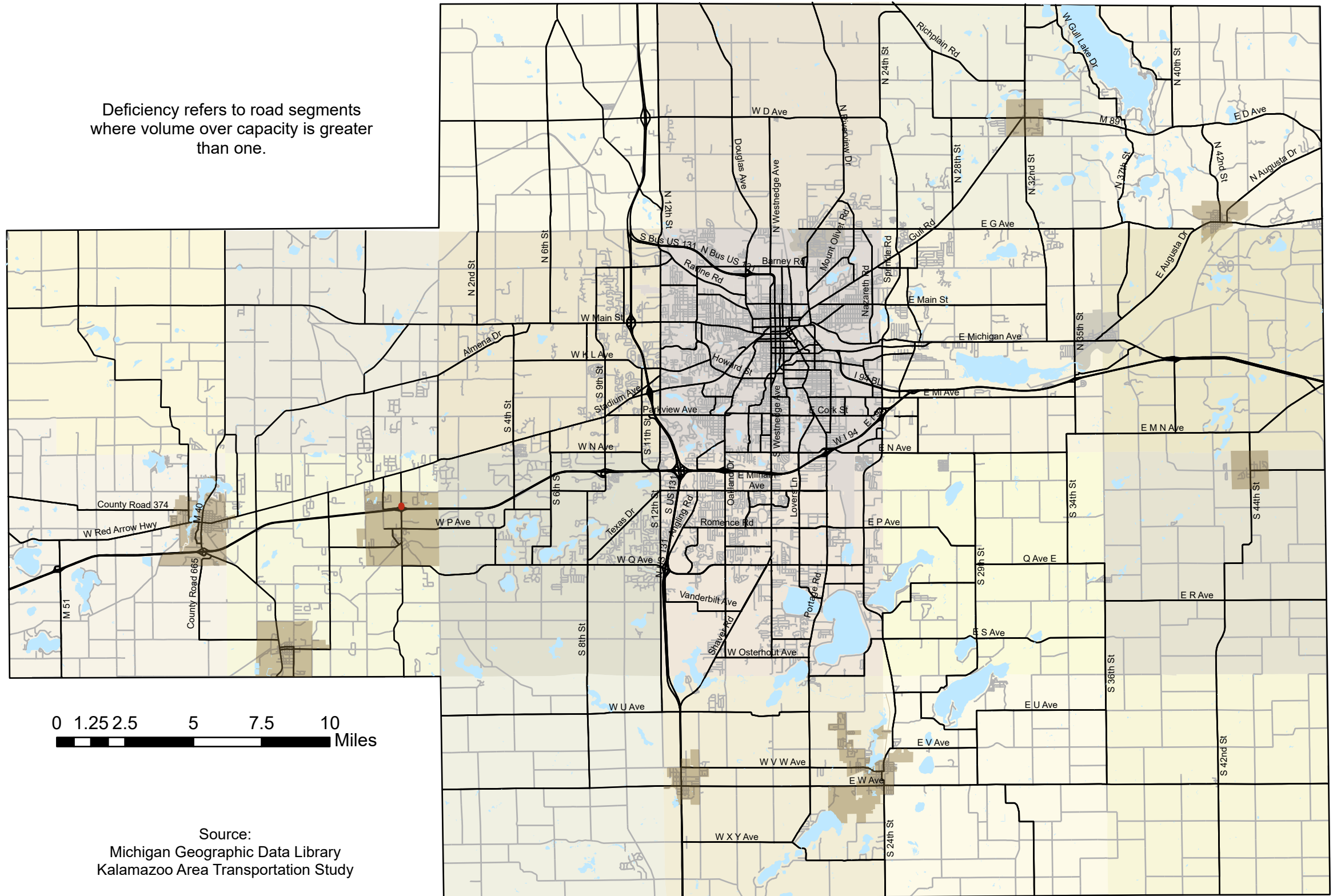
Road Name	Location	Proposed Action
North Main Street Roundabout	Between North Main Street and Cole Ave	

# Map 25: 2050 Network Deficiencies

## Legend

- Deficiencies
- Federal Aid Roads
- Non-Federal Aid Roads
- Lakes
- Villages
- MPO Boundary

Deficiency refers to road segments where volume over capacity is greater than one.



June 2021

Source:  
Michigan Geographic Data Library  
Kalamazoo Area Transportation Study

## **Road Condition Deficiencies**

The Kalamazoo Area Transportation Study, in cooperation with the Michigan Department of Transportation, the Road Commission of Kalamazoo County, and the cities of Kalamazoo and Portage, rate the surface condition of all federal aid roads in Kalamazoo County over a two-year period as part of the KATS pavement management system. This work is done using the Pavement Surface Evaluation and Rating (PASER) system that is used throughout the State of Michigan for evaluating and reporting road conditions. Data is collected in the field on laptops and stored on databases used by Roadsoft, a software suite developed and maintained by Michigan Technological University for road asset management. Once collection is completed, the data is submitted to the state's Transportation Asset Management Council (TAMC).

PASER uses surface condition features to rate road segments on a scale from 1 to 10. Roads rated from 1 to 4 are in the "poor" category and are considered past their useful life and in need of complete reconstruction. Those rated 5 to 7 are in the "fair" category and considered candidates for rehabilitation; generally milling and resurfacing, or structural overlay. Those rated 8 to 10 are in the "good" category and are candidates for preventive maintenance, which typically consists of crack filling, seal coat or chip seal.

The PASER systems ratings numbers correlate to real-world conditions, which enables the meaningful setting of goals. One of the major goals of most asset management plans is to perform as much preventive maintenance as possible to keep "good" roads from becoming "fair" or "poor", as the costs for doing so are substantially lower than performing rehabilitation or reconstruction. In setting parameters for a study of road deficiencies, it is then logical to set an average PASER rating of 8 as a tall goal for the 10-year window of a deficiency analysis. It is also reasonable to set a lower goal of an average PASER rating of 6, the value representing the middle of the "fair" range. Among its many tools, Roadsoft has optimization algorithms that apply user-defined fixes and costs to generate projected conditions, costs and miles of each type of fix for a specified time frame. The use of Roadsoft's optimization tool helps to further refine and illustrate the unmet road capital needs in the greater Kalamazoo area.

## **Determining Costs for Roadsoft Treatment Definitions**

The use of Roadsoft to model costs requires that treatments and their unit prices be assigned to pavement types and subtypes. Unit costs per square yard are entered for pavements and shoulders for each treatment. The program then uses those numbers to calculate a cost per lane mile, which is considered by the program to be half of the width as defined in the pavement subtype. The KATS Roadsoft database contains pavement treatment definitions shared by member jurisdictions. Since the exercise was not intended to be in-depth and to keep the work relatively simple, it was decided to determine one representative treatment/cost each for preventative maintenance, rehabilitation, and

reconstruction, and to limit the analysis to asphalt pavements, which make up 96% of the network. For the asphalt pavement type in KATS database, there are nine subtypes. Each subtype contains numerous preventive maintenances, rehabilitation and reconstruction treatment definitions with respective costs used by its respective road agency.

Using the Michigan Engineering Resource Library's (MERL) Average Unit Price (AUP) database, costs per square yard for Preventative Maintenance, various intensities of Rehabilitation and various depths of Reconstruction were calculated. Costs were then assigned appropriately to each National Functional Class (NFC) of roadway. Weighted costs for each NFC class were obtained by multiplying the total mileage of that class in the KATS MPO area by an assumed number of lanes and assumed lane width, then multiplying the resulting product by the assigned unit cost and percentage of total area represented by that class. Weighted Costs for each NFC class were then summed to obtain a reasonable representative cost to be applied in a Roadsoft treatment definition for the entire region. Results were checked against treatment definitions used by KATS member agencies for similar work to see if they were appropriate. Calculated unit prices were very close to the Roadsoft users' averages for each subtype. Costs calculated did not include replacement/installation of driveways and sidewalks, curb and gutter, or slope restoration as the recording of quantities and/or conditions of those items is not uniform and there is no reliable measure of their needs. An example of the calculation methodology to determine treatment costs can be found in Appendix D.

### **Roadsoft Optimization**

Once treatment costs were obtained, they were entered into the Roadsoft treatment definition database to be used by the program's optimization tool. A filter was created to include the predominant pavement subtypes for all asphalt surfaced roadways of every jurisdiction in the KATS MPO area. The optimization tool was used to run scenarios given budgets of \$5 million per year and \$10 to \$100 million per year in increments of 10. A final set of optimizations were run, increasing the yearly budget until the system would spend no more in year one, to determine the cost of upgrading all roads in the KATS area to a minimum of PASER rating of 8 in one year. The maximum amount utilized by the program to perform all needed work in one year was slightly over \$512 million.

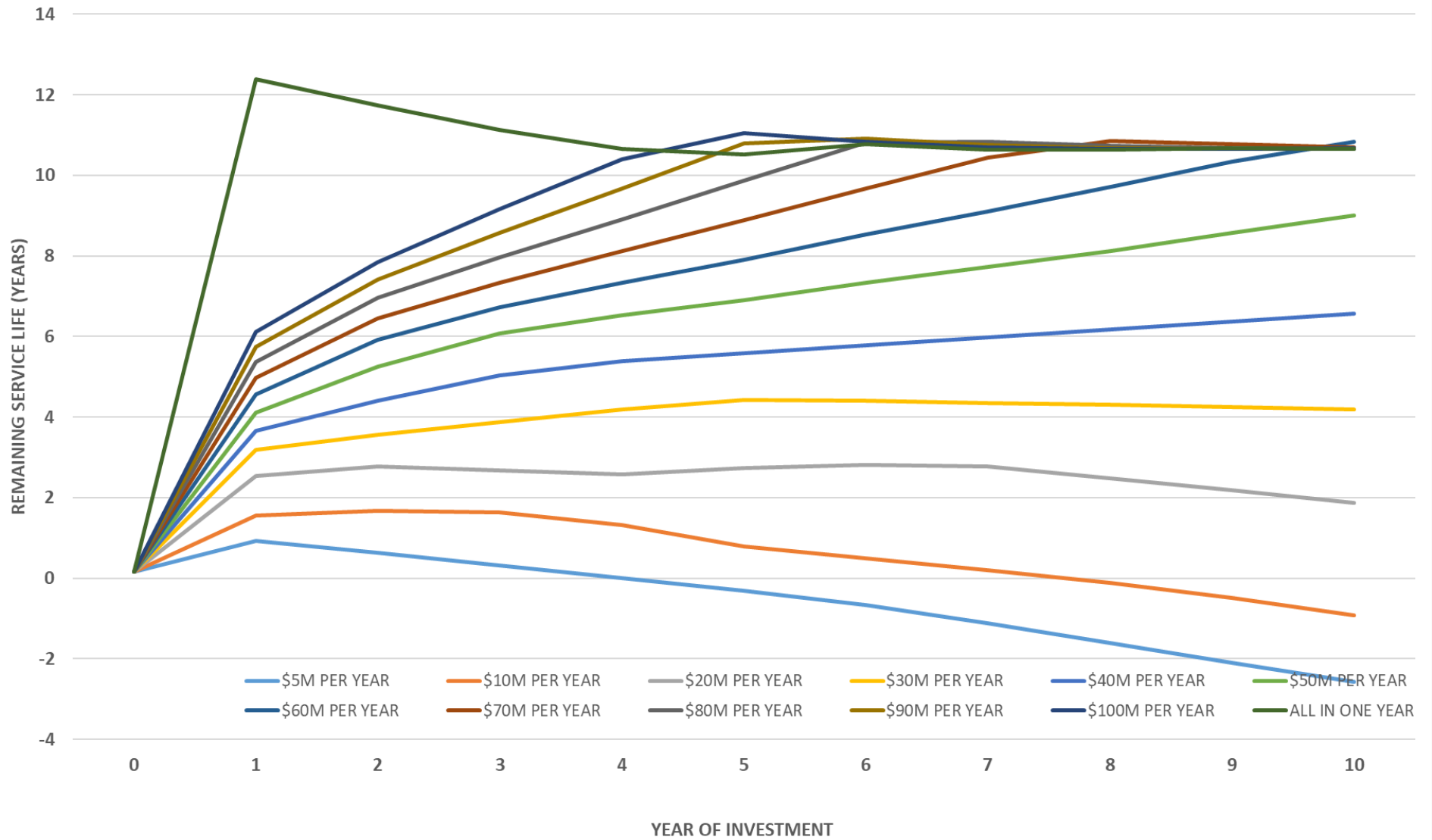
### **Results**

For each budget scenario, Roadsoft applied the treatments to maximize Remaining Service Life (RSL) per year for ten years. Reports generated for each run included cost distribution for each work type per year, Good/Fair/Poor distribution per year, miles of each type of maintenance performed each year, miles of road rated at each PASER value per year, and miles of road for each remaining service life (RSL) number for the entire range of RSL values along with the average RSL for the entire system for each year. Data

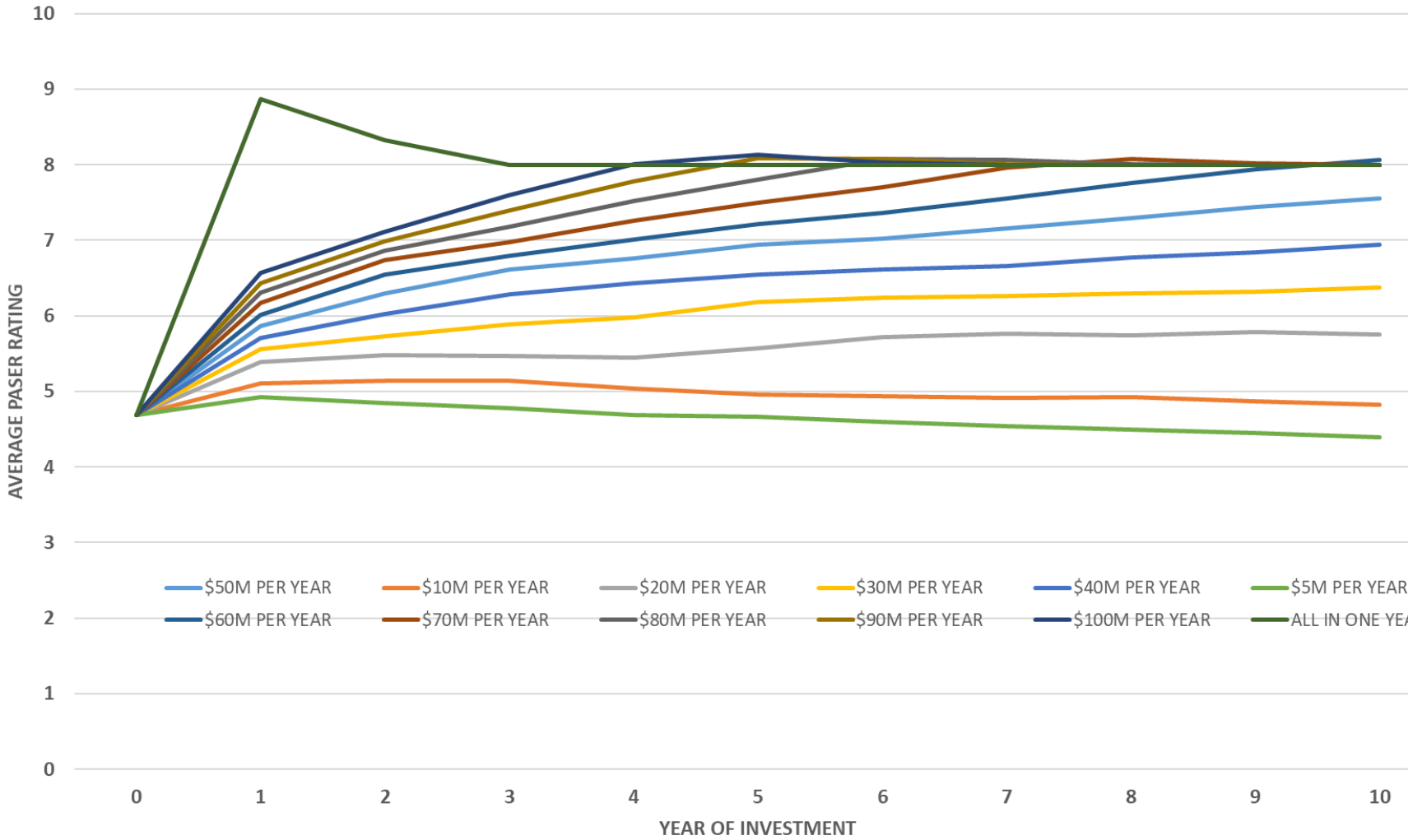
for each optimization run were exported as comma separated value files, then imported into Excel and converted to workbook files. Results were collected and the data graphed to determine condition trends and associated costs.

*Due to size, the Roadsoft data export and Excel spreadsheets used to calculate and summarize data are not included in the 2050 MTP. This information is available upon request by contacting the Kalamazoo Area Transportation Study staff at [info@katsmpo.org](mailto:info@katsmpo.org) or 269-343-0766.*

AVERAGE REMAINING SERVICE LIFE PER YEAR  
AT VARIOUS RATES OF INVESTMENT

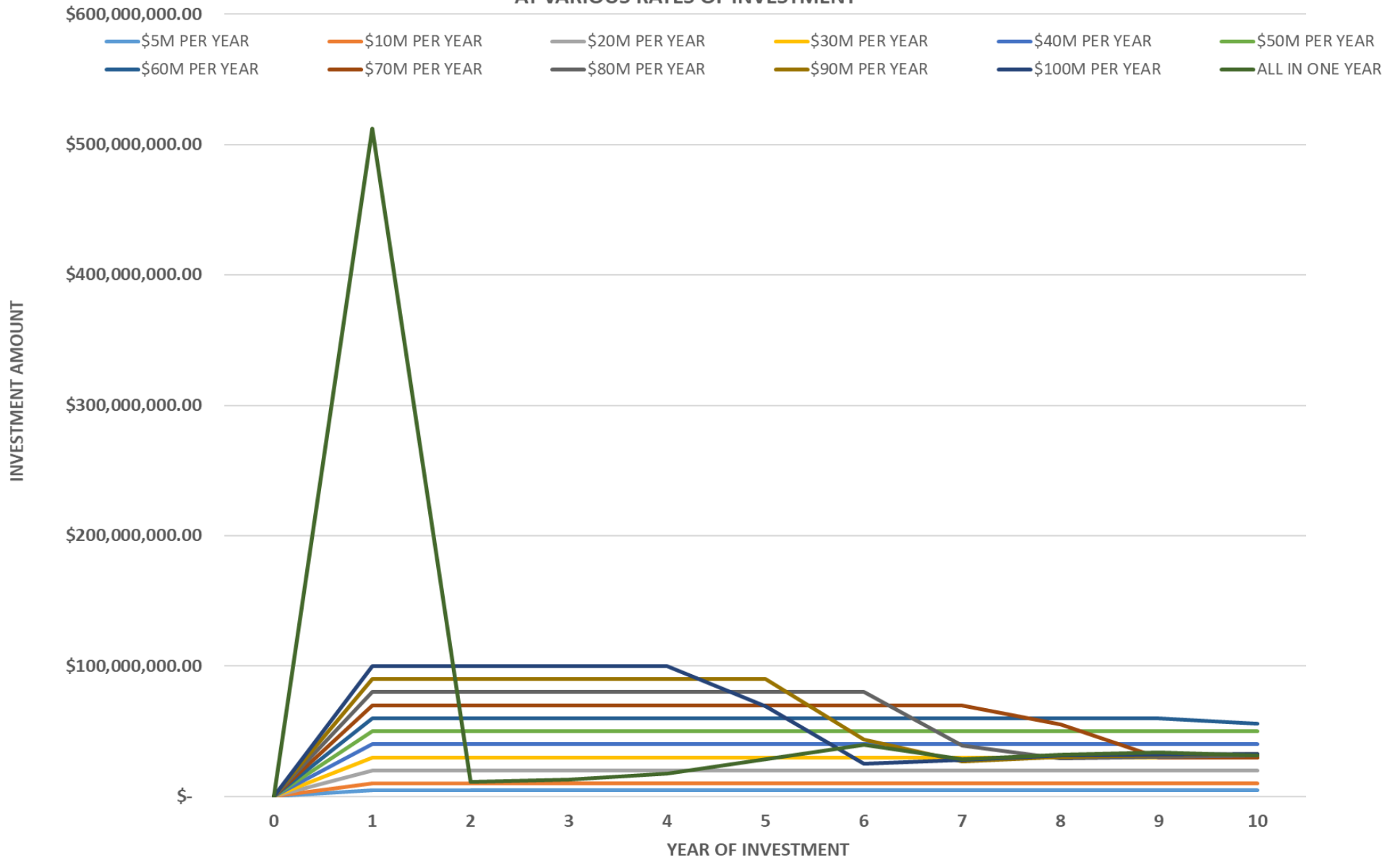


AVERAGE PASER RATING PER YEAR  
AT VARIOUS RATES OF INVESTMENT





### ACTUAL INVESTMENT PER YEAR AT VARIOUS RATES OF INVESTMENT



## Interpretation

In viewing the graphs, it becomes apparent that Roadsoft puts a priority on Preventative Maintenance (PM) work by applying budgets and fixes to maximize the number of roads PASER rating 8. Regardless of the budget amount applied, the program will not spend more than is needed to maintain roads at that rating. According to the program, using the treatments and definitions supplied by the KATS, a yearly budget of approximately \$60 million would be required to achieve an MPO wide PASER rating average of 8 in ten years. Once the average of 8 is achieved the program applies approximately \$32 million per year in PM to maintain that rating regardless of the maximum budget for the strategy. Interpolating, one arrives at a yearly budget of approximately \$24 million per year to achieve an MPO wide PASER rating average of 6 in ten years. Even applying that budget indefinitely, the system would never achieve an average rating of 8, as it is less than the amount required to simply maintain roads already at that rating, let alone upgrade the system to that level.

## Adjustments

There are two areas where adjustments to the previous results are appropriate and relatively easily determined. The first lies in how Roadsoft determines the quantities of pavement on which its calculations are based. The second adjustment is for pavements that exist but were not included in the Roadsoft optimizations.

In its calculations for the optimization tool, Roadsoft uses values defined in the pavement subtypes portion of the treatment definition section, including pavement width. Costs per lane mile are derived by halving the area formed by a mile of pavement at the user-specified width for the pavement subtype and multiplying the result by the user-defined cost. For calculating treatment costs, the program merely doubles the lane mile cost and simply assumes that all roads assigned to a pavement subtype are two lanes of half the stated width each. This assumption would be essentially true if there were subtypes in the system for every width of road, but that is not realistic. To check the accuracy of the results, a report was generated from Roadsoft of the total centerline mileage of roads from 1 to 8 lanes wide. Each length was multiplied by its respective number of lanes at 11.5 feet per lane to determine an approximate total area of pavement. The resulting 31,682,974 yards total is 1,068,382 square yards more than the 30,614,592 square yards total used by Roadsoft.

In addition, the asphalt subtypes included in the optimization runs previously summarized, there are 94.154 centerline miles of paved roads in the MPO area of other classifications. These are made up of other asphalt subtypes, (0.35 lane miles), concrete (73.113 lane miles) undefined (17.536 lane miles) and other miscellaneous subtypes. Assuming the other roads are all two yields an additional 1,270,452 square yards of pavement not accounted for in the original calculations. Added together, the two

adjustments total 2,338,833 square yards or approximately 8% more area than included in the initial Roadsoft analysis. Since treatment costs are based on area and unit costs of concrete pavement is generally more expensive to construct, it is reasonable to adjust the results of the Roadsoft analysis upwards by 10% to account for the difference.

## **Conclusion**

Incorporating the 10% increase to the Roadsoft optimization results yields the following:

- \$26 million per year to bring streets to average PASER rating of 6 in 10 years.
- \$66 million per year to bring streets to average PASER rating of 8 in 10 years.
- \$563 million per year to maximize streets to PASER rating 8 in one year.
- \$35 million per year to maintain streets at PASER rating of 8 after upgrading.

The current total for all KATS MPO road agencies capital projects is approximately \$33 million. This includes funding for non-pavement and non-road capital work such as curbs, sewers, bridges, non-motorized facilities and traffic signals. While these other categories are important parts of the overall transportation infrastructure, their conditions and needs are not currently easily ascertained, and thus not included in this study. When adjusted to account for pavement work only, it is estimated that applicable MPO wide funding is approximately \$20 million, resulting in a minimum shortfall of \$6 million per year to improve roads to “fair” condition. Improving the system to “good” condition in ten years would require an additional \$46 million per year, which could be reduced to \$35 million per year for PM. This cost is low as Roadsoft assumes PM can be performed indefinitely, which in real world conditions is not possible. Eventually, more intensive, and costly treatments will be required as roads continue to wear under weather and traffic loading.

Results obtained though this study represent needs for paved sections of motorized vehicle roadways only. Despite the inclusion of the adjustments for known factors, it is virtually certain that the calculated costs are still well under what is needed for the overall transportation system. Within the roadway category, for instance, curb and gutter, driveway, culvert, storm drainage infrastructure, increased width for parking, non-motorized lanes, and sidewalk replacement cost are not addressed as there is currently insufficient data on which to base need calculations. Other infrastructure categories, such as bridges, traffic signals and transit are not included either. As data and methods are further explored, these unrepresented needs can be accounted for. In the meantime, the results presented herein provide a picture of the scope and magnitude of transportation infrastructure needs.

## **Public Transportation System Deficiencies**

The identification of public transportation system deficiencies is accomplished differently than the identification of road system deficiencies. The public transportation system deficiencies can involve

limitation in areas covered by public transportation service and more demand for service than the system can handle. Since the entire metropolitan planning area has public transportation service available through the combination of fixed route and its associated American with Disabilities Act service in the urban area and demand response service, no area in the MPO is excluded from public transportation. Public market surveys and other public comments has identified the desire to increase the service levels provided. These desired increased service levels include:

- Shorter wait time between buses.
- Increasing the hours of service to cover third shift workers or late-night business.
- Linking rural areas to fixed route service.

The lack of these identified service level increase can be considered unmet needs or public transportation deficiencies. Metro, in partnership with the Central County Transportation Authority (CCTA) and the Kalamazoo County Transportation Authority (KCTA), has a Public Transit and Human Services Coordinated Plan as well as a Transit Asset Management Plan that address the needs expressed by the public.

## **Alternative Analysis**

KATS develops a forecast of population and employment to project the impact of growth on the transportation system using a travel demand model. The KATS' forecasts are based on existing master plans and current economic forecasts rather than a comprehensive regional growth management strategy. Through the process of developing future transportation alternatives, the KATS solicited projects from local agencies to create a pool of proposed and illustrative projects. Several combinations of these proposed projects and alternative modes of transportation were analyzed. Through this process, three scenarios were chosen for further and discussion.

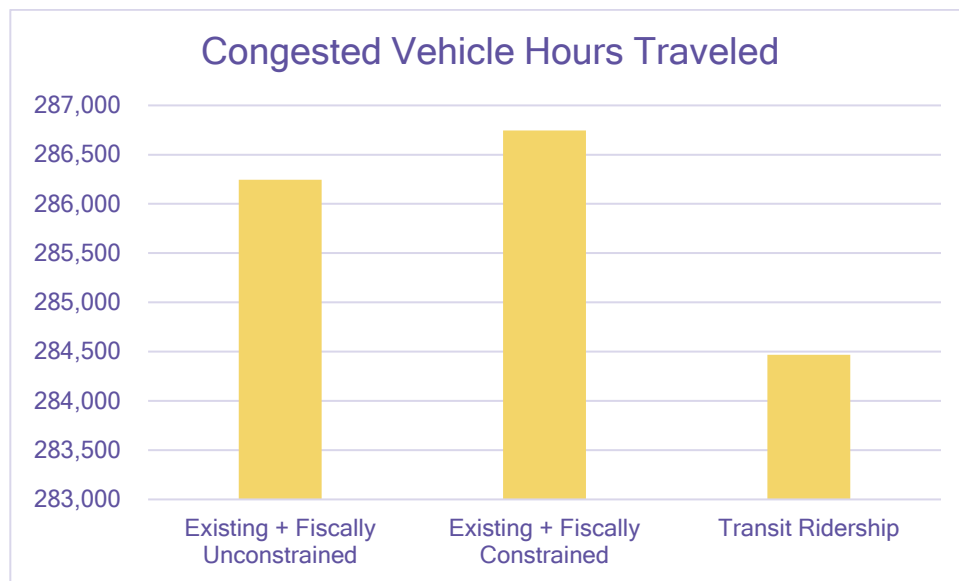
- Scenario 1: Existing plus Fiscally Unconstrained Capacity Projects - this scenario looks at the existing transportation system along with all the proposed capacity projects.
- Scenario 2: Existing plus Fiscally Constrained Capacity Projects - this scenario looks at the existing transportation system along with capacity projects that fit within the financial realities of the MPO.
- Scenario 3: Transit Ridership - this scenario represents a financially unconstrained look an increase in transit ridership. The impact of the roadway system is analyzed by doubling transit ridership over the life of the MTP by cutting transit headways by  $\frac{1}{4}$  and changing the transit speed factor from 0.5 to 0.7.

## **Outcomes**

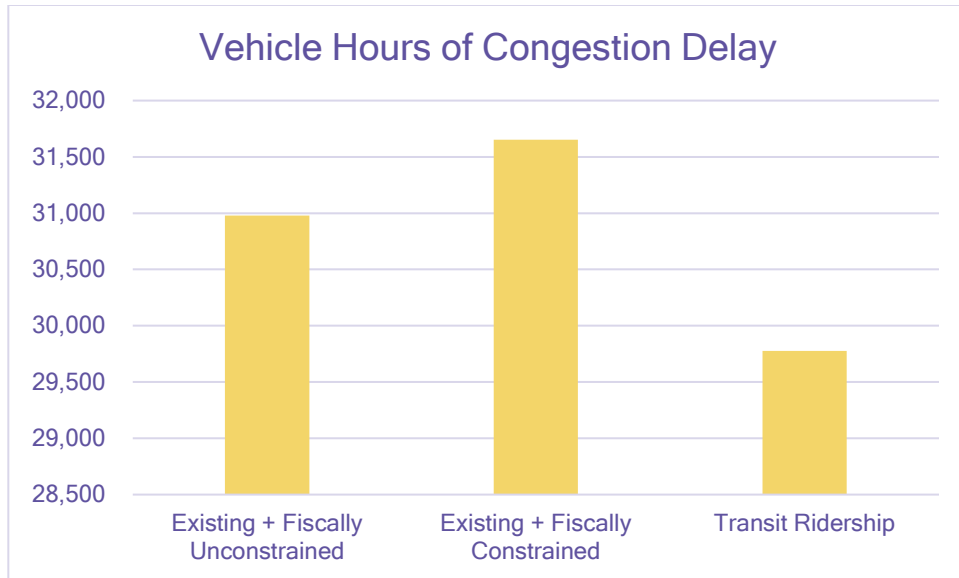
Looking at the three alternatives, the transit emphasis model has the most dramatic results. Since this alternative is an illustrative view, further study needs to be completed in future iterations of this plan to assess the cost needed to dramatically increase transit ridership. The remaining alternatives are very

similar, with only a slight difference in Congested Vehicle Hours Traveled, Vehicle Hours of Congestion Delay, and total Vehicle Miles Traveled.

The chart below looks at the impacts of each of the scenarios on the vehicle hours traveled in congestion. Transit ridership creates an impact by reducing the amount of congested vehicle hours traveled compared to the other scenarios. However, the difference between the high and low numbers is still very small at less than 1%.



Looking at the scenarios and their impact on vehicle hours of congestion delay, there is more of an impact with transit ridership increasing than the other two scenarios. This is where the fiscally constrained scenario shows limitations on its ability at reducing delay.



The overall vehicle miles traveled also shows very little difference between the scenarios. As to be expected, the transit ridership scenario shows the least total vehicle miles traveled for the 2050 model year.



The travel demand model does not reflect any change in the way people make their transportation choices. A strategic shift to invest in alternative modes of transportation such as transit and non-motorized, would increase the attractiveness of those options by being more convenient. Such a shift would result in much higher utilization rates of non-single occupant vehicles and maximize the investments, as well as provide air quality benefits, preserve roadway condition, improve health through physical activity and many other benefits. The KATS staff will continue to investigate the potential impacts of different land use patterns to help in identifying and refining regional priorities and how to better

incorporate those priorities in the transportation planning process. Due to the limited future impact between the proposed scenarios, the holistic need for additional capacity seems very limited when weighted against the financial shortfalls in maintaining the current system.

### **Project Ranking Process**

This scoring process was used to assist in the ranking of worthy roadway, public transportation, bicycle, pedestrian, freight, and operational projects for the KATS 2050 Metropolitan Transportation Plan. This process provided a systematic approach to ranking the numerous projects submitted to KATS and assisted in the development of project scenarios.

A numeric ranking for each project allows for a relative comparison between projects. This scoring process is meant to guide decision-making. Since the Metropolitan Transportation Plan does not directly assign funding to projects, this ranking is for planning purposes in developing the fiscally constrained and illustrative project lists.

Several criteria are evaluated in the scoring process. The first five criteria apply to all projects and provide a potential of 30 points. A project is then scored under the roadway or transit sections, all of which provide a potential for another 20 points for a total possible 50 points. A description of the criteria and the KATS 2050 Metropolitan Transportation Plan project scoring process follows.

### **Overall Criteria**

There are five criteria that provide a potential of 30 points to each transportation project recommendation:

#### **Environmental Justice**

The environmental justice criterion addresses the possible transportation impacts on minority, elderly, low income, disabled and/or zero-car household populations. Impacts could include things such as effects on travel times, division of neighborhoods, and change in noise and/or air pollution, which may occur because of project implementation. Projects are awarded point values as follows:

Positive impact	5 points
No impact	0 points
Negative impact	5 points

#### **Economic Vitality**

The economic vitality criterion awards points for projects that serve to support existing, expanding, or new non-retail employment centers. Projects are awarded point values by demonstrating:

Significant positive impact for new/expanding economic activity	5 points
Support for existing economic activity	2 points
Projects not demonstrating a significant positive impact	0 points

### **Air Quality/Congestion**

The air quality/congestion criterion relates to continued efforts to improve the region’s air quality and encourage investment in more environmentally friendly forms of fuel use. Reduction in vehicle miles of travel (VMT), vehicle hours of travel (VHT), and the use of cleaner vehicles will be considered in the allocation of up to 10 points based on anticipated reduction of vehicle emissions. A maximum score of 10 points could be awarded for projects involving a location with high average daily traffic (ADT), a high percentage of trucks, high current congestion, and a potential for a large improvement in congestion due to project implementation. Examples of potential improvements include construction of a new roadway link reducing circuitous travel (VMT reduced) consistent with the KATS Congestion Management Process, additional intersection turn lanes (VHT reduced), addition of a new bus on an existing route reducing headway (VMT and VHT reduced), or the replacement of older diesel buses with new hybrid electric buses (cleaner vehicles). Projects are awarded point values as follows:

Significant VMT/VHT reduction and increase cleaner vehicles	10 points
Moderate VMT/VHT reduction and/or increase in cleaner vehicles	5 points
Low VMT/VHT reduction and/or increase in cleaner vehicles	1 point
Increase in VMT/VHT or decrease in clean vehicles	-5 points

### **Complete Streets/Multimodal/Intermodal**

The complete streets/multimodal/intermodal criterion awards points based on the project’s ability to include or enhance more than the primary mode or specifically address freight intermodal needs. If the proposed project facilitates intermodal integration and connectivity or includes design elements for more than one transportation mode up to 5 points may be awarded. An example of multimodal integration as well as a complete street improvement would be a roadway reconstruction project that creates adequate space for bicycle use, even though a formal bike path is not part of the design. Another example would be a bus purchase by a transit operator where the specifications called for bicycle racks to be included. An example of multimodal investment is a roadway project that provides bus turnouts at designated bus stops, or a bus preemption feature in the traffic signal design. If a transit operator proposed a project for a park-and-ride lot/transfer center that included a linkage to an existing bike path and provided bike racks, the maximum of 5 points could be scored for this intermodal project. Projects are awarded point values as follows:



Three or more modes or intermodal freight project	5 points
Two mode design	3 points
Primary mode only included in project proposal	0 points

### **Environmental Impact**

The environmental impact criterion addresses the impact transportation projects may have on environmentally sensitive areas. Input received through the environmental consultation process informs the score for this element. Up to five points are awarded. Projects are awarded point values as follows:

Project avoids environmentally sensitive area(s)	5 points
Any environmental impact(s) will be mitigated	3 points
Environmental impact(s) will not be mitigated	-5 points

### **Roadway Projects**

There are four criteria that provide a potential of 20 points to each roadway-specific transportation project recommendation:

#### **Impact on Safety**

The scoring process also takes into consideration the extent to which the project will have a positive impact on improving the level of safety for roadway travelers. The impact on safety criterion ranges from one to five points and is based off the most recent five-year average number of crashes per million vehicle miles traveled (MVMT) and the overall impact on safety. New facilities will be scored based on existing routes that the project is designed to alleviate, if any. Projects are awarded point values as follows:

##### ***Step 1***

5 or more crashes per MVMT	2 points
4 or less crashes per MVMT	1 point

##### ***Step 2***

High positive impact on improving safety	3 points
Medium or low positive impact on improving safety	2 points
No positive impact on improving safety	0 points

### **Average Daily Traffic (ADT)/Facility Type**

The average daily traffic (ADT) or facility type criterion combines two features which are a barometer of a roadway's significance in the regional system. This combination allows for the consideration of both current volume and functional hierarchy. This combination permits the roadways with high volumes to be assigned a high score even if the facility is not high on the functional class system. ADT and functional class are both readily available data. High volume roadways on the interstate system will score highly (up to 5 points) and low volume local roads will be scored zero. Projects are awarded the highest point value of either data source as follows:

40k+ or Freeway/Expressway	5 points
30k+ or Principal Arterial	4 points
20k+ or Minor Arterial	3 points
10k+ or Collector	2 points
Less than 10k or Local	0 points

### **Preservation of the Transportation System**

The extent to which the proposed project preserves the functional, structural, and operational integrity of the transportation network. Up to five points are awarded. Projects are awarded point values as follows:

Preservation Project with Operational Improvements	5 points
Preservation project only	3 points
Capacity project (as defined by the Interagency Workgroup)	1 point

### **Freight Volume**

The freight volumes criterion provides points for roadway projects based on *the current or projected* percentage of truck traffic within the project area. Up to five points are awarded. Projects are awarded point values as follows:

Twelve percent truck traffic or greater	5 points
Nine percent to <12% truck traffic	4 points
Six percent to <9% truck traffic	3 points
Three percent to <6% truck traffic	2 points
One percent to <3% truck traffic	1 point
Less than 1% truck traffic	0 points

## Transit Projects

There are four criteria that provide a potential of 20 points to each public transportation or transit-specific transportation project recommendation:

### Type

The type of project being sought relates to the score assigned. The term “type” may include but not necessarily be limited to vehicle replacement, service support, fixed facilities such as park and ride, stations or bus barns and vehicle expansion. The range reflects the importance of maintaining and supporting the existing service, as opposed to expansion activities. Projects can receive up to 5 points in this category as follows:

Bus replacement	5 points
Service support	4 points
Fixed facility	3 points
Vehicle expansion	2 points
Other	1 point

### Ridership Impact

An important component of transit projects is their ridership impact. Investments should be oriented to at least maintaining the existing ridership, if not increasing it. The point values assigned the different measures of this criterion echo this philosophy and are awarded as follows:

Increases ridership	5 points
Maintains ridership	0 points
Negative impact on ridership	-5 points

### Safety/Security

The safety and security criterion awards points to projects that can be linked to improving safety conditions. The existing safety and security problem must be documented along with a plan to address these problems. Up to 5 points are available and are awarded as follows:

Essential to safety/security	5 points
Moderately impacts safety/security	3 points
No to minimal impact on safety/security	0 points
Decrease level of safety/security	-5 points

### Timing and Analysis Level

The sooner a proposal can be put in place, the sooner its impact will be felt in the region. Improvements to, or expansion of the system, such as opening new transit hubs, that are anticipated to be implemented within ten years are awarded 5 points. Those projects anticipated to be implemented after ten years and are included in a local planning study or transit development plan are awarded three points. Those that are anticipated to be implemented after ten years and are not included in a local planning study or transit development plan are awarded zero points. The point values for timing and analysis level are summarized as follows:

Near term (<10 years)	5 points
Mid/long term and part of local plan (10+ years)	3 points
Mid/long term and not part of local plan (10+ years)	0 points

## Constrained Project List

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure \$1,000s
NA	2020	Preventative Maintenance	MDOT	Various	KATS Area	HMA Crack Treatment	\$216
NA	2020	Traffic Safety	MDOT	Various	KATS Area	Signal modernization, sign replacements	\$950
NA	2020	Preventative Maintenance	MDOT	US-131	M-43 to 102nd	Concrete repair	\$4,806
NA	2020	System Preservation	City of Portage	Westnedge Avenue	Shaver Rd and S. Westnedge	Resurface	\$2,500
NA	2020	Roadside Facilities	City of Kalamazoo	Howard Street	Stadium Drive to W. Michigan Avenue	Roadside facility	\$493
NA	2020	Capacity	Road Commission of Kalamazoo County	Stadium Drive	Quail run to 11th St	Non-motorized path	\$538
NA	2020	Traffic Safety	Road Commission of Kalamazoo County	Multiple Locations	NA	Upgrade signage	\$218
NA	2020	Bridge	Road Commission of Kalamazoo County	Multiple Locations	NA	Bridge preventative maintenance	\$227
NA	2020	Traffic Safety	Road Commission of Kalamazoo County	S Avenue	24th to 36th	Center left tun lane	\$1,200
16	2020	System Preservation	Road Commission of Kalamazoo County	Drake Road	KL to M-43	Resurface	\$1,587
15	2020	System Preservation	City of Portage	Shaver Road	Centre Avenue to South Westnedge Avenue	Resurface with Signal Improvements	\$468
15	2020	System Preservation	Portage	Centre Avenue	Portage Road to Sprinkle Road	Resurface	\$1,271
8	2020	System Preservation	Village of Mattawan	Main Street	Creek Crossing to 100 feet north of McGillen	Replace culvert	\$184
5	2020	System Preservation	City of Parchment	Commerce Lane	Mosel to Riverview	Mill and resurface	\$137
NA	2020	System Preservation	City of Portage	South Westnedge Avenue	South Westnedge Avenue	HMA mill and resurface	\$725
NA	2020	Capacity	Road Commission of Kalamazoo County	Drake Road	KL Ave to Greenmeadow	Non-motorized path	\$627
NA	2020	Capacity	Road Commission of Kalamazoo County	W. Michigan Ave	S Battle Creek St to McCollum Rd	Non-motorized path	\$1,170
NA	2020	System Preservation	Road Commission of Kalamazoo County	U Avenue	29th to 32nd	Resurface	\$1,064
NA	2020	Traffic Safety	Road Commission of Kalamazoo County	G Avenue	2nd Street to 6th Street	Paved shoulder, guardrail upgrade	\$745
NA	2020	Bridge	Road Commission of Kalamazoo County	S 29th Street	29th Street over Portage River	Bridge preventative maintenance	\$109

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure \$1,000s
NA	2020	New Facility	Road Commission of Kalamazoo County	W Battle Creek Street, W Michigan Ave, McCollum Road	S. Battle Creek Street at 35th Street to McCollum Road at M-96	Shared-use pathway	\$1,750
NA	2020	Traffic Safety	Village of Paw Paw	W North Street	Intersection of North Street and Hazen Street	Replace traffic signal	\$200
NA	2020	System Preservation	Van Buren County Road Commission	Red Arrow Highway	26th Street to 32nd Street	Mill of existing HMA 2 inches, install fabric	\$557
NA	2020	Railroad	Grand Trunk Western Railroad	S 10th Street	Grand Trunk Western Railroad in Prairie Rhonde Township	Install flashing light signals and half-roadway gates	\$325
NA	2020	Bridge	MDOT	I-94	Under 32nd Street (CR 653)	Shallow overlay, substructure repairs	\$1,321
NA	2020	Traffic Safety	MDOT	I-94 BL	11th Street to Seneca	Install traffic responsive signal technology	\$625
NA	2020	Traffic Safety	MDOT	M-60 E	US-131 at U Avenue and US-131 BR at Paterson	Traffic signal modernizations and connected vehicle installations	\$642
NA	2020	System Preservation	MDOT	I-94 W	Van Buren/ Kalamazoo County line to North Street	Mill and one course hot mix asphalt overlay	\$5,331
NA	2020	System Preservation	MDOT	Regionwide	Various locations	HMA Crack Treatment	\$216
NA	2020	Traffic Safety	MDOT	TSC Wide	Various locations	Cantilevers replacement	\$246
NA	2020	System Preservation	MDOT	US-131	US-131 in Kalamazoo County	Concrete joint resealing and isolated pavement repairs	\$5,183
NA	2020	Capacity	MDOT	I-94 W	East of Lovers Lane to west of Sprinkle Road	Road and bridge reconstruction	\$5,692
NA	2020	System Preservation	MDOT	I-94	Carpool lot at exit 75 and Oakland Drive	Single course hot mix asphalt resurfacing	\$88
NA	2020	Traffic Operations	City of Kalamazoo	S Drake Road	Parkview to KL Avenue	Signal interconnect and upgrades	\$1,089
<b>Subtotal</b>	<b>2020</b>	<b>Road Projects</b>					<b>\$42,500</b>
24	2020	Public Transportation	Metro	Mobility Management		Mobility Management Program	\$63
21	2020	Public Transportation	Metro	Community Ridesharing		Operating of Community Ridesharing Program	\$51
16	2020	Public Transportation	Metro	Bus Shelters		Replace, rehabilitate and/or install up to 6 bus shelters for ADA compliance	\$15
14	2020	Public Transportation	Metro	Security Maintenance and Upgrades		Facility Security Maintenance and Upgrades	\$50
12	2020	Public Transportation	Metro	Community Service Program		Community Service Program	\$30
11	2020	Public Transportation	Metro	Fixed Vehicle Replacements		Fixed Route Bus Replacements	\$1,000
11	2020	Public Transportation	Metro	ITS Equipment		ITS Equipment Hardware, Software, and Licenses	\$100
11	2020	Public Transportation	Metro	Operating Assistance - Rural		Operating Expenses - Demand Response Rural	\$170

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure \$1,000s
11	2020	Public Transportation	Metro	Vehicle Replacement		Up to 6 Demand Response Van Replacements	\$139
8	2020	Public Transportation	Metro	Facility Renovations		Facility Renovations	\$50
7	2020	Public Transportation	Metro	Community Service Van		Community Service Van Replacement	\$40
6	2020	Public Transportation	Metro	Transit Operations		Transit Operations - Fixed Route and Demand Response Urban	\$14,900
Subtotal	2020	Public Transportation Projects					\$16,608
Total	2020	Road and Public Transportation Projects					\$59,108

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
20	2021	Traffic Safety	MDOT	M-43	At G Avenue	Construct Roundabout	\$4,557
20	2021	Traffic Safety	MDOT	M-43	At G Avenue	Realign intersection	\$1,370
23	2021	Reconstruct	City of Portage	Milham Avenue	South Westnedge Avenue to Portage Road	Mill and resurface including water main replacement, storm sewer, signal upgrades, and sidewalk improvements.	\$2,820
NA	2021	Reconstruct	Village of Paw Paw	E Michigan Avenue	Gremps Street to LaGrave Street	Reconstruction	\$725
NA	2021	Roadside Facility	Village of Paw Paw	E Michigan Avenue	Gremps Street to LaGrave Street	Pedestrian safety improvements	\$1,653
NA	2021	System Preservation	Road Commission of Kalamazoo County	N. Nichols Road	Nichols Road	Resurface	\$1,910
NA	2021	System Preservation	Road Commission of Kalamazoo County	Solon Street	Solon Avenue	Resurface	\$211
NA	2021	System Preservation	Road Commission of Kalamazoo County	Sprinkle Road	Milham Avenue to N Avenue	Resurface	\$2,030
NA	2021	System Preservation	Road Commission of Kalamazoo County	E G Avenue	Riverview Drive to 24th Street	Resurface	\$820
NA	2021	System Preservation	Road Commission of Kalamazoo County	E R Avenue	36th Street to east County line	Resurface	\$1,619
NA	2021	System Preservation	City of Kalamazoo	Portage Street	Stockbridge Avenue to Michigan Avenue	Resurface	\$4,020
NA	2021	Railroad	Grand Elk Railroad, LLC	Oakland Drive	At Grand Elk Railroad in City of Portage	Upgrade flashers, add gates, and install cantilever	\$350
NA	2021	Capacity	MDOT	I-94	Portage Road to Sprinkle Road	Road and bridge reconstruction	\$37,878
NA	2021	System Preservation	MDOT	Regionwide	I-94 WB from Lawrence/Paw Paw Township line to pavement change west of M-51	Crack seal, chip/fog seal, micro-surfacing and HMA milling and overlay	\$8
NA	2021	Traffic Safety	MDOT	Regionwide	KATS MPO	Pavement marking and signal interconnects	\$4,829
NA	2021	ITS Applications	MDOT	I-94	I-94 Van Buren County east, I-94 easter limits of Van Buren County	Variable advisory speed limit system along I-94 in Van Buren County	\$1,706
NA	2021	Capacity	MDOT	I-94	East of Lovers Lane to East of Portage Road	Road reconstruction and widen	\$69,054
Subtotal	2021	Road Projects					\$135,560
20	2021	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$825
20	2021	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$126
20	2021	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$798
20	2021	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$62
20	2021	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$288
20	2021	Public Transportation	Metro	Vehicle Replacement		CMAQ Vehicle Replacement	\$55



Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
15	2021	Public Transportation	Metro	Equipment		Vehicle Replacement	\$40
11	2021	Public Transportation	Metro	Equipment		Fixed Facility	\$200
9	2021	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$37
9	2021	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$14,650
8	2021	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$260
8	2021	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$148
8	2021	Public Transportation	Metro	Equipment		Fixed Facility	\$215
6	2021	Public Transportation	Metro	Equipment		Other - Bus Parts	\$165
6	2021	Public Transportation	Metro	Equipment		Other - Bus Parts	\$312
6	2021	Public Transportation	Metro	Planning Study		Other - Operations Analysis	\$279
Subtotal	2021	Public Transportation					\$18,460
Total	2021	Road Projects and Public Transportation					\$154,020

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
NA	2022	Bridge	Village of Mattawan	South Main Street	South Main Street over Amtrak Railroad	Bridge rehabilitation	\$1,867
NA	2022	Reconstruct	Village of Paw Paw	E Michigan Avenue	Gremps Street to LaGrave Street	Reconstruction	\$383
NA	2022	System Preservation	Village of Augusta	N Augusta Drive	M-96 to North village limits	1" HMA mill and 2" placement of HMA	\$255
NA	2022	System Preservation	Village of Schoolcraft	E Lyon Street	14th Street to east village limits	2" HMA mill and 2" HMA top course	\$153
NA	2022	Roadside Facilities	Road Commission of Kalamazoo County	KRVT	Eagle Drive and McCollum to M-96 past N 37th Street	Construction of non-motorized path	\$530
NA	2022	Bridge	City of Kalamazoo	Lake Street	Lake Street over Portage Creek	Bridge maintenance	\$51
NA	2022	Bridge	City of Kalamazoo	E Paterson Street	East Paterson Street over Kalamazoo River	Bridge rehabilitation	\$3,072
NA	2022	Bridge	City of Kalamazoo	E Walnut Street	East Walnut Street over Portage Creek	Bridge maintenance	\$146
NA	2022	System Preservation	Road Commission of Kalamazoo County	Barney Road	Barney Road	Resurface	\$257
NA	2022	Traffic Safety	Road Commission of Kalamazoo County	W Mosel Avenue	Mosel Avenue	Traffic signal interconnect	\$867
NA	2022	System Preservation	Road Commission of Kalamazoo County	Sprinkle Road	Sprinkle Road	Resurface	\$1,026
NA	2022	System Preservation	Road Commission of Kalamazoo County	Sprinkle Road	Sprinkle Road	Resurface	\$589
NA	2022	System Preservation	City of Kalamazoo	Stadium Drive	Stadium Drive	Resurface	\$4,029
NA	2022	Reconstruct	Road Commission of Kalamazoo County	E S Avenue	28th Street to 34th Street	Reconstruction	\$1,061
NA	2022	Traffic Safety	Road Commission of Kalamazoo County	N 24th Street	D Avenue to Ab Avenue then along AV Avenue to M-89	Paved shoulders, superelevation corrections	\$2,086
NA	2022	System Preservation	MDOT	M-40	72nd Street to south of Lagrave Street	Mill and two course hot mix asphalt overlay	\$10,023
NA	2022	System Preservation	MDOT	I-94 E	West of M-51 to 40th Street	Hot mix asphalt overlay	\$6,579

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
NA	2022	Traffic Safety	MDOT	TSC Wide	Various locations	Signing replacement	\$469
NA	2022	Traffic Safety	MDOT	M-40	Village of Lawton on M-40 between 1st and 4th Streets	Pedestrian safety improvements	\$427
NA	2022	System Preservation	All Agencies	Various	Various locations	System Preservation	\$8,449
NA	2022	System Preservation	MDOT	US-131	South Village of Schoolcraft limit north to north of U Avenue	Milling with multicourse overlay and ASCRL	\$34,680
Subtotal	2022	Road Projects					\$76,998
20	2022	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$825
20	2022	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$131
20	2022	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$108
20	2022	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$294
20	2022	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$60
20	2022	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$200
14	2022	Public Transportation	Metro	Mobility Management		Service Support	\$50
12	2022	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$151
9	2022	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$38
9	2022	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$14,900
8	2022	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$725
Subtotal	2022	Public Transportation					\$17,482
Total	2022	Road Projects and Public Transportation					\$94,480

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
23	2023	Reconstruct	City of Portage	Shaver Road	South City limits to Vanderbilt Avenue	Mill and resurface to include water main replacement, addition of median island boulevards, sidewalk upgrades and landscaping improvements.	\$2,530
17	2023	System Preservation	City of Kalamazoo	Westnedge Avenue	Howard Street to Cork/Whites	Resurface roadway with mill and repave in conjunction with water and wastewater work.	\$1,361
NA	2023	System Preservation	Road Commission of Kalamazoo County	Douglas Avenue	City of Kalamazoo limits to G Avenue	Resurface	\$306
NA	2023	Bridge	Road Commission of Kalamazoo County	N Sprinkle Road	North Sprinkle Road over Spring Brook	Bridge rehabilitation	\$172
NA	2023	System Preservation	City of Portage	Portage Road	Portage Road	Resurface	\$1,815
NA	2023	New Facilities	City of Kalamazoo	S Drake Road	Stadium Drive to KL Avenue	Construct shared-use pathway	\$362
NA	2023	System Preservation	Road Commission of Kalamazoo County	S 36th Street	T Avenue to PQ Avenue	Resurface	\$629
NA	2023	Capacity	MDOT	M-343	Gull Road at Sprinkle Road	Construct dual left turn lanes	\$1,635
NA	2023	Traffic Safety	MDOT	Countywide	Kalamazoo County	Non-freeway signing	\$975
NA	2023	Traffic Safety	MDOT	Regionwide	Various Locations	Modernizing signalized intersection to current standards	\$1,210
NA	2023	ITS Applications	MDOT	I-94 E	I-94, US-131 existing DMS	Install seventeen CCTV cameras on existing DMS	\$121
NA	2023	System Preservation	All Agencies	Various	Various Locations	System Preservation	\$2,263
NA	2023	Bridge	MDOT	US-131	Over Amtrak and KL Avenue	Bridge replacement	\$11,300
<b>Subtotal</b>	<b>2023</b>	<b>Road Projects</b>					<b>\$24,679</b>
20	2023	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$825
20	2023	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$181
20	2023	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$300
20	2023	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$200

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s	
14	2023	Public Transportation	Metro	Mobility Management		Service Support	\$55	
12	2023	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$154	
9	2023	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$38	
9	2023	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$14,900	
8	2023	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$1,312	
Subtotal	2023	Public Transportation						\$17,965
Total	2023	Road Projects and Public Transportation						\$42,644

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
19	2024	Traffic Safety	MDOT	Regionwide	All KATS MPO	Longitudinal pavement marking application on trunklines.	\$ 2,377
19	2024	Traffic Safety	MDOT	Regionwide	All KATS MPO	Special pavement marking application on trunklines	\$ 499
19	2024	Traffic Safety	MDOT	Regionwide	All KATS MPO	Special pavement marking application on trunklines	\$ 499
19	2024	Traffic Safety	MDOT	Regionwide	All KATS MPO	Pavement marking retroreflectivity readings on trunklines	\$ 12
19	2024	Capacity	MDOT	I-94 West/US-131 North Ramp	I-94 Westbound ramp to US-131 Northbound	Widening for additional ramp lane.	\$ 10,898
15	2024	Traffic Safety	MDOT	M-43	At various intersections	Modernizing signalized intersection to current standards	\$ 5,387
17	2024	System Preservation	MDOT	I-94 West	Westnedge and 12th Street	Diamond grinding concrete pavement	\$ 987
33	2024	Reconstruct	City of Portage	Portage Road	Romence Road to Fairfield Road	Mill and resurface to include water main replacement, median island boulevards, ADA sidewalk upgrades and landscaping improvements.	\$3,767
29	2024	Capacity	City of Kalamazoo	Michigan Avenue	Main/Douglas to E Michigan Avenue	Change from one-way to two-way roadway. Provide multi-modal transportation in either discretion and adding additional bike and pedestrian facilities.	\$212
26	2024	Capacity	MDOT	M-43	West Main between 10th Street and Drake Road	Widening for turn lanes, intersection and interchange ramp improvements.	\$7,980
19	2024	Reconstruct	City of Portage	South Westnedge Avenue	Melody Avenue to West Centre Avenue	Mill and resurface to include traffic signal replacement at South Westnedge Avenue and West Centre Avenue.	\$1,167
19	2024	Traffic Safety	MDOT	Regionwide	All of KATS MPO	Longitudinal pavement marking application on trunklines.	\$1,069
NA	2024	System Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$801
Subtotal	2024	Road Projects					\$35,654
20	2024	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$841
20	2024	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$300

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
20	2024	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$300
20	2024	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$306
20	2024	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$200
20	2024	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$204
14	2024	Public Transportation	Metro	Mobility Management		Service Support	\$56
14	2024	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$50
12	2024	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$157
11	2024	Public Transportation	Metro	Bus Shelters		Fixed Facility	\$50
11	2024	Public Transportation	Metro	Security		Other - Security Updates	\$150
9	2024	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$38
9	2024	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$15,198
9	2024	Public Transportation	Metro	ITS		Other - ITS	\$97
Subtotal	2024	Public Transportation					\$17,947
Total	2024	Road Projects and Public Transportation					\$53,601

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
34	2025	Capacity	City of Portage	Portage Road	Lakeview Drive to East Centre Avenue	Reduce from 5 lanes to 3 lanes. Project includes upgrading/extending sidewalks, increasing non-motorized transportation, constructing a dedicated left turn lane and addition of boulevards in the median, and landscape improvements.	\$7,036
19	2025	Traffic Safety	MDOT	Regionwide	All KATS MPO	Longitudinal pavement marking application on trunklines.	\$ 2,425
19	2025	Traffic Safety	MDOT	Regionwide	All KATS MPO	Longitudinal pavement marking application on trunklines.	\$ 2,425
19	2025	Traffic Safety	MDOT	Regionwide	All KATS MPO	Special pavement marking application on trunklines	\$ 509
19	2025	Traffic Safety	MDOT	Regionwide	All KATS MPO	Special pavement marking application on trunklines	\$ 509
19	2025	Traffic Safety	MDOT	Regionwide	All KATS MPO	Pavement marking retroreflectivity readings on trunklines	\$ 12
26	2025	Capacity	MDOT	M-43	West Main between 10th Street and Drake Road	Widening for turn lanes, intersection and interchange ramp improvements	\$7,595
NA	2025	System Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$10,143
<b>Subtotal</b>	<b>2025</b>	<b>Road Projects</b>					<b>\$30,653</b>
20	2025	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$858
20	2025	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$315
20	2025	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$315
20	2025	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$312
20	2025	Public Transportation	Metro	Vehicle Replacement		CMAQ Vehicle Replacement	\$200
20	2025	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$208
14	2025	Public Transportation	Metro	Mobility Management		Service Support	\$57
12	2025	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$50
12	2025	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$160



Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s	
11	2025	Public Transportation	Metro	Security		Other - Security Updates	\$100	
9	2025	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$39	
9	2025	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$15,500	
Subtotal	2025	Public Transportation						\$18,114
Total	2025	Road Projects and Public Transportation						\$48,767

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
34	2026-2030	Capacity	City of Kalamazoo	Kalamazoo Avenue	Main/Douglas to E. Michigan Avenue	Change from one-way roadway to two-way. Provide multi-modal transportation in either direction and adding additional bike and pedestrian facilities.	\$2,252
25	2026-2030	Capacity	City of Kalamazoo	Lovell Street	Eldred Street to Portage Street	Change from one-way roadway to two-way. Provide multi-modal transportation in either direction and adding additional bike and pedestrian facilities.	\$883
24	2026-2030	Capacity	City of Kalamazoo	Howard Street	Crosstown to Oakland Drive	Resurfacing and road diet to convert 4 lanes to 3 lanes with addition of center median island to provide safe school crossings.	\$1,021
24	2026-2030	Roadside Facility	City of Kalamazoo	Douglas Street	North to Patterson Avenue	Signal interconnect and upgrades.	\$424
22	2026-2030	Capacity	City of Kalamazoo	South Street	Michigan Avenue to Portage Street	Change from one-way roadway to two-way. Provide multi-modal transportation in either direction and adding additional bike and pedestrian facilities.	\$804
22	2026-2030	Capacity	City of Kalamazoo	Gull Road	Ampersee to North	Resurfacing and road diet to convert 4 lanes to 3 lanes with the addition of bike lanes.	\$752
21	2026-2030	Bridge	MDOT	M-96	M-96 over Kalamazoo River	Deep overlay, full depth patching, railing replacement, partial paint.	\$3,051
20	2026-2030	Roadside Facility	City of Kalamazoo	Oakland Drive	Kilgore Road to Lovell Street	Signal interconnect and upgrades.	\$1,292
18	2026-2030	Roadside Facility	City of Portage	Miller Road	River Street to Portage Road	Signal interconnect and upgrades.	\$1,990
17	2026-2030	System Preservation	City of Kalamazoo	E Michigan and Riverview Drive	Harrison Street to Gull road	Mill and repave in conjunction with water and wastewater work.	\$781
17	2026-2030	System Preservation	City of Kalamazoo	Park Street	One way split at Betsy Ann Place to Michigan Avenue	Mill and repave in conjunction with water and wastewater work.	\$1,436
13	2026-2030	Capacity	City of Kalamazoo	Michikal Avenue	Main Street/Michigan Avenue to Kalamazoo Avenue	Remove roadway following two-way road conversion of Kalamazoo Avenue and Michigan Avenue	\$598

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
NA	2026-2030	Capacity System	Road Commission of Kalamazoo County	Q Avenue	Percheron Street to 12th Street	Widen from 2 to 3 lanes	\$2,727
NA	2026-2030	Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$149,300
Subtotal	2026-2030	Road Projects					\$164,584
20	2026-2030	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,200
20	2026-2030	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$2,500
20	2026-2030	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$2,500
20	2026-2030	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,200
20	2026-2030	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$200
20	2026-2030	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$1,040
14	2026-2030	Public Transportation	Metro	Mobility Management		Service Support	\$286
14	2026-2030	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$257
12	2026-2030	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$9,200
11	2026-2030	Public Transportation	Metro	Bus Shelters		Fixed Facility	\$150
11	2026-2030	Public Transportation	Metro	Security		Other - Security Updates	\$250
9	2026-2030	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$197
9	2026-2030	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$60,948
Subtotal	2026-2030	Public Transportation					\$95,928
Total	2026-2030	Road Projects and Public Transportation					\$260,512

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
40	2031-2035	Capacity	City of Portage	South Westnedge Avenue	Milham Avenue to Romence Road	Widen northbound lanes from 2 to 3 lanes. Includes milling and resurfacing and replacement of sidewalks on east side of road to accommodate widening.	\$4,585
34	2031-2035	Capacity	City of Portage	Oakland Drive	I-94 to Kilgore Road	Widen from 4 to 5 lanes for the additions of dedicated left turn lane and bike lanes. Bridge over the west fork of Portage Creek will need to be reconstructed to accommodate the wider road section.	\$2,837
32	2031-2035	Capacity	City of Portage	Shaver Road	Vanderbilt Avenue to South City Limits	Widen from 2 and 3 lanes to 4 lane boulevard or 5 lanes. Will include bike trails and sidewalks.	\$4,750
27	2031-2035	Capacity	City of Portage	Portage Road	Lakeview Drive to East Osterhout Avenue	Widen from 3 to 5 lanes to accommodate bike lanes on both side of the roadway.	\$2,401
27	2031-2035	Capacity	City of Portage	Romence Road	Portage Road to Sprinkle Road	Widen form 2 and 3 lanes to 4 lane boulevard. Will include bike lanes.	\$2,401
24	2031-2035	Capacity	City of Portage	Osterhout Avenue	Shaver Road to Portage Road	Widen from 2 to 3 lanes to widen existing bike lanes on both sides of the roadway and install sidewalk on the north side. The culvert crossing for Sugarloaf Drian will be replaced.	\$3,299
24	2031-2035	Capacity	City of Portage	Vanderbilt Avenue	Oakland Drive to Shaver Road	Widen from 2 to 3 lanes to accommodate bike lanes on both sides of the roadway. Provide dedicated left turn lane into adjacent properties and intersections.	\$581
24	2031-2035	Preventative Maintenance	City of Kalamazoo	Paterson Street	Riverview Drive to Porter Street	Road diet to convert 4 lanes to 3 lanes and add bike lanes.	\$658
18	2031-2035	Roadside Facility	City of Kalamazoo	Burdick Street	Reed and Burdick Intersection	Signal interconnect and upgrades	\$219
18	2031-2035	Roadside Facility	City of Kalamazoo	Paterson Street	Riverview Drive to Douglas	Signal interconnect and upgrades	\$1,252

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
18	2031-2035	Roadside Facility	City of Kalamazoo	Rose Street	Crosstown to Paterson Street	Signal interconnect and upgrades	\$2,415
18	2031-2035	Roadside Facility	City of Kalamazoo	Burdick Street	North and Burdick Intersection	Signal interconnect and upgrades	\$434
NA	2031-2035	Capacity System	Road Commission of Kalamazoo County	12th Street	Q Avenue to Texas Drive	Widen from 2 to 3 lanes	\$3,450
NA	2031-2035	Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$166,214
Subtotal	2031-2035	Road Projects					\$195,497
18	2031-2035	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,384
18	2031-2035	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$2,750
18	2031-2035	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$2,750
18	2031-2035	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,384
18	2031-2035	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$200
18	2031-2035	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$1,061
13	2031-2035	Public Transportation	Metro	Equipment		Vehicle Replacement	\$50
12	2031-2035	Public Transportation	Metro	Mobility Management		Service Support	\$291
12	2031-2035	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$257
10	2031-2035	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$9,384
9	2031-2035	Public Transportation	Metro	Bus Shelters		Fixed Facility	\$175
9	2031-2035	Public Transportation	Metro	Security		Other - Security Updates	\$262
7	2031-2035	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$201
7	2031-2035	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$69,765
Subtotal	2031-2035	Public Transportation					\$105,914
Total	2031-2035	Road Projects and Public Transportation					\$301,411

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
24	2036-2040	Capacity	City of Kalamazoo	Burdick Street	Cork Street to Kilgore Road	Road widening to provide additional width for bike lanes and traffic flow.	\$4,660
NA	2036-2040	Capacity	Road Commission of Kalamazoo County	KL Avenue	9th Street to 11th Street	Widen from 2 to 3 lanes	\$2,059
NA	2036-2040	System Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$224,874
Subtotal	2036-2040	Road Projects					\$231,594
18	2036-2040	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,571
18	2036-2040	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$3,025
18	2036-2040	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$3,025
18	2036-2040	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$200
18	2036-2040	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$1,082
12	2036-2040	Public Transportation	Metro	Mobility Management		Service Support	\$297
12	2036-2040	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$257
10	2036-2040	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$9,571
9	2036-2040	Public Transportation	Metro	Bus Shelters		Fixed Facility	\$500
9	2036-2040	Public Transportation	Metro	Security		Other - Security Updates	\$275
7	2036-2040	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$205
7	2036-2040	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$88,957
Subtotal	2036-2040	Public Transportation					\$116,965
Total	2036-2040	Road Projects and Public Transportation					\$348,559

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
NA	2041-2045	System Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$265,543
NA	2041-2045	Capacity	Road Commission of Kalamazoo County	S. Sprinkle Road	Long Lake Drive to S Avenue	Widen from 2 to 3 lanes	\$2,600
<b>Subtotal</b>	<b>2041-2045</b>	<b>Road Projects</b>					<b>\$268,143</b>
18	2041-2045	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,763
18	2041-2045	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$3,327
18	2041-2045	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$3,327
18	2041-2045	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,763
18	2041-2045	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$200
18	2041-2045	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$1,104
13	2041-2045	Public Transportation	Metro	Equipment		Vehicle Replacement	\$50
12	2041-2045	Public Transportation	Metro	Mobility Management		Service Support	\$303
12	2041-2045	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$257
10	2041-2045	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$9,763
9	2041-2045	Public Transportation	Metro	Bus Shelters		Fixed Facility	\$200
9	2041-2045	Public Transportation	Metro	Security		Other - Security Updates	\$289
7	2041-2045	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$209
7	2041-2045	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$90,636
<b>Subtotal</b>	<b>2041-2045</b>	<b>Public Transportation</b>					<b>\$129,191</b>
<b>Total</b>	<b>2041-2045</b>	<b>Road Projects and Public Transportation</b>					<b>\$397,334</b>

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
NA	2046-2050	System Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$309,367
NA	2046-2050	Capacity	Road Commission of Kalamazoo County	Stadium Drive	4th Street to 6th Street	Widen from 2 to 3 lanes	\$2,330
<b>Subtotal</b>	<b>2046-2050</b>	<b>Road Projects</b>					<b>\$311,697</b>
18	2046-2050	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,958
18	2046-2050	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$3,660
18	2046-2050	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$3,660
18	2046-2050	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,571
18	2046-2050	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,958
18	2046-2050	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$200
18	2046-2050	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$1,126
12	2046-2050	Public Transportation	Metro	Mobility Management		Service Support	\$309
12	2046-2050	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$257
10	2046-2050	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$9,958
9	2046-2050	Public Transportation	Metro	Bus Shelters		Fixed Facility	\$250
9	2046-2050	Public Transportation	Metro	Security		Other - Security Updates	\$303
7	2046-2050	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$213
7	2046-2050	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$93,270
<b>Subtotal</b>	<b>2046-2050</b>	<b>Public Transportation</b>					<b>\$142,693</b>
<b>Total</b>	<b>2046-2050</b>	<b>Road Projects and Public Transportation</b>					<b>\$454,390</b>
<b>Grand Total</b>	<b>2020-2050</b>	<b>Road Projects and Public Transportation</b>					<b>\$2,208,042</b>



## Illustrative Project List

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
18	2020	System Preservation	City of Kalamazoo	Howard Street	Stadium to Oakland	Resurface	\$1,357
14	2020	System Preservation	Van Buren County Road Commission	CR 653	Red Arrow Highway to I-94	Resurface	\$275
15	2020	System Preservation	City of Kalamazoo	Oakland Drive	Parkview to Howard	Resurface	\$1,360
19	2020	System Preservation	City of Portage	Westnedge Avenue	Shaver Road to Romence Road	Resurface	\$3,415
10	2020	System Preservation	City of Portage	South Westnedge Avenue	Kilgore to Tradecenter Way	Resurface	\$750
26	2021	System Preservation	City of Kalamazoo	Portage Street	Stockbridge Avenue to Portage/Pitcher Connection	Road diet and resurface in conjunction with water and wastewater work. Bicycle lanes and sidewalks.	\$390
11	2021	System Preservation	City of Kalamazoo	Emerald Street	Cork Street to Miller Street	Resurface with mill and repave with water and wastewater work.	\$450
11	2021	System Preservation	City of Kalamazoo	Water Street	Westnedge Avenue to Rose Street	Resurface with mill and repave along the road section.	\$150
14	2021	System Preservation	City of Kalamazoo	Stockbridge Avenue	Crosstown to Portage	Resurface with mill and repave along the road section.	\$500
14	2021	System Preservation	City of Kalamazoo	Miller Road	Portage to Emerald	Resurface with mill and repave and improve sidewalk along the road section.	\$500
14	2021	System Preservation	City of Kalamazoo	Covington Road	Manchester Road to Sprinkle Road	Resurface with mill and repave along the road section.	\$200
16	2021	System Preservation	City of Kalamazoo	Bank Street	Lake Street to Stockbridge Avenue	Resurface with mill and repave with water and wastewater work.	\$587
18	2021	System Preservation	City of Kalamazoo	Parkview Avenue	Oakland to Greenleaf	Resurface with mill and repave with water and wastewater work.	\$1,180
24	2021	System Preservation	City of Kalamazoo	Rose Street	Cedar to Kalamazoo Avenue	Narrowing road to one lane in either direction and adding additional bike and pedestrian facilities.	\$300
31	2026-2030	Capacity	MDOT	US-131 Business Route Interchange	NB US-131 Ramp to EB US-131 Business Route	Install northbound US-131 to eastbound business route ramp.	\$21,173
14	2022	System Preservation	City of Kalamazoo	VanRick Drive	Covington to Sprinkle Road	Resurface with mill and repave with water and wastewater work done cooperatively.	\$ 102

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
13	2022	Bridge	City of Kalamazoo	Paterson Bridge	575' east of Harrison Street to 145' west of Riverview Drive	Rehabilitation of surface deck and substructure and preservation of superstructure.	\$ 3,876
11	2022	System Preservation	City of Kalamazoo	Miller Road	Emerald Drive to Sprinkle Road	Resurface with mill and repave and improve sidewalk.	\$ 510
14	2022	System Preservation	City of Kalamazoo	Angling Road Culvert	Angling Road north to driveway	Rebuild culvert and drainage of the roadway.	\$75
14	2022	System Preservation	City of Kalamazoo	Ransom Street	Burdick to Walbridge	Resurface with mill and repave in conjunction with water and wastewater work.	\$1,306
14	2022	System Preservation	City of Kalamazoo	Porter Street	Frank to Paterson	Resurface with mill and repave in conjunction with water and wastewater work.	\$128
16	2022	System Preservation	City of Kalamazoo	Oakland Drive	Kilgore Road to Parkview Avenue	Resurface with mill and repave in conjunction with water and wastewater work.	\$510
16	2022	System Preservation	City of Kalamazoo	Drake Road	Parkview Avenue to Stadium Drive	Resurface with mill and repave.	\$510
16	2022	System Preservation	City of Kalamazoo	Portage Street	Kilgore Road to Cork Street	Resurface with mill and repave in conjunction with water and wastewater work.	\$765
17	2022	System Preservation	City of Kalamazoo	Portage Street	Cork Street to Stockbridge Avenue	Resurface with mill and repave in conjunction with water and wastewater work.	\$357
17	2022	System Preservation	City of Kalamazoo	Stadium Drive	Rambling Road to Lovell	conjunction with water and wastewater rehab work.	\$2,412
20	2022	Reconstruct	City of Portage	Cooley Drive	W. Centre Avenue to Old Centre Avenue	Realignment of Cooley Drive at Old Centre Avenue, curb and gutter and sidewalk improvements.	\$546
22	2022	Reconstruct	City of Portage	Romence Road	Angling Road to Oakland Drive	Mill and resurface to include ADA sidewalk upgrades and landscaping improvements.	\$1,122
22	2022	Reconstruct	City of Portage	Lovers Lane	East Milham Avenue to Kilgore Road	Mill and resurface including sanitary sewer extension, water main replacement, ADA sidewalk upgrades, and landscaping.	\$1,428

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
26	2022	Reconstruct	City of Portage	Meredith Street	East Milham Avenue to Sprinkle Road	Reconstructing to include water main replacement, traffic calming, new curb and gutter, and sidewalk.	\$1,836
30	2022	System Preservation	City of Portage	South Westnedge Avenue	Mall Drive to Trade Centre Way	Microsurfacing including sidewalk and landscaping improvements.	\$255
33	2022	Capacity	City of Portage	Portage Road	Wetherbee Avenue to Lakeview Drive	Reduce road from 5 lanes to 3 lanes including upgrading/extending sidewalks, adding bike lanes and adding a dedicated left turn lane.	\$2,550
9	2023	Bridge	City of Kalamazoo	Inkster Bridge	100' east of Westchester Lane and 146' west of Plymouth Lane	Total bridge replacement.	\$ 2,081
13	2023	Bridge	City of Kalamazoo	Crosstown Bridge	NE of Jasper Street and SW of East Vine Street	Rehabilitation of bridge decking and substructure	\$12
14	2023	System Preservation	City of Kalamazoo	Walbridge Street	Kalamazoo Avenue to Paterson	Resurface with mill and repave in conjunction with water and wastewater work.	\$260
14	2023	System Preservation	City of Kalamazoo	Kilgore Road	Oakland Drive to Duke	Resurface with mill and repave in conjunction with water and wastewater work.	\$624
16	2023	System Preservation	City of Kalamazoo	Cork Street	Westnedge Avenue to Burdick Street	Resurface with mill and repave in conjunction with water and wastewater work.	\$312
16	2023	System Preservation	City of Kalamazoo	Ransom Street	Westnedge Avenue to Burdick Street	Resurface with mill and repave in conjunction with water and wastewater work.	\$312
16	2023	System Preservation	City of Kalamazoo	Whites Road	Oakland Drive to Westnedge Avenue	conjunction with wastewater and water work.	\$1,561
17	2023	Reconstruct	City of Portage	Angling Road	Romence Road to West Milham Avenue	Mill and resurface.	\$832
17	2023	System Preservation	City of Kalamazoo	Westnedge Avenue	Howard Street to Michigan Avenue	Resurface roadway with mill and repave in conjunction with water and wastewater work.	\$499

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
18	2023	Reconstruct	City of Portage	South Westnedge Avenue	Osterhout Avenue to South Shore Drive	Mill and resurface including sanitary sewer foremain replacement, sidewalk and bike lane improvements and landscaping.	\$874
20	2023	Reconstruct	City of Portage	Moorsbridge Road	West Centre Avenue to Romence Road	Mill and resurface to include pedestrian crossing enhancements at entrance to Portage West Middle School and ADA sidewalk upgrades and landscaping improvements.	\$1,222
34	2023	Reconstruct	City of Portage	Portage Road	East Centre Avenue to Romence Road	Mill and resurface, traffic signal replacement, addition of median island boulevards and landscaping improvements.	\$1,977
17	2024	Reconstruct	City of Portage	Garden Lane	South Westnedge Avenue to Lovers Lane	Mill and resurface to include curb and gutter, non-motorized transportation upgrades and landscaping improvements.	\$ 849
34	2046-2050	Capacity	City of Portage	Newport Avenue	Gladys Street to Romence Road Parkway	New 4 lane boulevard to extend Newport Avenue. Will include bike lanes on both sides of the road and sidewalks along the east side.	\$9,767
34	2046-2050	Capacity	City of Portage	South Westnedge Avenue	Dawnlee Avenue to West Milham Avenue	Widen northbound lanes from 2 to 3 lane boulevard. Includes mill and resurface of southbound lanes, replacing sidewalk on the west side.	\$2,664
32	2046-2050	Capacity	City of Portage	Oakland Drive	Shaver Road to Centre Avenue	Widen from 2 to 4 lane boulevard with dedicated left turn lane, bike lanes on both sides, and extending sidewalks where needed.	\$8,879

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
29	2046-2050	Capacity	City of Portage	Kilgore Road	South Westnedge Avenue to Lovers Lane	Widen from 4 to 5 lanes, including the addition of one lane for eastbound traffic and replacement of sidewalks.	\$2,486
29	2046-2050	Capacity	City of Portage	South Westnedge Avenue	Kilgore Road to Trade Centre Way	Widen from 5 to 6 lane boulevard. Includes replacing and extending sidewalks.	\$6,393
24	2046-2050	Capacity	City of Portage	Schuring Road	Oakland Drive to South Westnedge Avenue	Widen from 2 to 3 lanes to accommodate for dedicated left turn lane and bike lanes on both sides of the road.	\$2,003
24	2046-2050	Capacity	City of Portage	Bacon Avenue	South Westnedge Avenue to Portage Road	Widen from 2 to 3 lanes to accommodate for dedicated left turn lane and bike lanes on both sides of the road.	\$1,776
39	2031-2035	Capacity	City of Portage	South Westnedge Avenue/Shaver Road	Romence Road to West centre Avenue	Widen from 5 to 7 lanes. Upgrades to sidewalks included.	\$6,344
14	2024	System Preservation	City of Kalamazoo	Reed Street	Portage Road to Fulford	Resurface with mill and repave with water and wastewater work done cooperatively.	\$ 106
14	2024	Reconstruct	City of Kalamazoo	Maple Street	Streamns to Crosstown	Reconstruct with water and wastewater work done to include culvert and pedestrian areas.	\$ 616
14	2024	Reconstruct	City of Portage	Vanderbilt Avenue	Oakland Drive to Hampton Creek	Mill and resurface.	\$ 584
9	2024	Public Transportation	Metro	Equipment		Service Support	\$ 2,500
8	2024	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 250
8	2024	Public Transportation	Metro	Equipment		Fixed Facility	\$ 215
6	2024	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 200
25	2025	Reconstruct	City of Portage	West Milham Avenue	12th Street to Oakland Drive	Mill and resurface including sidewalk improvements and landscaping enhancements	\$ 1,840
20	2025	Reconstruct	City of Portage	Romence Road	Constitution Boulevard to South Westnedge Avenue	Mill and resurface including sidewalk improvements and landscaping enhancements	\$ 942

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
18	2025	System Preservation	City of Kalamazoo	Howard Street	Stadium Drive to Michigan Avenue	Placement of non-motorized pathway occurring in 2021 to be followed by resurfacing of the roadway in 2025.	\$ 641
14	2025	System Preservation	City of Kalamazoo	Lovell Street	Burrows to Eldred	Resurface with mill and repave with water and wastewater work done cooperatively.	\$ 108
14	2025	Reconstruct	City of Portage	Oakland Drive	Shaver Road to Katie Court	Mill and resurface.	\$ 649
9	2025	Public Transportation	Metro	Equipment		Service Support	\$ 2,500
8	2025	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 250
8	2025	Public Transportation	Metro	Equipment		Fixed Facility	\$ 215
6	2025	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 200
15	2026-2030	Public Transportation	Metro	Vehicle Expansion		Fixed Route Vehicle Expansion	\$ 2,250
14	2026-2030	Public Transportation	Metro	Facilities		Secondary Transportation Hubs - Service Support	\$ 3,000
9	2026-2030	Public Transportation	Metro	ITS		Other - ITS	\$ 1,250
8	2026-2030	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 2,000
8	2026-2030	Public Transportation	Metro	Equipment		Fixed Facility	\$ 1,075
6	2026-2030	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 1,000
13	2031-2035	Public Transportation	Metro	Vehicle Expansion		Fixed Route Vehicle Expansion	\$ 2,475
12	2031-2035	Public Transportation	Metro	Facilities		Secondary Transportation Hubs - Service Support	\$ 1,500
11	2031-2035	Public Transportation	Metro	ITS		Other - ITS	\$ 3,500
6	2031-2035	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 2,200
6	2031-2035	Public Transportation	Metro	Equipment		Fixed Facility	\$ 1,075
4	2031-2035	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 1,050
13	2036-2040	Public Transportation	Metro	Vehicle Expansion		Fixed Route Vehicle Expansion	\$ 2,722
7	2036-2040	Public Transportation	Metro	ITS		Other - ITS	\$ 1,500
6	2036-2040	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 2,420
6	2036-2040	Public Transportation	Metro	Equipment		Fixed Facility	\$ 1,075

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
4	2036-2040	Public Transportation	Metro	Facility Renovation		Fixed Facility - Rehab and Expansion	\$ 8,000
4	2036-2040	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 1,102
13	2041-2045	Public Transportation	Metro	Vehicle Expansion		Fixed Route Vehicle Expansion	\$ 2,994
11	2041-2045	Public Transportation	Metro	Service Expansion		Fixed Facility - BRT Planning/Construction	\$ 20,000
7	2041-2045	Public Transportation	Metro	ITS		Other - ITS	\$ 1,800
6	2041-2045	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 2,662
6	2041-2045	Public Transportation	Metro	Equipment		Fixed Facility	\$ 1,075
4	2041-2045	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 1,157
12	2046-2050	Public Transportation	Metro	Operating Assistance		BRT Operating - Service Support	\$ 10,000
13	2046-2050	Public Transportation	Metro	Vehicle Expansion		Fixed Route Vehicle Expansion	\$ 3,294
7	2046-2050	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$ 113,482
7	2046-2050	Public Transportation	Metro	ITS		Other - ITS	\$ 2,160
6	2046-2050	Public Transportation	Metro	Equipment		Service Support	\$ 4,000
6	2046-2050	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 2,928
6	2046-2050	Public Transportation	Metro	Equipment		Fixed Facility	\$ 1,075
4	2046-2050	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 1,215
Total	2022-2050	Road Projects and Public Transportation					\$ 288,868

# CHAPTER 13: MEASURING SUCCESS

The Kalamazoo Area Transportation Study 2050 Metropolitan Transportation Plan has detailed a set of goals intended to implement the vision and support the mobility and accessibility needs of our residents. The goals are in alignment with the USDOT goals outlined in MAP-21. This includes building a performance based and multimodal program to strengthen the U.S. transportation system.

## Federal MAP-21 Requirements

On December 4, 2015, President Obama signed Public Law 114-94, the Fixing America's Surface Transportation Act (FAST Act). This most recent transportation bill funds surface transportation programs, including but not limited to, Federal-aid highways. This reauthorization builds off MAP-21 and continues to provide long-term surface transportation monies through fiscal year 2020 from the federal government. This summary reviews the policies and programs of the FAST Act administered by the Federal Highway Administration (FHWA).

The Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21), enacted in 2012, included provisions to make federal surface transportation more streamlined, performance-based, and multimodal, and to address challenges facing the U.S. transportation system, including improving safety, maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery. The FAST Act builds on the changes made by MAP-21.

Setting the course for transportation investment in highways, the FAST Act:

- Improves mobility on America's highways.
  - The FAST Act establishes and funds new programs to support critical transportation projects to ease congestion and facilitate the movement of freight on the Interstate System and other major roads. Examples include developing a new National Multimodal Freight Policy, appropriating funding through a new National Highway Freight Program, and authorizing a new discretionary grant program for Nationally Significant Freight and Highway Projects (FASTLANE Grants).
- Creates jobs and supports economic growth.
  - The FAST Act authorized \$226.3 billion in Federal funding for FY 2016 through 2020 for road, bridge, bicycling, and walking improvements. In addition, the FAST Act includes several provisions designed to improve freight movement in support of national goals.
- Accelerates project delivery and promotes innovation.
  - Building on the reforms of MAP-21 and FHWA's Everyday Counts initiative, the FAST Act incorporates changes aimed at ensuring the timely delivery of transportation projects. These



changes will improve innovation and efficiency in the development of projects, through the planning and environmental review process, to project delivery.

## **Performance Measures and the MTP**

A key feature of the Fixing America's Surface Transportation (FAST) Act is the establishment of a performance- and outcome-based program, originally introduced through the MAP-21 Act, which was signed into law on July 6, 2012. The objective of this program is for the investment of resources in projects that collectively make progress toward the achievement of national goals. 23 CFR 490 outlines the seven areas in which performance goals are required: safety, infrastructure condition, congestion reduction, system reliability, freight movement, environmental sustainability, and reduced project delivery delays.

Federal legislation also mandated the Federal Transit Administration (FTA) to develop a rule establishing a strategic and systematic process of operating, maintaining, and improving public capital assets effectively through their entire life cycle. The Transit Asset Management (TAM) Final Rule 49 CFR 625 became effective October 1, 2016, and established performance measures for rolling stock, equipment, facilities, and infrastructure.

### **State Targets**

Within one year of the USDOT final rule on performance measures, states were required to set performance targets in support of those measures. States may set different performance targets for urbanized and rural areas. To ensure consistency, each state must, to the maximum extent practicable: coordinate with an MPO when setting performance targets for the area represented by that MPO and coordinate with public transportation providers when setting performance targets in and urbanized area not represented by an MPO. [§1202; 23 USC 135(d)(2)(B)]

The Statewide Transportation Improvement Program (STIP), State asset management plans under the National Highway Performance Program (NHPP), and State performance plans under the Congestion Mitigation and Air Quality Improvement Program are required to include performance targets. Additionally, State and MPO targets should be included in Statewide transportation plans. CFR 450.324(f)(2) also requires that the MTP contain a description of the performance measures and performance targets used in assessing the performance of the transportation system. The resulting System Performance Report is included in Appendix H. Additional information on specific performance measures and their influence on KATS's determination of modal needs and project selection are included in Chapter 4 and Chapter 7 of this document.

## MPO Targets

Within 180 days of states or providers of public transportation setting performance targets, MAP-21/FAST Act requires MPOs to set performance targets in relation to performance measures (where applicable). To ensure consistency, each MPO must coordinate with the relevant State and public transportation providers when setting performance targets. Figure 9-1 provides a summary of the performance measure areas and the current implementation status.

**Figure 9-1**

Summary of Performance Measures and Target Setting Status		
Area	Measures	Target Setting Status
<b>Safety Performance</b>	Number of fatalities; Rate of fatalities per 100 million VMT; Number of serious injuries; Rate of serious injuries per 100 million VMT; Number of nonmotorized fatalities and serious injuries	Approved support of statewide 2020 targets (November 2020)
<b>Pavement and Bridge Asset Management</b>	Percent NHS* bridges in good and poor condition; Percent interstate pavement in good and poor condition; Percent non-interstate NHS pavement in good and poor condition	Approved support of statewide targets (September 2018)
<b>System Performance and Freight</b>	Interstate travel time reliability; non-interstate travel time reliability; Truck travel time reliability	Approved support of statewide targets (September 2018)
<b>Public Transportation</b>	State of Good Repair Targets (rolling stock, equipment, facilities, infrastructure); Public Transportation Agency Safety Plan	Regional State of Good Repair Targets adopted (May 2018)
<b>Congestion Mitigation &amp; Air Quality</b>	<i>Peak hour excessive delay per capita; Percent of non-single occupancy vehicle travel; Total emissions reduction</i>	<i>Not currently applicable to KATS region (listed for information only)</i>

*\*Included in the National Highway System (NHS) are public roads defined by the NFC as Interstate, Other Freeways, and Other Principal Arterials (both state and local facilities). FHWA defines this system as important to the nation's economy, defense, and mobility. All NHS roads must comply with applicable Federal regulations, including design standards, contract administration, State-FHWA oversight procedures, Highway Performance Monitoring System (HPMS) reporting, National Bridge Inventory reporting, national performance measures targets and data collection, and outdoor advertisement/junkyard control. Not all NFC roads are classed as part of NHS.*

At this point, KATS has supported the state’s targets for all performance measures. The state’s targets are listed in the System Performance Report in Appendix H. For the most up-to-date targets, please visit; [www.katsmpo.org/performance-measures/](http://www.katsmpo.org/performance-measures/)

## Planning Factors

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was passed in 2005. With this legislation came the requirement that certain factors be considered as part of the regional transportation planning process for all metropolitan areas. In general, these factors addressed social, environmental and land use issues as related to the transportation system. Under the FAST Act, the original eight planning factors remain unchanged, and two new planning factors have been added: (1) Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation and (2) Enhance travel and tourism. All planning factors are listed in Figure 9-2. The MPO must consider these factors when developing plans and annual programs. These planning factors helped shape the formation of the vision statement, goals and objectives for this MTP.

**Figure 9-2**

FAST ACT Planning Factors	
Planning Factor 1:	Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
Planning Factor 2:	Increase the safety of the transportation system for motorized and nonmotorized users.
Planning Factor 3:	Increase the security of the transportation system for motorized and nonmotorized users.
Planning Factor 4:	Increase the accessibility and mobility of people and freight.
Planning Factor 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.
Planning Factor 6:	Enhance the integration and connectivity of the transportation system across and between modes, for people and freight.
Planning Factor 7:	Promote efficient system management and operation.
Planning Factor 8:	Emphasize the preservation of the existing transportation system.
Planning Factor 9:	Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.
Planning Factor 10:	Enhance travel and tourism.

# CHAPTER 14: MOVING FORWARD

The Kalamazoo MPO is committed to assisting its member agencies in moving forward with the implementation of this plan's goals and in helping to build as many projects as identified in the plan.

The Financial Summary and Outlook provides the necessary financial details such as anticipated federal, state, and local revenues; cost inflation factors, and planning level cost estimates that support a highly transparent and principled approach to project implementation. The Fiscally Constrained List identifies those regional projects that are expected to be funded in the next 30 years that includes priorities for transit, bicycle, and pedestrian travel modes.

## Financial Summary and Outlook

Title 23 (Highways) of the Code of Federal Regulations (CFR), Part 450 (Planning Assistance and Standards), Sub-Part C (Metropolitan Transportation Planning and Programming), Article 322 (Development and Content of the Metropolitan Transportation Plan), (f) - "Contents of the Metropolitan Transportation Plan" states that:

- The Metropolitan Transportation Plan (MTP) must have a financial plan that demonstrates how the adopted transportation plan can be implemented.
- The financial plan shall contain system level estimates of cost and revenue sources that are reasonably expected to be available to operate and maintain highways and public transportation.
- The MPO, public transportation operators, and the state shall cooperatively develop estimates of funds that will be available to support the MTP implementation.
- The financial plan shall include recommendations on any additional financing strategies to fund projects and programs included in the MTP.
- Starting December 11, 2017, revenue and cost estimates that support the MTP must use an inflation rate to reflect "year of expenditure dollars" based on reasonable financial principles and information developed cooperatively by the MPO, state, and public transportation operators. For the outer years of the MTP, the financial plan may reflect aggregate cost ranges or cost bands as long as the future funding sources are reasonably expected to be available.

- For illustrative purposes, the financial plan may include additional projects that would be included in the adopted transportation plan if additional resources were to become available.

### **Federal Transportation Planning Factors**

Transportation Projects are one of the most essential outcomes of developing and updating the MTP. In meeting federal requirements and the transportation system challenges, the MPO has developed the MTP through a planning process guided by federal planning factors.

The metropolitan planning process encourages all local governments of an urban area to work together in a cooperative, comprehensive, and continuing manner to meet the transportation needs of the community.

For the MTP list of projects to be Fiscally Constrained, the cost of building or implementing regional project priorities should be within what is reasonably expected to be available over a 30-year period. Regional project priorities for which funding has not been identified are included in the Illustrative Project List (see Table 10-2) and make up the region's funding shortfall.

In formulating the Fiscally Constrained MTP project list (see Table 10-1), it should be noted that project priorities shown here are regional transportation improvement priorities, as selected and scored using the criteria outlined in Chapter 8. Projects reflect the metropolitan area's top priorities to be implemented as part of the regional transportation system over the next 30 years. Projects in the Fiscally Constrained Project List are implemented based on need and funding availability; the ratings are provided to demonstrate that these projects meet MTP objectives but are not intended to dictate the order in which projects are undertaken.

Ranking and selecting projects for funding purposes is part of the Transportation Improvement Program (TIP), a 4-year "budget" for implementing the highest propriety MTP projects. A priority must be given to maintenance and preservation of existing facilities. This chapter shows funding that is reasonably expected to be available for transportation improvements, including mobility, safety, and major rehabilitation.

Just as Plan revenues are projected at rates of growth, expenditures for the Plan must be changed to account for the year of expenditure. The MTPA Financial Workgroup has adopted a 4% annual increase in project costs to calculate the year of expenditure for Roads and Transit projects. Plan project costs have been adjusted for this factor.

In preparing the Financial Analysis in chapter 13, an approximate year of expenditure was estimated based on the priority rankings, and the expected revenue stream. As shown in the Fiscally Constrained Project List. For the purposes of this financial plan, the funding needs and priorities have been split into roadway and public transportation categories. Funding sources include those available through federal, state, and local programs and taxing authority.

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# APPENDIX A: ACRONYMS

CFR	Code of Federal Regulations
CMP	Congestion Management Process
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HTF	Highway Trust Fund
ISTEA	Intermodal Surface Transportation Efficiency Act
KATS	Kalamazoo Area Transportation Study
LRP	Long Range Plan
MAB	Metropolitan Area Boundary
MAP-21	Moving Ahead for Progress in the 21st Century
MDOT	Michigan Department of Transportation
MDSHT	Michigan Department of State Highways and Transportation
MI	Michigan
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
NHCCI	National Highway Construction Cost Index
NHPP	National Highway Performance Program
NHS	National Highway System
POP	Program of Projects
REMI	Regional Economic Model Incorporated
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
STIP	Statewide Transportation Improvement Program
TAM	Transit Asset Management
TIP	Transportation Improvement Program
U.S.	United States
USDOT	United States Department of Transportation
VMT	Vehicle Miles Traveled

# APPENDIX B: SOCIOECONOMIC PROJECTIONS

MUNICIPALITY	2016	2020	2025	2030	2035	2040	2045	2050
Kalamazoo City	75,013	85,469	85,846	87,452	88,397	88,369	88,363	93,040
Parchment City	2,036	2,203	2,217	2,213	2,198	2,176	2,152	2,271
Kalamazoo Township	24,656	23,079	23,367	23,499	23,452	23,344	23,252	24,897
Oshtemo Township	25,057	29,093	32,487	34,925	36,327	37,595	38,533	40,744
Alamo Township	4,026	3,810	3,828	3,809	3,775	3,725	3,680	3,968
Richland Township & Village	8,651	8,042	8,218	8,318	8,370	8,390	8,424	8,599
Cooper Township	11,329	10,586	10,806	10,946	11,013	11,041	11,078	12,141
Ross Township	4,124	4,036	4,153	4,238	4,294	4,333	4,383	4,615
Village of Augusta	1,151	1,597	1,639	1,664	1,679	1,697	1,704	1,791
Comstock Township	16,004	16,154	16,393	16,510	16,519	16,479	16,442	17,329
Galesburg City	1,925	2,139	2,248	2,340	2,416	2,484	2,556	2,676
Charleston Township	2,008	2,714	2,764	2,798	2,813	2,824	2,826	3,136
Texas Township	16,646	15,407	15,608	15,705	15,699	15,651	15,599	16,936
Prairie Ronde Township	2,346	2,411	2,481	2,528	2,563	2,584	2,608	2,832
Portage City	52,164	50,425	51,814	52,804	53,470	53,964	54,440	57,871
Vicksburg Village	3,341	3,044	3,077	3,089	3,082	3,063	3,047	3,207
Schoolcraft Village	1,788	1,578	1,595	1,596	1,588	1,577	1,566	1,652
Schoolcraft Township	6,000	5,852	5,936	5,983	5,983	5,970	5,950	6,268
Pavilion Township	6,480	6,464	6,546	6,582	6,580	6,554	6,527	6,845
Climax Township & Village	2,607	2,566	2,602	2,627	2,624	2,613	2,607	2,732
Brady Township	4,221	3,991	4,154	4,291	4,389	4,473	4,565	4,803
Wakeshma Township	1,421	1,405	1,449	1,478	1,502	1,516	1,535	1,805
Paw Paw Village	3,536	3,531	3,620	3,723	3,794	3,849	3,900	4,145
Paw Paw Township	3,179	3,538	3,571	3,605	3,609	3,602	3,592	3,824
Waverly Township	2,597	2,658	2,723	2,789	2,833	2,875	2,907	3,049
Almena Township	5,616	5,458	5,723	5,981	6,209	6,404	6,607	6,889
Lawton Village	1,922	1,858	1,900	1,940	1,967	1,991	2,010	2,168
Mattawan Village	4,342	4,630	4,766	4,899	5,003	5,080	5,178	5,468
Antwerp Township	6,204	6,602	7,032	7,452	7,837	8,173	8,526	8,953
<b>KATS Total</b>	<b>300,403</b>	<b>310,351</b>	<b>318,585</b>	<b>325,797</b>	<b>330,000</b>	<b>332,410</b>	<b>334,571</b>	<b>354,672</b>



## Household Projections

MUNICIPALITY	2016	2020	2025	2030	2035	2040	2045	2050
Kalamazoo City	32,023	33,968	34,295	34,489	34,610	34,641	34,643	34,980
Parchment City	872	975	987	994	1,000	999	997	1,006
Kalamazoo Township	9,581	9,754	9,936	10,074	10,185	10,228	10,274	10,523
Oshtemo Township	11,582	13,525	15,225	16,504	17,357	18,070	18,521	18,676
Alamo Township	1,573	1,550	1,566	1,571	1,577	1,570	1,565	1,618
Richland Township & Village	3,240	3,229	3,319	3,387	3,451	3,487	3,530	3,465
Cooper Township	4,230	4,296	4,412	4,506	4,591	4,641	4,695	4,897
Ross Township	1,820	1,745	1,807	1,859	1,907	1,940	1,978	1,993
Village of Augusta	467	520	538	552	565	576	584	589
Comstock Township	6,427	6,639	6,776	6,880	6,972	7,014	7,057	7,132
Galesburg City	844	897	950	998	1,044	1,082	1,123	1,126
Charleston Township	799	942	965	985	1,003	1,015	1,024	1,049
Texas Township	5,797	5,639	5,747	5,831	5,903	5,936	5,967	6,238
Prairie Ronde Township	836	846	860	868	876	876	877	925
Portage City	20,735	21,446	22,176	22,791	23,369	23,777	24,184	24,355
Vicksburg Village	1,197	1,231	1,264	1,291	1,316	1,330	1,346	1,357
Schoolcraft Village	783	661	674	682	689	692	695	702
Schoolcraft Township	2,233	2,099	2,168	2,228	2,281	2,320	2,357	2,391
Pavilion Township	2,423	2,469	2,515	2,550	2,582	2,594	2,606	2,629
Climax Township & Village	963	980	1,000	1,018	1,030	1,035	1,042	1,062
Brady Township	1,517	1,512	1,573	1,628	1,676	1,712	1,751	1,774
Wakeshma Township	539	558	579	596	613	624	637	641
Paw Paw Village	1,531	1,584	1,619	1,649	1,668	1,680	1,689	1,712
Paw Paw Township	1,427	1,480	1,506	1,530	1,540	1,546	1,550	1,581
Waverly Township	978	1,019	1,039	1,058	1,068	1,077	1,082	1,094
Almena Township	1,926	2,042	2,126	2,204	2,269	2,321	2,375	2,391
Lawton Village	748	817	852	885	911	935	957	986
Mattawan Village	1,669	1,758	1,802	1,843	1,871	1,889	1,914	1,948
Antwerp Township	2,235	2,436	2,692	2,740	2,872	2,984	3,102	3,141
<b>KATS Total</b>	<b>120,995</b>	<b>126,617</b>	<b>130,868</b>	<b>134,191</b>	<b>136,796</b>	<b>138,591</b>	<b>140,122</b>	<b>141,981</b>

## Retail Employment Projections

<b>MUNICIPALITY</b>	<b>2016</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>	<b>2045</b>	<b>2050</b>
Kalamazoo City	8,756	8,858	9,050	9,141	9,327	9,438	9,565	9,819
Parchment City	256	251	251	249	248	244	243	248
Kalamazoo Township	1,141	1,128	1,128	1,117	1,114	1,105	1,093	1,148
Oshtemo Township	4,255	4,252	4,315	4,332	4,396	4,423	4,450	4,913
Alamo Township	126	129	132	134	137	140	142	204
Richland Township & Village	416	417	423	425	432	431	435	554
Cooper Township	266	270	277	280	289	293	298	255
Ross Township	136	133	133	131	130	128	127	132
Village of Augusta	71	72	74	74	75	75	76	80
Comstock Township	2,313	2,328	2,366	2,386	2,427	2,451	2,478	2,712
Galesburg City	177	171	169	166	164	161	157	169
Charleston Township	22	24	28	29	32	36	38	26
Texas Township	902	925	952	968	992	1,013	1,032	943
Prairie Ronde Township	23	25	26	29	31	33	33	20
Portage City	10,961	10,922	11,060	11,068	11,210	11,248	11,292	11,362
Vicksburg Village	393	385	385	381	382	378	374	368
Schoolcraft Village	344	348	356	357	365	369	372	369
Schoolcraft Township	422	417	418	415	418	416	414	386
Pavilion Township	201	202	207	207	211	212	215	114
Climax Township & Village	61	61	62	62	62	63	62	89
Brady Township	71	71	72	73	74	73	73	58
Wakeshma Township	11	11	11	11	11	11	11	9
Paw Paw Village	1,026	1,038	1,057	1,068	1,089	1,104	1,120	1,145
Paw Paw Township	199	197	198	199	200	203	203	149
Waverly Township	144	147	150	152	156	159	162	63
Almena Township	82	79	78	78	76	77	77	57
Lawton Village	312	314	320	322	328	333	336	285
Mattawan Village	460	461	466	469	477	480	485	616
Antwerp Township	247	244	249	248	255	256	257	286
<b>KATS Total</b>	<b>33,794</b>	<b>33,880</b>	<b>34,413</b>	<b>34,571</b>	<b>35,108</b>	<b>35,353</b>	<b>35,620</b>	<b>36,583</b>

## Service Employment Projections

<b>MUNICIPALITY</b>	<b>2016</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>	<b>2045</b>	<b>2050</b>
Kalamazoo City	23,585	24,593	25,409	26,018	26,776	27,428	28,109	28,439
Parchment City	376	384	391	393	397	399	403	403
Kalamazoo Township	2,663	2,713	2,742	2,751	2,781	2,800	2,818	2,871
Oshtemo Township	4,543	4,700	4,829	4,908	5,017	5,101	5,189	5,834
Alamo Township	292	307	318	326	339	345	356	448
Richland Township & Village	1,143	1,187	1,221	1,244	1,275	1,300	1,326	1,589
Cooper Township	537	559	575	585	604	615	631	501
Ross Township	1,556	1,605	1,640	1,664	1,696	1,724	1,750	1,765
Village of Augusta	744	821	893	957	1,025	1,088	1,156	1,156
Comstock Township	2,210	2,292	2,358	2,408	2,463	2,508	2,561	2,920
Galesburg City	210	214	216	217	221	223	224	232
Charleston Township	212	242	267	289	313	335	361	248
Texas Township	2,160	2,270	2,358	2,432	2,521	2,596	2,678	2,473
Prairie Ronde Township	144	148	152	154	158	159	164	108
Portage City	10,905	11,315	11,649	11,876	12,158	12,398	12,644	12,670
Vicksburg Village	565	583	596	604	617	626	635	625
Schoolcraft Village	279	291	298	305	311	318	323	316
Schoolcraft Township	384	398	406	412	419	427	433	372
Pavilion Township	407	426	439	452	467	478	490	355
Climax Township & Village	201	209	214	219	223	227	230	282
Brady Township	236	246	253	259	268	275	282	200
Wakeshma Township	65	67	70	72	74	75	76	56
Paw Paw Village	1,326	1,379	1,424	1,459	1,498	1,533	1,570	1,660
Paw Paw Township	481	500	517	530	544	557	569	405
Waverly Township	93	97	102	105	108	110	113	69
Almena Township	207	214	218	221	227	230	234	147
Lawton Village	223	231	239	245	251	257	264	210
Mattawan Village	654	679	700	716	732	751	770	1,111
Antwerp Township	532	553	569	585	600	613	628	675
<b>KATS Total</b>	<b>56,933</b>	<b>59,223</b>	<b>61,063</b>	<b>62,406</b>	<b>64,083</b>	<b>65,496</b>	<b>66,987</b>	<b>68,140</b>

## Basic Employment Projections

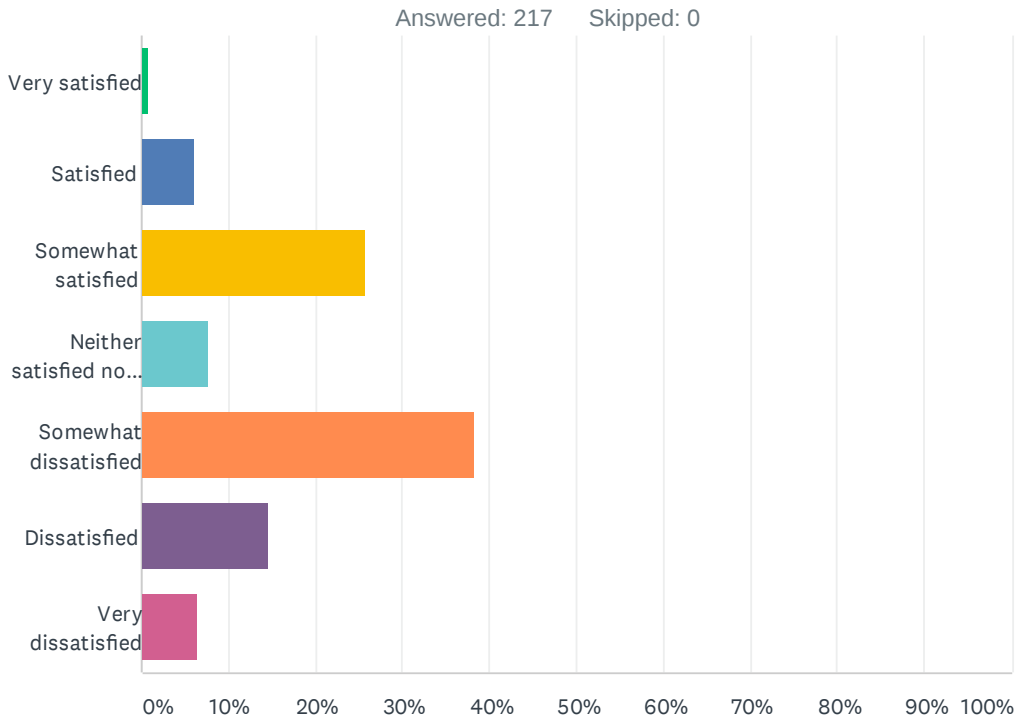
MUNICIPALITY	2016	2020	2025	2030	2035	2040	2045	2050
Kalamazoo City	10,455	10,200	10,238	10,299	10,410	10,460	10,506	10,757
Parchment City	361	350	351	335	360	364	368	368
Kalamazoo Township	3,060	2,954	2,939	2,931	2,940	2,929	2,923	2,975
Oshtemo Township	1,451	1,413	1,454	1,459	1,469	1,472	1,472	1,981
Alamo Township	425	460	442	447	454	457	462	545
Richland Township & Village	1,159	1,139	1,144	1,155	1,171	1,185	1,199	1,346
Cooper Township	885	866	870	875	887	896	903	731
Ross Township	189	215	192	218	192	193	193	198
Village of Augusta	50	49	48	48	49	50	51	51
Comstock Township	4,017	3,924	3,919	3,922	3,942	3,947	3,951	4,135
Galesburg City	127	124	123	122	123	123	123	130
Charleston Township	1,664	1,801	1,950	2,092	2,235	2,371	2,515	2,062
Texas Township	850	852	868	875	886	889	894	754
Prairie Ronde Township	223	224	231	236	243	247	251	204
Portage City	10,549	10,270	10,305	10,438	10,633	10,805	10,983	10,994
Vicksburg Village	529	512	510	514	522	527	533	513
Schoolcraft Village	199	195	197	197	199	201	201	195
Schoolcraft Township	785	767	771	780	791	799	808	745
Pavilion Township	1,516	1,476	1,483	1,500	1,525	1,546	1,567	1,452
Climax Township & Village	97	97	97	98	99	99	99	126
Brady Township	710	666	695	678	716	729	742	695
Wakeshma Township	118	115	116	115	115	116	117	88
Paw Paw Village	360	349	346	344	346	346	346	390
Paw Paw Township	944	912	900	896	896	897	897	796
Waverly Township	135	131	131	131	131	130	130	75
Almena Township	321	323	324	327	331	335	338	282
Lawton Village	477	464	460	460	465	467	469	422
Mattawan Village	1,032	1,003	993	992	995	998	999	1,194
Antwerp Township	391	389	393	394	399	402	406	449
<b>KATS Total</b>	<b>43,079</b>	<b>42,240</b>	<b>42,490</b>	<b>42,899</b>	<b>43,524</b>	<b>43,980</b>	<b>44,446</b>	<b>44,650</b>

## Medical Employment Projections

MUNICIPALITY	2016	2020	2025	2030	2035	2040	2045	2050
Kalamazoo City	10,675	11,186	11,606	11,933	12,352	12,708	13,084	13,255
Parchment City	52	54	55	56	57	58	59	59
Kalamazoo Township	448	460	463	465	469	471	474	489
Oshtemo Township	1,519	1,589	1,651	1,695	1,751	1,800	1,851	2,197
Alamo Township	133	140	145	148	155	159	164	192
Richland Township & Village	114	121	124	126	130	136	138	169
Cooper Township	88	92	95	97	101	103	105	90
Ross Township	60	61	63	65	66	68	69	69
Village of Augusta	13	14	14	14	15	15	15	15
Comstock Township	486	504	520	531	546	558	571	665
Galesburg City	60	61	63	63	65	66	66	71
Charleston Township	24	29	31	33	35	39	42	20
Texas Township	75	79	86	88	93	95	96	67
Prairie Ronde Township	86	90	92	93	95	96	98	78
Portage City	3,090	3,229	3,341	3,427	3,539	3,640	3,744	3,749
Vicksburg Village	157	163	167	170	174	177	180	176
Schoolcraft Village	15	16	16	16	17	18	19	22
Schoolcraft Township	17	19	19	19	19	20	20	12
Pavilion Township	2	2	2	2	3	3	3	3
Climax Township & Village	4	4	4	4	4	6	6	11
Brady Township	11	13	13	14	14	14	14	11
Wakeshma Township	5	6	6	6	6	6	7	5
Paw Paw Village	1,029	1,071	1,104	1,135	1,167	1,196	1,225	1,262
Paw Paw Township	58	60	65	66	67	68	71	46
Waverly Township	5	5	5	6	6	7	7	7
Almena Township	26	27	27	27	28	28	30	24
Lawton Village	123	127	131	135	139	142	147	133
Mattawan Village	166	172	179	183	188	187	197	224
Antwerp Township	54	56	57	58	60	62	64	74
<b>KATS Total</b>	<b>18,595</b>	<b>19,450</b>	<b>20,144</b>	<b>20,675</b>	<b>21,361</b>	<b>21,951</b>	<b>22,566</b>	<b>23,195</b>

# APPENDIX C: TRANSPORTATION SURVEY & PUBLIC COMMENTS

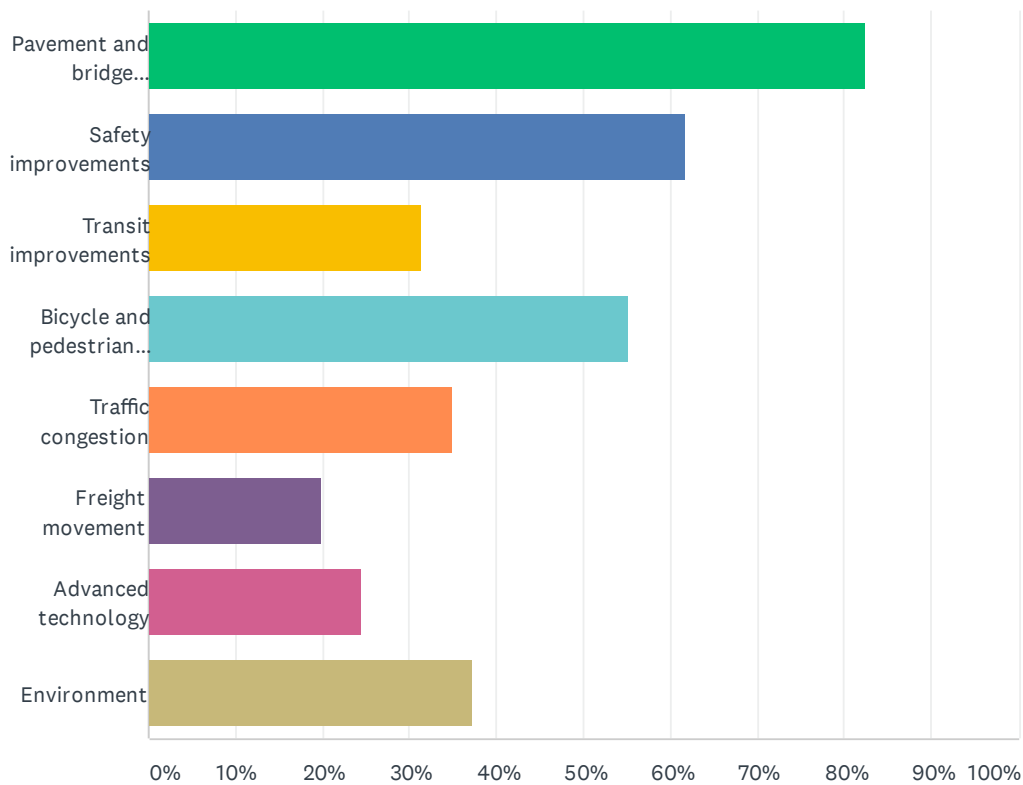
Q1 How satisfied are you with the condition of roads and bridges in the planning area?



ANSWER CHOICES	RESPONSES
Very satisfied	0.92% 2
Satisfied	5.99% 13
Somewhat satisfied	25.81% 56
Neither satisfied nor dissatisfied	7.83% 17
Somewhat dissatisfied	38.25% 83
Dissatisfied	14.75% 32
Very dissatisfied	6.45% 14
<b>TOTAL</b>	<b>217</b>

## Q2 Which four components of the region's transportation system should be the top priorities for improvement over the next 5-10 years?

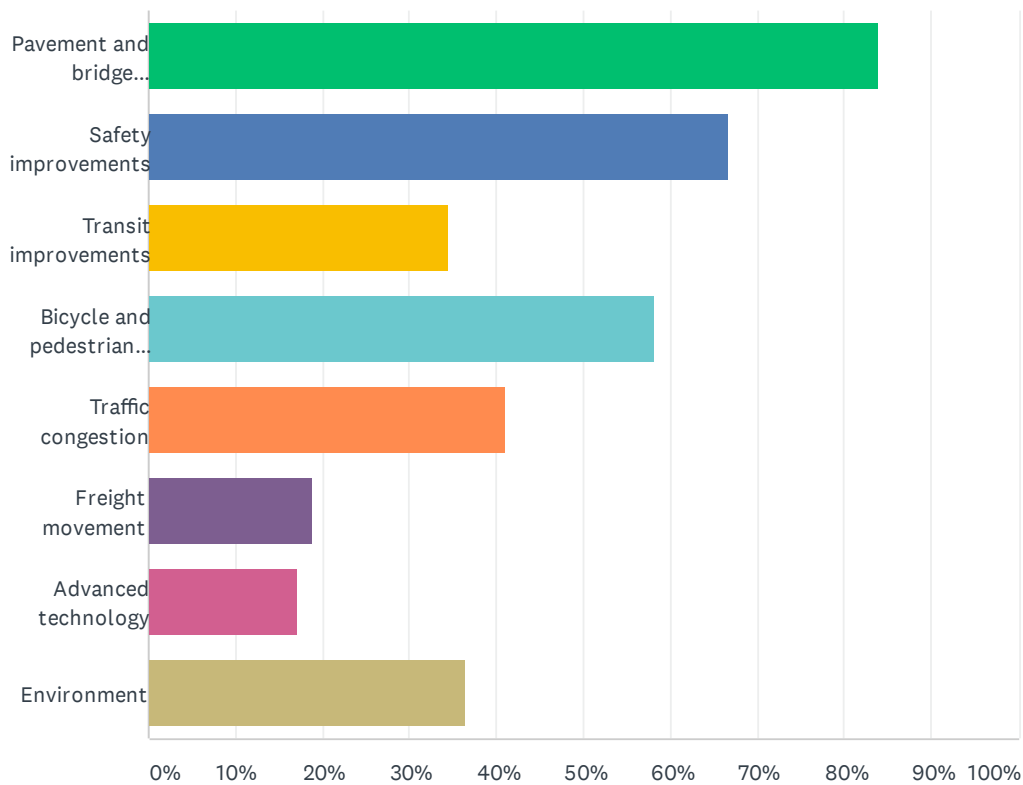
Answered: 217 Skipped: 0



ANSWER CHOICES	RESPONSES	
Pavement and bridge preservation	82.49%	179
Safety improvements	61.75%	134
Transit improvements	31.34%	68
Bicycle and pedestrian facilities	55.30%	120
Traffic congestion	35.02%	76
Freight movement	19.82%	43
Advanced technology	24.42%	53
Environment	37.33%	81
Total Respondents: 217		

### Q3 Which four components of the region's transportation system should be the top priorities for improvement over the next 1-5 years?

Answered: 217 Skipped: 0

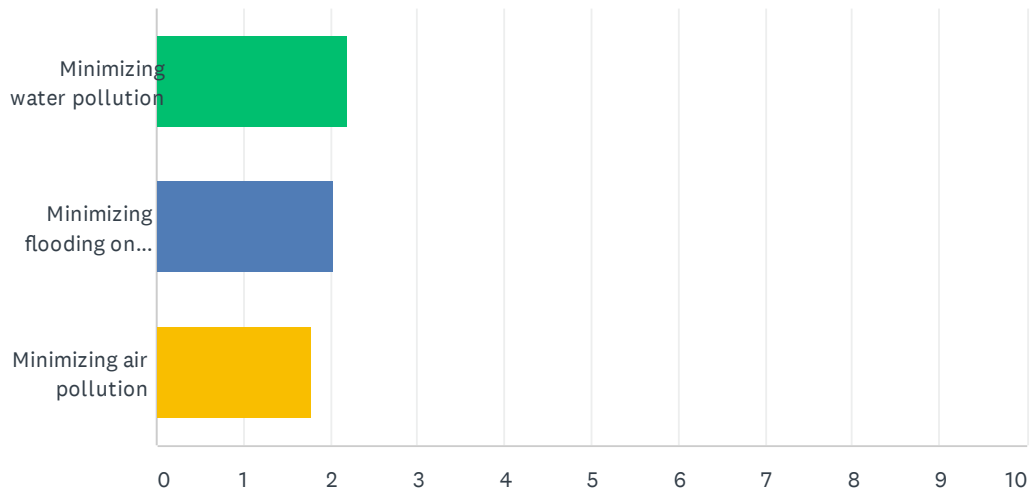


ANSWER CHOICES	RESPONSES	
Pavement and bridge preservation	83.87%	182
Safety improvements	66.82%	145
Transit improvements	34.56%	75
Bicycle and pedestrian facilities	58.06%	126
Traffic congestion	41.01%	89
Freight movement	18.89%	41
Advanced technology	17.05%	37
Environment	36.41%	79
Total Respondents: 217		



### Q4 Rank the following in terms of importance with the most important aspect at the top.

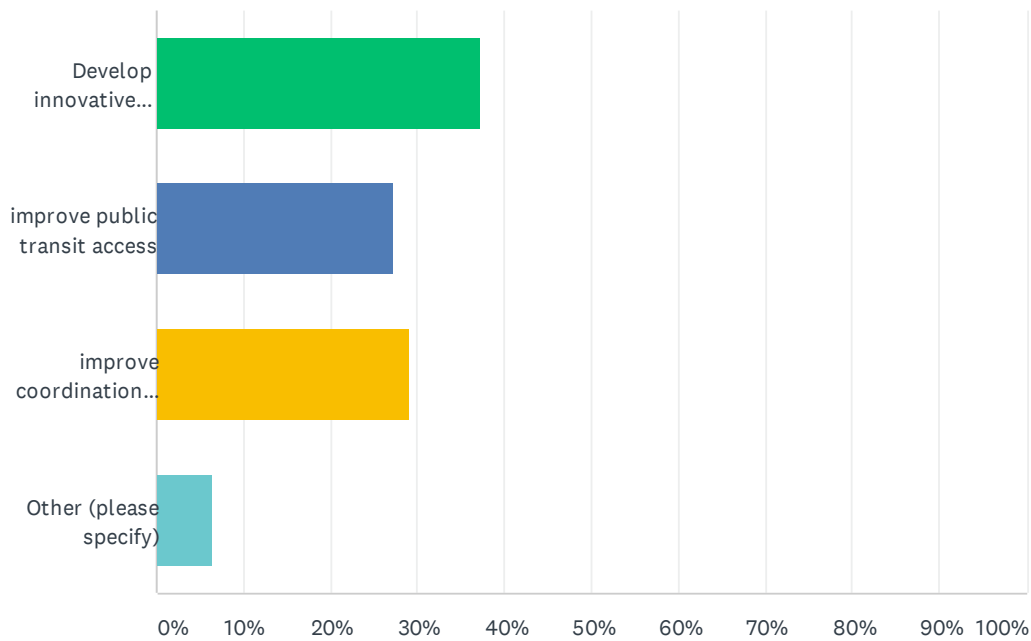
Answered: 217 Skipped: 0



	1	2	3	TOTAL	SCORE
Minimizing water pollution	38.25% 83	42.86% 93	18.89% 41	217	2.19
Minimizing flooding on roads	42.40% 92	18.43% 40	39.17% 85	217	2.03
Minimizing air pollution	19.35% 42	38.71% 84	41.94% 91	217	1.77

### Q5 How should concerns of safety and mobility for the area's aging population be addressed? (select one option)

Answered: 217 Skipped: 0



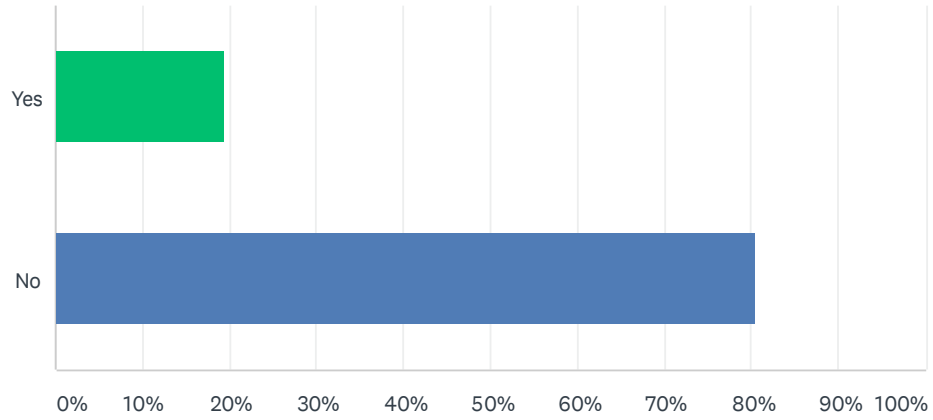
ANSWER CHOICES	RESPONSES	
Develop innovative mobility services	37.33%	81
improve public transit access	27.19%	59
improve coordination of land use development with transportation planning	29.03%	63
Other (please specify)	6.45%	14
<b>TOTAL</b>		<b>217</b>

## Transportation Survey for the Greater Kalamazoo Area

#	OTHER (PLEASE SPECIFY)	DATE
1	I'm old. Please don't force me to ride a bike or walk everywhere	5/18/2020 9:38 AM
2	Work with private/non-profit sectors on shuttles and other demand-response systems	5/11/2020 11:50 AM
3	More pathways for non motorized commuters, and incentives to use	4/22/2020 9:45 AM
4	Coordinated effort with existing all services.	4/21/2020 11:32 AM
5	I would look to private sector solutions Uber, Lyft, etc	4/20/2020 10:31 AM
6	have no thoughts on this	4/16/2020 2:49 PM
7	Improve safety of the roads	4/7/2020 1:04 PM
8	Clearly, all of the above. We should always be using every tool at our disposal to address the needs of our community.	4/7/2020 11:58 AM
9	not sure.	4/6/2020 10:41 AM
10	Improved transit and coordination of land use and transportation are BOTH super important, but I wanted to clarify: we need to make available denser housing closer to services in urban and regional centers. Transit is a lifeline for longer trips, but we should foster livable communities that allow elderly people to walk or roll a few short blocks for 90 percent of their needs.	3/26/2020 9:13 AM
11	not	3/13/2020 3:22 PM
12	N	3/13/2020 12:13 PM
13	improve communication of existing services	3/13/2020 11:47 AM
14	Ability for those that are old and unable to ride a bike to have motorized vehicle options and roadways that allow the safe movement of these vehicles	3/13/2020 11:19 AM

### Q6 Do you use transit services?

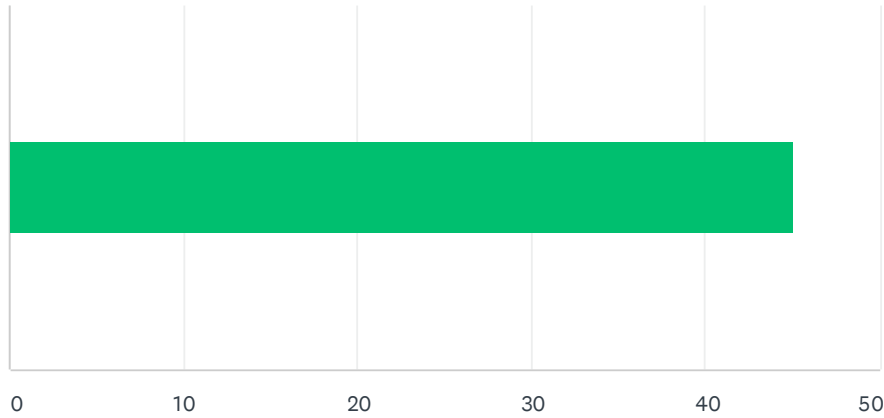
Answered: 217 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	19.35%	42
No	80.65%	175
TOTAL		217

**Q7 How satisfied are you with transit access to jobs and important services, such as healthcare, food and education? (skip if answered "no" to question 6).**

Answered: 97 Skipped: 120



ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
	45	4,374	97
Total Respondents: 97			

Transportation Survey for the Greater Kalamazoo Area

#		DATE
1	70	6/9/2020 2:46 PM
2	67	5/18/2020 9:38 AM
3	50	5/11/2020 11:50 AM
4	41	5/10/2020 11:16 AM
5	9	5/10/2020 6:25 AM
6	89	5/9/2020 6:59 PM
7	50	4/27/2020 9:32 AM
8	63	4/26/2020 9:54 AM
9	25	4/24/2020 10:19 AM
10	70	4/24/2020 8:01 AM
11	47	4/23/2020 11:27 PM
12	0	4/22/2020 6:23 PM
13	50	4/22/2020 5:48 PM
14	27	4/22/2020 10:51 AM
15	32	4/22/2020 7:25 AM
16	50	4/21/2020 2:52 PM
17	49	4/21/2020 11:32 AM
18	10	4/20/2020 4:37 PM
19	24	4/20/2020 3:07 PM
20	12	4/20/2020 2:07 PM
21	12	4/20/2020 1:27 PM
22	42	4/20/2020 1:26 PM
23	60	4/20/2020 12:49 PM
24	42	4/20/2020 12:40 PM
25	50	4/20/2020 12:32 PM
26	42	4/20/2020 12:22 PM
27	51	4/20/2020 12:05 PM
28	49	4/20/2020 11:00 AM
29	71	4/20/2020 10:54 AM
30	49	4/20/2020 10:51 AM
31	46	4/20/2020 10:48 AM
32	49	4/20/2020 10:38 AM
33	49	4/20/2020 10:27 AM
34	26	4/17/2020 11:24 AM
35	50	4/16/2020 3:19 PM
36	48	4/16/2020 1:37 PM
37	52	4/15/2020 7:38 PM

Transportation Survey for the Greater Kalamazoo Area

38	28	4/15/2020 3:24 PM
39	50	4/15/2020 2:43 PM
40	43	4/15/2020 2:35 PM
41	40	4/15/2020 9:45 AM
42	34	4/15/2020 6:38 AM
43	48	4/14/2020 10:45 AM
44	50	4/9/2020 4:45 PM
45	34	4/8/2020 1:39 PM
46	40	4/8/2020 7:32 AM
47	69	4/8/2020 7:17 AM
48	50	4/7/2020 7:18 PM
49	80	4/7/2020 4:02 PM
50	0	4/7/2020 3:01 PM
51	93	4/7/2020 1:46 PM
52	54	4/7/2020 1:14 PM
53	100	4/7/2020 1:07 PM
54	92	4/7/2020 1:03 PM
55	45	4/7/2020 1:00 PM
56	87	4/7/2020 12:45 PM
57	52	4/7/2020 12:32 PM
58	50	4/7/2020 11:58 AM
59	24	4/7/2020 11:35 AM
60	50	4/7/2020 11:21 AM
61	55	4/7/2020 11:17 AM
62	66	4/7/2020 11:04 AM
63	0	4/7/2020 10:58 AM
64	50	4/6/2020 10:41 AM
65	30	4/3/2020 6:57 PM
66	20	3/27/2020 5:19 AM
67	40	3/26/2020 9:13 AM
68	1	3/17/2020 12:21 PM
69	49	3/17/2020 9:32 AM
70	49	3/16/2020 2:11 PM
71	26	3/16/2020 12:14 PM
72	51	3/16/2020 10:54 AM
73	70	3/16/2020 9:44 AM
74	46	3/16/2020 8:12 AM
75	0	3/14/2020 8:21 PM

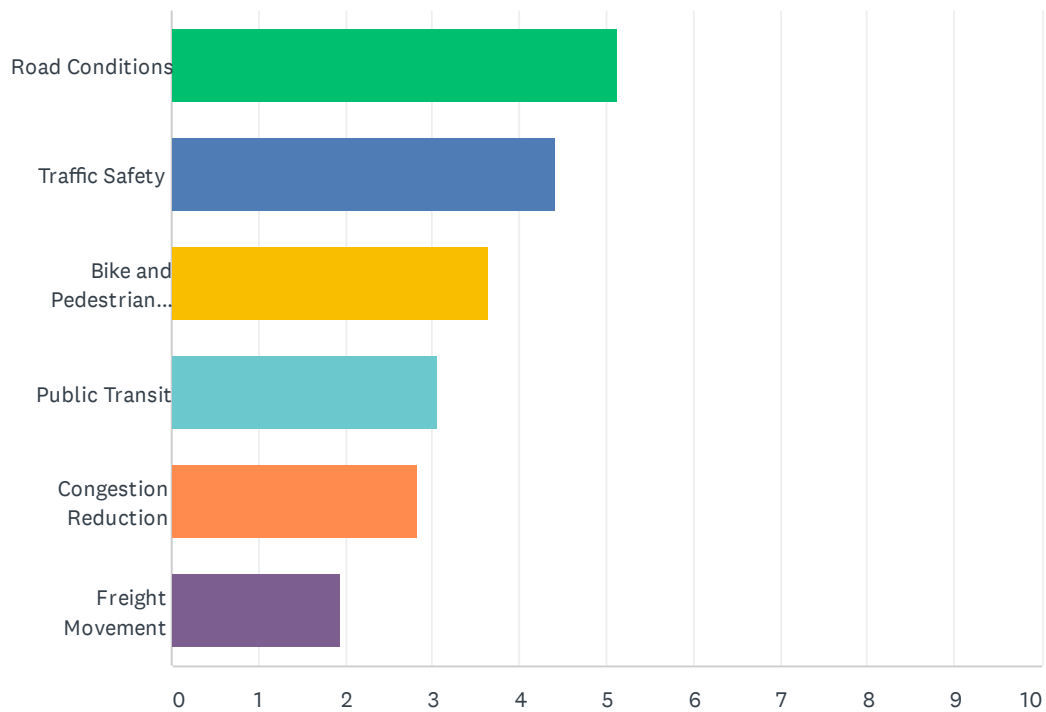
Transportation Survey for the Greater Kalamazoo Area

76	80	3/14/2020 9:08 AM
77	28	3/14/2020 8:58 AM
78	78	3/13/2020 4:22 PM
79	49	3/13/2020 3:26 PM
80	100	3/13/2020 2:01 PM
81	43	3/13/2020 1:49 PM
82	50	3/13/2020 1:17 PM
83	13	3/13/2020 1:12 PM
84	0	3/13/2020 1:12 PM
85	1	3/13/2020 12:22 PM
86	56	3/13/2020 12:08 PM
87	49	3/13/2020 11:58 AM
88	11	3/13/2020 11:49 AM
89	58	3/13/2020 11:48 AM
90	50	3/13/2020 11:46 AM
91	50	3/13/2020 11:43 AM
92	80	3/13/2020 11:36 AM
93	36	3/13/2020 11:34 AM
94	25	3/13/2020 11:28 AM
95	75	3/13/2020 11:19 AM
96	43	3/13/2020 11:17 AM
97	10	3/13/2020 11:15 AM



## Q8 Which future transportation investments are most important to you? Put the most important investment at the top (#1).

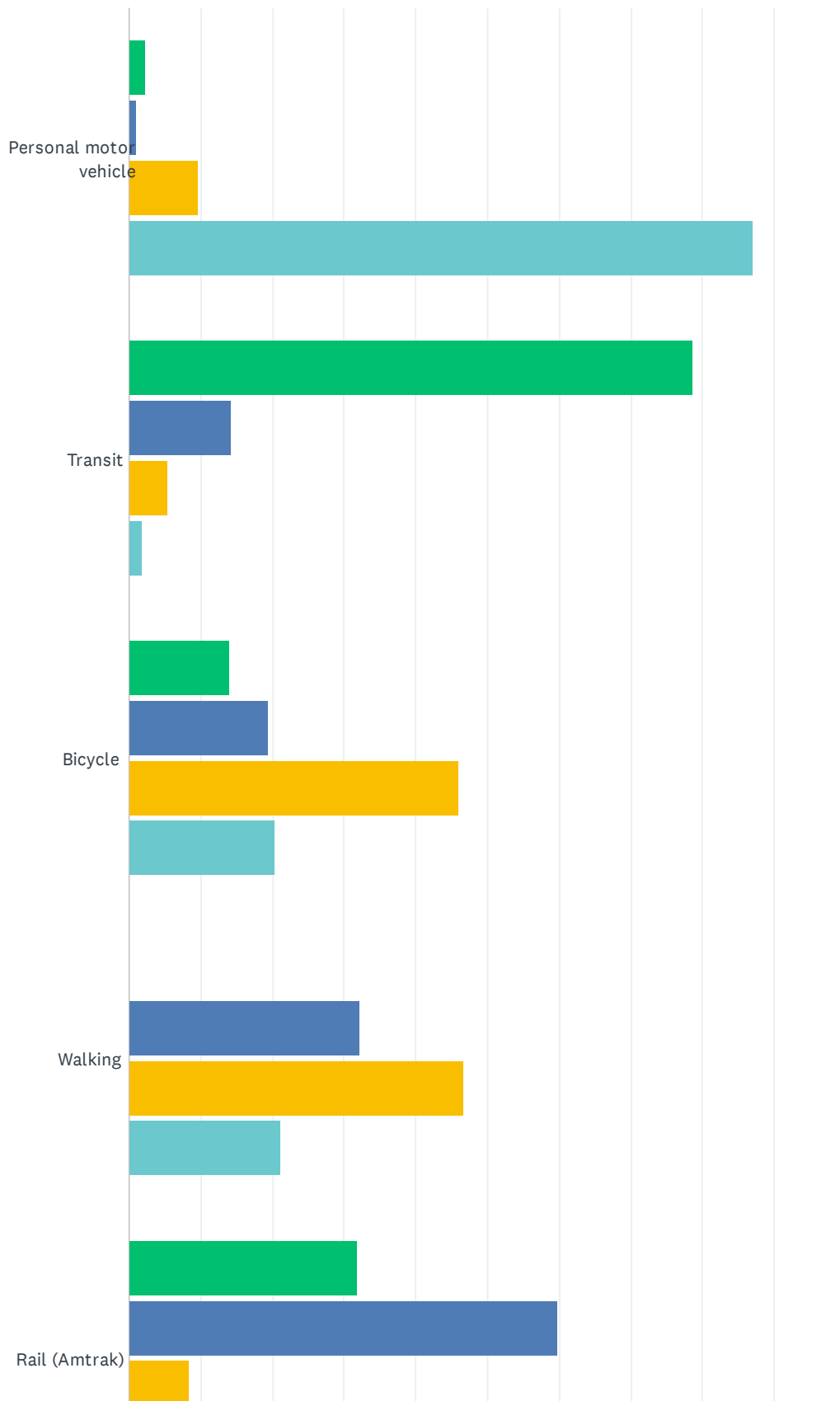
Answered: 217 Skipped: 0



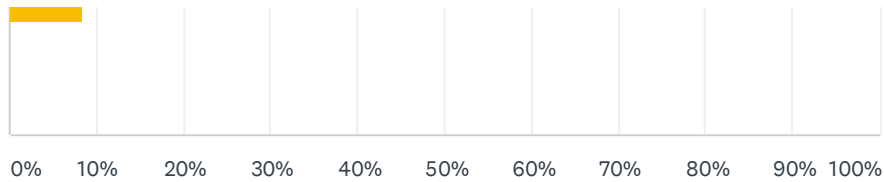
	1	2	3	4	5	6	TOTAL	SCORE
Road Conditions	53.46% 116	22.58% 49	11.06% 24	9.22% 20	2.30% 5	1.38% 3	217	5.12
Traffic Safety	15.21% 33	36.87% 80	28.57% 62	12.90% 28	5.53% 12	0.92% 2	217	4.41
Bike and Pedestrian Facilities	20.74% 45	16.59% 36	20.74% 45	11.52% 25	9.68% 21	20.74% 45	217	3.65
Public Transit	8.29% 18	10.14% 22	14.75% 32	25.35% 55	29.03% 63	12.44% 27	217	3.06
Congestion Reduction	2.30% 5	10.60% 23	20.28% 44	17.05% 37	32.72% 71	17.05% 37	217	2.82
Freight Movement	0.00% 0	3.23% 7	4.61% 10	23.96% 52	20.74% 45	47.47% 103	217	1.95

### Q9 Which mode of transportation do you use most often?

Answered: 217 Skipped: 0



## Transportation Survey for the Greater Kalamazoo Area



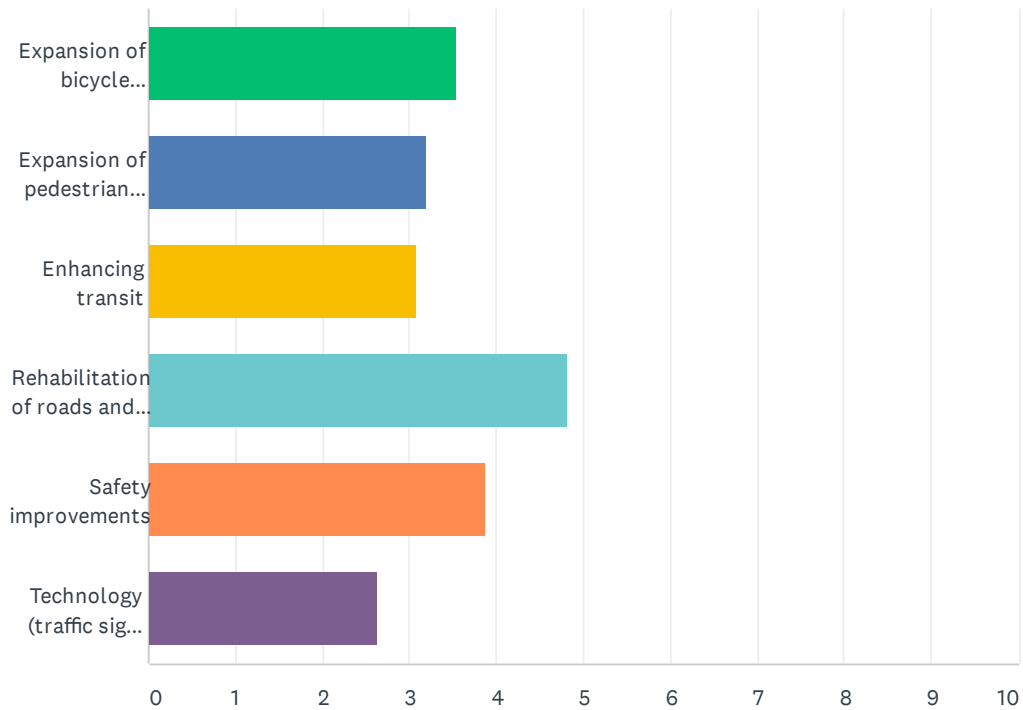
■ Never   
 ■ Rarely   
 ■ Occasionally   
 ■ Frequently

	NEVER	RARELY	OCCASIONALLY	FREQUENTLY	TOTAL	WEIGHTED AVERAGE
Personal motor vehicle	2.27% 4	1.14% 2	9.66% 17	86.93% 153	176	3.81
Transit	78.57% 88	14.29% 16	5.36% 6	1.79% 2	112	1.30
Bicycle	14.06% 18	19.53% 25	46.09% 59	20.31% 26	128	2.73
Walking	0.00% 0	32.12% 44	46.72% 64	21.17% 29	137	2.89
Rail (Amtrak)	31.78% 34	59.81% 64	8.41% 9	0.00% 0	107	1.77

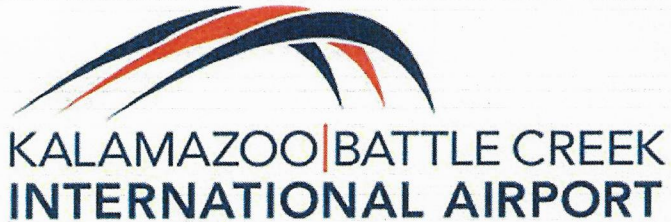
#	OTHER (PLEASE SPECIFY)	DATE
1	I walk occasionally when I'm at work in Portage but I cannot select that option if another one is selected	6/1/2020 2:05 PM
2	I cannot select options for more than four categories? I use all of them, auto most often, then walk, transit, train and bike (rarely). Is there general comment area on this?	5/18/2020 9:38 AM
3	I use and support Amtrak but cannot select the option without another category being erased	5/11/2020 11:50 AM
4	walk in the neighborhood daily and sometimes to the downtown	4/22/2020 10:58 PM
5	This questions would not allow me to pick the same frequency twice. I would have selected frequently for bicycle and motor vehicle, and walking. I would have picked occasionally for Amtrak.	4/20/2020 12:51 PM
6	It would only allow me to choose one option for Never, rarely etc. So I ranked my top 4 in order.	4/15/2020 1:57 PM
7	Comment - this doesn't allow a check mark for every item	4/15/2020 9:45 AM
8	Transit, bicycle, and rail are all never.	4/7/2020 2:10 PM
9	This question is broken. I can select three items and it bounces around. I've selected one, as the question indicates I should, but I use all the other modes to some degree.	3/26/2020 9:13 AM
10	Uber/Lyft	3/16/2020 10:54 AM
11	Question won't allow duplicate answers. For Rail, I would choose "Rarely".	3/14/2020 7:14 PM
12	Options for this question aren't operational as intended.	3/13/2020 3:26 PM
13	airplane	3/13/2020 12:22 PM
14	I use both personal motor vehicle and my bike equally because there isn't the proper infrastructure to bike in the off season- or to certain parts of town.	3/13/2020 11:28 AM
15	Carpool from another town twice a week	3/13/2020 11:19 AM

### Q10 How would you prioritize transportation funding for the following? (Put the highest priority at the top (#1)).

Answered: 216 Skipped: 1



	1	2	3	4	5	6	TOTAL	SCORE
Expansion of bicycle facilities	20.10% 42	17.70% 37	15.31% 32	12.92% 27	11.00% 23	22.97% 48	209	3.54
Expansion of pedestrian facilities	2.87% 6	20.57% 43	17.70% 37	18.66% 39	33.01% 69	7.18% 15	209	3.20
Enhancing transit	8.57% 18	10.00% 21	18.57% 39	26.19% 55	16.67% 35	20.00% 42	210	3.08
Rehabilitation of roads and bridges	57.55% 122	11.32% 24	7.55% 16	8.49% 18	8.96% 19	6.13% 13	212	4.82
Safety improvements	10.38% 22	32.55% 69	18.87% 40	16.04% 34	16.04% 34	6.13% 13	212	3.87
Technology (traffic signal detection, pedestrian counters, etc.)	2.82% 6	8.92% 19	22.54% 48	16.90% 36	12.68% 27	36.15% 77	213	2.64



21 May 2021

Mr. Steve Stepek  
Executive Director  
Kalamazoo Area Transportation Study  
5220 Lovers Ln, Ste. 110  
Portage, MI 49002

Dear Mr. Stepek:

Thank you for sharing the note requesting input on the 2050 Metropolitan Transportation Plan list of Proposed Projects. I appreciate the opportunity for input and we will review. It's important that there's a coordinated approach to projects amongst the different entities. In fact, I was speaking with Joe LaMargo recently about our entrance roadway project we're doing next year and he mentioned the work that they'll be doing to Portage Road in front of the Airport. We both agreed to get together when design begins to make sure our designs are supportive of both goals.

As a point of introduction, I'm new to the Airport having started in 2020 prior to the pandemic's onset. Please don't hesitate to reach out to me if I can be of any assistance to any of the work that the organization does or if you would like to find out what's going on at the airport. I'm attaching my business card for your reference.

Sincerely,

A handwritten signature in black ink that reads "Craig Williams".

Craig Williams, AAE  
Airport Director  
Kalamazoo/Battle Creek International Airport

# Public Comments on Non-Motorized

Public Comments Received Regarding the 2050 Non-Motorized Chapter

**Katy Reilly**  
**City of Kalamazoo**

“Should there be a discussion of scooters and their infrastructure needs?”

There seems to only show sidewalk along non-local roads (map of existing urban area sidewalks), is this the purpose?

Would it over complicate to show existing; maybe as a solid line to better show network/network gaps (map of proposed non-motorized facilities)?

Is there a bike lane on Mount Olivet?

Gull Sharrows should go. Off street or if there must be something buffered bike lanes? Also, can we propose a few HAWK crossings? Especially near the extremely large housing complex.

Existing Trail along Riverview.

Propose: bike lanes on Burdick north of the mall.

Existing cycle track Kalamazoo: Porter to Edwards. Propose cycle track Kalamazoo Edwards to Douglas.

Propose: bike lane on Portage.

Propose: bike lanes or other infrastructure on Lovell.

Existing Sharrow on Vine St.

Existing/will be built Howard Pathway – Michigan – Stadium.

Propose: Rose, Stockbridge (to farmers market) bike lane, Stockbridge sharrow to Fulford.

Propose: East West bike boulevard – Rambling, Lorraine, Chevy Chase, Edgemoor, Bronson, Inkster. Need strong bike boulevard definition – it is more than a sign or paint. What infrastructure is in place to prioritize the cyclist on the street over the car?

Propose: Park and Westnedge – parking buffered bike lane from North – where they merge.

Propose: Bike Lane Cork – Whites, part of Parkview.

Existing: Bike lanes on Burdick to the Mall.

Where is it appropriate to talk about changes to transit system? Resident feedback shows desire for system changes that facilitate transfers and interest in some commuter focused service. What changes need to happen to help facilitate these changes? Elevated bus stops, pre boarding pay stations and lighting priority.

An issue that happens in Kalamazoo is we have poorly placed push buttons making them not ADA.

When can we talk about bike boxes, protected intersections? Example: propose bike boxes at Parkview/Oakland intersection. Maybe a protected intersection at Kalamazoo Westnedge and Kalamazoo Park intersections.”

**Paul Selden**

**Bike Friendly Kalamazoo/Kalamazoo Region Bike Route Committee**

**“From Paul Selden**

1. Per their Chief of Police, Scott Sanderson, Vicksburg Village has adjusted its route labeled Vicksburg-Scotts Commuterv3 on Map 7 to start at its current node at the intersection of E. Prairie St. and Kalamazoo Av. in Vicksburg, and commence on a stretch due east to turn north onto N Richardson St. Please note that the remainder of the route falls within Brady Twp and outside the Village's jurisdiction. Vicksburg's alteration may or may not impact the remainder of the route. I can put this alteration into .kml format in a "v4" revision if it is helpful.

2. My comment and respectful request re. the 2050 Metropolitan Transportation Plan is that Map 7 must remain in the updated plan; with color-coding to indicate signed vs. unsigned stretches.

3. During the last round of discussion leading up to the adoption of the Non-Motorized Element in the 2045 Plan, a policy member raised the point that the Non-Motorized Element was in an Appendix, indicating perhaps that is of lesser importance than the other chapters. This gives me the idea, which I now put in the form of a respectful request/comment, that the Non-Motorized Element be given its own chapter in the main body of the 2050 Plan.

4. My other suggestion to be considered is that Map 7 be renamed "Proposed Bike Commuter & Transportation Routes." The rationale for this request is that KATS is transportation-oriented, and the term transportation has a broader definition than the term commuter. The routes in Map 7 serve as a trunklines for additional purposes having to do with basic transportation, apart from commuting to and from a job.

**“Speaking in my capacities and actions as chair of:**

**Kalamazoo Bike Week**

**BFK's Fall Bike Celebration**

**Kalamazoo Region Bike Route Committee**

**Bike Friendly Kalamazoo**

I can attest that the following groups that I chair, and myself as their chair, have used Map 7 in the KATS 2045 Metropolitan Transportation Plan in many useful ways, including the following examples.

Kalamazoo Bike Week - has featured the unveiling of Southwest Michigan Bikeway (Map 7) signage on Oakland Drive between Kalamazoo and Portage;

BFK's Fall Bike Celebration - uses Map 7 to identify preferred routes between Vicksburg, Scotts, and Climax, and to use Vicksburg as a regional node connecting with Centreville and points south;

Kalamazoo Region Bike Route Committee - uses Map 7 to plan and keep track of progress implementing signage as well as to indirectly suggest prioritization of road marking and improvement for bicycling infrastructure such as road widening and the development of bike lanes coinciding with these regional bike routes; to encourage education, awareness-building, and development of support for the KATS Non-Motorized Element within the KATS 2045 Metropolitan Transportation Plan; and,

Bike Friendly Kalamazoo - uses Map 7 and the NME to facilitate support for our mission of helping to build a even more bicycle friendly greater community, which we believe is consistent with federal, state, local and KATS own policies (e.g., Complete Streets); and to stimulate support for signing and improving bicycle infrastructure on Map 7's bicycle transportation-oriented routes, which form preferred trunklines connecting stated municipal and educational non-motorized traffic-generators within KATS and serve to identify obvious connections/nodes among adjacent regions outside of KATS, and whose routes were developed via a systematic public process as clearly described within the KATS 2045 Metropolitan Transportation Plan's Non-Motorize Element.

I would go so far as to state my personal belief that all these stakeholders -- as well as the many stakeholders who have gone on record via their letters of support and/or formal resolutions -- have found utility in the KATS Non-Motorized Element within the KATS 2045 Metropolitan Transportation Plan, including Map 7, as witnessed by their letters of support and resolutions, as well.

In my observations I don't mean to state anything beyond the above, but feel the inferences I've made are in good faith as supported by my observations.

In short, I believe that the KATS 2045 Metropolitan Transportation Plan's Map 7 within its Non-Motorized Element has been very useful."

"To make Map 7's title consistent with its proposed use, I strongly suggest the committee consider naming Map 7 to **Proposed / Signed Bike Transportation Routes**. Rationale: This title better aligns with the KATS Transportation Plan and its transportation orientation. The word "transportation" includes a broader class of implied uses than the word commuter. Transportation encompasses meanings such as "the action of transporting someone or something or the process of being transported." Bicycles can transport people to and from places of work, bus stops, railway stations, shops, convenience and grocery stores, professional and other service providers (think of going to a dentist or landscaping firm), while in the course of package and mail delivery, etc. "Commuter" is fairly narrowly associated with only one of these uses, e.g., "a person who travels some distance to work on a regular basis." To continue to use the words "Bike Commuter Routes" limits the networks' use in the public mind and subtly diminishes and marginalizes it. The rationale for including the "/ Signed" in the title is to make it easier to see that the map consolidated routes that have already been signed ("implemented") vs. routes that are proposed (not yet signed).

There is an economic development component to expanding non-motorized transportation that relates to **growth of the bicycle industry**. The U.S. bicycle industry generated \$6 billion in sales in 2010 and approximately 4,200 specialty bike dealers do business across the nation.<sup>11</sup> These independent shops are community hubs, providing personalized service, sponsoring local events, and spearheading efforts to build bike facilities. In 2009, American consumers bought 2.6 million bicycles compared to 2.5 million cars and trucks.<sup>12</sup> **During the recent Covid-19 pandemic bicycling became such a common activity that the industry could not keep up with the demand, which may have grown as much as xx%** (page 8).



## Quality of Life

The benefits of a comprehensive non-motorized transportation system go beyond the direct benefits to users of the system to the public as a whole. In addition to **benefits related to** air quality, health, and economic **development**, an improved non-motorized system can offer additional direct and indirect benefits associated with the quality of life. (page 12).

## Coordination Among Multiple Users

Another major impediment to planning for non-motorized transportation is the lack of unified public sentiment and policy for a particular form of facility. **### Prevailing authorities such as the US Department of Transportation the Michigan Department of Transportation, the American Association of State Highway and Transportation Officials [AASHTO] and the National Association of City Transportation Officials [NACTO] do not recommend a single “one size fits all” approach, at least with regard to bicycling facilities: many options are available, scaled to fit the context and within the bounds of fiscal prudence. Such authorities suggest starting with a design goal that accommodates “all ages and abilities,” but offer a variety of designs if it becomes clear that this aspirational goal cannot be reasonably achieved [see for example, AASHTO’s Guide for the Development of Bicycle Facilities, Fourth Edition, pp 2-17 through 2-20]. ### Bicycle enthusiasts, the disabled community, rails-to-trails advocates, and others each petition for “their” type of non-motorized facility. Indeed, those who are exclusively in favor of bi- cycle lanes are generally opposed to spending limited financial resources on shared-use paths or side- walks. ### [Comment - without this “those who are exclusively” qualification, the current assertion begs a citation for support of the phrase “generally opposed,” and attributes an unbalanced point of view to the implied group of “bicycling enthusiasts.” In any case is not true of Bike Friendly Kalamazoo’s approach to different bicycle facilities. For example, in the KATS MPO, Bike Friendly Kalamazoo adopts the view that each facility has a place for a number of bicyclists with overlapping preferences, given the constraints that naturally limit the use of “every facility, everywhere.”] ### Those who rely on sidewalks for mobility, on the other hand, cannot justify preferential spending on either bicycle lanes or the perceived more recreational shared-use paths while there remains a decid- edly incomplete sidewalk network for accessing destinations and transit. The variety of non-motorized forms demanded by different groups can be daunting to municipalities as they choose where to priori- tize limited resources.**

Another major impediment to planning for non-motorized transportation is the lack of unified public sentiment for a particular form of facility. **### Prevailing authorities do not recommend a single approach, at least with regard to bicycling facilities: many options are available, scaled to fit the context. Such authorities suggest starting with a design goal that accommodates “all ages and abilities,” but advocates using less robust designs if it becomes clear that this aspirational goal cannot be reasonably achieved [see previous AASHTO citation]. ### Bicycle enthusiasts, the disabled community, rails-to-trails ad- vocates, and others each petition for “their” type of non-motorized facility. Indeed, those who are exclusively in favor of bi- cycle lanes are generally opposed to spending limited financial resources on shared-use paths or side- walks. ### [Comment - without this “those who are exclusively” qualification, the current assertion begs a citation for support of the phrase “generally opposed,” and attributes an unbalanced point of view to the implied group of “bicycling enthusiasts.” In any case is not true of Bike Friendly Kalamazoo’s approach to different bicycle facilities. For example, in the KATS MPO, Bike Friendly Kalamazoo adopts the view that each facility has a place for a number of bicyclists with overlapping preferences, given the constraints that naturally limit the use of “every facility,**

everywhere.”] ### Those who rely on sidewalks for mobility, on the other hand, cannot justify preferential spending on either bicycle lanes or the perceived more recreational shared-use paths while there remains a decidedly incomplete sidewalk network for accessing destinations and transit. The variety of non-motorized forms demanded by different groups can be daunting to municipalities as they choose where to prioritize limited resources. In many ways these discussions are no different than any other discussion of how to prioritize any limited resources and should not be used as a justification for building no non-motorized facilities at all. Plan such as this Non-Motorized Element can help resolve such dilemmas by presenting a menu from which prevailing authorities can choose, budgets permitting.

### A somewhat different but none-the-less important impediment that this Plan can help overcome is a lack of agreement on a cooperative method of developing regionalized networks of transportation facilities among the many jurisdictions and agencies whose borders and authorities overlap and connect. An agreed-upon network, with operational defined purposes, nodes and connections among borders can make it easier to build upon over time as resources permit. ### (page 12-13).

**Destinations** - Some of the major attractions for non-motorized travelers include retail areas, schools, colleges and universities, major employment centers, libraries, parks, and transit stops. See Map 6 [5?] for a graphic estimation of the location of some of these popular destinations. Fulton [and ?] is listed as a destination because it serves as a regional nodal gateway in the KATS MPO to other destinations outside the KATS MPO such as the Village of Athens.

**Trip distance** - The majority of walking trips are less than a mile long and transportation-oriented bicycling trips are generally less than five miles, although many sport cyclists need to ride much greater distance to achieve their fitness and competitive goals, and bike tour oriented rides and events can span hundreds of miles. (page 18).

Paul Selden, Kalamazoo Region Bike Route Committee / Bike Friendly Kalamazoo (page 26).

Map 6, the "Proposed Non-Motorized Facilities" map found on the next page includes projects individually identified in the KATS Metropolitan Transportation Plan call for projects, as well as projects identified in local and regional non-motorized plans. The Proposed Facilities represent a high-level planning guide for project implementation and their inclusion does not guarantee funding. Their purpose is to help the MPO identify regionally significant priority projects and to enhance the cooperation and coordination between jurisdictions for facility development. Changes in routing, facility type, location, and local priority will change as proposed projects move towards implementation.

[Comment: Selden has not yet reviewed Map 6 to note how the proposed bike routes coincide with Map 7.]

### Map 7, "Proposed / Signed Bike Transportation Routes," illustrates a regional transportation-oriented bikeway whose network connects named municipal and educational destinations (trip generators) in a set of node-to-node trunk lines connecting major population centers. It is now being signed as the Southwest Michigan Bikeway (SWMB). Map 7's design principles and development process are outlined in detail in Appendix E. ### Proposed Facilities represent a high level planning guide for project implementation and their inclusion does not guarantee funding.

A major purpose of Map 7 is to help the MPO identify regionally significant priority projects and to enhance the cooperation and coordination between jurisdictions for facility development (e.g., bike

lanes, widened shoulders, appropriate lane marking and signage, connections between specified nodes, etc.). Changes in routing, facility type, location, and local priority will change as proposed projects move towards implementation. ### Map 7 will be retained in the Metropolitan Transportation from edition to edition, given its ability to highlight the bikeway's nature as a proposed regional network of bicycle trunk lines and its progress toward its signage and implementation, thus facilitating coordination within KATS' MPO as well as among other stakeholders outside the KATS MPO. [Comment: whether the legend uses dashed or solid lines, or different colors to denote which segments have been signed is not critical. As was agreed in our last meeting Map 7 can show progress toward completion, enhancing its ability to facilitate prioritization.] ### (page 34).

Bike Friendly Kalamazoo post links to local plans and other information of interest to non-motorized stakeholders on its website as a public service.

2014 Kalamazoo Township Non-Motorized Master Plan Imagine Kalamazoo 2025 Master Plan

2019 GO! Green Oshtemo Township Master Plan

2020 Texas Township Non-Motorized Network (as part of the Master Plan, Page 87)

2014 City of Portage (as part of the Comprehensive Plan, page 23)

Copies of the plans are available on KATS website under the local documents' webpage at [www.KATSmpo.org](http://www.KATSmpo.org). The Kalamazoo Region Bike Route Committee meets quarterly on a cooperative basis to review updates to Map 7 implementation and planning. Links to its most recent plan are maintained on Bike Friendly Kalamazoo's [www.bikefriendlykalamazoo.org](http://www.bikefriendlykalamazoo.org) website as a public service. (page 42-43).

Appendix E – Map 7 Development Process

**[Note - this entire Appendix is new. To make it easier to read, yellow highlighting is not used. The rationale for including it is that it will better enable the reader to extend and refine the network using a consistent methodology. ]**

### Definitions

The route network illustrated in Map 7 can be operationally defined as a collection of the most preferred\* transportation- oriented bikeway trunk lines that connect the specifically defined list of Map 7 destinations with their adjacent neighbors. To ensure cross-jurisdictional connectivity, the bikeway trunk lines cross between jurisdictions at agreed-upon border connections. This agreed-upon list of destinations (Exhibit A) is limited to municipalities and institutions of higher learning, based on a rationale that included their transportation-orientation and permanence as trip generators. The destinations serve as hubs in the network, which then radiate to their adjacent neighbors' hubs in a radial design.

Most routes connect to a single agreed-upon node within a destination. In a limited set of cases (noted in Exhibit A), population and commercial densities justify definition of more than one node connected by a within-jurisdiction circulator (a "loop" or "beltway") or a cross-town route (a "beltline"). Like an interstate highway system, Map 7's routes connect to such intra-jurisdictional circulators via the closest agreed-upon node on the circulator.

Destinations along Map 7's perimeter offer potentially convenient and easy to understand regional connections.

The above definition and design characteristics optimize efficiency and reduce the number of network miles. This is because Map 7 does not attempt to directly connect every destination with every other; it does not attempt to route between all possible permutations and combinations.

Since Map 7 was adopted, a number of jurisdictions have explicitly integrated the routes into their own non-motorized planning. Bike Friendly Kalamazoo maintains an updated list of such plans on its [www.bikefriendlykalamazoo.org](http://www.bikefriendlykalamazoo.org) website.

\*The word "preferred" is further defined based on the list of considerations detailed in Exhibit B.

#### A Comment on Route Density

In some cases, however, on the surface there are places on Map 7 where the trunk lines seem to be too close together, too many, or too densely packed together. This appearance can be misleading for at least three reasons. First, routes that are miles apart from each other may appear closer or farther apart depending on the scale of the map when sized smaller or larger. All things considered, transportation-oriented bicyclists tend to prefer shorter routes [citation here]. Second, in a small number of cases, alternative routes are deliberately mapped (and so designated in their naming conventions) between two nodes. One or the other alternative might become more desirable over time, pending removal of an impediment of some sort (such as adding bike lanes on a bridge over I-94). Third, in some cases the defined nodes are located within a relatively large sparsely populated area such that the most efficient route make use of closer intermediate hubs without adding more lengthy detours. Fourth, constraints such as the absence of an intervening destination, or the presence of a bridge or other natural barrier meant that some routes appear to crisscross an area "too much," when in fact they are the most direct connections between the named destinations. This latter appearance may be especially noticeable in the four townships of Kalamazoo County to the immediate east of Kalamazoo and Portage.

The Kalamazoo Area Transportation Study (KATS) released the Non-Motorized Element component of its 2045 Metropolitan Transportation Plan on October 29, 2015. The KATS Metropolitan Transportation Plan incorporating this Element was adopted **on May 26, 2016 [double check date]**. Between late 2015 and early 2016 Bike Friendly Kalamazoo's participants, including the individuals listed in Exhibit D voted to give Map 7's route network a more familiar name, the "Southwest Michigan Bikeway" to facilitate uniform signage. Since that time policies at county, municipal and Act 51 agency levels have adopted or endorsed that name for use in wayfinding signage.

Stretches of Map 7 that bear wayfinding signs bearing the Southwest Michigan Bikeway name are illustrated in Map 7 as **[dashed?]** lines; stretches remaining to be signed are noted as solid red **lines [or using different colors or vice versa]**.

The remainder of this Appendix outlines the systematic, community-oriented process and principles by which Map 7 were developed in more detail. The description facilitates signage, regardless of the many other types of bike facilities or bike route wayfinding that may be developed within the control of responsible agencies.

## Exhibit A: List of Destinations

In alphabetical order, Map 7's bike routes connect the following destinations within the KATS metropolitan planning organization (MPO). Many of them provide connecting gateways to other transportation-oriented destinations outside the KATS MPO.

Alamo (Township)

Almena (Township; routes incorporate eastern border)

Antwerp (Township; see Villages of Lawton and Mattawan)

Augusta (Village)

Brady (Township; see Vicksburg)

Climax (Village)

Comstock (Charter Township)

Cooper (Charter Township)

Fulton (Community; mapped coincident with Wakeshma Township)

Galesburg (City)

Kalamazoo (City\*; mapped coincident with Kalamazoo Township)

Kalamazoo (Charter Township, see City of Kalamazoo)

Kalamazoo Valley Community College (Kalamazoo and Texas Township Campuses)

Lawton (Village; mapped coincident with Antwerp Township)

Mattawan (Village; mapped coincident with Antwerp Township)

Oshtemo (Charter Township)\*

Parchment (City)

Paw Paw (Village; mapped coincident with Paw Paw Township)

Portage (City)\*

Richland (Village)

Schoolcraft (Township; mapped coincident with Village of Schoolcraft)

Schoolcraft (Village)

Scotts (Community)

Texas (Charter Township)

Vicksburg (Village)

Wakeshma (Township, see Fulton)

Waverly (Township; not included in 10-29-15 draft of Non-Motorized Element)

Western Michigan University (Main\* and Engineering Campuses).

\*Contains intra-jurisdictional trunk line collector

Where noted as “coincident with,” the to/from node(s) used were within the former jurisdiction, due to the centrality of the population and business center(s) within that part of the KATS MPO. Jurisdictional status was derived from Wikipedia.

The community owes a great deal of thanks to the individuals who contributed to this effort, whose work is gratefully acknowledged. The names of the many individuals representing most of the most actively involved agencies/jurisdictions are listed in Appendix F, Exhibit A of the KATS 2045 Metropolitan Transportation Plan).

#### Exhibit B: Design Considerations and Process

Bike routes chosen for submission to KATS represent a balanced judgement, weighing a large number of factors at various stages of the process. It is suggested that changes to Map 7 include them, as well.

#### *Design Guides and Standards*

These considerations included, but were not limited to those found in reference works such as:

[AASHTO Guide for the Development of Bicycle Facilities, 4th Ed.](#)

[Best Design Practices for Walking and Bicycling in Michigan](#)

[Road Commission of Kalamazoo County Non-Motorized Facilities Policy](#)

[Michigan Design Manual \(for Road Design\)](#)

[Michigan Manual of Uniform Traffic Control Devices](#)

[Traffic Control Devices For Bicycle Facilities \(MMUTDC Part 9\)](#)

[Southwest Michigan Planning Commission \(various plans and guides\).](#)

#### *Design Factors*

Considerations include, but were not limited to factors such as:

- Safety
- Location and number of available roads
- Posted speed limits
- Traffic density
- Route length
- Location of currently posted bike lanes and bike routes

- Cumulative changes in elevation (e.g., number and gradient of hills and valleys)
- Shoulder type (presence/absence, width)
- Sight distances (number of and type of turns/curves)
- Number of turns required en route (e.g., complexity of wayfinding, rider confusion)
- Road and shoulder (e.g., so-called PASER rating, tendency of shoulders to accumulate debris)
- Illumination (e.g., presence of deep shadows, road lights)
- Road composition (dirt/gravel vs. paved)
- Local and Act 51 agency non-motorized plans
- Opinions and preference of local planners/engineers
- Bicyclist preference (experienced commuters plus on-line “heat maps” of bicyclist use)
- Preference of computerized mapping engines/apps (e.g., Google, Garmin, Ride With GPS)
- Location and type of bridges (which have the effect of funneling and limiting routing options)
- Location of natural barriers (e.g, lakes, marshes, rivers, streams).

In practice, this meant for example, that sometimes the most direct or shortest route was not chosen if an alternative route used roads with lower traffic densities or fewer hills, wider shoulders, etc. Sometimes the route with a slightly lower traffic density was not as highly ranked if it took the rider on a gravel/dirt road, through dark stretches of road with narrow or no shoulders, etc. All in all however, most often the “tier one” route was a clear “winner.”

### *Design Process*

The transportation & commuter bike routes were initially developed in an effort beginning in 2012.

The process followed a systematic, iterative approach balancing a combination of elements, including:

- Google bike route mapping
- input from Kalamazoo Area Transportation Study (KATS) policy and technical committee members, KATS staff, and planners from many of the jurisdictions involved
- recognized state and national experts
- local bicyclist and citizen knowledge
- community stakeholders
- technical engineering standards and guidelines
- existing printed maps
- local non-motorized plans

- “Heat Maps” of preferred routes
- defined, transportation-oriented to/from nodes
- population densities and ease of access-points
- other documented resources
- refinement of routes to select the single most preferred route connecting adjacent nodes
- agreement on intermediate nodes / “border crossings” between adjacent governmental borders.

Additional authoritative resources are listed on Bike Friendly Kalamazoo’s online “Resources” tab (for example, technical standards).

Beginning in 2012, at each step, from the very first use of Google Maps’ bike route suggestions to the release to KATS of the refined bike routes in so-called .kml file format, Bike Friendly Kalamazoo (BFK) participants/volunteers took into account the factors alluded to above in forming their judgements as they became known and available.

Approximately 400 versions/alternative bike routes were generated, reviewed and refined into a set of about 90 proposed routes submitted to KATS.

#### Key Steps in the Process

Key steps in the systematic route design process begun in 2012 are summarized in this section. They are worth including in this Plan to suggest an open, systematic process for changes to Map 7 as the network is implemented and as conditions change that make choices among alternative routes more preferable. The specific individual steps and meetings held to conduct this process have been documented in more detail than practical to present here in their entirety, in the form of minutes.

1. In February 2012, members of the Kalamazoo Bicycle Club (KBC), friends of the Open Roads Project, TriKats, and patrons of local bicycle shops were asked to submit descriptions of routes they used for bicycle commuting to KBC’s Director of Road Safety; these routes were relayed to Steve Stepek of KATS. Routes were submitted by Daryl Hutson, Marc A. Irwin, Paul Selden, Chad Goodwill, Dale Krueger, Joan Orman, Neil Juhl, Paul Wells, Steve Johnson, Jeff Pregoner, Christopher Gottwald, Karl Freye, Jon Ballema, John Byrnes, and Chris Dille. This effort provided experience and data from which emerged ideas for further refining the route development process. During this period, Tom Swiatt provided key guidance by telephone.
2. In November 2012, participants in a public meeting which kicked off the bike route planning effort facilitated by BFK developed a set of written guidelines for the bike route planning volunteers (see Exhibit B). Chris Barnes, Joanna Johnson, Fred Nagler, Steve Stepek and Paul Selden participated in the development/review of these guidelines.
3. Participants in Bike Friendly Kalamazoo volunteered to map commuter, recreational, fitness and shopping oriented bike routes, following the guidelines mentioned in Step 2. These routes are posted under two of the links on BFK’s “Where to Ride” tab at <http://bikefriendlykalamazoo.org/trails-routes/>.



Following a round of discuss and review, feedback from a number of transportation planners and engineers made it clear that focusing on commuter related routes was most appropriate from the point of view of being able to approve posting of bike route signs, linking transportation-oriented destinations that were relatively permanent features of the community within the KATS metropolitan planning organization (MPO). The rationale is easy to understand. The changeable and somewhat idiosyncratic nature of recreational and fitness routes makes them potentially unmanageably large in number and incompatible with the relatively permanent nature of signing. By the same token, the sheer number of shopping centers and neighborhoods within the KATS MPO, and the immense number of permutations/combinations of potential bike routes required to link them all, ruled out a focus on a shopping oriented bike route development, at least at the level of the KAT MPO. Further efforts were focused on commuter bike route mapping, leading to Map 7's name of "Proposed Bike Commuter Routes" when first published.

4. Since to our knowledge the attempt to establish such a comprehensive transportation-oriented bike route network was the first of its type within the KATS MPO, the effort limited itself to connecting permanent trip generators in jurisdictions with easy to identify to/from "centers," or points of connection, where such "nodes" were spaced far enough apart to warrant separate and independent to/from routes.

The resultant routes are comprehensive, but can be added to or modified as time goes on, as needed (for instance, if the KATS MPO boundaries are changed). The resulting routes have major additional benefits. They play a role as trunk lines which can be linked to via spurs as needed. Since the destinations chosen offer a tremendous concentration of places to shop as well as to work, the transportation-oriented routes could easily play a major role as trunk lines off of which more local shopping, recreational and civic (e.g., local destinations such as libraries, parks, town halls, etc. ). The benefits of bicycling for basic transportation whether to commute or perform errands in turn offers the many collateral benefits listed elsewhere in this Plan (e.g., related to personal fitness, energy independence and savings, reduction of pollution, personal enjoyment/recreation, etc.). In other words, these transportation-oriented bike routes offer great flexibility and will undoubtedly serve the community in many ways beyond their initial nominal designation in the 2045 Plan as "commuter bike routes."

5. Volunteers used Google Maps to automatically generate bike route alternatives among all combinations of the nodes. Google typically suggested from one to three route alternatives. These were converted into more stable maps using the public, free internet application called Ride With GPS (see [www.ridewithgps.com](http://www.ridewithgps.com)) to facilitate open review, comment, adjustment and conversion into .kml files.

All of the initial automatically generated routes were reviewed and refined one or more times by one or more individuals with credible local knowledge of conditions and preferences. Many of these participants attended MDOT's "Training Wheels" seminar on how to develop bicycling facilities. During the review process it became clear that many of the Google-generated bike routes used seasonal trails with restricted hours of operation and/or were not open year round, footpaths, non-public roads, and gravel/dirt roads. Volunteers adjusted such routes to make use of on-road facilities.

As a reminder, a link to the close to 400 draft commuter route alternatives can be found on Bike Friendly Kalamazoo's "Where to Ride" tab, together with comments on how to interpret the naming/coding conventions used in the route titles.

6. During the final rounds of review for the 2045 Plan the finer points of routing were conducted in close consultation with individuals most familiar with the routes in question. More one on one discussion took place with representatives of jurisdictions, who were consulted at various points in the process via phone and email; at this stage fewer large meetings were necessary.

The main questions answered during these dialogs concerned where to locate their jurisdiction's to/from nodes (for purposes of connecting with neighboring jurisdictions), and, where to locate the most preferred inter-jurisdictional border crossings (to facilitate connectivity with their neighbors). Among others, the primary individuals consulted during such off-line dialogs included: Chris Barnes, Libby Heiny-Cogswell, Linda Kerr, Rebekah Kik, Marc Elliott, Karen High, Lawrence Hummel, Greg Milliken, Ann Nieuwenhuis, Ron Reid, Greg Rosine, Ken Schippers and Jeff Sorensen. Communication about these preferences was also extended to Russell Wickland, (Planning Consultant, The Preim Group, working on behalf of Texas Township). Darrell Harden also provided input regarding Michigan Department of Transportation plans.

7. To simplify the network, BFK eliminated routes that passed relatively close to an intervening destination. For example, since a bike route from Kalamazoo to Schoolcraft would pass through the preferred nodes within the intervening jurisdiction of the City of Portage, the routes Kalamazoo-Portage, and Portage-Schoolcraft were submitted to KATS (instead those individual routes, together with a Kalamazoo-Schoolcraft route). Only a single "tier one" route between such destinations was mapped in the draft 2045 Plan. Interested parties may review alternative routes via the links previously listed.

#### Exhibit C: Individuals Participating in Naming Map 7, "Southwest Michigan Bikeway"

For purposes of signing the trunk lines on Map 7 in order to distinguish them from others and thus to assist in wayfinding, the following individuals collaborated between 2015 and 2016 and arrived at a mutually-agreeable name for the network as a whole.

- Lee Adams, Director, Southcentral Michigan Planning Council, Upjohn Institute for Employment Research
- Chris Barnes, Director of Transportation & Utilities, City of Portage
- Deb Buchholtz, Commissioner, Road Commission of Kalamazoo County
- Larry Hummel, Highway Engineer-Manager/Department of Public Works Director
- Joanna Johnson, Managing Director, Road Commission of Kalamazoo County
- Rebekah Kik, City Planner, City of Kalamazoo
- Kendall Klingelsmith, Director of Parks, Recreation & Senior Citizen Services, City of Portage
- Larry Nielsen, Manager, Village of Paw Paw
- David Rachowicz, Director of Parks and County Expo Center, Kalamazoo County

- Ron Reid, Supervisor, Kalamazoo Township
- Paul Selden, Director of Road Safety, Kalamazoo Bicycle Club/ Founder, Bike Friendly Kalamazoo

Since then the Kalamazoo Region Bike Route Committee’s participating Act 51 agencies (including MDOT, RCKC, and the cities of Kalamazoo and Portage), Bike Friendly Kalamazoo and the Kalamazoo Region Bike Route Committee agreed on a name for the bike route network illustrated in Map 7, namely, the Southwest Michigan Bikeway.”

### City of Portage

1. There are numerous references that are used which are very dated and the information included may also be dated or more current information available. For example, reference 3 is dated 2001 and there is a 2017 available
2. Air Quality page 7 uses data from 1990, it seems there should be better information available
3. Reduced Congestion page 8 the \$515 cost reference 7 is now \$335 when looking at this report
4. Maps 9A and 9B updated and dates used in TOC updated
5. Page 11, quote references 2009 NHTS, there is a 2017 version
6. Reference 19, the data used cannot be found on ACS
7. Safety page 13, 2018 data is available – 857 bicyclists killed, estimated 47,000 injured; deaths 2.3% vehicle fatalities, bicyclists 2.7% injured
8. Superscript number for reference 21 is regular font
9. Existing Non-Motorized Transportation Network – 100 miles stated is probably much larger now
10. Map 2 – add the following:
  - a. Portage Parks shaded in green
  - b. shared use path
    - i. Zylman Avenue – Cox’s Drive to Sprinkle Road
    - ii. E Centre Avenue – Portage Road to Sprinkle Road
    - iii. Eliason Nature Reserve Park
    - iv. Portage Road – 500’ north of E Centre Avenue to E Milham Avenue
    - v. Stryker Way – Lovers Lane to Portage Road
    - vi. Sprinkle Road – Zylman Avenue to E Centre Avenue
    - vii. Romence Road – Portage Road to Airport Property
  - c. Sidewalks (if including on map 2 and map 3; consider removing all sidewalk from map 2)
    - i. Bacon Avenue – S Wesnedge Avenue to Portage Road
    - ii. Idaho Avenue – Oregon Avenue to S Westnedge Avenue
    - iii. Oregon Avenue – W Milham Avenue to Idaho Avenue
    - iv. S Westnedge Avenue – Osterhout Avenue to Shaver Road
    - v. Schuring Road – Oakland Drive to S Westnedge Avenue
  - d. bike lanes
    - i. Osterhout Ave – Shaver Road to Portage Road
    - ii. Portage Road – Mandigo to Bacon Avenue
    - iii. Lovers Lane – Forest Drive to Kilgore Road
    - iv. Forest Drive – Lovers Lane to Portage Road

- v. Oakland Drive – W Centre Avenue to Kilgore Road
11. Map 3 – add the following:
    - a. Portage Parks shaded in green
    - b. Idaho Avenue – Oregon Avenue to S Westnedge Avenue
    - c. Oregon Avenue – W Milham Avenue to Idaho Avenue
    - d. Portage Road – Mandigo to E Osterhout Avenue
    - e. W Milham Avenue – Rothbury to Oakland Drive
  12. Map 5 – Update Portage Parks shown in green to add Eliason and other pieces
  13. Update Summary of Proposed Non-Motorized Projects page 27 once projects submitted
  14. Map 6 – update map to remove proposed shared use path on S Westnedge and E Centre, remove proposed shoulder on Milham, Romence and Oakland north of I-94
  15. Page 41 MNRTF – update funding example/data from 2013
  16. Page 41 Millage – provide updated example
  17. Page 42 Private Sources – are there more to add to this section?
  18. Map 8 – not all hatches are included in legend

**Marc Irwin**

“This is about the best I can say about the Plan:

Reviewing the maps provided, I relied upon the current Map 2 and found a few areas that should be added. There are completed Shared Use facilities in Portage that are not noted:

Milham Road from Lover”s Lane to Portage Rd,

Portage Road from Milham to Centre (construction has stopped at a private property just short of the Centre St intersection),

Centre St from Portage to Sprinkle Rd,

Sprinkle Rd from Centre to Zylman,

Zylman from Sprinkle to Cox’s Dr.

All have completed Shared Use facilities, a couple are listed as sidewalks on the Map 2.

Zylman has shoulder facilities from Cox’s Drive to Portage Rd.

Beyond those few, the map seems to be up to date as nearly as I can tell..

I reviewed the priorities set in the 2045 plan and can’t take issue with any of the projects listed or the methodology for selecting them.

There are some issues that I feel will develop which should be addressed in the document anticipating a growth in the cycle transportation during the next 30 years. It would be best to look at Europe and the growth in cycling during the past 30 years compared to what we might anticipate in the coming 30 years here. I say that because in the ‘80’s European countries had just begun to develop the cycling infrastructure which has become a standard to the rest of the world and cycling has grown with its development. In some of the flatter areas (Netherlands and Denmark in particular) as much as 49% of people claim to use cycles daily for transportation and as much as 75% claim to use them 2-3 times a

week. That has created challenges to mitigate congestion. While there are a variety of reasons the same growth may not occur in our area, if the practice rose to 10 or 15% over the next 30 years we need to anticipate having 50 -75,000 people commuting by bicycle on our streets.

Other countries have found ways to upgrade the signalling at key intersections to keep bicycles moving. Shared Use overpasses may be necessary at major intersections such as:

Whites Rd and Westnedge,

Romence Rd and Westnedge,

Kilgore and Westnedge,

Main and Drake,

Stadium and Drake,

Oakland and Parkview

Lovell and Oakland/Stadium.

Small enhancements to keep cyclists moving and prevent congestion can be as simple as increasing the height of curbs allowing a cyclist to stabilize themselves at Stops without dismounting.



The photo shows a lane separator used for the same purpose, I have seen, but was not able to find a photo of, curbing at intersections which has been built up or constructed 3-4 inches higher to help keep people on their bikes with less time wasted dismounting and mounting for stability.

It sounds like a frivolous “first world” cycling luxury, but 50,000 cyclists on the streets at rush hour has the potential for some very dangerous congestion and mishaps. I’m sure there are more subtle enhancements that are being developed to improve the traffic flow where cycling has become a way of life and consideration should be included in the plans as contingencies for the next 30 years.

I do believe, as I mentioned in written comments earlier, that the plan should include stronger language aimed at the improvement of intersection infrastructure. We are heading into the area others have, developing safer, more attractive cycling between intersections but leaving the cyclist to worm their way through the most dangerous conditions. Cycling traffic will increase with the development of the network. How much in 30 years is still a question, but if the European experience tells us anything, it could be overwhelming. Even a small increase in bicycle traffic will be hard to manage without considering the intersection traffic. Imagine 20-30 cyclists lined up to cross Main St. at Drake Rd from each direction, at 7:30 AM, some will need to turn left. How do we intend to keep that moving safely

without specialized signaling and/or additional infrastructure? There will need to be substantial funds allocated to the area. We are designing and creating a safer, more attractive network leading to death mazes. That will be the most pressing safety issue and there are two sentences referring to intersections in the 81 page document.”

### **Jodi Stefforia**

Here are my comments on the draft chapter:

- \* I recommend changing settings in the Word document so that is no use of hyphens. There are a lot throughout the document that would be eliminated and it would give it a cleaner look.
- \* Page 13 - second paragraph. I would re-word sentence that says developers, planners, etc. are 'beginning' to evaluate the land use issues. That's a dated statement at this point as we've been doing it for some time now.
- \* Page 18 - reference to Map 6 should be to Map 5.
- \* Page 18 - Can you update the 2013 ACS estimates to a more current one?
- \* Page 18 - reference to Map 3 should be to Map 4.
- \* Page 18 - first paragraph - can you significantly increase the 'over 100 miles' reference? If there's a lot more mileage that could be called out, might be nice to reference a higher number in this plan.
- \* Page 19 - can you use more current ACS data than 2013?
- \* Page 23 - near bottom, reword the 'By December 31, 2013' statement to reflect when MDOT did develop the Complete Streets guidelines.
- \* Map 8 legend is incomplete. What does blue line represent?
- \* Maps 9A and 9B - can the crash data be updated?
- \* Map 2 - typo in map name.

### **Dennis Randolph City of Kalamazoo**

“• It might be helpful to have a section that specifically discusses amenities/ street furniture that might be associated with the various types of facilities. Standard waymarking signs and destination signs should be considered throughout the region especially for the long-haul paths. Also amenities such as shelters, benches, bike repair stations, drinking fountains might be addressed, so that planners could keep them in mind and also include them in cost estimates. Different levels of facilities will require different types/levels of amenities. It would be nice to have some consistency across the region. Pointing out the need to upgrade pedestrian signals should also be included, so that planners can insure to include such costs in project estimates.

- It would be helpful to specifically address facilities on bridges, both for crossings and for facilities underneath bridges as part of river walks. It might be helpful to note specific crossings that should be kept in mind when planning improvements both for the bridges and for any paths. The earlier in the bridge design process we know of possible non-motorized facilities, the easier and cheaper it is to incorporate them into a project.
- There is a chart on page 30 that lists a summary of proposed non-motorized projects, listed in order of total score (general). It would be helpful to add another table following it that ordered the projects by

year, with a subtotal by year for purposes of seeing how those totals fit in with the federal-aid allocations that are projected to be received.

- I think it is always helpful, especially for grant work to show/highlight connections to other areas. An overview map that shows potential connections to surrounding regions would be interesting, especially again for the long-haul bicyclists.
- In looking at Map 2, my first impression is that while there are connections between east-west and north-south facilities there are many facilities that simply go for a distance and then end, leaving users to back-track along the same path. I have always looked for ways to provide “loops” in my systems so that users could return to a given starting point in a series of routes (for example, first east, then north, then west and then south back to the beginning.) I tried to start with smaller/shorter loops, and then extend the loops out (in a series of nested paths) that give users a chance to see different things. It may be appropriate to consider additional points for projects that “close a loop”.
- Map 3 shows sidewalks, but appears to only show City of Portage? The City of Kalamazoo does have some sidewalk information available in its RoadSoft database, if you are interested we can discuss sharing it with you.
- While I understand the Ozone non-attainment history, I think it might be useful to mention in a paragraph the ideas of reduced particulate matter since particulates have such a negative impact on poor/minority/environmental justice communities. Also, mention reductions of other materials (lead, asbestos, etc. that come from cars/trucks/internal combustion engines) as these have negative impacts on people and the environment.”

**George Waring**  
**City of Kalamazoo**

“Map 6/6A:

- Oakland Drive: Parkview – Kilgore.
  - This section should be on the existing map (Map 2/2A) as already having bike lanes. I just re-drove it today to be sure, and it does have full bike lanes with signage (unless I am missing something about what constitutes a bike lane; entirely possible, so correct me if that’s the case, cause it’d be helpful to know). The lanes are 5ft wide.
- Kilgore Road: Oakland – Just East of Duke St.
  - This section should be on the existing map (Map 2/2A) as already having bike lanes as well

Map 2/2A:

- Burdick Street: Cork - Kilgore
  - This section *does not* have bike lanes. It is shown incorrectly on Map 2/2A as having existing bike lanes. This should be a *proposed* project on map 6/6A.

- Edgemoor: Alta Vista – Burdick
  - This section *is not* signed yet. It should be shown on the *proposed* Map 6/6A and taken off of the existing Map 2/2A.
- W. Michigan Ave: Drake – Howard
  - This section *has* 5ft bike lanes. It is more than just improved shoulders along the roadway. Should be changed on Map 2/2A to reflect.

The below are a bit confusing.

- Lovers Lane: Kilgore – Milwood Elementary School entrance
  - This section is listed on the existing map (Map 2/2A) as already having improved shoulders but is also on the proposed Map 6/6A for signage. Can you explain? Is it both?
- Lakeway Ave: Lovers to Moreland
  - This section is already signed. It is on Map 2/2A *and* Map 6/6A (delete off of 6/6A??)
- Moreland/Fulford St: Lakeway to Miller
  - This section is already signed. It is on Map 2/2A *and* Map 6/6A (delete off of 6/6A??)

Those are all the changes I had at the moment. Hope it is helpful.”

**Dusty Farmer**  
**Oshtemo Township**

“It was recently brought to my attention that Map 7 was not included in the 2050 KATS Metro Transportation Plan and I think it should carry over from the 2045 plan. I think that the regional bike routes are not prominent enough in the current version because of the other items included on the map. We look to KATS to be leaders in non-motorized transportation, and Map 7 is important in that leadership. Thank you.”

**Ed Sackley**  
**Founding Chair, Portage Bicycle Advisory Committee**  
**Proud Supporter of Bike Friendly Kalamazoo**

“As I scanned the Table of Contents for the draft **2050 Metropolitan Transportation Plan Non-Motorized Element**, I was struck by the fact that Map 7 did not appear. It actually looks quite odd that Maps 1-8 and their sub-elements are listed without Map 7. I’m hopeful that you and your colleagues can correct the omission of Map 7 and place it back in the NME where it most certainly belongs.

Over the past 20 years, I have served the City of Portage as both a member of the Planning Commission and the Portage City Council. Also during that period, I served as District Director for Congressman Fred



Upton. In those official capacities, my duties required interaction with citizens, governmental units, school systems, faith communities, businesses, non-profit organizations and many other constituencies throughout Kalamazoo County and all of Southwest Michigan. It is that background and experience which informs my understanding and support for not just the NME component, but Commuter Routes in particular.

My family moved to Kalamazoo County in 1976 and we've been Portage residents since 1978. We came as aspiring entrepreneurs with recognition of the incredible social, educational, economic and environmental infrastructure already in place to support our dream. Our new radio station - WRKR-FM 107.7 - became reality and cemented my long-term relationship with our community at many levels as an employer, board member, volunteer and champion for the region. As a Portage planning commissioner and councilmember, I learned firsthand the critical role played by government in listening to its citizens and other constituencies. To function effectively, we must be servant leaders. Portage remains in the enviable position of being home to the area's largest private employers, Pfizer and Stryker. Their presence coupled with hundreds of other economic drivers enabled the City of Portage to grow not only the tax base, but the social and recreational base for our community and, by extension, the greater metropolitan area. Key to that growth was the farsightedness of Portage's leaders at every level since our establishment in 1963. Allocation of funding to infrastructure that would improve the health of our neighborhoods, industries, commercial areas and even agriculture was not enough. We also had to invest in elements that would advance and enhance community and the spirit of belonging. Sure, we had a boom period of sewer and water projects, roadbuilding, commercial development and new city services, but we also did not skimp on investment that would improve the quality of life for our citizens beyond utilities, transportation, employment, shopping and fire trucks. Portage became the place for open space preservation, parks, public access to our lakes, neighborhood interconnection and environmental stewardship. What does all that have to do with the 2050 NME? Everything.

For many years, Portage has continued responding to demands from our residents and stakeholders to capitalize upon and expand our non-motorized circulation system. As you know, the Portage Bikeway system and our multi-use recreation trails are available to all regardless of address. To our delight and that of our neighbors, investment in complementary infrastructure has taken hold within Kalamazoo County and beyond. Portage's dedicated Capital Improvement Plan millage has been key to our success and that model is being replicated elsewhere. We're seeing more and more benefits every year. The Kalamazoo River Valley Trail, Kal-Haven Trail, dedicated bike lanes, public amenities serving non-motorized and pedestrian users, adaptations by school and non-profit organizations, and others continues to play an important role in supporting and encouraging healthy lifestyles and connectedness. Connections. That's key.

Map 7's contribution to the 2050 MTP is all about connections. I try to ride at least 100 miles per week and can usually find at least one day per month to ride even during the winter. I've been retired for 8 years, so it's not about commuting for me. That said, you'll find me on the streets and trails for point-to-point trips from my south Portage home to places in Van Buren, Calhoun and St. Joseph counties. My spouse, Jan, looks for excuses to ride her saddlebag-equipped e-bike to the grocery store. We bike to medical appointments, restaurants, the post office, to visit friends and work out at the YMCA. We are not atypical. Every week, every month, every year we see more of our neighbors on bikes and recognize that motorists are much more aware and respectful as the non-motorized elements are integrated into our transportation system. The specificity of Map 7 and its critical characteristics must remain a key

component of any MTP moving forward. To omit it now would be a big disservice to all who have contributed to its creation through public meetings, individual and group research, collaboration with like-minded individuals and organizations elsewhere, and - most importantly - those who would benefit from its application for decades to come. Bicycle commuting is not for everyone, but it is playing a more important role every day. Motorist awareness, improved safety lighting, bright clothing, 3-5 foot clearance distance ordinances, traffic calming, protected and marked crosswalks, increased education and greater awareness by motorists is fueling the movement.

Much of the work has already been done, which you know. Although signage is not universal and consistent, it is out there. Let's keep adding and improving. For years, I have lobbied for and provided personal financial support for wayfinding upgrades on the Downtown Kalamazoo Bikeway. They still have a way to go, but it's moving in the right direction. Map 7 provides a much clearer picture of what we've accomplished to-date and a catalyst for continuing in the right direction as we advance our plans. Leadership has always been a hallmark trait for local planners and visionaries. You know that many local governments and communities are on-board. They've evidenced their support not only through resolutions, but by past, present and future funding. Neighborhood groups, community associations, bicycle clubs and ad-hoc supporters are out here working on the very elements reflected in Map 7. Their momentum should be acknowledged and supported by your restoration of Map 7 to the plan. It is the clearest and most comprehensive depiction of commuter and circulation routes available and needs to be retained.

In closing, I feel it necessary to share anecdotal input. We all have friends, family and neighbors associated with WMU, KVCC, Pfizer, Stryker, Bronson and other strong local organizations that have demonstrated significant support for non-motorized transportation and commuting, in particular. Each of those entities has integrated bicycle circulation, wayfinding and parking on their campuses. An individual I met on Burdick Street works at Bronson. He commutes each day by bike from his home in Vicksburg and said he can do it 150-200 days per year. He's incentivized by a cash stipend from his employer and an enclosed storage unit for his bike! The new Stryker campus south of Romence between Portage Road and Lovers Lane is crisscrossed with non-motorized pathways and bike lanes. Both Stryker and Pfizer have provided easements to the City or Portage for construction of Portage Bikeway elements that serve the community and their employees. And there's no question that both WMU and KVCC prioritize the use of bikes across their many campuses. Of course, the business and residential properties that cater to those campuses follow their lead and include bike facilities, as well. I could go on, but you get the picture.

Megan, let's get Map 7 back into the 2050 Plan. Thank you for your consideration and support."

### **Paul Rennels**

"The Kalamazoo area and KATS in particular has such a wonderful opportunity to progressively plan multi-modal transportation options for the future. Somehow, the emphasis in the NME section, all reference to Map 7, which was part of the 2045 plan has been omitted from the draft 2050 plan. While this may have been an oversight, the potential deletion of this conceptual plan for bikeways and multi-use paths would be inexcusable. The subcommittee must re-evaluate the need for this critical transportation mode and include it in the 2050 plan for non-motorized vehicles. It is important not just

for point-to-point transportation, but use of bicycles and other non-motorized modes of travel are increasing, not decreasing. NME's as part of the overall transportation plan are environmentally friendly, promote healthier lifestyles, and promote recreation in our region. I strongly support inclusion of Map 7 and its attendant documentation in the 2050 KATS plans.”

**Jamie Harmon**  
**City of Portage**

“Here are some comments I have on the non-motorized maps:

- Stryker Way has existing bike lanes and non-motorized path – map 6 shows proposed trail, map 2 does not include bike lanes
- The only signed non-motorized regional route in Portage is Oakland from Kilgore to Romence – several other locations are shown but do not exist currently
- Map 2 – Shared use path on north side of Zylman Avenue from Cox’s to Sprinkle is existing
- Map 3 – sidewalk **does not** exist on Angling Road, Vanderbilt, Osterhout or Mandigo entire lengths
- Map 6 – some locations show solid line and not dashed, not sure if this is intentional; non-motorized path and shoulder proposed on Mandigo but only shoulder feasible due to swamp – should remove the proposed path
- Map 2A – shoulders and bike boulevard colors are too similar and cannot distinguish, sharrows have same color as signed regional routes, several locations in Portage shown as signed regional routes but Oakland is only one.”

**Sarah Moyer-Cale**  
**Village of Paw Paw**

“I would like to express my support for the 2050 Metropolitan Transportation Plan – Non motorized element. It is clear that the subcommittee and the KATS team put a great deal of time and consideration into the draft. Splitting the contents of what was known as Map 7 from the 2045 plan into other maps that show the “existing”/signed and “planned”/unsigned routes is very helpful for communicating what has already been accomplished and what still needs our focus. However, it may be beneficial to retitle all of the maps to avoid confusion as many stakeholders are used to referring to Map 7. Thank you for all of your efforts to further non-motorized transportation options in our region.”

**Bill Adams**

“KATS is asking for public comments on its draft Non-Motorized Element. As the former President of the Village of Vicksburg and a former KATS Policy Committee member, I applauded KATS for its leadership

both in its Complete Streets Policy and in publishing Map 7: Proposed Bike Commuter Routes in its 2045 Metropolitan Transportation Plan.

The current draft of the Non-Motorized Element is missing Map 7. I think Map 7 needs to stay in the 2050 Plan as its own map. I want to be able to easily see the progress Vicksburg and the surrounding communities are making in signing these special routes. The other draft maps don't show the progress in mapping these transportation oriented bicycle routes clearly enough. If KATS wants to maintain its leadership in non-motorized planning, it should keep Map 7 as a separate map in the 2050 Non-Motorized Element.”

**Jen Johnson**  
**Bike Friendly Kalamazoo Board Member**

“It was recently brought to my attention that Map 7 was not included in the 2050 KATS Metro Transportation Plan. I believe it should carry over from the 2045 plan. My point of view is that the regional bike routes are not prominent enough in the current version because of a number of other items included on the map. I look to KATS to be leaders in non-motorized transportation! Map 7 is important in that regard.”



**Bike Friendly Kalamazoo**

PO Box 22

Portage, MI 49081-0022

*Helping to make our greater community even more bicycle friendly*

June 29, 2021

Dear Staff and Policy, Technical and Advisory Committee Members of the Kalamazoo Area Transportation Study,

The following public comments are offered in the most respectful manner for consideration. The convention of starting every recommendation with a phrase such as "Please respectfully consider," or "I suggest" will not be repeated (too much), but please assume that they are included by reference in all cases. These comments do not include a careful proofreading for typos and grammatical recommendations.

The comments apply to the PDF Draft Version of the KATS Non-Motorized Element (NME) found in the link at <https://katsmpo.files.wordpress.com/2021/04/2050-mtp-non-motorized-element-draft.pdf>; file title Microsoft Word - KATS NM Draft 10-13-2015; footer date: Prepared March 2021. Public comment on the draft NME has been requested by the Kalamazoo Area Transportation Study (KATS). In response we offer the following observations, hoping they will be viewed in the helpful constructive spirit they are offered.

The observations are divided into two sections: an Introduction and Specific Suggestions.

### Introduction

The precedent-setting transportation-oriented Map 7 regional bike route network from the 2045 KATS Metropolitan Plan is missing in this version of the Non-Motorized Element. Further, all mention of Map 7 are missing, making it impossible to conveniently find it within this iteration of the 2050 draft. Both omissions create a serious gap in continuity between and raise questions that are not answered in this 2050 draft. The gaps and unanswered questions, if left unaddressed, could easily be construed as de-constructive and needlessly exclusive in nature (however unintentional such an effect might be) vs. the constructive and inclusive impressions that accompanied the creation and adoption of Map 7 in the first place.

As a backdrop to the recommendations for how Map 7 should be treated in the 2050 Non-Motorized Element, it may be helpful to recall some recent history.

The 2050 Non-Motorized Element will be brought for consideration in 2021, five years after this country's worst bicycle-motorist crash in history -- known for too long as the Kalamazoo Bicycle Tragedy. Since June 7, 2016, together with many civic leaders and stakeholders, Bike Friendly Kalamazoo has been working very hard to rebuild this area's reputation, using Map 7 as a major component in this worthy effort. Many miles in the regional bike route network have already been signed as the Southwest Michigan Bikeway in the cities of Portage, Kalamazoo and in a number of townships.

In some respects plans for Map 7 (that is, the Southwest Michigan Bikeway, or SWMB), together with the many developments seen in other named non-motorized networks such as the Kalamazoo River Valley Trail, The Portage Bikeway, etc.) continue to symbolize all that is creative and positive in a noteworthy non-motorized transportation plan. The SWMB deliberately sets out to connect all the named municipalities and institutions of higher learning in the KATS metropolitan planning organization and articulates the guidelines for its planning so that others can do the same. KATS has the ongoing opportunity to supporting positive steps toward showing we have come together as a community and are determined to bring light into the darkness in every way we can, including through our non-motorized plans, by retaining Map 7 in the 2050 Non-Motorized Element.

KATS has an opportunity to close the gap created by the absence of all mention or illustration of Map 7 / SWMB in a constructive and inclusive fashion that should be easy to address if KATS keeps its mission in mind and has the courage to act on it, simply by following the same rationale that included Map 7 in the first place -- as an intentionally planned transportation oriented bike route network that illustrates the preferred connections among an explicitly specified list of municipalities and institutions of higher learning within its metropolitan planning organization.

In the 2050 Non-Motorized Element, KATS also has a chance to advance the body of knowledge in the field of transportation planning by including Map 7 together with documentation -- such as will follow in the new Appendix suggested in these comments -- that will help others plan similar networks, and connect Map 7's named trip-generators with others outside of the KATS MPO.

Ask yourselves the question, which is more consistent with the policies and spirit of non-motorized progress embodied in the precedent-setting 2045 Non-Motorized Element: eliminating plans for the Southwest Michigan Bikeway (Map 7) and any reference to it, when it is most likely the largest, most ambitious plan for a transportation-oriented non-motorized bike route network in Michigan (and probably well beyond), or is keeping it more consistent with KATS non-motorized policies and creative positive spirit? Which is more in keeping with the spirit of smart non-motorized planning: A) articulating the logic and rationale for how it was and is being planned and can be extended, or is it B) failing to provide its operational definition so that its 380 centerline miles of destination oriented civic bike route trunk line connections cannot be distinguished from recreational routes that appear out of nowhere, provide no direction at key turns, and give bicyclists no clue as to where they are going?

In this draft of the NME, the very strong reasons for Map 7's initial inclusion have not been offset by a written rationale for removing it. The reason for its initial inclusion are implied by its very presence and by what it depicted in the 2045 NME. As a body, as defined in the Appendix in the 2045 Non-Motorized Element, KATS wanted a transportation oriented map of proposed bike routes that efficiently connected the municipalities and institutions of higher learning named in the 2045 plan. Map 7 illustrated the 75 or so most preferred routes, chosen from approximately 400 possible connections. Destinations among individual recreational destinations, single neighborhoods, and shopping centers were deliberately excluded by KATS, as were routes that might be popular for personal fitness or often used by bicycle clubs (whose members carry GPS devices whose track files permit generation of popular heat maps).

So, on the one hand although there are literally no reasons for its absence in this current draft, on the other hand, the above reasons and scores of additional reasons for continuing to include the Southwest Michigan Bikeway as an illustration have emerged since its original publication, all arguing for its inclusion at some level.

These new and emerging reasons include but are not limited to the formation of the Kalamazoo Region Bike Route Committee, a group dedicated to its implementation as a regional destination-oriented bikeway, resolutions by of a number of municipalities supporting its implementation, letters of support from many additional stakeholders, including Discover Kalamazoo, a written plan on the part of the Road Commission of Kalamazoo County to sign Map 7 as the Southwest Michigan Bikeway, and Map 7's inclusion in MDOT's region-wide 2020 Southwest Michigan Non-Motorized Transportation Plan. Its usefulness is shown by the fact that scores of signs now guide riders on Map 7's routes.

Highlighting these new reasons makes it clear that Map 7 continues to serve as a demonstrably useful tool for planning. In a digital world there it costs nothing more to include it, and it subtracts nothing from any of the other maps in this draft. Keeping its shorthand name, "Map 7," makes reference to the map's proposed routes as being logical and efficient, plus consistent with the community's support and actions. Now that Bike Friendly Kalamazoo (BFK), as the organizer of Map 7's development, has achieved status as a 501c3 nonprofit public charitable organization, the fact that BFK finds it a useful planning tool for potential projects with a time horizon out more than 25 years -- in a world that is growing increasingly aware of the many benefits of non-motorized transportation -- may be sufficient reason to continuing to include it. Map 7 offers clarity and simplicity: progress toward its completion can easily be seen by using two different line types to denote signed/existing vs. proposed.

Summing up, the majority of these suggestions focus on making the original Map 7 in the KATS 2045 Metropolitan Transportation Plan of continued usefulness. Incorporating them will help demonstrate KATS' awareness of and its appreciation of the bigger picture in which, more and more, citizens are asking for connectivity. Electric motors are giving citizens more options, predictably, the use of active transportation is going to increase, as will the range of travel. Including Map 7 takes nothing from and does not negate any of the other maps. KATS can easily adopt a win-win approach in its long-term transportation planning.

Sincerely,

Paul Selden, Chair, Kalamazoo Region Bike Route Committee  
Chair & President, Bike Friendly Kalamazoo

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*Helping to make our greater community even more bicycle friendly*

## Specific Suggestions

1. Develop a consistent version control / file naming convention for the release of 2050 Non-Motorized Element drafts. Between the release of the initial 2050 NME for public review and the time of the above mentioned download, close observers have been confused by the appearance of one and possibly two different versions. The benefits of version control are too numerous to mention here, all aimed at reducing confusion, frustration and the attendant waste of time.
2. Appendices in the 2045 NME could be carried over into the 2050 NME or cited for further reference and/or the rationale for NOT carrying them over should be explained in a “major changes” section. Doing both is in keeping with sound editorial practice and would be aid to continuity.
3. An additional Appendix will be presented in a separate comment entitled “Approaches to Developing Regional / Community-Wide Bike Route Connectivity.”
4. If KATS feels that Map 7 should be carried over into the 2050 NME, it should be included in the Table of Contents.
5. If KATS feels that Map 7 should NOT be included in the 2050 NME, an acceptable sufficient reason for not including it should be articulated in the 2050 NME. Together with such a rationale, at the very least, a depiction of Map 7 from the 2045 NME (“Map 7: 2045”) should be included as an illustration or figure in the 2050 NME to assist with understanding that rationale.
6. An example of an editorial comment explaining the changes that might be satisfactory:  
  
“Notable changes from the 2045 MTP include updates to planned and proposed facilities. Routing in Map 7: Proposed Commuter Bike Routes in the 2045 Plan (“Map 7: 2045”) is largely incorporated in Maps x, y z within the maps and noted in the legends as “Regional Routes.” The 2050 Plan reaffirms the usefulness of Map 7: 2045 in the same way that maps of the current Kalamazoo River Valley Trail, The Portage Bikeway and The Vicksburg Recreational Trail and their planned extensions are useful. Many agencies and municipalities have plans and policies referring to Map 7: 2045 by name, and some, including MDOT, have expressed a goal of connecting destinations in the KATS MPO to those outside it. For this reason, and so as not to give the appearance of KATS diminishing other authoritative sources, further comments about developing regional bike route networks are presented in Appendix X.”
7. In Map 2 it is difficult to tell the difference between the different types of facilities represented, especially between Sharrows and Signed Regional Routes, which are both blue. If the technology exists to allow layering the different types of facilities, the reader could turn them on and off selectively.
8. In Map 2, it is difficult to tell where the Existing Regional Routes are when they are overlapped by Bike Lanes, as in the case on Oakland Drive and Lovers Lane.



9. In Map 2, some of the Signed Regional Routes are shown. For example, on Lovers Lane, Portage has Southwest Michigan Bikeway signs between Romence and Center. A stretch between 12<sup>th</sup> St between Q Av and Parkview may be similarly signed, etc. There may be many more bike lanes in the KATS MPO than are shown on this map.

10. In Map 3, there may be an under-reporting of sidewalks (that are not illustrated). This is an observation apparently confirmed in the text and so may be redundant.

11. On page 6, the convention of introducing a new general topic immediately following a new section heading suggests there should be an introduction immediately under the new heading "Boosts The Economy." This is apparently a heading that encompasses the next three section headings. Example: "Non-Motorized Transportation boosts the economy in at least three ways, by [name them here]."

12. On page 7, especially given the growing awareness as to how much people's mental health has suffered during the pandemic, the "Improves Health" section can acknowledge the importance of mental health by changing the title to read "Improves Physical and Mental Health" and/or by introducing the topic with a sentence such as, "Walking or bicycling to work, school, or for pleasure is a convenient way people can incorporate exercise into their daily lives and improve their physical and mental health."

13. Beginning on page 10 and continuing onto page 11, the section entitled "Coordination Among Multiple Users" should be re-cast to elevate the commentary and reduce what can be interpreted as undocumented hearsay that inadvertently smears certain groups. Nowhere in this document is there an offsetting balance of commentary that portrays how non-motorized advocates may feel about agencies that have espoused disdain for non-motorized perspectives.

Here is a suggestion that may illuminate the above point:

"Another major impediment to planning for non-motorized transportation is the lack of a unified public sentiment and a shared understanding of contemporary standards and guidelines for a particular form of facility. The use of certain facilities in certain situations is the subject of an emerging body of research and field-tested recommendations, not always well understood by all parties in a given discussion.

"This lack of common understanding surfaces from time to time when some vocal proponents within groups of bicycle enthusiasts, the disabled community, rails-to-trails advocates, advocates of throughput-based models of vehicular movement, and others, each petition and argue for the primacy of "their" type of non-motorized or motorized facility and against others. Other voices take a "my way or the highway" approach vs. displaying a willingness to discuss alternatives in a cooperative manner. Conversations at local agency meetings feature opinions such as those in favor of bicycle lanes being opposed to spending limited financial resources on shared-use paths or sidewalks. Those who rely on sidewalks for mobility, on the other hand, cannot justify preferential spending on either bicycle lanes or the perceived more recreational shared-use paths while there remains a decidedly incomplete sidewalk network for accessing destinations and

transit. Other proponents would like to do away with non-motorized spending entirely, on the grounds that fixing the roads is of such importance that no funds whatsoever should be allocated to widening shoulders or adding bike lanes.

“The variety of non-motorized forms demanded by different groups may be daunting to certain municipalities as they choose where to prioritize limited resources and to agencies that have not yet learned that failing to provide such non-motorized facilities creates further structural impediments for including them both now and into the future. Such false dilemmas may be especially prevalent where community advocates, staff and policy makers have not received a contemporary level of training in how to plan non-motorized in the context of motorized facilities, such as provided by the excellent programs offered through MDOT.

“On the other hand, more municipalities, agencies and non-profits are coming to recommend a balanced view based on context sensitivity and the principles associated with a Complete Streets based approach.

“In many ways these discussions are no different than any other discussion of how to prioritize any limited resources and should not be used as a justification for not building non-motorized facilities at all. Plans such as this Non-Motorized Element can help resolve such dilemmas by presenting a menu from which prevailing authorities can choose, budgets permitting, gradually providing for the interests of all legitimate users of the roads and their right of ways, over time.”

[KATS can provide an educational benefit to help resolve such differences by adding the following:]

“Prevailing authorities such as the US Department of Transportation the Michigan Department of Transportation, the American Association of State Highway and Transportation Officials [AASHTO] and the National Association of City Transportation Officials [NACTO] do not recommend a single “one size fits all” approach, at least with regard to bicycling facilities: many options are available, scaled to fit the context and within the bounds of fiscal prudence. Such authorities suggest starting with a design goal that accommodates “all ages and abilities,” but offer a variety of designs if it becomes clear that this aspirational goal cannot be reasonably achieved [see for example, AASHTO’s Guide for the Development of Bicycle Facilities, Fourth Edition, pp 2-17 through 2-20].

“A somewhat different but nonetheless significant impediment that this Plan can help overcome is a relative lack of experience and agreement about cooperative methods for developing regionalized networks of transportation facilities among the many jurisdictions and agencies whose borders and authorities overlap and connect and the stakeholders relying on such networks for transportation. An agreed-upon network, with operational defined purposes, nodes and connections among borders, and method for its extension to other municipalities/trip generators can make it easier to build upon over time as resources permit.”

14. In the section entitled Bike Routes on page 15, KATS can avoid inadvertently seeming to overturn prevailing use and recommendations within AASHTO/NACTO by changing the last line to read:

“Within the KATS MPO area, bicycle routing is viewed as a cost-effective alternative to infrastructure improvements in low population and in carefully selected urban areas. Although bicycle routing is a wayfinding aid that does not mandate that there be a specific level of infrastructure present at the time, might suggest opportunities for the most advantageous place(s) for infrastructure improvement in the future, however distant that may seem at the time.”

KATS can offer an educational reminder by adding as a last line to this section, “A large number of signs are available for designating bike routes.”

15. On page 13, knowing how difficult it must have been to work under the burdens brought about by COVID 19, I suggest slightly rewording the beginning of the second paragraph under the section entitled Existing Non-Motorized Facilities and adding a third paragraph:

“KATS staff works to maintain and update the non-motorized facility maps on a regular basis. However, given the challenges brought about by COVID 19, and the many handoffs that are necessary in our partially manual processes when our computer systems are not using the same databases as the agencies and municipalities in our MPO, practical constraints limit we can illustrate and keep up to date. The level of detail in recording the location of facilities varies from community to community, and our ability to incorporate information relayed to us in a cost-effective manner has been impinged during the pandemic. In addition, in communities with miles and miles of sidewalks, not every sidewalk is identified on the regional map; indeed, only those sidewalk facilities alongside roads eligible to receive federal funding (Federal-Aid roads) may be recorded at the MPO level. The exception to this would be for improvements identified through the Safe Routes to School Program approved by MDOT for the use of federal funds.

“Those caveats aside, for planning purposes, the regional map on the following pages, Map 2: Existing Non-Motorized Facilities, and “Map 2A: Existing Facilities in Urban Core” depicts KATS’s current 2021 existing non-motorized facilities inventory for our area. Map 3: Existing Urban Area Sidewalks immediately follows these two.”

16. Suggest editing the following two sections on page 18 to read as follows, for the sake of completeness and public education.

“Destinations - Some of the major attractions for non-motorized travelers include retail areas, schools, colleges and universities, major employment centers, libraries, parks, and transit stops. See Map 5 for a graphic estimation of the location of some of these popular destinations. Some are listed as a destination because they serve as a regional nodal gateway in the KATS MPO to other destinations outside the KATS MPO such as the Village of Athens.

“Trip distance - The majority of walking trips are less than a mile long and bicycling trips are generally less than five miles. This is mentioned from a transportation point of view, but because bicycling has also been mentioned above with respect to health, it is worth mentioning that

cyclists ride much greater distance to achieve their fitness goals, and as a source of economic benefit, bike related tourism oriented rides and events can span hundreds of miles.”

17. On page 18, there may be a word or two missing in this line, making the meaning of the last clause unclear. Perhaps the words in brackets may be getting at the author’s meaning: “Once local projects are included in the KATS Transportation Improvement Program with federal funding, the project scope is difficult to change, [so] including non-motorized features in the project scope [is] paramount.

18. Map 6 is missing a number of the bike routes found in Map 7: 2045, which Map has been depicted in the MDOT’s Southwest Regional Plan and has been incorporated by reference or direct mention in a number of municipalities, thus justifying the inclusion of all Map 7’s routes in one form or another, based on the same explicitly articulated rationale for their inclusion as the other facilities. These missing routes have been included in RCKC’s plans as previously shared with KATS, and to our knowledge has not be changed at their policy making level. Bike Friendly Kalamazoo and the Kalamazoo Region Bike Route Committee are stakeholders working toward a funding path for the entire network, and so also are justified in requesting that KATS make mention of all of Map 7’s routes in this version of the NME. The gaps in the destination-to-destination routing should be restored for all the reasons just stated. Specifically, in the case of Maps 6 and 6a, the missing routes should be added to those maps as Proposed Signed Regional Routes.

For all the reasons previously mentioned it would be much easier to keep track of progress in signing the routes in Map 7: 2045 if it were included in this Non-Motorized Element as such. The legends could read Planned and/or Current Regional Bike Routes as the case may be, and would be much easier to understand at a glance than what we see in the current Map 6 and 6a.

19. In this iteration of the Non-Motorized Element, KATS can use this opportunity to elevate the introduction of the routes (whether they are called Proposed Signed Regional Routes, or not), with an appropriate introduction defining the meaning of the Regional Bike Route network in objective terms. Verbiage drawn from the following is suggested, renaming Map 7 at the same time:

Map 7, “Regional Bike Transportation Network,” illustrates a regional transportation-oriented bikeway whose network connects named municipal and educational destinations (trip generators) in a set of node-to-node trunk lines connecting major population centers. It is now being signed as the Southwest Michigan Bikeway (SWMB). Map 7’s design principles and development process are outlined in detail in Appendix X. Proposed Facilities represent a high level planning guide for project implementation and their inclusion does not guarantee funding.

A major purpose of Map 7 is to help the MPO identify regionally significant priority projects and to enhance the cooperation and coordination between jurisdictions for facility development (e.g., bike lanes, widened shoulders, appropriate lane marking and signage, connections between specified nodes, etc.). Changes in routing, facility type, location, and local priority will change as proposed projects move towards implementation.

Map 7 will be retained in the Metropolitan Transportation from edition to edition, given its ability to highlight the bikeway's nature as a proposed regional network of bicycle route trunk lines and its ability to show progress toward its signage and implementation, thus facilitating coordination within KATS' MPO as well as among interested parties outside the KATS MPO. A convenient interactive Google Maps version of Map 7 that shows each of the route names may be found by clicking [here](#).

[Comment: The legend can easily use dashed or solid lines, or even different colors to denote which segments have been signed. As was agreed in our last NME meeting Map 7 can show progress toward completion, enhancing its ability to facilitate prioritization.]

20. On page 37, the current introductory sentence may be inadvertently repeating an inaccurate, oversimplified and unhelpful half-truth.

"The primary deterrent to developing infrastructure for non-motorized modes of transportation is cost."

This declarative statement is offered as a dogmatic and absolute fact vs. an assumption, is without citation, and without admitting even the slightest possibility that it could be erroneous. Since everything having to do with transportation facilities has a cost, the primary deterrents are just as likely to be related to matters of policy, the inertia inherent in all systems, a reluctance to change the balance of who and what gets rewarded and punished in the status quo, biases built into decision-making stages, design skill, education as to what constitutes good complete streets design, prioritization of budgets, etc. Since federal funding is available for non-motorized facilities, the root causes might be much more complex that this essentially negative statement suggests.

KATS has the opportunity to project its leadership in this area by reminding the reader of the long-standing inequity and deleterious effects that arise from prioritizing high-speed motorized vehicular transportation over all others needs, and the need to complete the streets for all users. Starting with the negative runs the risk of perpetuating the previous prioritization. I don't think KATS intends to do this, so suggest the following:

"There are a number of funding options for non-motorized transportation.

"A primary consideration when developing infrastructure for non-motorized modes of transportation is a balance of the projected non-motorized benefits vs. their cost."

21. This same introductory paragraph on page 37 seems not to mention facilities for pedestrians and those who require assistive devices, but it does mention bicycles:

"For federal funding, bicycle projects must be "principally for transportation, rather than recreation, purposes" and must be designed and located pursuant to the transportation plans required of states and Metropolitan Planning Organizations."

Is mention of other non-motorized users missing?

22. On page 44, the Kalamazoo River Valley Trail is mentioned by name, making this reviewer wonder whether other named networks such as The Portage Bikeway, have received federal funds that might also be mentioned in the funding sources section.

23. On page 46, punctuation is missing in the line ending “(regional plan\*).” In addition, it is worth noting the following, perhaps with an asterisk as per the recommended punctuation:

\*Of note in this plan is its identification of potential bike network corridors linking the counties, which may provide ideas for extension of regional bike routes illustrated in this Non-Motorized Elements.

24. I don’t know where this line might fit best, but I found this chart useful, so suggest adding a citation for it somewhere in this section:

Table of US Department of Transportation Pedestrian and Bicycle Funding Opportunities:  
[https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/funding/funding\\_opportunities.cfm](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/funding_opportunities.cfm)

25. On page 46, given that it is the plan for what may be the largest bike route network in Michigan, it makes sense to add the Kalamazoo Region Bike Route Committee’s most recent implementation plan to the list of area plans: [Southwest Michigan Bikeway \(KATS “Map 7”\) Implementation Plan](#)

26. What follows is the previously mentioned additional Appendix, intended both to operationally define the process used to map the regional bike route network; it would help others design regional bike route networks, showing KATS’ leadership in the field.

The Appendix is new, and not simply a reprint of everything that was included in the 2045 NME. Depending on how KATS chooses to treat the subject, if it decides to keep Map 7: 2045, some or all what follows could be used. Or, if not kept, “Map 7” below could be referred to as “Map 7: 204,5” a somewhat less useful possibility introduced at the beginning of these comments. Either way this Appendix should be included because as mentioned above, it clarifies the planning process in a way that may be helpful to others, and uplifts the level of professional commentary by making the operational definitions involved in Map 7’s development.

## **Appendix X – Regional Bike Route Development Process**

### Definitions

The route network illustrated in Map 7 can be operationally defined as an interdependent collection of the most preferred\* transportation- oriented bikeway trunk lines that connect the specifically defined list of Map 7 destinations with their adjacent neighbors. To ensure cross-jurisdictional connectivity, the bikeway trunk lines cross between jurisdictions at agreed-upon border connections. This agreed-upon list of destinations (Exhibit A) is limited to municipalities and institutions of higher learning, based on a rationale that included their transportation-orientation and permanence as trip generators. The destinations serve as hubs in the network, whose spokes then radiate to their adjacent neighbors’ hubs in a radial design.

Most routes connect to a single agreed-upon node within a destination. In a limited set of cases (noted in Exhibit A), population and commercial densities justify definition of more than one node connected by a within-jurisdiction circulator (a “loop” or “beltway”) or a cross-town route (a “beltline”). Like an interstate highway system, Map 7’s routes connect to such intra-jurisdictional circulators via the closest agreed-upon node on the circulator/beltline.

Destinations along Map 7’s perimeter offer potentially convenient and easy to understand regional connections.

The above definition and design characteristics optimize efficiency and reduce the number of network miles. This is because Map 7 does not attempt to directly connect every destination with every other; it does not attempt to connect all possible permutations and combinations. Any given node is most likely to connect to non-adjacent nodes through their closest adjacent neighbor, except in the rare cases where doing so would greatly increase the trip distance.

Since Map 7 was adopted, a number of jurisdictions have explicitly integrated the routes into their own non-motorized planning. Bike Friendly Kalamazoo maintains an updated list of such plans on its [www.bikefriendlykalamazoo.org](http://www.bikefriendlykalamazoo.org) website.

\*The word “preferred” is further defined based on the list of considerations detailed in Exhibit B.

#### A Comment on Route Density

In some cases, on the surface there are places on Map 7 where the trunk lines may seem to be “too close together,” or “too many,” or both. Appearances can be deceiving for at least three reasons. First, routes that are miles apart from each other may appear closer or farther apart depending on the scale of the map when sized smaller or larger. When other factors are equal, transportation-oriented bicyclists tend to prefer shorter vs longer routes. Second, in a small number of cases, alternative routes are deliberately mapped (and so designated in their naming conventions) between two hubs. One or the other alternative might become more desirable over time, perhaps depending on removal of an impediment of some sort (such as adding bike lanes on a bridge over I-94). Third, in some cases the defined municipal hubs are located within a relatively large sparsely populated area such that the most efficient route must make use of closer intermediate hubs while trying to avoid lengthy detours. Fourth, constraints such as the absence of an intervening destination, or the presence of a bridge or other natural barrier means that some routes appear to crisscross an area “too much,” when in fact they are the most direct connections between the named destinations. This latter appearance may be especially noticeable in the four townships of Kalamazoo County to the immediate east of Kalamazoo and Portage.

The Kalamazoo Area Transportation Study (KATS) released the Non-Motorized Element component of its 2045 Metropolitan Transportation Plan on October 29, 2015. The KATS Metropolitan Transportation Plan incorporating this Element was adopted on May 26, 2016. Between late 2015 and early 2016 Bike Friendly Kalamazoo’s participants, including the individuals listed in Exhibit D voted to give Map 7’s route network a more familiar name, the “Southwest Michigan Bikeway” to facilitate uniform signage. Since then, policies at county,

municipal and Act 51 agency levels have adopted or endorsed that name for use in wayfinding signage.

Stretches of Map 7 that bear wayfinding signs bearing the Southwest Michigan Bikeway name are illustrated in Map 7 as solid lines; stretches remaining to be signed are dashed lines [or using different colors].

The remainder of this Appendix outlines the systematic, community-oriented process and principles by which Map 7 were developed in more detail. The description facilitates signage, regardless of the many other types of bike facilities or bike route wayfinding that may be developed within the control of responsible agencies.

#### Exhibit A: List of Destinations

In alphabetical order, Map 7's bike routes connect the following destinations within the KATS metropolitan planning organization (MPO). Many of them provide connecting gateways to other transportation-oriented destinations outside the KATS MPO.

Alamo (Township)  
Almena (Township; routes incorporate eastern border)  
Antwerp (Township; see Villages of Lawton and Mattawan)  
Augusta (Village)  
Brady (Township; see Vicksburg)  
Climax (Village)  
Comstock (Charter Township)  
Cooper (Charter Township)  
Fulton (Community; mapped coincident with Wakeshma Township)  
Galesburg (City)  
Kalamazoo (City\*; mapped coincident with Kalamazoo Township)  
Kalamazoo (Charter Township, see City of Kalamazoo)  
Kalamazoo Valley Community College (Kalamazoo and Texas Township Campuses)  
Lawton (Village; mapped coincident with Antwerp Township)  
Mattawan (Village; mapped coincident with Antwerp Township)  
Oshtemo (Charter Township)\*  
Parchment (City)  
Paw Paw (Village; mapped coincident with Paw Paw Township)  
Portage (City)\*  
Richland (Village)  
Schoolcraft (Township; mapped coincident with Village of Schoolcraft)  
Schoolcraft (Village)  
Scotts (Community)  
Texas (Charter Township)  
Vicksburg (Village)  
Wakeshma (Township, see Fulton)  
Waverly (Township; not included in 10-29-15 draft of Non-Motorized Element)  
Western Michigan University (Main\* and Engineering Campuses).



\*Contains intra-jurisdictional trunk line collector: a “ring route,” “beltway” or “beltline”

Where noted as “coincident with,” the to/from node(s) used were within the former jurisdiction, due to the centrality of the population and business center(s) within that part of the KATS MPO. Jurisdictional status was derived from Wikipedia.

The community owes a great deal of thanks to the individuals who contributed to this effort, whose work is gratefully acknowledged. The names of the many individuals representing most of the most actively involved agencies/jurisdictions are listed in Appendix F, Exhibit A of the KATS 2045 Metropolitan Transportation Plan).

### Exhibit B: Design Considerations and Process

Bike routes chosen for submission to KATS represent a balanced judgement, weighing a large number of factors at various stages of the process. It is suggested that changes to Map 7 include them, as well.

#### *Design Guides and Standards*

These considerations included, but were not limited to those found in reference works such as:

[AASHTO Guide for the Development of Bicycle Facilities, 4th Ed.](#)  
[Best Design Practices for Walking and Bicycling in Michigan](#)  
[Road Commission of Kalamazoo County Non-Motorized Facilities Policy](#)  
[Michigan Design Manual \(for Road Design\)](#)  
[Michigan Manual of Uniform Traffic Control Devices](#)  
[Traffic Control Devices For Bicycle Facilities \(MMUTDC Part 9\)](#)  
[Southwest Michigan Planning Commission \(various plans and guides\).](#)

#### *Design Factors*

Considerations include, but were not limited to factors such as:

- Safety
- Location and number of available roads
- Posted speed limits
- Traffic density
- Route length
- Location of currently posted bike lanes and bike routes
- Cumulative changes in elevation (e.g., number and gradient of hills and valleys)
- Shoulder type (presence/absence, width)
- Sight distances (number of and type of turns/curves)
- Number of turns required en route (e.g., complexity of wayfinding, rider confusion)
- Road and shoulder (e.g., so-called PASER rating, tendency of shoulders to accumulate debris)

- Illumination (e.g., presence of deep shadows, road lights)
- Road composition (dirt/gravel vs. paved)
- Local and Act 51 agency non-motorized plans
- Opinions and preference of local planners/engineers
- Bicyclist preference (experienced commuters plus on-line “heat maps” of bicyclist use)
- Preference of computerized mapping engines/apps (e.g., Google, Garmin, Ride With GPS)
- Location and type of bridges (which have the effect of funneling and limiting routing options)
- Location of natural barriers (e.g, lakes, marshes, rivers, streams).

In practice, this meant for example, that sometimes the most direct or shortest route was not chosen if an alternative route used roads with lower traffic densities or fewer hills, wider shoulders, etc. Sometimes the route with a slightly lower traffic density was not as highly ranked if it took the rider on a gravel/dirt road, through dark stretches of road with narrow or no shoulders, etc. All in all however, most often the most preferred routes were clear “winners.”

### *Design Process*

The transportation & commuter bike routes were initially developed in an effort beginning in 2012. The process followed a systematic, iterative approach balancing a combination of elements, including:

- Google bike route mapping
- input from Kalamazoo Area Transportation Study (KATS) policy and technical committee members, KATS staff, and planners from many of the jurisdictions involved
- recognized state and national experts
- local bicyclist and citizen knowledge
- community stakeholders
- technical engineering standards and guidelines
- existing printed maps
- local non-motorized plans
- “Heat Maps” of preferred routes
- defined, transportation-oriented to/from nodes
- population densities and ease of access-points
- other documented resources
- refinement of routes to select the single most preferred route connecting adjacent nodes
- agreement on intermediate nodes / “border crossings” between adjacent governmental borders.

Additional authoritative resources are listed on Bike Friendly Kalamazoo’s online “Resources” tab (for example, technical standards and guidelines).

Beginning in 2012, at each step, from the very first use of Google Maps’ bike route suggestions to the release to KATS of the refined bike routes in so-called .kml file format, Bike Friendly Kalamazoo (BFK) participants/volunteers took into account the factors alluded to above in

forming their judgements as they became known and available.

Approximately 400 versions/alternative bike routes were generated, reviewed and refined into a set of about 90 proposed routes submitted to KATS, with approximately 75 included in the version adapted.

### Key Steps in the Process

Key steps in the systematic route design process begun in 2012 are summarized in this section. They are worth including in this Plan to suggest an open, systematic process for changes to Map 7 as the network is implemented and as conditions change that make choices among alternative routes more preferable. The specific individual steps and meetings held to conduct this process have been documented in more detail than practical to present here in their entirety, in the form of minutes.

1. In February 2012, members of the Kalamazoo Bicycle Club (KBC), friends of the Open Roads Project, TriKats, and patrons of local bicycle shops were asked to submit descriptions of routes they used for bicycle commuting to KBC's Director of Road Safety; these routes were relayed to Steve Stepek of KATS. Routes were submitted by Daryl Hutson, Marc A. Irwin, Paul Selden, Chad Goodwill, Dale Krueger, Joan Orman, Neil Juhl, Paul Wells, Steve Johnson, Jeff Pregoner, Christopher Gottwald, Karl Freye, Jon Ballema, John Byrnes, and Chris Dilley. This effort provided experience and data from which emerged ideas for further refining the route development process. During this period, Tom Swiatt provided key guidance by telephone.
2. In November 2012, participants in a public meeting which kicked off the bike route planning effort facilitated by BFK developed a set of written guidelines for the bike route planning volunteers (see Exhibit B). Chris Barnes, Joanna Johnson, Fred Nagler, Steve Stepek and Paul Selden participated in the development/review of these guidelines.
3. Participants in Bike Friendly Kalamazoo volunteered to map commuter, recreational, fitness and shopping oriented bike routes, following the guidelines mentioned in Step 2. These routes are posted under two of the links on BFK's "Where to Ride" tab at <http://bikefriendlykalamazoo.org/trails-routes/>.

Following a round of discuss and review, feedback from a number of transportation planners and engineers made it clear that focusing on commuter related routes was most appropriate from the point of view of being able to approve posting of bike route signs, linking transportation-oriented destinations that were relatively permanent features of the community within the KATS metropolitan planning organization (MPO). The rationale is easy to understand. The changeable and somewhat idiosyncratic nature of recreational and fitness routes makes them potentially unmanageably large in number and incompatible with the relatively permanent nature of signing. By the same token, the sheer number of shopping centers and neighborhoods within the KATS MPO, and the immense number of permutations/combinations of potential bike routes required to link them all, ruled out a focus on a shopping oriented bike route development, at least at the level of the KAT MPO. Further efforts were focused on commuter bike route mapping, leading to Map 7's name of "Proposed Bike Commuter Routes" when first published.

4. Since to our knowledge the attempt to establish such a comprehensive transportation-oriented bike route network was the first of its type within the KATS MPO, the effort limited itself to connecting permanent trip generators in jurisdictions with easy to identify to/from “centers,” or points of connection, where such “nodes” or hubs were spaced far enough apart to warrant separate and independent to/from routes.

The resultant routes are comprehensive, but can be added to or modified as time goes on, as needed (for instance, if the KATS MPO boundaries are changed). The resulting routes have major additional benefits. They play a role as trunk lines which can be linked to via spurs as needed. Since the destinations chosen offer a tremendous concentration of places to shop as well as to work, the transportation-oriented routes could easily play a major role as trunk lines off of which more local shopping, recreational and civic (e.g., local destinations such as libraries, parks, town halls, etc. ). The benefits of bicycling for basic transportation whether to commute or perform errands in turn offers the many collateral benefits listed elsewhere in this Plan (e.g., related to personal fitness, energy independence and savings, reduction of pollution, personal enjoyment/recreation, etc.). In other words, these transportation-oriented bike routes offer great flexibility and will undoubtedly serve the community in many ways beyond their initial nominal designation in the 2045 Plan as “commuter bike routes.”

5. Volunteers used Google Maps to automatically generate bike route alternatives among all combinations of the nodes. Google typically suggested from one to three route alternatives. These were converted into more stable maps using the public, free internet application called Ride With GPS (see [www.ridewithgps.com](http://www.ridewithgps.com)) to facilitate open review, comment, adjustment and conversion into .kml files.

All of the initial automatically generated routes were reviewed and refined one or more times by one or more individuals with credible local knowledge of conditions and preferences. Many of these participants attended MDOT’s “Training Wheels” seminar on how to develop bicycling facilities. During the review process it became clear that many of the Google-generated bike routes used seasonal trails with restricted hours of operation and/or were not open year round, footpaths, non-public roads, and gravel/dirt roads. Volunteers adjusted such routes to make use of on-road facilities.

As a reminder, a link to the close to 400 draft commuter route alternatives can be found on Bike Friendly Kalamazoo’s “Where to Ride” tab, together with comments on how to interpret the naming/coding conventions used in the route titles.

6. During the final rounds of review for the 2045 Plan the finer points of routing were conducted in close consultation with individuals most familiar with the routes in question. More one on one discussion took place with representatives of jurisdictions, who were consulted at various points in the process via phone and email; at this stage fewer large meetings were necessary.

The main questions answered during these dialogs concerned where to locate their jurisdiction’s to/from nodes (for purposes of connecting with neighboring jurisdictions), and, where to locate

the most preferred inter-jurisdictional border crossings (to facilitate connectivity with their neighbors). Among others, the primary individuals consulted during such off-line dialogs included: Chris Barnes, Libby Heiny-Cogswell, Linda Kerr, Rebekah Kik, Marc Elliott, Karen High, Lawrence Hummel, Greg Milliken, Ann Nieuwenhuis, Ron Reid, Greg Rosine, Ken Schippers and Jeff Sorensen. Communication about these preferences was also extended to Russell Wickland, (Planning Consultant, The Preim Group, working on behalf of Texas Township). Darrell Harden also provided input regarding Michigan Department of Transportation plans.

7. To simplify the network, eliminated routes that passed relatively close to an intervening destination were eliminated. For example, since a bike route from Kalamazoo to Schoolcraft would pass through the preferred nodes within the intervening jurisdiction of the City of Portage, the routes Kalamazoo-Portage, and Portage-Schoolcraft were submitted to KATS (instead those individual routes, together with a Kalamazoo-Schoolcraft route). Only a single “tier one” route between such destinations was mapped in the draft 2045 Plan. Interested parties may review alternative routes via the links previously listed.

#### Exhibit C: Individuals Participating in Naming Map 7, “Southwest Michigan Bikeway”

For purposes of signing the trunk lines on Map 7 in order to distinguish them from others and thus to assist in wayfinding, the following individuals collaborated between 2015 and 2016 and arrived at a mutually-agreeable name for the network as a whole.

- Lee Adams, Director, Southcentral Michigan Planning Council, Upjohn Institute for Employment Research
- Chris Barnes, Director of Transportation & Utilities, City of Portage
- Deb Buchholtz, Commissioner, Road Commission of Kalamazoo County
- Larry Hummel, Highway Engineer-Manager/Department of Public Works Director
- Joanna Johnson, Managing Director, Road Commission of Kalamazoo County
- Rebekah Kik, City Planner, City of Kalamazoo
- Kendall Klingelsmith, Director of Parks, Recreation & Senior Citizen Services, City of Portage
- Larry Nielsen, Manager, Village of Paw Paw
- David Rachowicz, Director of Parks and County Expo Center, Kalamazoo County
- Ron Reid, Supervisor, Kalamazoo Township
- Paul Selden, Director of Road Safety, Kalamazoo Bicycle Club/ Founder, Bike Friendly Kalamazoo

Since then the Kalamazoo Region Bike Route Committee’s participating Act 51 agencies (including MDOT, RCKC, and the cities of Kalamazoo and Portage), Bike Friendly Kalamazoo and the Kalamazoo Region Bike Route Committee agreed on a name for the bike route network illustrated in Map 7, namely, the Southwest Michigan Bikeway.

## Appendix D: Unfunded Transportation Needs Cost Calculation Examples

### Example Cost Calculation: 3" Mill and Resurface

HMA Costs (per Ton)	Southwest Region	State
4C	\$70.21	\$80.39
36A	\$73.18	\$87.97
4E	\$70.52	\$70.75
5E	\$84.44	\$79.29
Average	\$74.59	\$79.60
<b>Cost/yd<sup>2</sup></b>	<b>\$12.31</b>	<b>\$13.13</b>

Traffic Control Base Costs	Southwest Region	State
Sign Type B, Temporary furnished / ft <sup>2</sup>	\$3.07	\$4.56
Sign Type B, Temporary Operated / ft <sup>2</sup>	\$0.88	\$1.10
<b>Total Sign Type B Cost per ft<sup>2</sup></b>	<b>\$3.95</b>	<b>\$5.66</b>
Plastic Drum Lighted Furnished (each)	\$13.70	\$22.63
Plastic Drum Lighted Operated (Each)	\$1.00	\$1.28
<b>Total Drum Lighted Cost per barrel</b>	<b>\$14.70</b>	<b>\$23.91</b>

Note: State results for Sign Type B, Temporary were filtered to remove North Region costs which were well outside the typical range.

Traffic Control Cost (per mile of 30 ft wide paved surface)	Rural	Urban
Sign Type B per mile	256	416
Subtotal Signs	\$1,448.96	\$1,898.06
Number of barrels per mile	50	100
Subtotal barrels	\$1,195.50	\$2,391.00
Cost / Mile	\$2,644.46	\$4,289.06
Cost / yd <sup>2</sup> (cost per mile/17,600)*	\$0.15	\$0.24

\* 5280 feet in a mile \* 30-foot width/9 square feet in a yard=17,600

#### Cold Milling

State Average Unit Price (AUP) Cost Per Ton = \$5.67 or approximately \$6.00; \$6.00/ton x 1 ton/2000lb x 330 lb./square yard = **\$1.00/yd<sup>2</sup>**

#### Shoulder

Shoulder CI II cost per ton = \$19.19;  
 Assume wet compacted unit weight = 145 lb./ft<sup>3</sup> placed 1.5 inches deep on average.  
 $\$19.19/T \times 1T/2000lb \times 145lb/ft^3 = \$1.39/ft^3$   
 Place 1.5 inches:  $\$1.39/ft^3 \times 1.5 \text{ in}/12 \text{ in per ft} = \$0.17/ft^2$   
 $\$0.17/ft^2 \times 9 = \mathbf{\$1.53/yd^2}$

#### Adjust Drainage Structures

Urban - Assume 2 MH every 300 feet on 30-foot road;  
 $\$525/MH \times 2MH/(300 \times 30/9) = \mathbf{\$1.05/yd^2}$

#### Pavement Marking

Sprayable Thermoplastic, 4 inches = \$0.74/ft.  
 Urban - Assume double yellow centerline and single white edge lines for 30-foot-wide road

4 Lines x \$0.74/ft x 1 ft/3.33 yd<sup>2</sup> road = **\$0.88/yd<sup>2</sup>**

Rural - Assume skip yellow centerline and single white edge lines for 30' wide road

12.5'/50' (skip) plus 2 (edge) = 2.25 line

2.25 line x \$0.74/ft x 1 ft/3.33 yd<sup>2</sup> = **\$0.50/yd<sup>2</sup>**

Cost per yd <sup>2</sup>	Rural	
	Pavement	Shoulder
Cold Milling HMA	\$0.52	\$0.00
HMA (Avg of 4C, 36A, 4E, 5E)	\$13.13	\$0.00
Traffic Control	\$0.15	\$0.00
Shoulder	\$0.00	\$1.53
Adjust Drainage Structures	\$0.00	\$0.00
Pavement Marking	\$0.50	\$0.00
Subtotal	\$14.30	\$1.53
Engineering and Contingency	\$3.58	
<b>TOTAL</b>	<b>\$17.88</b>	<b>\$1.53</b>

Cost per yd <sup>2</sup>	Urban	
	Pavement	Shoulder
Cold Milling HMA	\$0.52	\$0.00
HMA (Avg of 4C, 36A, 4E, 5E)	\$13.13	\$0.00
Traffic Control	\$0.24	\$0.00
Shoulder	\$0.00	\$1.53
Adjust Drainage Structures	\$1.05	\$0.00
Pavement Marking	\$0.88	\$0.00
Subtotal	\$15.82	\$1.53
Engineering and Contingency	\$3.96	\$0.00
<b>TOTAL</b>	<b>\$19.78</b>	<b>\$1.53</b>

## Summary of Treatments and Costs

Treatment Number	Treatment	Type	Min Trigger	Max Trigger	Reset	New Surf	Cost Per Square Yard					
							Rural		Urban		Average	
							Pavement	Shoulder	Pavement	Shoulder	Pavement	Shoulder
1	Chip Seal	PM (CPM)	5	6	8	No	\$2.23	\$0.00	\$2.23	\$0.00	\$2.23	\$0.00
2	Crack Seal	PM (CPM)	6	7	8	No	\$0.46	\$0.00	\$0.46	\$0.00	\$0.46	\$0.00
3	Overlay, 1.5"	RH (SI)	5	5	9	Yes	\$9.03	\$1.53	\$10.93	\$1.53	\$9.98	\$1.53
4	Mill and Resurface, 1.5"	RH (SI)	4	5	9	Yes	\$9.35	\$1.53	\$11.25	\$1.53	\$10.30	\$1.53
5	Mill and Resurface, 3"	RH (SI)	3	4	9	Yes	\$17.88	\$1.53	\$19.78	\$1.53	\$18.83	\$1.53
6	Reconstruct, 12" Aggregate, HMA Leveling & Wearing	RC (SI)	1	3	10	Yes	\$32.23	\$4.14	\$34.13	\$4.14	\$33.18	\$4.14
7	Reconstruct, 6" Aggregate, 2" HMA Base, HMA Leveling & Wearing	RC (SI)	1	3	10	Yes	\$37.63	\$4.14	\$39.53	\$4.14	\$38.58	\$4.14
8	Reconstruct, 4" Aggregate, 4" HMA Base, HMA Leveling & Wearing	RC	1	3	10	Yes	\$44.85	\$4.14	\$46.75	\$4.14	\$45.80	\$4.14
9	Reconstruct, 6" HMA Base, HMA Leveling & Wearing	RC	1	3	10	Yes	\$48.43	\$4.14	\$50.33	\$4.14	\$49.38	\$4.14
10	Reconstruct, 8" HMA Base, HMA Leveling & Wearing	RC	1	3	10	Yes	\$58.83	\$4.14	\$60.73	\$4.14	\$59.78	\$4.14

Treatment Number	Treatment	Type	Min Trigger	Max Trigger	Reset	New Surf	Cost Per Lane Mile		
							Rural	Urban	Average
1	Chip Seal	PM (CPM)	5	6	8	No	\$19,624.00	\$19,624.00	\$19,624.00
2	Crack Seal	PM (CPM)	6	7	8	No	\$4,048.00	\$4,048.00	\$4,048.00
3	Overlay, 1.5"	RH (SI)	5	5	9	Yes	\$92,884.00	\$109,604.00	\$101,244.00
4	Mill and Resurface, 1.5"	RH (SI)	4	5	9	Yes	\$95,744.00	\$112,464.00	\$104,104.00
5	Mill and Resurface, 3"	RH (SI)	3	4	9	Yes	\$170,764.00	\$187,484.00	\$179,124.00
6	Reconstruct, 12" Aggregate, HMA Leveling & Wearing	RC (SI)	1	3	10	Yes	\$320,012.00	\$336,732.00	\$328,372.00
7	Reconstruct, 6" Aggregate, 2" HMA Base, HMA Leveling & Wearing	RC (SI)	1	3	10	Yes	\$367,352.00	\$384,252.00	\$375,892.00
8	Reconstruct, 4" Aggregate, 4" HMA Base, HMA Leveling & Wearing	RC	1	3	10	Yes	\$431,112.00	\$447,832.00	\$439,472.00
9	Reconstruct, 6" HMA Base, HMA Leveling & Wearing	RC	1	3	10	Yes	\$468,572.00	\$479,292.00	\$470,932.00
10	Reconstruct, 8" HMA Base, HMA Leveling & Wearing	RC	1	3	10	Yes	\$544,092.00	\$570,812.00	\$562,452.00

## Pavement Cost Matrix for Reconstruction

KATS MPO	Centerline Miles	Assumed No. Of Lanes	Assumed Lane Width	Product	Ratio Of Product To Total	Reconstruction Treatment	Pavement Cost	Weighted Pavement Cost <sup>2</sup>
Interstate <sup>3</sup>	88.85	2.00	12.00	2,132.33	0.03	10.00	\$59.78	\$1.95
Other Freeway <sup>4</sup>	56.36	2.00	12.00	1,352.74	0.02	10.00	\$59.78	\$1.24
Principle Arterial	93.85	5.00	11.00	5,161.64	0.08	9.00	\$49.38	\$3.90
Minor Arterial	296.49	4.00	11.00	13,045.65	0.20	8.00	\$45.80	\$9.15
Major Collector	327.63	3.00	11.00	10,811.76	0.17	8.00	\$45.80	\$7.58
Minor Collector	49.43	2.00	11.00	1,087.37	0.02	7.00	\$38.58	\$0.64
Local	1,442.31	2.00	11.00	31,730.80	0.49	6.00	\$33.18	\$16.12
								<b>\$40.58</b>

<sup>2</sup> Weighted pavement cost is equal to the ratio of product to total x pavement cost.

<sup>3</sup> Roadsoft treats each direction for freeways as individual roads.

<sup>4</sup> Roadsoft treats each direction for freeways as individual roads.



# APPENDIX E: SYSTEMS PERFORMANCE REPORT

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

## Roads and Highways Reporting Requirements

MDOT is required to report to FHWA on the establishment of state performance targets and the progress made in attaining the state targets on biennial basis (October 1 of each even numbered year). One exception to the biennial reporting requirements is for the safety performance measures, which are required to be reported by MDOT to FHWA through the Highway Safety Improvement Program Annual Report by August 31 of each year.

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

## 2021 Safety Targets - Road and Highways

Federal regulations require the use of five-year rolling averages for each of the performance measures which include Fatalities, Fatality Rate per 100 million VMT, Serious Injuries, Serious Injury rate per 100 million VMT, Non-Motorized Fatalities and Serious Injuries. The values used in creating the following charts for 2020 and 2021 estimates were provided by MDOT.

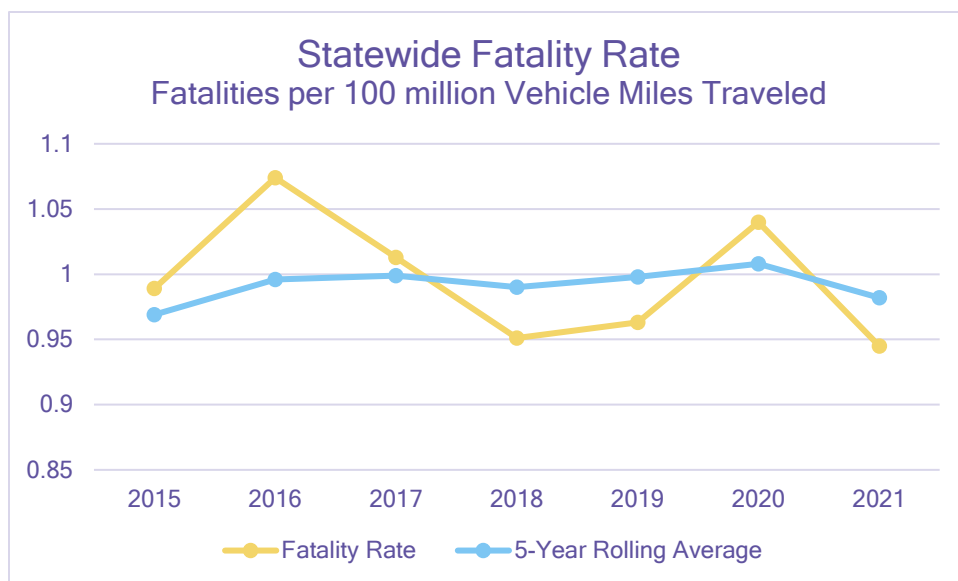
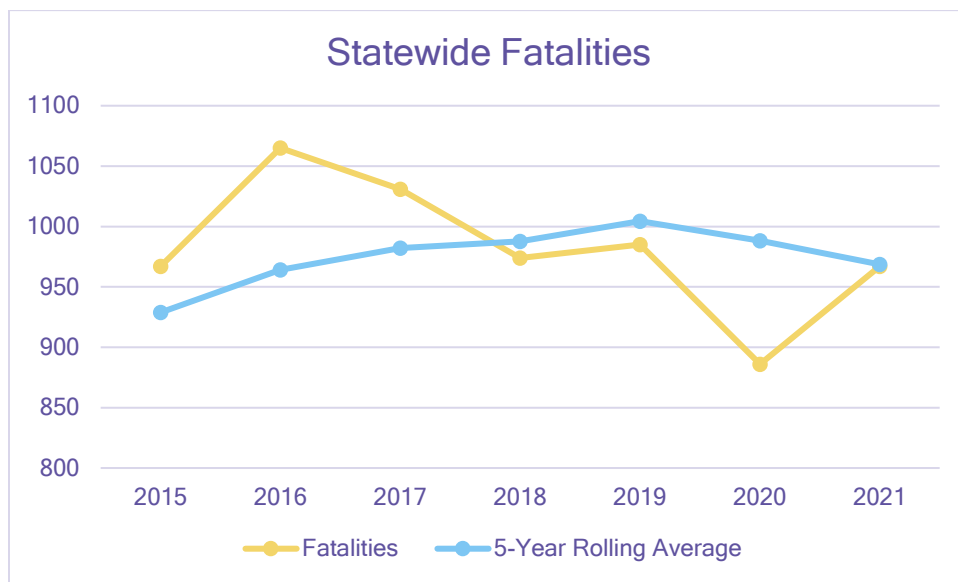
## Total Fatalities & Fatalities Rate

### How Targets Are Set

MDOT and Office of Highway Safety Planning used two different models to forecast the total fatalities and serious injuries for target setting. The fatality models developed by MDOT relied on the relationship between oil prices, the Dow Jones Industrial (DJI) futures and fatalities. The price of oil and the level and changes in the DJI futures are closely correlated to the travel demand and traffic crashes. The second model was developed and maintained by the University of Michigan Transportation Research Institute (UMTRI). The UMTRI model relies on results of a recently completed research report titled *Identification of Factors Contributing to the Decline of Traffic Fatalities*

*in the United States.* The model relies on the correlation between traffic crashes and vehicle miles traveled (VMT), Gross Domestic Product (GDP) per capita, median annual income, and the unemployment rate among 16-24-year-olds.

To determine the forecasted five-year rolling average for Fatalities, Fatality Rate per 100 million VMT, Serious Injuries, and Serious Injury Rate per 100 million VMT, the forecast was obtained from the models for 2020 and 2021. The final forecasted value for fatalities is the average of MDOT and UMTRI forecasted values which predicts 886 in 2020 and 967 in 2021. The target for calendar year 2021 is 968.6 for fatalities and 0.982 for fatality rate, which is show in the following charts.



### Reporting Requirements

MDOT is required to report to FHWA on the establishment of state performance targets and the progress made in attaining the state targets on a biennial basis (October 1<sup>st</sup> of each even numbered

year). One exception to the biennial reporting requirement is for the safety performance measures, which are required to be reported by MDOT to FHWA through the Highway Safety Improvement Program Annual Report by August 31<sup>st</sup> of each year.

### State Actions

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

### MPO Actions

- As shown in the table below, the Kalamazoo MPO supported the adoption of MDOT’s State Targets for Safety Performance Measures for Calendar Year 2021. This established targets for five performance measures based on five-year rolling averages, including:
  - Number of Fatalities,
  - Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT).

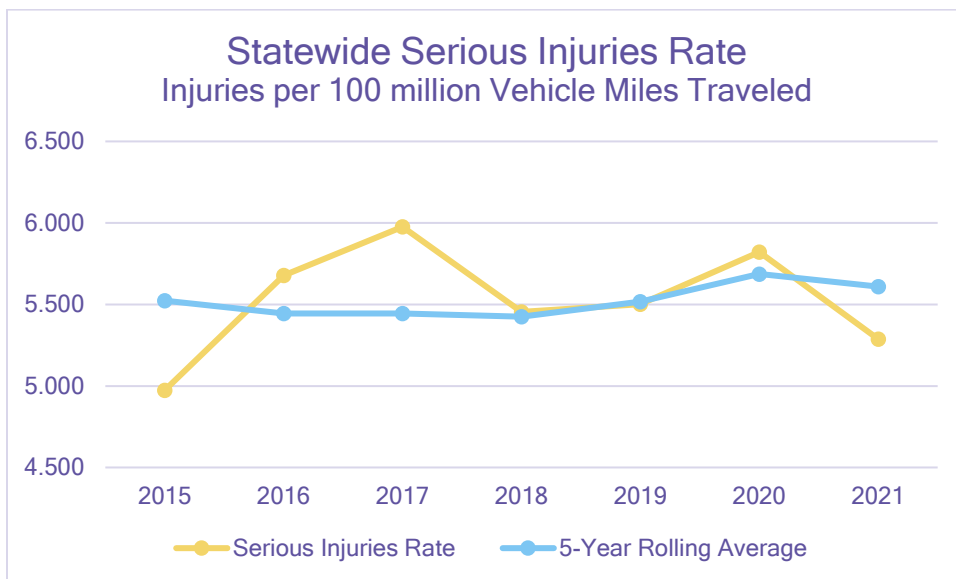
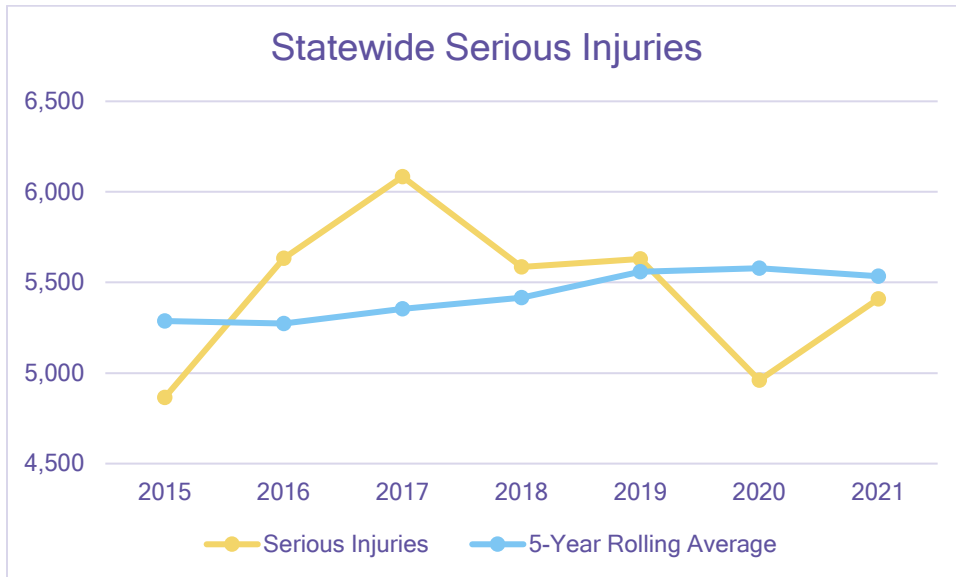
<b>Michigan State Safety Targets for Calendar Year 2021</b>		
Safety Performance Measure	Baseline Condition	2021 Targets
Fatalities	1,004.4	968.6
Fatality Rate	0.998	0.982

- Implement the recommended strategies based on the defined emphasis areas for the Kalamazoo MPO.
- Give priority in the Transportation Improvement Program (TIP) to projects that address safety.
- Encourage Act 51 Agencies to implement systemic treatments such as bale stay barriers and center rumble strips to reduce lane departure crashes.
- Use data to develop projects that address safety hazards in particular locations.
- Promote safe travel habits for drivers, transit riders, cyclists, and pedestrians through education and enforcement initiatives and programs.

## Total Serious Injuries & Serious Injuries Rate

### How Targets are Set

The UMTRI model was the sole model used in forecasting total serious injuries as it exhibited a strong linear relationship of the ratio of serious injuries and fatalities (A/K). The forecasting total for serious injuries is 4,960 in 2020 and 5,409 in 2021. The target for calendar year 2021 is 5,533.6 for serious injuries and 5.609 for serious injury rate.



### State Actions

- To meet the safety goal of reducing fatalities and serious injuries on the state trunkline system, the strategy of the Safety Program is to select cost-effective safety improvements as identified in Michigan's SHSP to address trunkline locations with the correctable fatality and serious injury crashes.

- All proposed safety funded improvements must be supported by the MDOT Region’s Toward Zero Deaths Implementation Plan to mitigate crashes within the region. Priority is given to those projects within each Region, with SHSP focus area improvements that have the lowest cost/benefit analysis or are proven low-cost safety improvement to address the correctable crash pattern.
- On the local road system, MDOT administers federal safety funds for safety improvements supported by a Local Road Safety Plan or addressed by means of a low-cost safety project. High Risk Rural Road is one program used to address rural roadways where fatalities and serious injuries exceed the statewide average for that class of roadway.

**MPO Actions**

- As shown in the table below, the Kalamazoo MPO supported the adoption of MDOT’s State Targets for Safety Performance Measures for Calendar Year 2021. This established targets for five performance measures based on a five-year rolling average, including:
  - Number of Serious Injuries.
  - Rate of Serious Injuries per 100 million VMT.

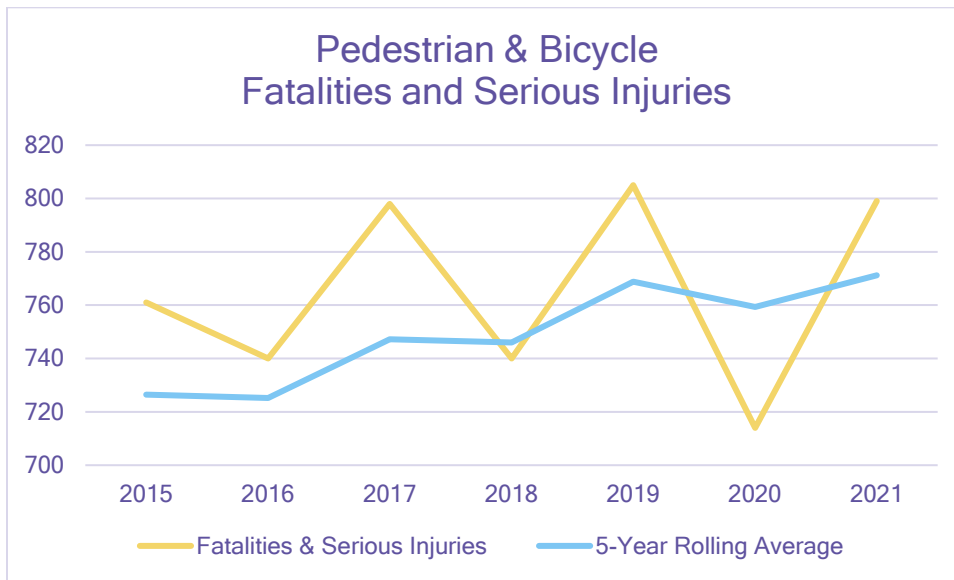
Michigan State Safety Targets for Calendar Year 2021		
Safety Performance Measure	Baseline Condition	2021 Targets
Serious Injuries	5,559.6	5,533.6
Serious Injury Rate	5.518	5.609

- Implement the recommended strategies based on the defined emphasis areas for the Kalamazoo MPO.
- Give priority in the TIP to projects that address safety.
- Encourage Act 51 Agencies to implement systemic treatments, such as cable stay barriers and center rumble strips to reduce lane departure crashes.
- Use data to develop projects that address safety hazards in particular locations.
- Promote safe travel habits for drivers, transit, cyclists, and pedestrians through education and enforcement initiatives and programs.

**Total Bicycle & Pedestrian Fatality and Serious Injuries**

**How Targets Were Set**

Results from the UMTRI model (the A/K relationship) were also used to generate forecasted 5-year moving average values for bicycle and pedestrian fatalities and serious injuries for 2020 and 2021. The forecasting total for fatalities and serious injuries is 714 for 2020 and 799 in 2021. The target for calendar year in 2021 is 771.2 for fatalities and serious injuries.



### State Actions

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

### MPO Actions

- As shown in the table below, the Kalamazoo MPO supported the adoption of MDOT’s State Targets for Safety Performance Measures for Calendar Year 2021. This established targets for five performance measures based on five-year rolling averages, including the number of non-motorized fatalities and serious injuries.

Michigan State Safety Targets for Calendar Year 2021		
Safety Performance Measure	Baseline	2021 Target
Non-Motorized Fatalities & Serious Injuries	768.8	771.2

- Address safety issues, concerns and needs for bicyclists and pedestrians in the Non-Motorized Element.
- Implement the recommendations in the Non-Motorized Element upon the plan’s adoption.
- Focus safety funding on the high crash areas as identified in the KATS Pedestrian, Greenways and Transit Plan as well as the Non-Motorized Element.

- Utilization of MDOT road safety audits and engineering countermeasures and other initiatives, programs or designs that are promoted as part of the Toward Zero Deaths National Strategy.

### Transit Reporting Requirements

The Federal Transit Administration Transit Asset Management Rule requires a group Transit Asset Management (TAM) plan to set one or more performance targets for each applicable performance measure. The goal is to establish a strategic and systematic process of operation, maintaining, and improving public capital assets effectively through their entire life cycle. The targets should be based on realistic expectations, and the recent data available and the financial resources from all sources that area reasonably expected funding the TAM plan horizon period. The three asset classes to be in the Transit Asset Management plan are Revenue Vehicles, Service Vehicles, and Facilities.

The targets for 2018 are based on the following assumptions:

- Section 5339 \$1.75 million allocated to MDOT.
- Section 5310 55% of rural and small urban 5310 funds allocated to MDOT are \$2 million.
- State match to the above amounts.
- Total of \$4,687,500 available to meet the targets.
- All available funds will be focused on revenue vehicle replacement.

The Michigan Department of Transportation along with the Federal Transit Administration, discussed the federal requirements and draft the targets in 2018.

2018 State of Michigan, State of Good Repair		
Measure	Current Condition	2018 Target
Rolling Stock		
Small Bus and Van (5311)	11%	Not more than 10% will meet or exceed the FTA useful life benchmark (ULB)
Small Bus and Van (5310)	0%	
Large Bus Class 5311	62%	
Large Bus Class 5310	0%	
Service Vehicles	58%	100% may not meet or exceed the FTA ULB
Facilities (all classes)	Unknown	100% may be below a 3.0 rating on the FTA Transit Economic Requirements Model (TERM)

### How Targets are Set

MDOT ran reports from Public Transportation Management System (PTMS), the reporting system for public transit agencies who receive federal funding. Targets were set based upon funds available to MDOT and the current conditions of revenue vehicles, service vehicles, and facilities. Targets are set

for the rural area by MDOT on an annual basis each year in January and reported in the National Transit Database (NTD).

**Actions**

The state of Michigan will use 5339 funds in the amount of \$1.75 million allocated to MDOT plus the state match of \$437,500 for a total of \$2.18 million for revenue vehicles.

**Urban Transit Targets**

Transit agencies in an urban area are required to develop targets for State of Good Repair. The purpose of the State of Good Repair is to establish a strategic and systematic process of operation, maintaining and improving public capital assets effectively through their entire life cycle. Central County Transportation Authority (CCTA) has cooperatively developed a Public Transportation Agency Transportation Plan and has adopted safety targets for Calendar year 2021.

<i>Mode of Transit Service</i>	<i>Fatalities (Total)</i>	<i>Fatalities (rate)</i>	<i>Injuries (Total)</i>	<i>Injuries (rate)</i>	<i>Safety Events (Total)</i>	<i>Safety Events (Rate)</i>	<i>System Reliability</i>
Fixed Route	0.054/year	0.003/100k Vehicle Revenue Miles	6.9/year	.394/100k Vehicle Revenue Miles	7.9/year	.451/100k Vehicle Revenue Miles	35,000 miles
	Preventable Accidents 33/year		Driver Assaults 0.33/year		Work Related Injuries 16		
Demand Response/ Paratransit	0.051/year	0.0029/100k Vehicle Revenue Miles	7.2/year	.411/100k Vehicle Revenue Miles	7.5/year	.429/100k Vehicle Revenue Miles	170,000 miles
	Preventable Accidents 5/year		Driver Assaults 02/year		Work Related Injuries 5/year		

**National Highway System Bridge Condition Targets**

The Transportation Performance Measure regulatory requirements outlined in 23 CFR 490.105 and 23 CFR 490.107 regarding bridge condition targets, are based on a state adjusted 4-year National Highway System targets. The Kalamazoo Area Transportation Study recognized the importance of a safe transportation system and supports the cooperatively developed bridge targets from the Michigan Department of Transportation.

<b>Performance Area</b>	<b>Measure</b>	<b>Baseline Condition (2017)</b>	<b>2-Year Targets (ended 10/1/2020)</b>	<b>4-Year Targets</b>
Bridge	Percent of National	32.7%	27.0%	23.0% adjusted from the



	Highway System (NHS) Deck Area in Good Condition			previous 4-year target of 26%
	Percent of NHS Deck Area in Poor Condition	9.8%	7.0%	8.0% adjusted from the previous 4-year target of 7%

# APPENDIX F: CONSULTATION DOCUMENTATION

May 13, 2021

Agency/Organization  
Street Address  
City, State Zip Code

## **RE: Request for Consultation on 2050 Plan Candidate Projects**

Dear Sir or Madam:

To foster cooperation while promoting communication within State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation; the Kalamazoo Area Transportation Study (KATS) is seeking input on its 2050 Metropolitan Transportation Plan list of Proposed Projects.

Please visit [katsmpo.org/programs/transportation-plan/](https://katsmpo.org/programs/transportation-plan/) and review the Proposed Project list. These projects are for both capacity increases and general maintenance. All are strictly in the developmental stage. This is only a draft list and inclusion in the 2050 Metropolitan Transportation Plan does not guarantee construction.

Please look over the Proposed Projects and reference them to your organization. KATS would appreciate any comment or concern regarding these projects. Please contact us in writing or by email by **June 18, 2021**. Your comments are an important part of the planning process. Without appropriate feedback, it is difficult to foresee potential issues with the Proposed Projects. No comment will be viewed as having no concerns with the draft list.

If you have any questions or comments, feel free to contact KATS.

Thank you in advance for your comments and participation.

Sincerely,

Steve Stepek  
Executive Director

**Kalamazoo Conservation District**

Fri, Jun 18,  
9:29 AM

to me

Good Morning Megan,

I am writing on behalf of the Kalamazoo Conservation District.

In discussing your proposed list of projects, we are questioning the necessity of widening roads especially in the Portage projects. Is the widening due singularly to the addition of bike lanes or is this to accommodate increased traffic? We are especially concerned about the environmental impacts of projects passing through wetland areas. Of special concern is the widening of Oakland Dr through a wetland habitat. Have these projects been investigated for environmental impact?

Thank you,  
Elizabeth Rochow

**Elizabeth Rochow**  
DISTRICT MANAGER

**KALAMAZOO CONSERVATION DISTRICT**  
5950 PORTAGE RD. SUITE B PORTAGE, MI 49002  
OFFICE; 269-775-3368

[WWW.KALAMAZOOCONSERVATION.ORG](http://WWW.KALAMAZOOCONSERVATION.ORG)

# **APPENDIX G: 2050 METROPOLITAN TRANSPORTATION PLAN PROJECT LIST**

# Constrained Projects

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure \$1,000s
NA	2020	Preventative Maintenance	MDOT	Various	KATS Area	HMA Crack Treatment	\$216
NA	2020	Traffic Safety	MDOT	Various	KATS Area	Signal modernization, sign replacements	\$950
NA	2020	Preventative Maintenance	MDOT	US-131	M-43 to 102nd	Concrete repair	\$4,806
NA	2020	System Preservation	City of Portage	Westnedge Avenue	Shaver Rd and S. Westnedge	Resurface	\$2,500
NA	2020	Roadside Facilities	City of Kalamazoo	Howard Street	Stadium Drive to W. Michigan Avenue	Roadside facility	\$493
NA	2020	Capacity	Road Commission of Kalamazoo County	Stadium Drive	Quail run to 11th St	Non-motorized path	\$538
NA	2020	Traffic Safety	Road Commission of Kalamazoo County	Multiple Locations	NA	Upgrade signage	\$218
NA	2020	Bridge	Road Commission of Kalamazoo County	Multiple Locations	NA	Bridge preventative maintenance	\$227
NA	2020	Traffic Safety	Road Commission of Kalamazoo County	S Avenue	24th to 36th	Center left tun lane	\$1,200
16	2020	System Preservation	Road Commission of Kalamazoo County	Drake Road	KL to M-43	Resurface	\$1,587
15	2020	System Preservation	City of Portage	Shaver Road	Centre Avenue to South Westnedge Avenue	Resurface with Signal Improvements	\$468
15	2020	System Preservation	Portage	Centre Avenue	Portage Road to Sprinkle Road	Resurface	\$1,271
8	2020	System Preservation	Village of Mattawan	Main Street	Creek Crossing to 100 feet north of McGillen	Replace culvert	\$184
5	2020	System Preservation	City of Parchment	Commerce Lane	Mosel to Riverview	Mill and resurface	\$137
NA	2020	System Preservation	City of Portage	South Westnedge Avenue	South Westnedge Avenue	HMA mill and resurface	\$725
NA	2020	Capacity	Road Commission of Kalamazoo County	Drake Road	KL Ave to Greenmeadow	Non-motorized path	\$627
NA	2020	Capacity	Road Commission of Kalamazoo County	W. Michigan Ave	S Battle Creek St to McCollum Rd	Non-motorized path	\$1,170
NA	2020	System Preservation	Road Commission of Kalamazoo County	U Avenue	29th to 32nd	Resurface	\$1,064
NA	2020	Traffic Safety	Road Commission of Kalamazoo County	G Avenue	2nd Street to 6th Street	Paved shoulder, guardrail upgrade	\$745
NA	2020	Bridge	Road Commission of Kalamazoo County	S 29th Street	29th Street over Portage River	Bridge preventative maintenance	\$109

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure \$1,000s
NA	2020	New Facility	Road Commission of Kalamazoo County	W Battle Creek Street, W Michigan Ave, McCollum Road	S. Battle Creek Street at 35th Street to McCollum Road at M-96	Shared-use pathway	\$1,750
NA	2020	Traffic Safety	Village of Paw Paw	W North Street	Intersection of North Street and Hazen Street	Replace traffic signal	\$200
NA	2020	System Preservation	Van Buren County Road Commission	Red Arrow Highway	26th Street to 32nd Street	Mill of existing HMA 2 inches, install fabric	\$557
NA	2020	Railroad	Grand Trunk Western Railroad	S 10th Street	Grand Trunk Western Railroad in Prairie Rhonde Township	Install flashing light signals and half-roadway gates	\$325
NA	2020	Bridge	MDOT	I-94	Under 32nd Street (CR 653)	Shallow overlay, substructure repairs	\$1,321
NA	2020	Traffic Safety	MDOT	I-94 BL	11th Street to Seneca	Install traffic responsive signal technology	\$625
NA	2020	Traffic Safety	MDOT	M-60 E	US-131 at U Avenue and US-131 BR at Paterson	Traffic signal modernizations and connected vehicle installations	\$642
NA	2020	System Preservation	MDOT	I-94 W	Van Buren/ Kalamazoo County line to North Street	Mill and one course hot mix asphalt overlay	\$5,331
NA	2020	System Preservation	MDOT	Regionwide	Various locations	HMA Crack Treatment	\$216
NA	2020	Traffic Safety	MDOT	TSC Wide	Various locations	Cantilevers replacement	\$246
NA	2020	System Preservation	MDOT	US-131	US-131 in Kalamazoo County	Concrete joint resealing and isolated pavement repairs	\$5,183
NA	2020	Capacity	MDOT	I-94 W	East of Lovers Lane to west of Sprinkle Road	Road and bridge reconstruction	\$5,692
NA	2020	System Preservation	MDOT	I-94	Carpool lot at exit 75 and Oakland Drive	Single course hot mix asphalt resurfacing	\$88
NA	2020	Traffic Operations	City of Kalamazoo	S Drake Road	Parkview to KL Avenue	Signal interconnect and upgrades	\$1,089
<b>Subtotal</b>	<b>2020</b>	<b>Road Projects</b>					<b>\$42,500</b>
24	2020	Public Transportation	Metro	Mobility Management		Mobility Management Program	\$63
21	2020	Public Transportation	Metro	Community Ridesharing		Operating of Community Ridesharing Program	\$51
16	2020	Public Transportation	Metro	Bus Shelters		Replace, rehabilitate and/or install up to 6 bus shelters for ADA compliance	\$15
14	2020	Public Transportation	Metro	Security Maintenance and Upgrades		Facility Security Maintenance and Upgrades	\$50
12	2020	Public Transportation	Metro	Community Service Program		Community Service Program	\$30
11	2020	Public Transportation	Metro	Fixed Vehicle Replacements		Fixed Route Bus Replacements	\$1,000
11	2020	Public Transportation	Metro	ITS Equipment		ITS Equipment Hardware, Software, and Licenses	\$100
11	2020	Public Transportation	Metro	Operating Assistance - Rural		Operating Expenses - Demand Response Rural	\$170

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure \$1,000s	
11	2020	Public Transportation	Metro	Vehicle Replacement		Up to 6 Demand Response Van Replacements	\$139	
8	2020	Public Transportation	Metro	Facility Renovations		Facility Renovations	\$50	
7	2020	Public Transportation	Metro	Community Service Van		Community Service Van Replacement	\$40	
6	2020	Public Transportation	Metro	Transit Operations		Transit Operations - Fixed Route and Demand Response Urban	\$14,900	
Subtotal	2020	Public Transportation Projects						\$16,608
Total	2020	Road and Public Transportation Projects						\$59,108

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
20	2021	Traffic Safety	MDOT	M-43	At G Avenue	Construct Roundabout	\$4,557
20	2021	Traffic Safety	MDOT	M-43	At G Avenue	Realign intersection	\$1,370
23	2021	Reconstruct	City of Portage	Milham Avenue	South Westnedge Avenue to Portage Road	Mill and resurface including water main replacement, storm sewer, signal upgrades, and sidewalk improvements.	\$2,820
NA	2021	Reconstruct	Village of Paw Paw	E Michigan Avenue	Gremps Street to LaGrave Street	Reconstruction	\$725
NA	2021	Roadside Facility	Village of Paw Paw	E Michigan Avenue	Gremps Street to LaGrave Street	Pedestrian safety improvements	\$1,653
NA	2021	System Preservation	Road Commission of Kalamazoo County	N. Nichols Road	Nichols Road	Resurface	\$1,910
NA	2021	System Preservation	Road Commission of Kalamazoo County	Solon Street	Solon Avenue	Resurface	\$211
NA	2021	System Preservation	Road Commission of Kalamazoo County	Sprinkle Road	Milham Avenue to N Avenue	Resurface	\$2,030
NA	2021	System Preservation	Road Commission of Kalamazoo County	E G Avenue	Riverview Drive to 24th Street	Resurface	\$820
NA	2021	System Preservation	Road Commission of Kalamazoo County	E R Avenue	36th Street to east County line	Resurface	\$1,619
NA	2021	System Preservation	City of Kalamazoo	Portage Street	Stockbridge Avenue to Michigan Avenue	Resurface	\$4,020
NA	2021	Railroad	Grand Elk Railroad, LLC	Oakland Drive	At Grand Elk Railroad in City of Portage	Upgrade flashers, add gates, and install cantilever	\$350
NA	2021	Capacity	MDOT	I-94	Portage Road to Sprinkle Road	Road and bridge reconstruction	\$37,878
NA	2021	System Preservation	MDOT	Regionwide	I-94 WB from Lawrence/Paw Paw Township line to pavement change west of M-51	Crack seal, chip/fog seal, micro-surfacing and HMA milling and overlay	\$8
NA	2021	Traffic Safety	MDOT	Regionwide	KATS MPO	Pavement marking and signal interconnects	\$4,829
NA	2021	ITS Applications	MDOT	I-94	I-94 Van Buren County east, I-94 easter limits of Van Buren County	Variable advisory speed limit system along I-94 in Van Buren County	\$1,706
NA	2021	Capacity	MDOT	I-94	East of Lovers Lane to East of Portage Road	Road reconstruction and widen	\$69,054
Subtotal	2021	Road Projects					\$135,560
20	2021	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$825
20	2021	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$126
20	2021	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$798
20	2021	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$62
20	2021	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$288
20	2021	Public Transportation	Metro	Vehicle Replacement		CMAQ Vehicle Replacement	\$55



Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
15	2021	Public Transportation	Metro	Equipment		Vehicle Replacement	\$40
11	2021	Public Transportation	Metro	Equipment		Fixed Facility	\$200
9	2021	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$37
9	2021	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$14,650
8	2021	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$260
8	2021	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$148
8	2021	Public Transportation	Metro	Equipment		Fixed Facility	\$215
6	2021	Public Transportation	Metro	Equipment		Other - Bus Parts	\$165
6	2021	Public Transportation	Metro	Equipment		Other - Bus Parts	\$312
6	2021	Public Transportation	Metro	Planning Study		Other - Operations Analysis	\$279
Subtotal	2021	Public Transportation					\$18,460
Total	2021	Road Projects and Public Transportation					\$154,020

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
NA	2022	Bridge	Village of Mattawan	South Main Street	South Main Street over Amtrak Railroad	Bridge rehabilitation	\$1,867
NA	2022	Reconstruct	Village of Paw Paw	E Michigan Avenue	Gremps Street to LaGrave Street	Reconstruction	\$383
NA	2022	System Preservation	Village of Augusta	N Augusta Drive	M-96 to North village limits	1" HMA mill and 2" placement of HMA	\$255
NA	2022	System Preservation	Village of Schoolcraft	E Lyon Street	14th Street to east village limits	2" HMA mill and 2" HMA top course	\$153
NA	2022	Roadside Facilities	Road Commission of Kalamazoo County	KRVT	Eagle Drive and McCollum to M-96 past N 37th Street	Construction of non-motorized path	\$530
NA	2022	Bridge	City of Kalamazoo	Lake Street	Lake Street over Portage Creek	Bridge maintenance	\$51
NA	2022	Bridge	City of Kalamazoo	E Paterson Street	East Paterson Street over Kalamazoo River	Bridge rehabilitation	\$3,072
NA	2022	Bridge	City of Kalamazoo	E Walnut Street	East Walnut Street over Portage Creek	Bridge maintenance	\$146
NA	2022	System Preservation	Road Commission of Kalamazoo County	Barney Road	Barney Road	Resurface	\$257
NA	2022	Traffic Safety	Road Commission of Kalamazoo County	W Mosel Avenue	Mosel Avenue	Traffic signal interconnect	\$867
NA	2022	System Preservation	Road Commission of Kalamazoo County	Sprinkle Road	Sprinkle Road	Resurface	\$1,026
NA	2022	System Preservation	Road Commission of Kalamazoo County	Sprinkle Road	Sprinkle Road	Resurface	\$589
NA	2022	System Preservation	City of Kalamazoo	Stadium Drive	Stadium Drive	Resurface	\$4,029
NA	2022	Reconstruct	Road Commission of Kalamazoo County	E S Avenue	28th Street to 34th Street	Reconstruction	\$1,061
NA	2022	Traffic Safety	Road Commission of Kalamazoo County	N 24th Street	D Avenue to Ab Avenue then along AV Avenue to M-89	Paved shoulders, superelevation corrections	\$2,086
NA	2022	System Preservation	MDOT	M-40	72nd Street to south of Lagrave Street	Mill and two course hot mix asphalt overlay	\$10,023
NA	2022	System Preservation	MDOT	I-94 E	West of M-51 to 40th Street	Hot mix asphalt overlay	\$6,579

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
NA	2022	Traffic Safety	MDOT	TSC Wide	Various locations	Signing replacement	\$469
NA	2022	Traffic Safety	MDOT	M-40	Village of Lawton on M-40 between 1st and 4th Streets	Pedestrian safety improvements	\$427
NA	2022	System Preservation	All Agencies	Various	Various locations	System Preservation	\$8,449
NA	2022	System Preservation	MDOT	US-131	South Village of Schoolcraft limit north to north of U Avenue	Milling with multicourse overlay and ASCRL	\$34,680
Subtotal	2022	Road Projects					\$76,998
20	2022	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$825
20	2022	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$131
20	2022	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$108
20	2022	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$294
20	2022	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$60
20	2022	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$200
14	2022	Public Transportation	Metro	Mobility Management		Service Support	\$50
12	2022	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$151
9	2022	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$38
9	2022	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$14,900
8	2022	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$725
Subtotal	2022	Public Transportation					\$17,482
Total	2022	Road Projects and Public Transportation					\$94,480

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
23	2023	Reconstruct	City of Portage	Shaver Road	South City limits to Vanderbilt Avenue	Mill and resurface to include water main replacement, addition of median island boulevards, sidewalk upgrades and landscaping improvements.	\$2,530
17	2023	System Preservation	City of Kalamazoo	Westnedge Avenue	Howard Street to Cork/Whites	Resurface roadway with mill and repave in conjunction with water and wastewater work.	\$1,361
NA	2023	System Preservation	Road Commission of Kalamazoo County	Douglas Avenue	City of Kalamazoo limits to G Avenue	Resurface	\$306
NA	2023	Bridge	Road Commission of Kalamazoo County	N Sprinkle Road	North Sprinkle Road over Spring Brook	Bridge rehabilitation	\$172
NA	2023	System Preservation	City of Portage	Portage Road	Portage Road	Resurface	\$1,815
NA	2023	New Facilities	City of Kalamazoo	S Drake Road	Stadium Drive to KL Avenue	Construct shared-use pathway	\$362
NA	2023	System Preservation	Road Commission of Kalamazoo County	S 36th Street	T Avenue to PQ Avenue	Resurface	\$629
NA	2023	Capacity	MDOT	M-343	Gull Road at Sprinkle Road	Construct dual left turn lanes	\$1,635
NA	2023	Traffic Safety	MDOT	Countywide	Kalamazoo County	Non-freeway signing	\$975
NA	2023	Traffic Safety	MDOT	Regionwide	Various Locations	Modernizing signalized intersection to current standards	\$1,210
NA	2023	ITS Applications	MDOT	I-94 E	I-94, US-131 existing DMS	Install seventeen CCTV cameras on existing DMS	\$121
NA	2023	System Preservation	All Agencies	Various	Various Locations	System Preservation	\$2,263
NA	2023	Bridge	MDOT	US-131	Over Amtrak and KL Avenue	Bridge replacement	\$11,300
<b>Subtotal</b>	<b>2023</b>	<b>Road Projects</b>					<b>\$24,679</b>
20	2023	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$825
20	2023	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$181
20	2023	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$300
20	2023	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$200

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
14	2023	Public Transportation	Metro	Mobility Management		Service Support	\$55
12	2023	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$154
9	2023	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$38
9	2023	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$14,900
8	2023	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$1,312
Subtotal	2023	Public Transportation					\$17,965
Total	2023	Road Projects and Public Transportation					\$42,644

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
19	2024	Traffic Safety	MDOT	Regionwide	All KATS MPO	Longitudinal pavement marking application on trunklines.	\$ 2,377
19	2024	Traffic Safety	MDOT	Regionwide	All KATS MPO	Special pavement marking application on trunklines	\$ 499
19	2024	Traffic Safety	MDOT	Regionwide	All KATS MPO	Special pavement marking application on trunklines	\$ 499
19	2024	Traffic Safety	MDOT	Regionwide	All KATS MPO	Pavement marking retroreflectivity readings on trunklines	\$ 12
19	2024	Capacity	MDOT	I-94 West/US-131 North Ramp	I-94 Westbound ramp to US-131 Northbound	Widening for additional ramp lane.	\$ 10,898
15	2024	Traffic Safety	MDOT	M-43	At various intersections	Modernizing signalized intersection to current standards	\$ 5,387
17	2024	System Preservation	MDOT	I-94 West	Westnedge and 12th Street	Diamond grinding concrete pavement	\$ 987
33	2024	Reconstruct	City of Portage	Portage Road	Romence Road to Fairfield Road	Mill and resurface to include water main replacement, median island boulevards, ADA sidewalk upgrades and landscaping improvements.	\$3,767
29	2024	Capacity	City of Kalamazoo	Michigan Avenue	Main/Douglas to E Michigan Avenue	Change from one-way to two-way roadway. Provide multi-modal transportation in either discretion and adding additional bike and pedestrian facilities.	\$212
26	2024	Capacity	MDOT	M-43	West Main between 10th Street and Drake Road	Widening for turn lanes, intersection and interchange ramp improvements.	\$7,980
19	2024	Reconstruct	City of Portage	South Westnedge Avenue	Melody Avenue to West Centre Avenue	Mill and resurface to include traffic signal replacement at South Westnedge Avenue and West Centre Avenue.	\$1,167
19	2024	Traffic Safety	MDOT	Regionwide	All of KATS MPO	Longitudinal pavement marking application on trunklines.	\$1,069
NA	2024	System Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$801
Subtotal	2024	Road Projects					\$35,654
20	2024	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$841
20	2024	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$300

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
20	2024	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$300
20	2024	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$306
20	2024	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$200
20	2024	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$204
14	2024	Public Transportation	Metro	Mobility Management		Service Support	\$56
14	2024	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$50
12	2024	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$157
11	2024	Public Transportation	Metro	Bus Shelters		Fixed Facility	\$50
11	2024	Public Transportation	Metro	Security		Other - Security Updates	\$150
9	2024	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$38
9	2024	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$15,198
9	2024	Public Transportation	Metro	ITS		Other - ITS	\$97
Subtotal	2024	Public Transportation					\$17,947
Total	2024	Road Projects and Public Transportation					\$53,601

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
34	2025	Capacity	City of Portage	Portage Road	Lakeview Drive to East Centre Avenue	Reduce from 5 lanes to 3 lanes. Project includes upgrading/extending sidewalks, increasing non-motorized transportation, constructing a dedicated left turn lane and addition of boulevards in the median, and landscape improvements.	\$7,036
19	2025	Traffic Safety	MDOT	Regionwide	All KATS MPO	Longitudinal pavement marking application on trunklines.	\$ 2,425
19	2025	Traffic Safety	MDOT	Regionwide	All KATS MPO	Longitudinal pavement marking application on trunklines.	\$ 2,425
19	2025	Traffic Safety	MDOT	Regionwide	All KATS MPO	Special pavement marking application on trunklines	\$ 509
19	2025	Traffic Safety	MDOT	Regionwide	All KATS MPO	Special pavement marking application on trunklines	\$ 509
19	2025	Traffic Safety	MDOT	Regionwide	All KATS MPO	Pavement marking retroreflectivity readings on trunklines	\$ 12
26	2025	Capacity	MDOT	M-43	West Main between 10th Street and Drake Road	Widening for turn lanes, intersection and interchange ramp improvements	\$7,595
NA	2025	System Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$10,143
<b>Subtotal</b>	<b>2025</b>	<b>Road Projects</b>					<b>\$30,653</b>
20	2025	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$858
20	2025	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$315
20	2025	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$315
20	2025	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$312
20	2025	Public Transportation	Metro	Vehicle Replacement		CMAQ Vehicle Replacement	\$200
20	2025	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$208
14	2025	Public Transportation	Metro	Mobility Management		Service Support	\$57
12	2025	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$50
12	2025	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$160



Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s	
11	2025	Public Transportation	Metro	Security		Other - Security Updates	\$100	
9	2025	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$39	
9	2025	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$15,500	
Subtotal	2025	Public Transportation						\$18,114
Road Projects and Public Transportation								
Total	2025	Public Transportation						\$48,767

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
34	2026-2030	Capacity	City of Kalamazoo	Kalamazoo Avenue	Main/Douglas to E. Michigan Avenue	Change from one-way roadway to two-way. Provide multi-modal transportation in either direction and adding additional bike and pedestrian facilities.	\$2,252
25	2026-2030	Capacity	City of Kalamazoo	Lovell Street	Eldred Street to Portage Street	Change from one-way roadway to two-way. Provide multi-modal transportation in either direction and adding additional bike and pedestrian facilities.	\$883
24	2026-2030	Capacity	City of Kalamazoo	Howard Street	Crosstown to Oakland Drive	Resurfacing and road diet to convert 4 lanes to 3 lanes with addition of center median island to provide safe school crossings.	\$1,021
24	2026-2030	Roadside Facility	City of Kalamazoo	Douglas Street	North to Patterson Avenue	Signal interconnect and upgrades.	\$424
22	2026-2030	Capacity	City of Kalamazoo	South Street	Michigan Avenue to Portage Street	Change from one-way roadway to two-way. Provide multi-modal transportation in either direction and adding additional bike and pedestrian facilities.	\$804
22	2026-2030	Capacity	City of Kalamazoo	Gull Road	Ampersee to North	Resurfacing and road diet to convert 4 lanes to 3 lanes with the addition of bike lanes.	\$752
21	2026-2030	Bridge	MDOT	M-96	M-96 over Kalamazoo River	Deep overlay, full depth patching, railing replacement, partial paint.	\$3,051
20	2026-2030	Roadside Facility	City of Kalamazoo	Oakland Drive	Kilgore Road to Lovell Street	Signal interconnect and upgrades.	\$1,292
18	2026-2030	Roadside Facility	City of Portage	Miller Road	River Street to Portage Road	Signal interconnect and upgrades.	\$1,990
17	2026-2030	System Preservation	City of Kalamazoo	E Michigan and Riverview Drive	Harrison Street to Gull road	Mill and repave in conjunction with water and wastewater work.	\$781
17	2026-2030	System Preservation	City of Kalamazoo	Park Street	One way split at Betsy Ann Place to Michigan Avenue	Mill and repave in conjunction with water and wastewater work.	\$1,436
13	2026-2030	Capacity	City of Kalamazoo	Michikal Avenue	Main Street/Michigan Avenue to Kalamazoo Avenue	Remove roadway following two-way road conversion of Kalamazoo Avenue and Michigan Avenue	\$598

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
NA	2026-2030	Capacity System	Road Commission of Kalamazoo County	Q Avenue	Percheron Street to 12th Street	Widen from 2 to 3 lanes	\$2,727
NA	2026-2030	Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$149,300
Subtotal	2026-2030	Road Projects					\$164,584
20	2026-2030	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,200
20	2026-2030	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$2,500
20	2026-2030	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$2,500
20	2026-2030	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,200
20	2026-2030	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$200
20	2026-2030	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$1,040
14	2026-2030	Public Transportation	Metro	Mobility Management		Service Support	\$286
14	2026-2030	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$257
12	2026-2030	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$9,200
11	2026-2030	Public Transportation	Metro	Bus Shelters		Fixed Facility	\$150
11	2026-2030	Public Transportation	Metro	Security		Other - Security Updates	\$250
9	2026-2030	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$197
9	2026-2030	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$60,948
Subtotal	2026-2030	Public Transportation					\$95,928
Total	2026-2030	Road Projects and Public Transportation					\$260,512

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
40	2031-2035	Capacity	City of Portage	South Westnedge Avenue	Milham Avenue to Romence Road	Widen northbound lanes from 2 to 3 lanes. Includes milling and resurfacing and replacement of sidewalks on east side of road to accommodate widening.	\$4,585
34	2031-2035	Capacity	City of Portage	Oakland Drive	I-94 to Kilgore Road	Widen from 4 to 5 lanes for the additions of dedicated left turn lane and bike lanes. Bridge over the west fork of Portage Creek will need to be reconstructed to accommodate the wider road section.	\$2,837
32	2031-2035	Capacity	City of Portage	Shaver Road	Vanderbilt Avenue to South City Limits	Widen from 2 and 3 lanes to 4 lane boulevard or 5 lanes. Will include bike trails and sidewalks.	\$4,750
27	2031-2035	Capacity	City of Portage	Portage Road	Lakeview Drive to East Osterhout Avenue	Widen from 3 to 5 lanes to accommodate bike lanes on both side of the roadway.	\$2,401
27	2031-2035	Capacity	City of Portage	Romence Road	Portage Road to Sprinkle Road	Widen form 2 and 3 lanes to 4 lane boulevard. Will include bike lanes.	\$2,401
24	2031-2035	Capacity	City of Portage	Osterhout Avenue	Shaver Road to Portage Road	Widen from 2 to 3 lanes to widen existing bike lanes on both sides of the roadway and install sidewalk on the north side. The culvert crossing for Sugarloaf Drian will be replaced.	\$3,299
24	2031-2035	Capacity	City of Portage	Vanderbilt Avenue	Oakland Drive to Shaver Road	Widen from 2 to 3 lanes to accommodate bike lanes on both sides of the roadway. Provide dedicated left turn lane into adjacent properties and intersections.	\$581
24	2031-2035	Preventative Maintenance	City of Kalamazoo	Paterson Street	Riverview Drive to Porter Street	Road diet to convert 4 lanes to 3 lanes and add bike lanes.	\$658
18	2031-2035	Roadside Facility	City of Kalamazoo	Burdick Street	Reed and Burdick Intersection	Signal interconnect and upgrades	\$219
18	2031-2035	Roadside Facility	City of Kalamazoo	Paterson Street	Riverview Drive to Douglas	Signal interconnect and upgrades	\$1,252

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
18	2031-2035	Roadside Facility	City of Kalamazoo	Rose Street	Crosstown to Paterson Street	Signal interconnect and upgrades	\$2,415
18	2031-2035	Roadside Facility	City of Kalamazoo	Burdick Street	North and Burdick Intersection	Signal interconnect and upgrades	\$434
NA	2031-2035	Capacity System	Road Commission of Kalamazoo County	12th Street	Q Avenue to Texas Drive	Widen from 2 to 3 lanes	\$3,450
NA	2031-2035	Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$166,214
Subtotal	2031-2035	Road Projects					\$195,497
18	2031-2035	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,384
18	2031-2035	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$2,750
18	2031-2035	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$2,750
18	2031-2035	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,384
18	2031-2035	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$200
18	2031-2035	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$1,061
13	2031-2035	Public Transportation	Metro	Equipment		Vehicle Replacement	\$50
12	2031-2035	Public Transportation	Metro	Mobility Management		Service Support	\$291
12	2031-2035	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$257
10	2031-2035	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$9,384
9	2031-2035	Public Transportation	Metro	Bus Shelters		Fixed Facility	\$175
9	2031-2035	Public Transportation	Metro	Security		Other - Security Updates	\$262
7	2031-2035	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$201
7	2031-2035	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$69,765
Subtotal	2031-2035	Public Transportation					\$105,914
Total	2031-2035	Road Projects and Public Transportation					\$301,411

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
24	2036-2040	Capacity	City of Kalamazoo	Burdick Street	Cork Street to Kilgore Road	Road widening to provide additional width for bike lanes and traffic flow.	\$4,660
NA	2036-2040	Capacity	Road Commission of Kalamazoo County	KL Avenue	9th Street to 11th Street	Widen from 2 to 3 lanes	\$2,059
NA	2036-2040	System Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$224,874
Subtotal	2036-2040	Road Projects					\$231,594
18	2036-2040	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,571
18	2036-2040	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$3,025
18	2036-2040	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$3,025
18	2036-2040	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$200
18	2036-2040	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$1,082
12	2036-2040	Public Transportation	Metro	Mobility Management		Service Support	\$297
12	2036-2040	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$257
10	2036-2040	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$9,571
9	2036-2040	Public Transportation	Metro	Bus Shelters		Fixed Facility	\$500
9	2036-2040	Public Transportation	Metro	Security		Other - Security Updates	\$275
7	2036-2040	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$205
7	2036-2040	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$88,957
Subtotal	2036-2040	Public Transportation					\$116,965
Total	2036-2040	Road Projects and Public Transportation					\$348,559

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
NA	2041-2045	System Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$265,543
NA	2041-2045	Capacity	Road Commission of Kalamazoo County	S. Sprinkle Road	Long Lake Drive to S Avenue	Widen from 2 to 3 lanes	\$2,600
<b>Subtotal</b>	<b>2041-2045</b>	<b>Road Projects</b>					<b>\$268,143</b>
18	2041-2045	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,763
18	2041-2045	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$3,327
18	2041-2045	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$3,327
18	2041-2045	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,763
18	2041-2045	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$200
18	2041-2045	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$1,104
13	2041-2045	Public Transportation	Metro	Equipment		Vehicle Replacement	\$50
12	2041-2045	Public Transportation	Metro	Mobility Management		Service Support	\$303
12	2041-2045	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$257
10	2041-2045	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$9,763
9	2041-2045	Public Transportation	Metro	Bus Shelters		Fixed Facility	\$200
9	2041-2045	Public Transportation	Metro	Security		Other - Security Updates	\$289
7	2041-2045	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$209
7	2041-2045	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$90,636
<b>Subtotal</b>	<b>2041-2045</b>	<b>Public Transportation</b>					<b>\$129,191</b>
<b>Total</b>	<b>2041-2045</b>	<b>Road Projects and Public Transportation</b>					<b>\$397,334</b>

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
NA	2046-2050	System Preservation	All Agencies	Regionwide	All KATS MPO	System Preservation	\$309,367
NA	2046-2050	Capacity	Road Commission of Kalamazoo County	Stadium Drive	4th Street to 6th Street	Widen from 2 to 3 lanes	\$2,330
<b>Subtotal</b>	<b>2046-2050</b>	<b>Road Projects</b>					<b>\$311,697</b>
18	2046-2050	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,958
18	2046-2050	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$3,660
18	2046-2050	Public Transportation	Metro	Vehicle Replacement		Connect and Share Vehicle Replacement	\$3,660
18	2046-2050	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,571
18	2046-2050	Public Transportation	Metro	Vehicle Replacement		Fixed Route Vehicle Replacement	\$9,958
18	2046-2050	Public Transportation	Metro	Vehicle Replacement		CMAQ Van Replacement	\$200
18	2046-2050	Public Transportation	Metro	Mobility Management		Van Vehicle Replacement	\$1,126
12	2046-2050	Public Transportation	Metro	Mobility Management		Service Support	\$309
12	2046-2050	Public Transportation	Metro	Community Ridesharing		Ride to Work - Service Support	\$257
10	2046-2050	Public Transportation	Metro	Vehicle Replacement		Maintenance Improvements	\$9,958
9	2046-2050	Public Transportation	Metro	Bus Shelters		Fixed Facility	\$250
9	2046-2050	Public Transportation	Metro	Security		Other - Security Updates	\$303
7	2046-2050	Public Transportation	Metro	Operating Assistance		Rural Demand Response - Service Support	\$213
7	2046-2050	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$93,270
<b>Subtotal</b>	<b>2046-2050</b>	<b>Public Transportation</b>					<b>\$142,693</b>
<b>Total</b>	<b>2046-2050</b>	<b>Road Projects and Public Transportation</b>					<b>\$454,390</b>
<b>Grand Total</b>	<b>2020-2050</b>	<b>Road Projects and Public Transportation</b>					<b>\$2,208,042</b>



# Illustrative Projects

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
18	2020	System Preservation	City of Kalamazoo	Howard Street	Stadium to Oakland	Resurface	\$1,357
14	2020	System Preservation	Van Buren County Road Commission	CR 653	Red Arrow Highway to I-94	Resurface	\$275
15	2020	System Preservation	City of Kalamazoo	Oakland Drive	Parkview to Howard	Resurface	\$1,360
19	2020	System Preservation	City of Portage	Westnedge Avenue	Shaver Road to Romence Road	Resurface	\$3,415
10	2020	System Preservation	City of Portage	South Westnedge Avenue	Kilgore to Tradecenter Way	Resurface	\$750
26	2021	System Preservation	City of Kalamazoo	Portage Street	Stockbridge Avenue to Portage/Pitcher Connection	Road diet and resurface in conjunction with water and wastewater work. Bicycle lanes and sidewalks.	\$390
11	2021	System Preservation	City of Kalamazoo	Emerald Street	Cork Street to Miller Street	Resurface with mill and repave with water and wastewater work.	\$450
11	2021	System Preservation	City of Kalamazoo	Water Street	Westnedge Avenue to Rose Street	Resurface with mill and repave along the road section.	\$150
14	2021	System Preservation	City of Kalamazoo	Stockbridge Avenue	Crosstown to Portage	Resurface with mill and repave along the road section.	\$500
14	2021	System Preservation	City of Kalamazoo	Miller Road	Portage to Emerald	Resurface with mill and repave and improve sidewalk along the road section.	\$500
14	2021	System Preservation	City of Kalamazoo	Covington Road	Manchester Road to Sprinkle Road	Resurface with mill and repave along the road section.	\$200
16	2021	System Preservation	City of Kalamazoo	Bank Street	Lake Street to Stockbridge Avenue	Resurface with mill and repave with water and wastewater work.	\$587
18	2021	System Preservation	City of Kalamazoo	Parkview Avenue	Oakland to Greenleaf	Resurface with mill and repave with water and wastewater work.	\$1,180
24	2021	System Preservation	City of Kalamazoo	Rose Street	Cedar to Kalamazoo Avenue	Narrowing road to one lane in either direction and adding additional bike and pedestrian facilities.	\$300
31	2026-2030	Capacity	MDOT	US-131 Business Route Interchange	NB US-131 Ramp to EB US-131 Business Route	Install northbound US-131 to eastbound business route ramp.	\$21,173
14	2022	System Preservation	City of Kalamazoo	VanRick Drive	Covington to Sprinkle Road	Resurface with mill and repave with water and wastewater work done cooperatively.	\$ 102

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
13	2022	Bridge	City of Kalamazoo	Paterson Bridge	575' east of Harrison Street to 145' west of Riverview Drive	Rehabilitation of surface deck and substructure and preservation of superstructure.	\$ 3,876
11	2022	System Preservation	City of Kalamazoo	Miller Road	Emerald Drive to Sprinkle Road	Resurface with mill and repave and improve sidewalk.	\$ 510
14	2022	System Preservation	City of Kalamazoo	Angling Road Culvert	Angling Road north to driveway	Rebuild culvert and drainage of the roadway.	\$75
14	2022	System Preservation	City of Kalamazoo	Ransom Street	Burdick to Walbridge	Resurface with mill and repave in conjunction with water and wastewater work.	\$1,306
14	2022	System Preservation	City of Kalamazoo	Porter Street	Frank to Paterson	Resurface with mill and repave in conjunction with water and wastewater work.	\$128
16	2022	System Preservation	City of Kalamazoo	Oakland Drive	Kilgore Road to Parkview Avenue	Resurface with mill and repave in conjunction with water and wastewater work.	\$510
16	2022	System Preservation	City of Kalamazoo	Drake Road	Parkview Avenue to Stadium Drive	Resurface with mill and repave.	\$510
16	2022	System Preservation	City of Kalamazoo	Portage Street	Kilgore Road to Cork Street	Resurface with mill and repave in conjunction with water and wastewater work.	\$765
17	2022	System Preservation	City of Kalamazoo	Portage Street	Cork Street to Stockbridge Avenue	Resurface with mill and repave in conjunction with water and wastewater work.	\$357
17	2022	System Preservation	City of Kalamazoo	Stadium Drive	Rambling Road to Lovell	conjunction with water and wastewater rehab work.	\$2,412
20	2022	Reconstruct	City of Portage	Cooley Drive	W. Centre Avenue to Old Centre Avenue	Realignment of Cooley Drive at Old Centre Avenue, curb and gutter and sidewalk improvements.	\$546
22	2022	Reconstruct	City of Portage	Romence Road	Angling Road to Oakland Drive	Mill and resurface to include ADA sidewalk upgrades and landscaping improvements.	\$1,122
22	2022	Reconstruct	City of Portage	Lovers Lane	East Milham Avenue to Kilgore Road	Mill and resurface including sanitary sewer extension, water main replacement, ADA sidewalk upgrades, and landscaping.	\$1,428

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
26	2022	Reconstruct	City of Portage	Meredith Street	East Milham Avenue to Sprinkle Road	Reconstructing to include water main replacement, traffic calming, new curb and gutter, and sidewalk.	\$1,836
30	2022	System Preservation	City of Portage	South Westnedge Avenue	Mall Drive to Trade Centre Way	Microsurfacing including sidewalk and landscaping improvements.	\$255
33	2022	Capacity	City of Portage	Portage Road	Wetherbee Avenue to Lakeview Drive	Reduce road from 5 lanes to 3 lanes including upgrading/extending sidewalks, adding bike lanes and adding a dedicated left turn lane.	\$2,550
9	2023	Bridge	City of Kalamazoo	Inkster Bridge	100' east of Westchester Lane and 146' west of Plymouth Lane	Total bridge replacement.	\$ 2,081
13	2023	Bridge	City of Kalamazoo	Crosstown Bridge	NE of Jasper Street and SW of East Vine Street	Rehabilitation of bridge decking and substructure	\$12
14	2023	System Preservation	City of Kalamazoo	Walbridge Street	Kalamazoo Avenue to Paterson	Resurface with mill and repave in conjunction with water and wastewater work.	\$260
14	2023	System Preservation	City of Kalamazoo	Kilgore Road	Oakland Drive to Duke	Resurface with mill and repave in conjunction with water and wastewater work.	\$624
16	2023	System Preservation	City of Kalamazoo	Cork Street	Westnedge Avenue to Burdick Street	Resurface with mill and repave in conjunction with water and wastewater work.	\$312
16	2023	System Preservation	City of Kalamazoo	Ransom Street	Westnedge Avenue to Burdick Street	Resurface with mill and repave in conjunction with water and wastewater work.	\$312
16	2023	System Preservation	City of Kalamazoo	Whites Road	Oakland Drive to Westnedge Avenue	conjunction with wastewater and water work.	\$1,561
17	2023	Reconstruct	City of Portage	Angling Road	Romence Road to West Milham Avenue	Mill and resurface.	\$832
17	2023	System Preservation	City of Kalamazoo	Westnedge Avenue	Howard Street to Michigan Avenue	Resurface roadway with mill and repave in conjunction with water and wastewater work.	\$499

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
18	2023	Reconstruct	City of Portage	South Westnedge Avenue	Osterhout Avenue to South Shore Drive	Mill and resurface including sanitary sewer foremain replacement, sidewalk and bike lane improvements and landscaping.	\$874
20	2023	Reconstruct	City of Portage	Moorsbridge Road	West Centre Avenue to Romence Road	Mill and resurface to include pedestrian crossing enhancements at entrance to Portage West Middle School and ADA sidewalk upgrades and landscaping improvements.	\$1,222
34	2023	Reconstruct	City of Portage	Portage Road	East Centre Avenue to Romence Road	Mill and resurface, traffic signal replacement, addition of median island boulevards and landscaping improvements.	\$1,977
17	2024	Reconstruct	City of Portage	Garden Lane	South Westnedge Avenue to Lovers Lane	Mill and resurface to include curb and gutter, non-motorized transportation upgrades and landscaping improvements.	\$ 849
34	2046-2050	Capacity	City of Portage	Newport Avenue	Gladys Street to Romence Road Parkway	New 4 lane boulevard to extend Newport Avenue. Will include bike lanes on both sides of the road and sidewalks along the east side.	\$9,767
34	2046-2050	Capacity	City of Portage	South Westnedge Avenue	Dawnlee Avenue to West Milham Avenue	Widen northbound lanes from 2 to 3 lane boulevard. Includes mill and resurface of southbound lanes, replacing sidewalk on the west side.	\$2,664
32	2046-2050	Capacity	City of Portage	Oakland Drive	Shaver Road to Centre Avenue	Widen from 2 to 4 lane boulevard with dedicated left turn lane, bike lanes on both sides, and extending sidewalks where needed.	\$8,879

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
29	2046-2050	Capacity	City of Portage	Kilgore Road	South Westnedge Avenue to Lovers Lane	Widen from 4 to 5 lanes, including the addition of one lane for eastbound traffic and replacement of sidewalks.	\$2,486
29	2046-2050	Capacity	City of Portage	South Westnedge Avenue	Kilgore Road to Trade Centre Way	Widen from 5 to 6 lane boulevard. Includes replacing and extending sidewalks.	\$6,393
24	2046-2050	Capacity	City of Portage	Schuring Road	Oakland Drive to South Westnedge Avenue	Widen from 2 to 3 lanes to accommodate for dedicated left turn lane and bike lanes on both sides of the road.	\$2,003
24	2046-2050	Capacity	City of Portage	Bacon Avenue	South Westnedge Avenue to Portage Road	Widen from 2 to 3 lanes to accommodate for dedicated left turn lane and bike lanes on both sides of the road.	\$1,776
39	2031-2035	Capacity	City of Portage	South Westnedge Avenue/Shaver Road	Romence Road to West centre Avenue	Widen from 5 to 7 lanes. Upgrades to sidewalks included.	\$6,344
14	2024	System Preservation	City of Kalamazoo	Reed Street	Portage Road to Fulford	Resurface with mill and repave with water and wastewater work done cooperatively.	\$ 106
14	2024	Reconstruct	City of Kalamazoo	Maple Street	Streamns to Crosstown	Reconstruct with water and wastewater work done to include culvert and pedestrian areas.	\$ 616
14	2024	Reconstruct	City of Portage	Vanderbilt Avenue	Oakland Drive to Hampton Creek	Mill and resurface.	\$ 584
9	2024	Public Transportation	Metro	Equipment		Service Support	\$ 2,500
8	2024	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 250
8	2024	Public Transportation	Metro	Equipment		Fixed Facility	\$ 215
6	2024	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 200
25	2025	Reconstruct	City of Portage	West Milham Avenue	12th Street to Oakland Drive	Mill and resurface including sidewalk improvements and landscaping enhancements	\$ 1,840
20	2025	Reconstruct	City of Portage	Romence Road	Constitution Boulevard to South Westnedge Avenue	Mill and resurface including sidewalk improvements and landscaping enhancements	\$ 942

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
18	2025	System Preservation	City of Kalamazoo	Howard Street	Stadium Drive to Michigan Avenue	Placement of non-motorized pathway occurring in 2021 to be followed by resurfacing of the roadway in 2025.	\$ 641
14	2025	System Preservation	City of Kalamazoo	Lovell Street	Burrows to Eldred	Resurface with mill and repave with water and wastewater work done cooperatively.	\$ 108
14	2025	Reconstruct	City of Portage	Oakland Drive	Shaver Road to Katie Court	Mill and resurface.	\$ 649
9	2025	Public Transportation	Metro	Equipment		Service Support	\$ 2,500
8	2025	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 250
8	2025	Public Transportation	Metro	Equipment		Fixed Facility	\$ 215
6	2025	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 200
15	2026-2030	Public Transportation	Metro	Vehicle Expansion		Fixed Route Vehicle Expansion	\$ 2,250
14	2026-2030	Public Transportation	Metro	Facilities		Secondary Transportation Hubs - Service Support	\$ 3,000
9	2026-2030	Public Transportation	Metro	ITS		Other - ITS	\$ 1,250
8	2026-2030	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 2,000
8	2026-2030	Public Transportation	Metro	Equipment		Fixed Facility	\$ 1,075
6	2026-2030	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 1,000
13	2031-2035	Public Transportation	Metro	Vehicle Expansion		Fixed Route Vehicle Expansion	\$ 2,475
12	2031-2035	Public Transportation	Metro	Facilities		Secondary Transportation Hubs - Service Support	\$ 1,500
11	2031-2035	Public Transportation	Metro	ITS		Other - ITS	\$ 3,500
6	2031-2035	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 2,200
6	2031-2035	Public Transportation	Metro	Equipment		Fixed Facility	\$ 1,075
4	2031-2035	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 1,050
13	2036-2040	Public Transportation	Metro	Vehicle Expansion		Fixed Route Vehicle Expansion	\$ 2,722
7	2036-2040	Public Transportation	Metro	ITS		Other - ITS	\$ 1,500
6	2036-2040	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 2,420
6	2036-2040	Public Transportation	Metro	Equipment		Fixed Facility	\$ 1,075

Score	Year	Project Type	Agency	Road	Limits	Description	Cost Year of Expenditure 1,000s
4	2036-2040	Public Transportation	Metro	Facility Renovation		Fixed Facility - Rehab and Expansion	\$ 8,000
4	2036-2040	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 1,102
13	2041-2045	Public Transportation	Metro	Vehicle Expansion		Fixed Route Vehicle Expansion	\$ 2,994
11	2041-2045	Public Transportation	Metro	Service Expansion		Fixed Facility - BRT Planning/Construction	\$ 20,000
7	2041-2045	Public Transportation	Metro	ITS		Other - ITS	\$ 1,800
6	2041-2045	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 2,662
6	2041-2045	Public Transportation	Metro	Equipment		Fixed Facility	\$ 1,075
4	2041-2045	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 1,157
12	2046-2050	Public Transportation	Metro	Operating Assistance		BRT Operating - Service Support	\$ 10,000
13	2046-2050	Public Transportation	Metro	Vehicle Expansion		Fixed Route Vehicle Expansion	\$ 3,294
7	2046-2050	Public Transportation	Metro	Operating Assistance		Operating - Service Support	\$ 113,482
7	2046-2050	Public Transportation	Metro	ITS		Other - ITS	\$ 2,160
6	2046-2050	Public Transportation	Metro	Equipment		Service Support	\$ 4,000
6	2046-2050	Public Transportation	Metro	Facility Renovation		Fixed Facility	\$ 2,928
6	2046-2050	Public Transportation	Metro	Equipment		Fixed Facility	\$ 1,075
4	2046-2050	Public Transportation	Metro	Equipment		Other - Bus Parts	\$ 1,215
Total	2022-2050	Road Projects and Public Transportation					\$ 288,868

# APPENDIX H: TRAVEL DEMAND MODEL TECHNICAL DOCUMENTATION

## **KATS Travel Model**

*2016 Base Year Update*

*prepared for*

**KATS**

*prepared by*

**Cambridge Systematics, Inc.**



*technical report*

# KATS Travel Model

*2016 Base Year Update*

*prepared for*

**KATS**

*prepared by*

**Cambridge Systematics, Inc.**  
115 South LaSalle Street, Suite 2200  
Chicago, IL 60603

*date*

**July 6, 2021**

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# 1.0 Introduction

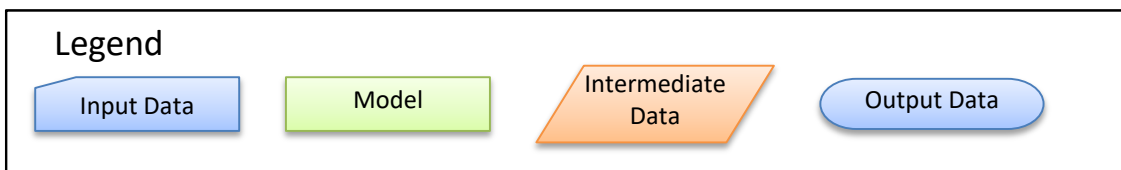
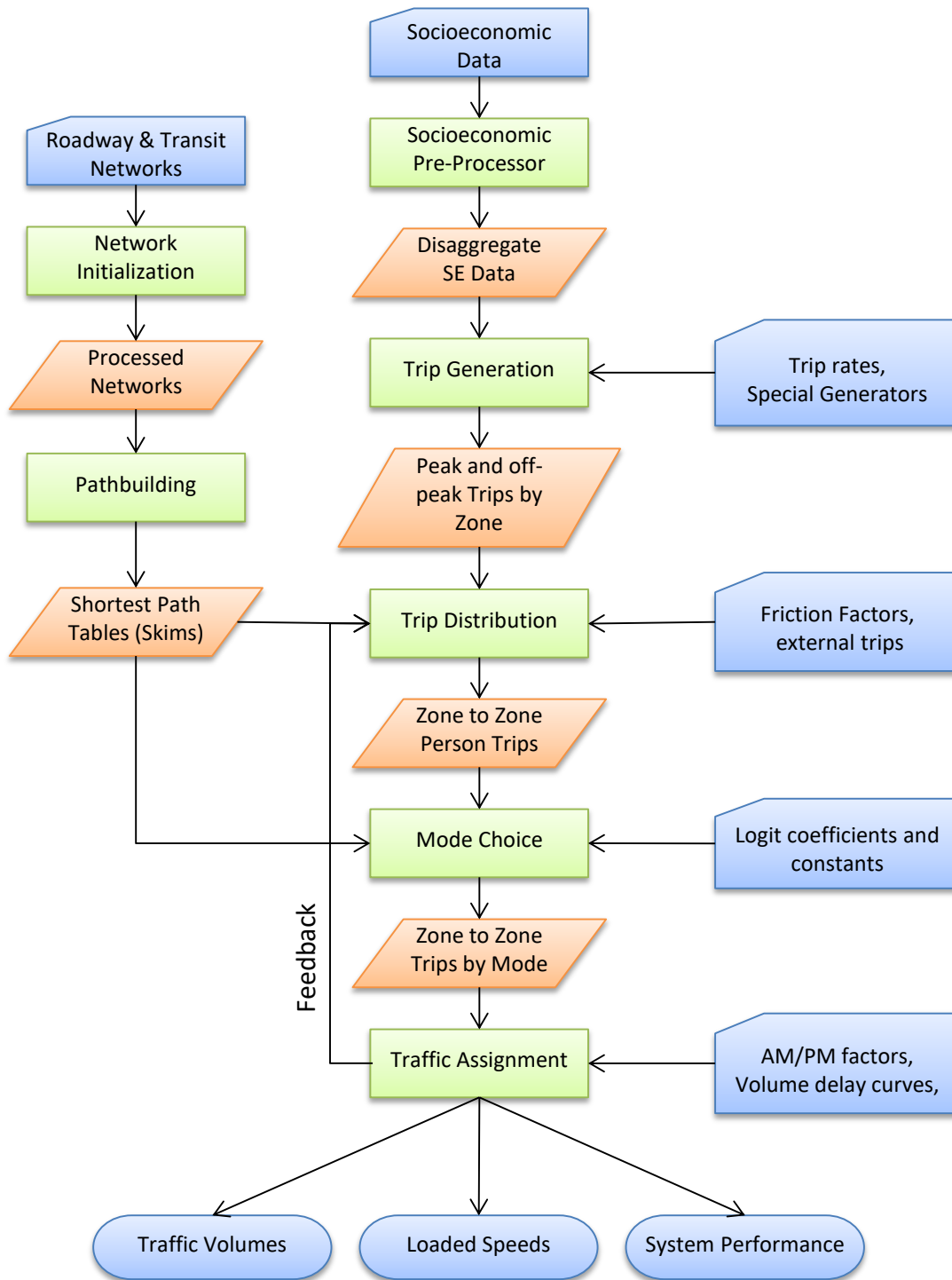
The Kalamazoo Area Transportation Study and member jurisdictions use the KATS Regional Travel Model (KATS Model) as a tool to forecast traffic and travel in Kalamazoo County and a portion of Van Buren County. The primary purpose of the travel model is to support the long range transportation plan (LRTP). In addition, the model can support evaluation of proposed roadway projects, help evaluate potential impacts of proposed development projects, and support various other studies of the region, subareas, corridors, and other planning activities.

The model was originally developed with a 2010 base year and has been updated and recalibrated to reflect a base year of 2016. The model is regularly kept up to date by KATS to reflect current conditions and the most recent available data. This memo describes the changes to the model to create the 2016 model base year. Major aspects of this update include:

- Use of the MI Travel Counts household travel survey to develop new trip generation rates and mode share and trip distribution calibration targets.
- Updates to the transit and roadway networks to reflect changes between 2010 and 2016.
- Use of 2016 socioeconomic data from the Census American Community Survey (ACS).
- Incorporation of traffic counts representing the 2016 base year.
- Calibration of model components.
- Validation to 2016 traffic counts and transit boarding data.

The KATS Model process and functions are shown in the model flow diagram in **Figure 1.1**. It is an adaptation of the standard 4-step modeling process that has dominated travel models in small and medium-sized communities in the U.S. for several decades.

Figure 1.1 Model Flow Chart



## 2.0 Network Updates

The roadway network is based on version 11a of the Michigan Geographic Framework (MGF), which represents 2010 conditions. The roadway network has been modified to represent changes between 2010 and 2016.

The KATS model utilizes a master network structure that allows maintenance of attributes representing different years and scenarios within a single file. Input network attributes used by the travel model include facility type, area type, number of lanes, speed limit, and direction of flow. Values for these attributes were populated on the roadway network file for the year 2010 in the prior update. New columns were added for each attribute for the 2016 base year. As the vast majority of roadways had the same conditions in 2010 and 2016, the columns are mostly identical between the years. Changes were made as directed by KATS and MDOT staff based on the changes to roadways.

### 2.1 Traffic Counts

KATS maintains an online traffic count database that served as the source of traffic count data for non-state roadways. The database contains latitude and longitude coordinates for each traffic count, as well as 24-hour traffic count data. A subset of the data features volumes by 15-minute increments. This database was joined to the roadway network using the geographic coordinates corresponding to each count location. MDOT also provided traffic count data for state facilities. This information was provided as a data table that included network link IDs. Between these two sources, traffic count values were matched to 741 links as summarized by facility type and area type in **Table 2.1**.

**Table 2.1 Summary of Traffic Counts**

	<b>CBD</b>	<b>Urban</b>	<b>Suburban</b>	<b>Fringe</b>	<b>Rural</b>	<b>Total</b>
<b>Freeway</b>	0	0	16	0	10	<b>26</b>
<b>Expressway</b>	0	0	2	0	2	<b>4</b>
<b>Principal Arterial</b>	4	41	94	0	3	<b>142</b>
<b>Minor Arterial</b>	10	45	154	0	68	<b>277</b>
<b>Collector</b>	3	15	83	0	107	<b>208</b>
<b>Minor Collector</b>	0	2	6	0	9	<b>17</b>
<b>Ramp</b>	0	4	36	0	15	<b>55</b>
<b>Fwy to Fwy Ramp</b>	0	0	12	0	0	<b>12</b>
<b>Total</b>	<b>17</b>	<b>107</b>	<b>403</b>	<b>0</b>	<b>214</b>	<b>741</b>

## 3.0 Socioeconomic and Household Survey Data

The 2016 model includes updated population and employment data for each traffic analysis zone (TAZ). Population data was retrieved from the 2013-2017 5-year American Community Survey (ACS) dataset. Employment data was developed based on detailed employment records provided by MDOT and broken out by industry type.

### 3.1 Population

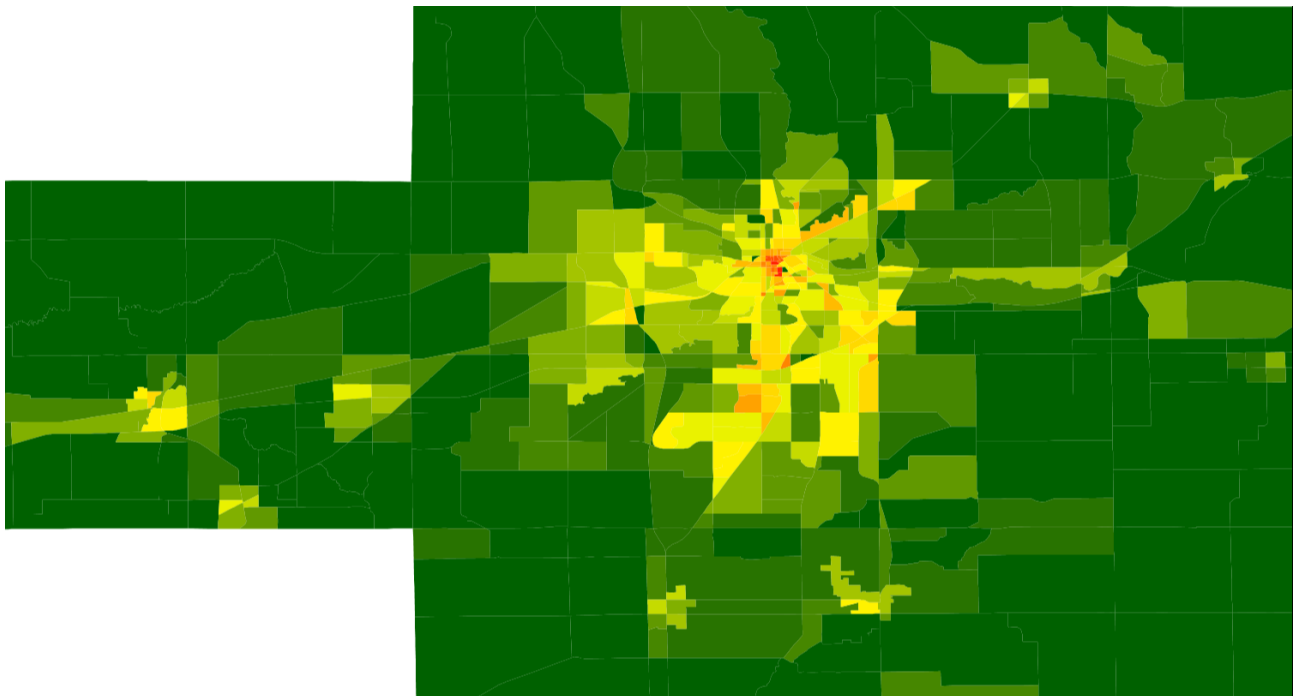
The Census population of households saw an increase of just under 6 percent, while the average size fell. As a result the number of people grew by less than 4 percent, as shown in **Table 3.1**. Median income rose in dollars but tracked with inflation, as per the consumer price index (CPI) provided by the Bureau of Labor Statistics (BLS). The model income categories were adjusted to match the income groups in the HTS and Census. Household density by TAZ, shown in **Figure 3.1**, rose slightly overall but did not change significantly from the 2010 model.

**Table 3.1 Census Population Summary**

Year	Households	People	Average HH Size	Average Workers/HH	Median Income
2010	114,684	289,717	2.53	1.14	\$49,800
2016	120,995	300,403	2.48	1.25	\$54,688

Source: 2010 KATS Model, American Community Survey 5-Year Estimates for 2013-2017

**Figure 3.1 Density of Total Households (2016)**





## 3.2 Employment

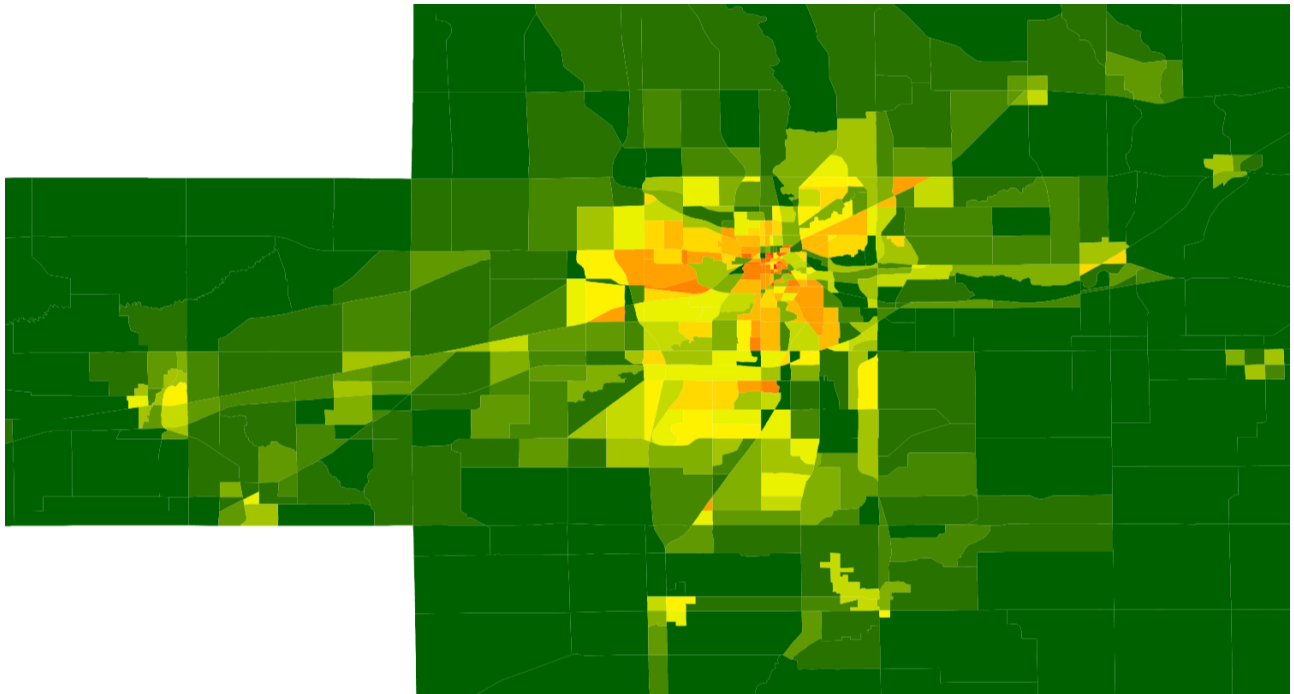
The model requires employment categorized into 4 employment types as a model input, with 2010 and 2016 values shown in **Table 3.2**. This update shows growth of almost 4% overall with medical jobs rising the most, and service adding the fewest jobs. While the changes were not completely uniform, the spatial distribution of employment shown in **Figure 3.2** is generally consistent with the 2016 dataset.

**Table 3.2 Employment by Type**

	Retail	Service	Basic	Medical	All
2010	32,393	56,026	41,503	16,928	146,850
2016	33,794	56,933	43,079	18,595	152,401

Source: 2010 KATS Model, 2016 Employment data provided by MDOT.

**Figure 3.2 Density of Total Employment (2016)**



## 4.0 Trip Generation

### 4.1 Production Rates

The KATS Model produces trips using rates classified by household income, size, and number of workers. Work trip rates including home-based work (HBW) and work-based other (WBO) trips are produced using household income and number of workers. All other trips are produced based on household size and income.

Income categories are defined based on ranges available in the MI Travel Counts HTS. **Table 4.1** demonstrates grouping of categories available in the survey data into the low, medium, and high income categories used by the model, with annual incomes shown in 2015 dollars. Trip rates increase for higher income groups, while transit share is highest for the lower income groups. A low to medium income cutpoint of \$25,000 isolates households more likely to use transit, while a medium to high income cutpoint of \$75,000 is placed where the number of daily trips per household increases from 8.9 to 11.2.

**Table 4.1 Overall Trip Summary**

Income Range	Total Trips per Household	HBW Trips per Household	Transit Share	Income Group
Less than \$15,000	6.0	0.5	10.0%	Low
\$15,000 to \$24,999	7.9	0.9	1.1%	
\$25,000 to \$34,999	7.1	1.1	0.3%	Medium
\$35,000 to \$49,999	8.1	1.3	0.8%	
\$50,000 to \$74,999	8.9	1.6	0.0%	
\$75,000 to \$99,999	11.2	1.8	0.0%	High
\$100,000 to \$124,999	12.8	2.2	0.5%	
\$125,000 to \$149,999	10.3	1.8	0.8%	
\$150,000 or more	12.8	2.1	0.0%	
All Income Levels	<b>8.9</b>	<b>1.4</b>	<b>1.4%</b>	

Source: MI Travel Counts Household Travel Survey

Trip rates for each purpose were calculated by dividing the number of weighted and expanded trips made by the number of households in each category. In cases where limited HTS records were available segments were combined to create more reliable results. The resulting production rates are shown in **Table 4.2** through **Table 4.6**. Home-based school and home-based university have been retained from the previous model.

**Table 4.2 HBW Trip Production Rates**

Income Group	0 Workers	1 Worker	2 Workers	3+ Workers	All Worker Groups
Low Income	0	1.12	2.33	3.53	<b>0.70</b>
Medium Income	0	1.30	2.33	3.53	<b>1.33</b>
High Income	0	1.37	2.33	3.53	<b>1.95</b>
<b>All Incomes</b>	<b>0</b>	<b>1.26</b>	<b>2.33</b>	<b>3.53</b>	<b>1.35</b>

**Table 4.3 HBS Trip Production Rates**

Income Group	1 Person	2 People	3 People	4 People	5+ People	All Sizes
Low Income	0.45	0.79	1.04	0.93	0.83	<b>0.64</b>
Medium Income	0.45	0.79	1.04	0.93	0.83	<b>0.75</b>
High Income	0.45	0.79	1.04	0.93	0.83	<b>0.84</b>
<b>All Incomes</b>	<b>0.45</b>	<b>0.79</b>	<b>1.04</b>	<b>0.93</b>	<b>0.83</b>	<b>0.75</b>

**Table 4.4 HBO Trip Production Rates**

Income Group	1 Person	2 People	3 People	4 People	5+ People	All Sizes
Low Income	1.60	2.98	3.53	5.91	7.08	<b>2.60</b>
Medium Income	1.60	2.98	3.53	5.91	7.08	<b>3.14</b>
High Income	1.60	2.98	4.27	5.91	7.08	<b>4.28</b>
<b>All Incomes</b>	<b>1.60</b>	<b>2.98</b>	<b>3.79</b>	<b>5.91</b>	<b>7.08</b>	<b>3.34</b>

**Table 4.5 WBO Trip Production Rates**

Income Group	0 Workers	1 Worker	2 Workers	3+ Workers	All Worker Groups
Low Income	0.08	1.12	2.33	2.94	<b>0.73</b>
Medium Income	0.08	1.30	2.33	2.94	<b>1.33</b>
High Income	0.08	1.37	2.33	4.05	<b>1.99</b>
<b>All Incomes</b>	<b>0.08</b>	<b>1.26</b>	<b>2.33</b>	<b>3.53</b>	<b>1.37</b>

**Table 4.6 OBO Trip Production Rates**

Income Group	1 Person	2 People	3 People	4 People	5+ People	All Sizes
Low Income	1.31	1.91	2.02	2.95	2.95	<b>1.68</b>
Medium Income	1.31	1.91	2.02	2.95	2.95	<b>1.90</b>
High Income	1.61	1.91	2.02	3.31	3.31	<b>2.42</b>
<b>All Incomes</b>	<b>1.34</b>	<b>1.91</b>	<b>2.02</b>	<b>3.16</b>	<b>3.12</b>	<b>2.00</b>

**Table 4.7 Trip Production Rate Summary**

	HBW	HBS	HBO	WBO	OBO	All Home-Based	Total
Low Income	0.70	0.83	7.08	0.73	2.95	8.61	<b>12.28</b>
Medium Income	1.33	0.83	7.08	1.33	2.95	9.24	<b>13.52</b>
High Income	1.95	0.83	7.08	1.99	3.31	9.85	<b>15.15</b>
<b>All Incomes</b>	<b>1.35</b>	<b>0.83</b>	<b>7.08</b>	<b>1.37</b>	<b>3.12</b>	<b>9.26</b>	<b>13.75</b>

## 4.2 Attraction Rates

Trip attraction rates are primarily based on employment. A small number of trip attractions are also generated at households. Using trip information in the MI Counts data, including trip purpose and location name, each trip attraction was classified as occurring at a household (9%) or a location with retail (36%), basic (3%), service (45%), or medical (8%) employment. Total attractions by purpose and attraction variable are shown in **Table 4.8**, with resulting trip attraction rates shown in **Table 4.9**.

**Table 4.8 Trips by Attraction Rate Variable**

Attraction Variable	HBW	HBS	HBO	WBO	OBO	Total Attractions	SED Total*
Retail	21,906	79,520	88,740	40,038	112,998	343,202	343,202
Service	75,462	1,781	176,762	33,998	69,240	357,243	425,276
Medical	24,522	0	34,476	6,062	11,076	76,137	76,393
Basic	21,200	0	3,101	3,008	571	27,880	27,880
Households	3,764	529	52,722	6,703	18,742	82,459	82,459
Total Attractions	135,256	73,925	299,539	299,539	299,539	1,107,798	

\*Totals employment by type or total households Source: MI Travel Counts Household Travel Survey

**Table 4.9 Table 10: Trip Attraction Rates**

	HBW	HBS	HBO	WBO	OBO	All Purposes
Retail	0.6	2.4	2.6	1.2	3.3	10.2
Service	1.3	0.0	3.1	0.6	1.2	7.5
Medical	1.3	0.0	1.9	0.3	0.6	4.1
Basic	0.5	0.0	0.1	0.1	0.0	0.6
Households	0.0	0.0	0.4	0.1	0.2	0.7
All Employees	0.5	0.3	1.3	0.3	0.8	3.5

## 5.0 Trip Distribution

Trip distribution matches production and attraction trip-ends from trip generation to make complete trips. The KATS Model uses a gravity approach that considers travel time and activity level to distribute trips. The gravity model has been recalibrated to trip length frequency distributions obtained from the MI Travel Counts HTS.

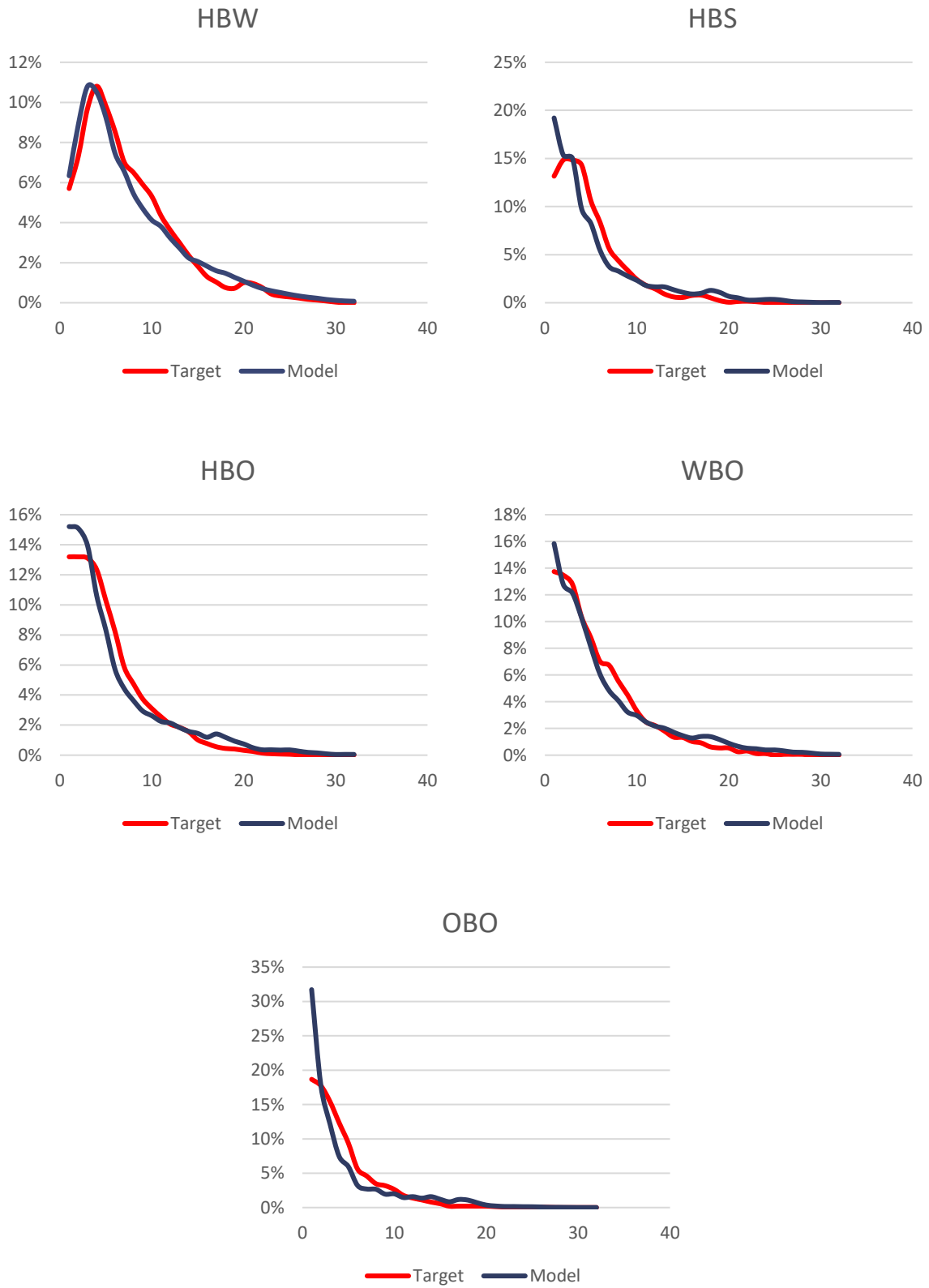
### 5.1 Calibration Targets

Updated calibration targets have been calculated using the weighted MI Counts 2015 HTS along with the shortest path (“skim”) matrices generated from the travel model highway network. The two principal calibration targets the trip length frequency distribution and average trip length. The percent share of intrazonal trips is considered in calibration.

### 5.2 Calibration Results

The KATS model has been calibrated to match the survey-based targets. This was completed through an iterative process in which the model was first run with the previous parameter values and then updated until model outputs were reasonably consistent with calibration targets. This process resulted in distributions and average distances close to that of the HTS as shown in **Figure 5.1**. HBW was segmented by income group for this calibration, then results were combined for display in the figure below. Average length and the coincidence ratios are shown in **Table 5.1** below. Some differences between calibration targets and model calibration results remain, as it was important to balance this calibration with later validation to total VMT as represented by traffic counts.

**Figure 5.1 Trip Length Distributions by Purpose**



Source: MI Travel Counts Household Travel Survey and KATS model output

**Table 5.1 Coincidence Ratios and Average Trip Lengths**

<b>Trip Purpose</b>	<b>Coincidence Ratio (of Distribution)</b>	<b>Observed Average Trip Length (Miles)</b>	<b>Modeled Average Trip Length (Miles)</b>
HBW Income 1	96%	5.86	5.87
HBW Income 2	98%	6.82	6.91
HBW Income 3	94%	7.98	7.94
HBS	95%	4.40	5.01
HBO	98%	4.90	5.53
WBO	99%	5.19	6.00
OBO	91%	3.82	4.00

## 6.0 Mode Choice

### 6.1 Calibration Targets

Mode choice calibration targets have been developed using a combination of transit boarding data and mode shares reported in the HTS. Auto and non-motorized mode shares are obtained from the household travel survey. The survey did not capture a sufficient number of transit trips to develop reliable mode share targets. Transit calibration targets are instead based on boarding and transfer rate provided by transit operators. Transit trip totals have been separated by trip purpose using distributions retained from the previous model.

As shown in **Table 6.1**, drive alone dominates for work related travel (HBW and WBO) while other travel tends to involve more than one person. Non-auto travel holds a small share, mostly trips made by walking for non-HBW trips. HBW is broken out by income group to capture variations in commutes by different households. Lower income households tend to share rides or use transit more to get to work.

**Table 6.1 Mode Choice Calibration Targets**

	Transit	Drive Alone	Shared Ride	Bike	Walk
HBW	2,054	78%	20%	1.0%	0.8%
HBS	381	47%	48%	0.0%	4.6%
HBO	2,207	35%	55%	0.6%	7.3%
OBO	381	33%	56%	0.7%	4.7%
WBO	1,522	70%	23%	0.2%	5.3%
non-HBW	4,491	40%	52%	0.5%	6.2%
HBW Income 1	1,674	71%	27%	1.1%	0.0%
HBW Income 2	228	78%	19%	0.9%	1.5%
HBW Income 3	152	82%	16%	0.9%	0.6%
All	7,611	44%	45%	0.6%	5.2%

Note: Targets for transit are shown as linked trips. Targets for all other modes are shown as shares of non-transit trips.

Source: MI Travel Counts Household Travel Survey and FTA 2016 KATS Agency Profile

### 6.2 Calibration Results

Alternative specific constants were updated to match the target mode shares using an automated calibration routine built into the KATS model system. The resulting alternative specific constants for each mode are provided in **Table 6.2**. School and University trip target mode shares were not changed in this update, but alternative specific constants were updated by the calibration routine to ensure that the updated model produces reasonable mode shares. All other aspects of the model choice model such as utility variable coefficients and the model structure remain unchanged from the previous model.



**Table 6.2 Alternative Specific Constants**

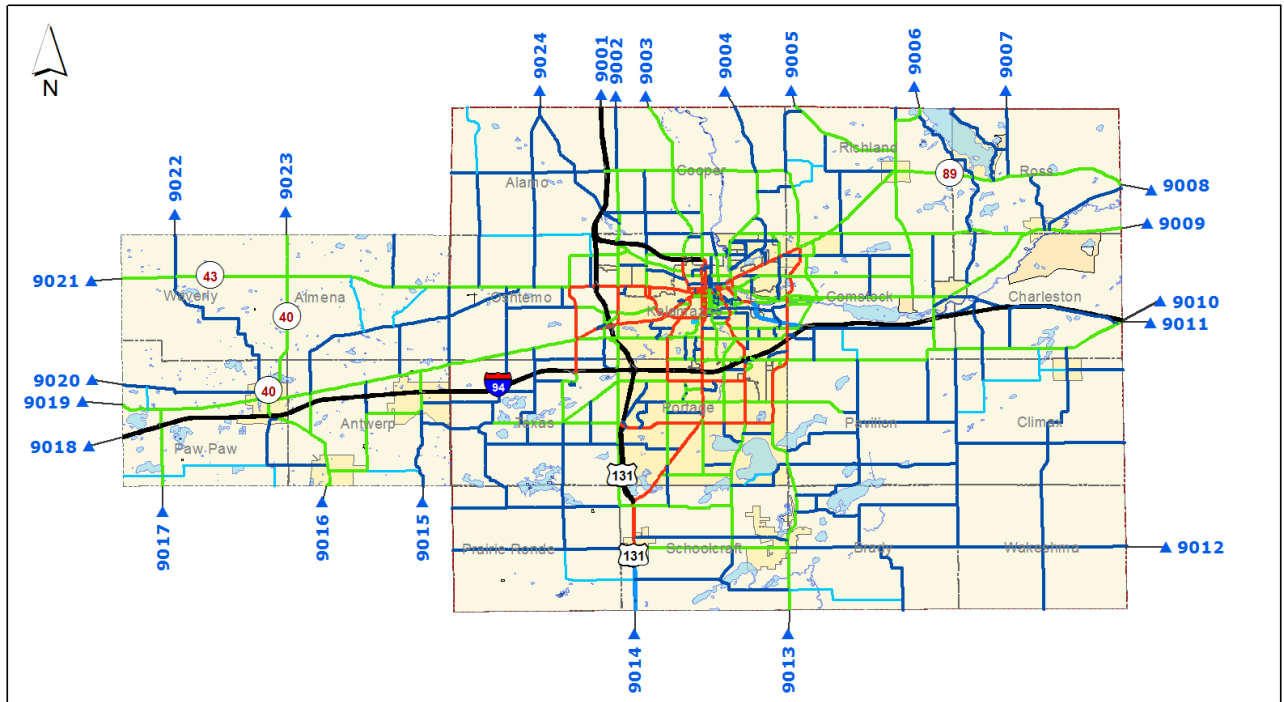
Trip Purpose	Drive Alone	Shared Ride	Transit	Walk	Bike
HBW (Low Income)	0	-1.1618	0.4396	-2.4896	-0.4136
HBW (Med Income)	0	-1.5206	-3.4972	-2.4896	-0.4136
HBW (High Income)	0	-1.8491	-3.6093	-2.4896	-0.4136
HBS	0	-0.3903	-3.1326	-2.1747	-1.7776
HBU	0	-1.3589	-0.896	-0.2229	2.2282
HBS <sub>c</sub>	0	1.182	-0.9323	0.1828	0.4504
HBO	0	0.1703	-2.8612	-1.3973	-0.8086
WBO	0	-1.1448	-4.2916	-2.1617	-2.2516
OBO	0	0.5287	-3.0397	-2.1215	-2.4601

## 7.0 External Travel

In addition to the internal-internal trips that occur entirely within the modeling area, the model must include external travel from outside of the region. Trips with one end inside the modeling area and the other outside of the area are called internal-external (IE) or external-internal (EI) trips. Through trips, or external-external (EE) trips, are those that pass through the modeling area without stopping or with only short convenience stops. The volume of entrances and exits are calibrated based on vehicle counts on roads crossing the model boundary at 24 specified external stations. These locations are mapped in **Figure 7.1**.

The update involved revising the model to make use of 2016 count data. Where possible, the counts shown in **Table 7.1** represent observed model volumes at the model boundary. In cases where traffic counts were not available at the model boundary, estimated external volumes were developed using the best available count data. In cases where no count data were available to develop a new estimate, values from the previous model were retained. Model methodology and parameters such as pass-through shares, trip purpose shares for IE/EI trips, and the EE trip seed matrix were retained from the 2010 model.

**Figure 7.1 External Station Locations**



**Legend**

<b>Facility Type</b>	Major Collector	Lake/River
Freeway	Minor Collector/Local	Township Border
Expressway	Ramp	City
Principal Arterial	Freeway to Freeway Ramp	Landmark Area
Minor Arterial	County Border	External Station

0 3.25 6.5 13 19.5 Miles

**Table 7.1 External Station Volumes and IE/EE Splits**

<b>ID</b>	<b>Description</b>	<b>Count</b>	<b>Pass Through %</b>
9001	131 N of County Line	42,479	21.1%
9002	12th St N of County Line	3,881	0.7%
9003	Douglas Ave N of County Line	3,924	0.0%
9004	Riverview Dr N of County Line		0.7%
9005	Richplain Rd N of County Line	8,388	27.8%
9006	M43 N of County Line	11,449	8.3%
9007	40th N of County Line	1,924	62.6%
9008	D Ave E of County Line	8,636	47.6%
9009	M96 E of County Line	9,374	1.4%
9010	I94 E of County Line	49,928	30.6%
9011	Mercury Drive E of County Line	4,858	0.7%
9012	W Ave W of County Line	579	0.8%
9013	24th S of County Line		0.9%
9014	US131 S of County Line	27,577	26.4%
9015	652 S of 72nd		11.9%
9016	M40 S of 72nd	7,577	22.6%
9017	M51 S of 72nd	7,759	41.9%
9018	I94 W of 46th St	37,613	49.0%
9019	Red Arrow Highway W of 56th Ave	5,218	20.2%
9020	CR374 W of 46th St	1,217	0.7%
9021	M43 W of 46th St	7,966	33.4%
9022	CR665 N of 24th Ave	3,658	33.4%
9023	M40 N of 24th Ave	7,202	28.8%
9024	Ravine Rd N of County Line	5,257	2.8%

Source: KATS and MDOT Traffic Counts, 2010 KATS Model assumptions where needed.

## 8.0 Validation

Traffic assignment results have been validated based on the traffic counts described in Section 2.1. Two measures of model calibration are presented in **Table 8.1**. The count/volume ratio demonstrates the model's ability to match overall regional activity levels. This ratio should be close to 100% overall, with increasing variation accepted for smaller facilities types such as minor arterials and collectors. The root mean square error (RMSE) and percent root mean square error (%RMSE) represent the model's ability to match specific count volumes. RMSE measures can overemphasize errors on low volume links, so they are expected to be higher for lower facility types.

The primary tools used in improving model validation were adjustments to trip rates through application of trip rate factors and adjustments to trip distribution calibration. Some localized network adjustments such as relocation of centroid connector loadings were also made to improve model validation. Trip rate factors resulting from the validation exercise are shown in **Table 8.2**.

**Table 8.1 Assignment Validation**

	Number of Counts	Model Volume / Count Volume	RMSE	% RMSE
Freeway	26	96%	3,514	16%
Expressway	4	110%	2,025	22%
Principal Arterial	142	104%	5,245	27%
Minor Arterial	277	104%	2,747	33%
Collector	225	203%	2,858	187%
CBD	17	109%	2,225	32%
Urban	107	109%	3,597	38%
Suburban	403	102%	3,401	31%
Rural	214	101%	2,588	52%
All Links	741	103%	3,189	36%

**Table 8.2 Trip Rate Factors**

	<b>CBD</b>	<b>Urban</b>	<b>Suburban</b>	<b>Rural</b>
HBW	0.71	0.78	1.7	1.38
HBS	0.82	0.84	1.92	1.38
HBU	0.71	0.78	1.7	1.38
HBS <sub>c</sub>	0.82	0.84	1.92	1.38
HBO	0.58	0.54	0.67	0.49
WBO Productions	1.1	1.1	1.38	1.65
WBO Attractions*	1.65	1.43	1.87	1.21
OBO Productions	1.1	1.1	1.38	1.65
OBO Attractions	1.65	1.43	1.87	1.21

\* WBO attraction rate factors are applied to both WBO attraction rates and to WBO production allocation rates

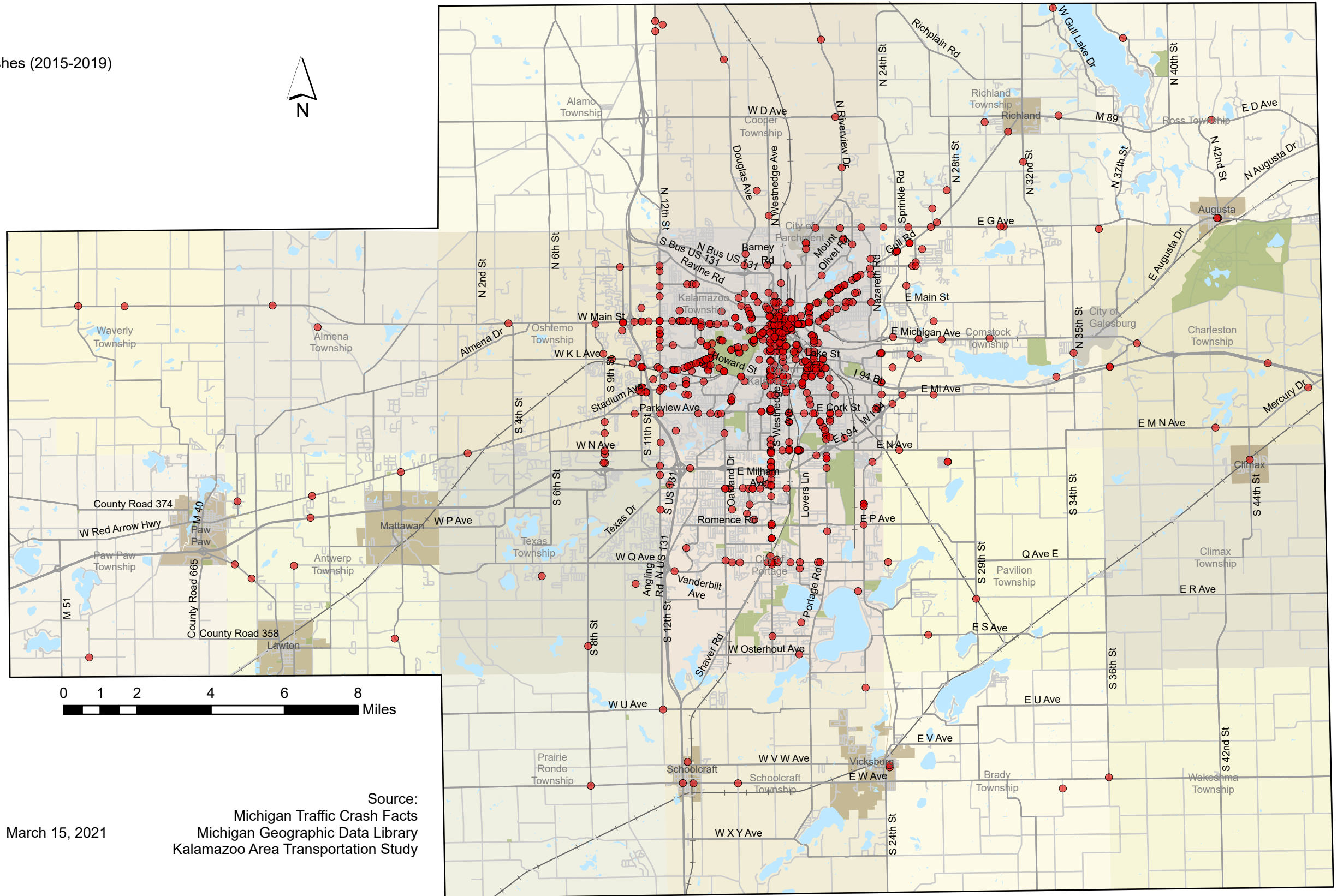
# APPENDIX I: SAFETY

User safety is one of the principal goals of transportation planning. To address the concern for bicycle and pedestrian incidents with automobiles within our MPO boundaries, data from the Michigan State Police Office of Highway Safety Planning (OHSP) was analyzed. Pedestrian and bicycle incident and fatality data from 2008 to 2014 was collected and mapped. This map also shows ¼ mile shaded areas around each school within the MPO area and those incidents falling inside those boundaries.

Reviewing the Non-Motorized Crash Data Map 8 and 8A, reveals that pedestrian and bicycle incidents occur throughout the MPO area. Many of these incidents occur in areas lacking facilities that enhance safety of pedestrians and bicyclists. Statistics indicate people will bicycle or walk, where they deem necessary, regardless of whether the proper facilities are in place to accommodate them. Indeed, of the pedestrians killed in the State of Michigan in 2019, 34 percent were killed while crossing streets other than at intersections, or not in crosswalks. Additionally, many incidents occur where streets have been engineered to increase vehicular capacity. Increased capacity for automobiles comes with a lower level of service for other modes of travel. Put simply, each additional turn lane or through lane makes crossing a given intersection by foot or bicycle more difficult. Thus, design tradeoffs between modes are especially important to consider at intersections.

# Map 26: Non-Motorized Crash Data (2015 to 2019)

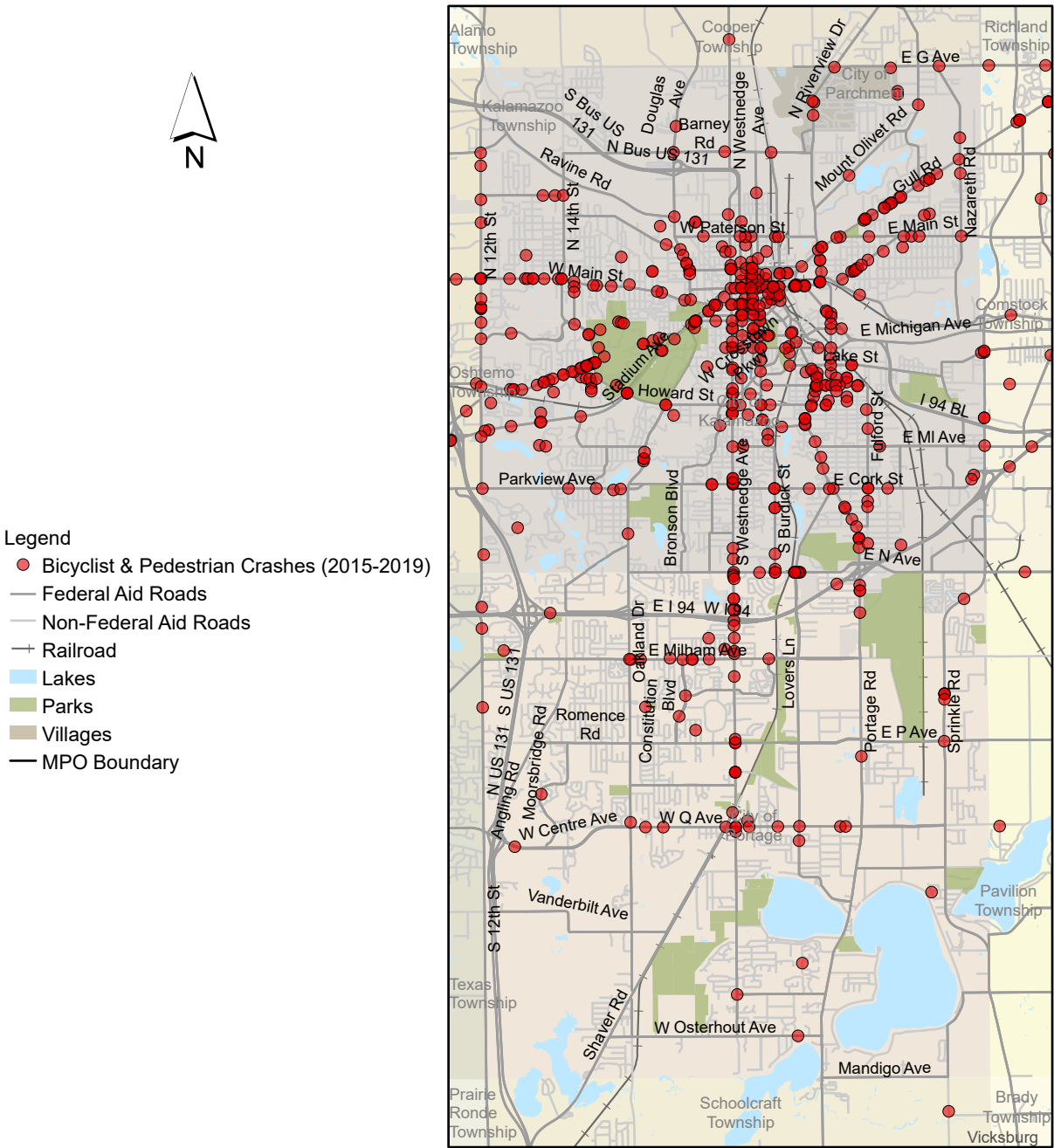
- Legend
- Bicyclist & Pedestrian Crashes (2015-2019)
  - +— Railroad
  - Federal Aid Roads
  - Non-Federal Aid Roads
  - Lakes
  - Parks
  - Villages
  - MPO Boundary



March 15, 2021

Source:  
Michigan Traffic Crash Facts  
Michigan Geographic Data Library  
Kalamazoo Area Transportation Study

# Map 26A: Non-Motorized Crash Data in Urban Core (2015 to 2019)



March 15, 2021

Source:  
Michigan Traffic Crash Facts  
Michigan Geographic Data Library  
Kalamazoo Area Transportation Study



# APPENDIX J: AMERICANS WITH DISABILITIES ACT OF 1990 AND NON-MOTORIZED TRANSPORTATION

The Americans with Disabilities Act of 1990 (ADA) is a landmark law recognizing and protecting the civil rights of people with disabilities. Title I of the ADA prohibits discrimination in employment based on disability. Title III of the ADA prohibits discrimination based on disability in the provision of goods, services, facilities, and accommodations by private entities that provide public accommodations or operate commercial facilities. But it is Title II of the ADA which prohibits discrimination based on disability in the provision of services, programs, and activities by state and local governments, which is most relevant with regard to non-motorized transportation planning. As public entities covered under Title II of the ADA, transportation agencies are required and have a major responsibility to implement accessibility in their facilities and programs.

For more information about ADA guidelines visit: [www.michigan.gov/disabilityresources](http://www.michigan.gov/disabilityresources) or [www.ada.gov](http://www.ada.gov)

Under the ADA, services and facilities must be accessible to be nondiscriminatory, and the requirements for new construction and alterations are much more stringent than those for existing facilities.

Sidewalks and trails, whether new or existing, are subject to the requirements of the ADA.

Within many state and local governments, it is difficult for pedestrian projects to compete with the priorities that have been placed on automobile travel. For example, our MPO, like many others, does not systematically require or fund sidewalk installations on new federal-aid roadway projects. However, our MPO process does ensure that if during road reconstruction a sidewalk is removed, federal dollars may be used to replace that sidewalk. Unfortunately, without local policies at either the MPO or city level that encourage sidewalk construction, it will be difficult to develop an adequate sidewalk network.

Since Title II Implementing Regulations for the ADA requires all newly constructed and altered facilities (including sidewalks) to be readily accessible to people with disabilities, transportation agencies are responsible for developing a transition plan for existing deficient sidewalk networks. A plan for bringing intersections and other pedestrian facilities into compliance may be integrated into the transportation chapter of a city's capital improvement program or master plan. Another method for local governments to meet ADA requirements for pedestrian access includes enforcing accessible sidewalk design guidelines during the design and site-plan review stages of new developments.

In addition to improving existing facilities and ensuring new facilities meet local standards for sidewalk design, maintenance of sidewalk facilities is also important. While some local governments take responsibility for sidewalk maintenance, others hold property owners accountable. To ensure conformity with ADA requirements, it is recommended that sidewalk maintenance be the responsibility of the local government and be held to similar maintenance schedules as roads.

# APPENDIX K: TITLE 23 UNITED STATES CODE

## §217. Bicycle transportation and pedestrian walkways

- a. **Use of STP And Congestion Mitigation Program Funds.** Subject to project approval by the Secretary, a State may obligate funds apportioned to it under sections 104(b)(2) and 104(b)(3) of this title for construction of pedestrian walkways and bicycle transportation facilities and for carrying out non-construction projects related to safe bicycle use.
- b. **Use of National Highway Performance Program Funds.** Subject to project approval by the Secretary, a State may obligate funds apportioned to it under section 104(b)(1) of this title for construction of pedestrian walkways and bicycle transportation facilities on land adjacent to any highway on the National Highway System.
- c. **Use of Federal Lands Highway Funds.** Funds authorized for forest highways, forest development roads and trails, public lands development roads and trails, park roads, parkways, Indian reservation roads, and public lands highways shall be available, at the discretion of the department charged with the administration of such funds, for the construction of pedestrian walkways and bicycle transportation facilities.
- d. **State Bicycle and Pedestrian Coordinators.** Each State receiving an apportionment under sections 104(b)(2) and 104(b)(3) of this title shall use such amount of the apportionment as may be necessary to fund in the State department of transportation a position of bicycle and pedestrian coordinator for promoting and facilitating the increased use of non-motorized modes of transportation, including developing facilities for the use of pedestrians and bicyclists and public education, promotional, and safety programs for using such facilities.
- e. **Bridges.** In any case where a highway bridge deck being replaced or rehabilitated with Federal financial participation is located on a highway on which bicycles are permitted to operate at each end of such bridge, and the Secretary determines that the safe accommodation of bicycles can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations.
- f. **Federal Share.** For all purposes of this title, construction of a pedestrian walkway and a bicycle transportation facility shall be deemed to be a highway project and the Federal share payable on account of such construction shall be determined in accordance with section 120(b).
- g. **Planning and Design.**
  - a. **In General.** Bicyclists and pedestrians shall be given due consideration in the comprehensive transportation plans developed by each metropolitan planning organization and State in accordance with sections 134 and 135, respectively. Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities, except where bicycle and pedestrian use are not permitted.
  - b. **Safety considerations.** Transportation plans and projects shall provide due consideration for safety and contiguous routes for bicyclists and pedestrians. Safety considerations shall include the installation, where appropriate, and maintenance of audible traffic signals and audible signs at street crossings.
- h. **Use of Motorized Vehicles.** Motorized vehicles may not be permitted on trails and pedestrian walkways under this section, except for:
  - a. maintenance purposes;
  - b. when snow conditions and State or local regulations permit, snowmobiles;
  - c. motorized wheelchairs;

- d. when State or local regulations permit, electric bicycles; and
- e. such other circumstances as the Secretary deems appropriate. [See the Framework for Considering Motorized Use on Non-Motorized Trails and Pedestrian Walkways]

**Transportation Purpose.** No bicycle project may be carried out under this section unless the Secretary has determined that such bicycle project will be principally for transportation, rather than recreation, purposes.

**Definitions.** In this section, the following definitions apply:

**Bicycle transportation facility.** The term ‘bicycle transportation facility’ means a new or improved lane, path, or shoulder for use by bicyclists and a traffic control device, shelter, or parking facility for bicycles.

**Electric bicycle.** The term ‘electric bicycle’ means any bicycle or tricycle with a low-powered electric motor weighing under 100 pounds, with a top motor-powered speed not in excess of 20 miles per hour.

**Pedestrian.** The term ‘pedestrian’ means any person traveling by foot and any mobility impaired person using a wheelchair.

**Wheelchair.** The term ‘wheelchair’ means a mobility aid, usable indoors, and designed for and used by individuals with mobility impairments, whether operated manually or motorized.

**See also:** Bicycle and Pedestrian Legislation in Title 23 United States Code (U.S.C.)