

# 2045 Metropolitan Transportation Plan

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MAY 7, 2020

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GRAND VALLEY  
METRO COUNCIL



**GVMC**

*Amended November 16, 2022*



## Disclaimer

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## Acknowledgements

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**Cover photograph:** Westbound bridge over I-196 in downtown Grand Rapids under construction. Photo courtesy of MDOT.

## Special Accommodations and Contact Information

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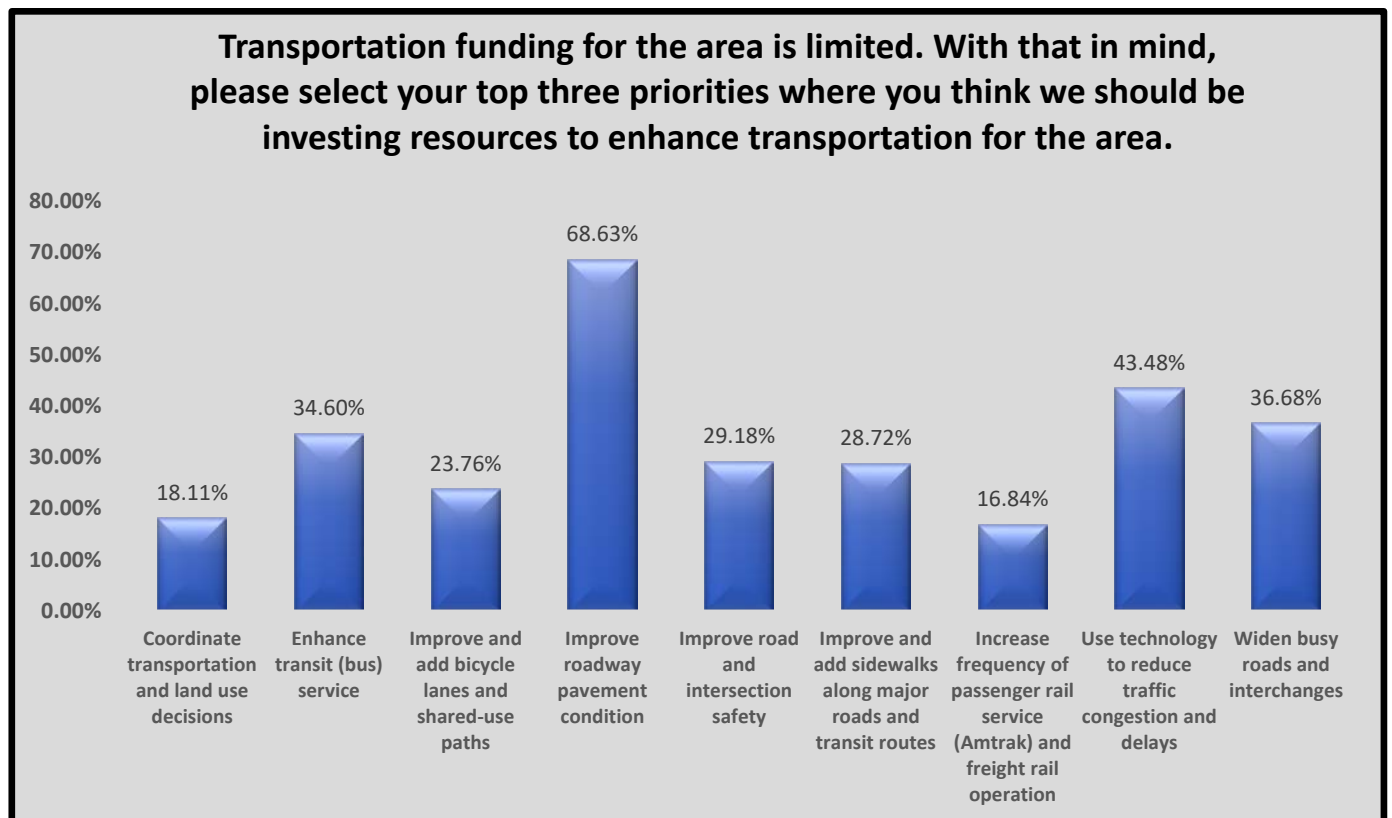
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# Executive Summary

The Grand Valley Metropolitan Council, as the Metropolitan Planning Organization (MPO) for Kent and eastern Ottawa Counties, is responsible for the development of a multi-modal long-range Metropolitan Transportation Plan (MTP). The purpose of the MTP is to ensure that transportation investments in our area enhance the movement of people and freight efficiently, effectively, and safely over the next 20+ years. Without an MTP, federal transportation funding could not be allocated in the region. The MTP must be financially constrained (meaning costs don't exceed resources), project specific, take into consideration public input as well as plans and feedback from stakeholder agencies, meet established air quality standards, and ensure that no people groups are adversely impacted by the projects in this document through our environmental justice (EJ) process. This MTP has a 25-year horizon, balancing transportation investments through the year 2045.

## Public Survey

One of the first steps in the development of the MTP was conducting a public survey, which asked the public to rank various aspects of the transportation system, what their top three transportation investment priorities were in light of available funding, whether or not they would be willing to pay more through a slight increase in the gas tax or a small local millage to improve the transportation system, and whether they had any comments or concerns about the transportation system that they would like us to consider as we developed the MTP. Full results of the survey are included in Appendix I. The results are not surprising as they mirror the feedback from the 2040 MTP survey. The chart below shows the public's top three transportation investment priorities. Improving roadway pavement condition was by far the largest public priority, followed by using technology to reduce traffic congestion and delays, and widening busy roads and interchanges.



The survey results were taken into consideration during the development of the vision statement for the 2045 MTP, which reads: “Through cooperation and collaboration with our members, regional stakeholders, and the public, GVMC will continue to enhance a sustainable and resilient multimodal transportation system that is accessible, safe, reliable, environmentally sound, socially equitable, economically viable and adaptable for future growth within the constraints of available resources.” The goals and objectives were also influenced by the public survey results and will achieve the vision within the framework of federal performance measures and available resources. The vision statement and goals and objectives are discussed in Chapter 3.

### **Determination of Highest Priority**

Highest priority system needs are determined using various approaches during the MTP development. Taking into account the vision statement, goals and objectives, public survey results, and available data, GVMC staff worked with several committees to develop a list of needs by mode for the transportation system. Staff also conducted a deficiency analysis for pavement and bridge condition, safety, and congestion to determine where the system was failing to operate below acceptable standards. When all of the needs and deficiencies were identified, the GVMC Technical and Policy Committees, with input from the MTP Steering Committee formed to guide the development of the MTP, established a list of identified transportation investment priorities. Public input was also considered via the GVMC Technical and Policy Committees for development of the transportation investment priorities, and both meetings are open to the public. Transportation investment priorities identify areas where future available transportation funds should be allocated and influence the projects that are selected to meet desired outcomes. Staff completed a financial analysis to determine the amount of federal, state, and local funding reasonably expected to be available over the life of the plan to achieve these priorities. Below are the results of the financial analysis:

- (1) \$5.7 billion in local funding over the life of the plan
- (2) \$557.6 million in federal funding for local programs over the life of the plan
- (3) \$3.4 billion in state funding over the life of the plan
- (4) \$4 billion in transit funding from all fund sources over the life of the plan

MPOs may use federal funds for local programs to fund projects deemed to be the highest priorities for the region as a whole. GVMC has determined five priorities over the life of the plan, which include:

- (1) Maintaining the system in a state of good repair
- (2) Congestion management
- (3) Nonmotorized
- (4) Safety
- (5) Transit

These priorities are not ranked by importance. However, safety improvements are considered during the design phase for all projects, which must follow AASHTO design standards.



*Poor pavement condition on Grand Rapids area street*

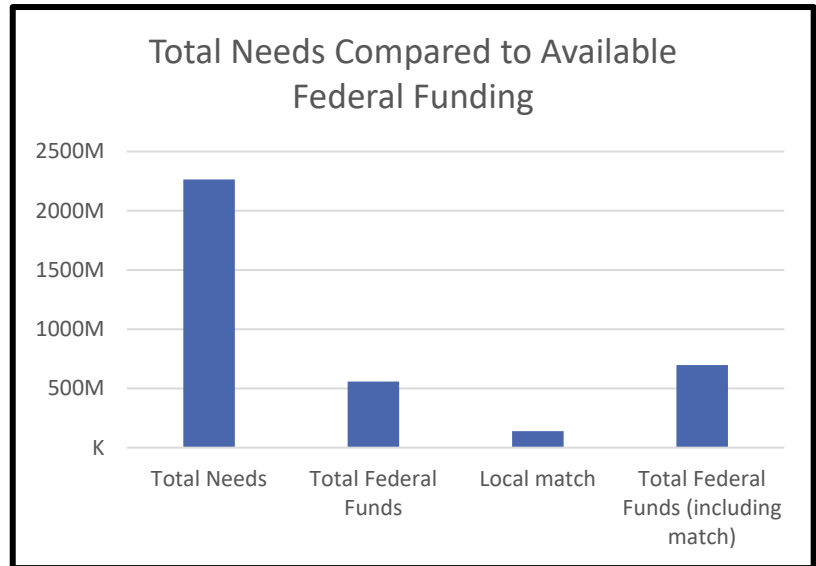
### **The Project List**

The MTP project list was developed to address the deficiencies identified in the plan and reflect investment priorities. It is constrained by available revenues, meaning that the costs of the projects selected do not exceed anticipated revenues. The first four years (2020–2023) of the MTP project list are equivalent to the

Transportation Improvement Program (TIP) project list and demonstrate the short-term transportation projects identified for funding in this region. Other individual projects listed in the MTP project list reflect projected transportation capacity and/or operational deficiencies with recommended alternatives identified.

### Unfunded Priorities

Throughout the development of this MTP, efforts were made to establish a basic vision of what we collectively would like our transportation system to be in the year 2045 and how the system could achieve optimal performance. Issues related to the condition of the pavement, to the reliability of travel times, to the convenience of the local transit system, to the availability of alternate means of transportation and the efficiency of moving freight throughout the system were all analyzed.



*Figure 1: Local Needs Compared to Available Federal Funding; costs displayed in millions*

The results of this analysis concluded that in order to achieve a PASER rating of 6 for pavement, which is considered fair condition, we would need a 50% increase in the annual budget, or \$20.5 million, which would bring the total annual investment for pavement from \$41 million to \$61.5 million. In this scenario, the amount of pavement funding needed over the life of the MTP would be over \$1.5 billion. There is also \$13.7 million in identified need to improve identified capacity deficiencies (congestion) in the GVMC region. Currently, there is roughly \$80 million in unfunded need for nonmotorized projects, \$616 million in unfunded need for transit, and \$16 million in unfunded needs for safety projects. All tolled, there is approximately \$2.2 billion in identified local needs over the life of the plan. With only \$557.6 million available in local funds, which will increase to approximately \$697 million after adding 20% for the required local match, **there is a shortfall of approximately \$1.5 billion in meeting these needs.** Because of this shortage, GVMC encourages local units of government to pursue additional sources of funding, such as millages, special assessments, or grants, to improve the transportation system.

### Potential Future Funding

Gretchen Whitmer was elected governor in 2018 with a campaign promise to fix the roads, and in March of 2019, she proposed a 45-cent-per-gallon gas tax increase to be phased in over one year which would raise over \$2 billion to fix Michigan roads. In the fall of 2019, the state budget moved forward without Whitmer's 45-cent-per-gallon increase. However, negotiations about how to more fully fund Michigan's crumbling infrastructure are continuing, which could lead to additional transportation funding.

# Chapter 1: Introduction

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*Photo 1: The Grand River in Downtown Grand Rapids*

Grand Valley Metropolitan Council (GVMC) is an alliance of governmental units in the Grand Rapids, Michigan, metropolitan area appointed to plan for growth and development, improve the quality of life in communities, and coordinate governmental services. GVMC is the federally designated Metropolitan Planning Organization (MPO) for Kent and eastern Ottawa County, including the cities of Grand Rapids, Wyoming, Kentwood, Walker, Grandville, East Grand Rapids, Rockford, Cedar Springs, and Lowell. In addition, eastern Ottawa County is represented by the City of Hudsonville and the townships of Jamestown, Georgetown, Allendale, and Tallmadge. A map of GVMC's MPO area is on page 5.

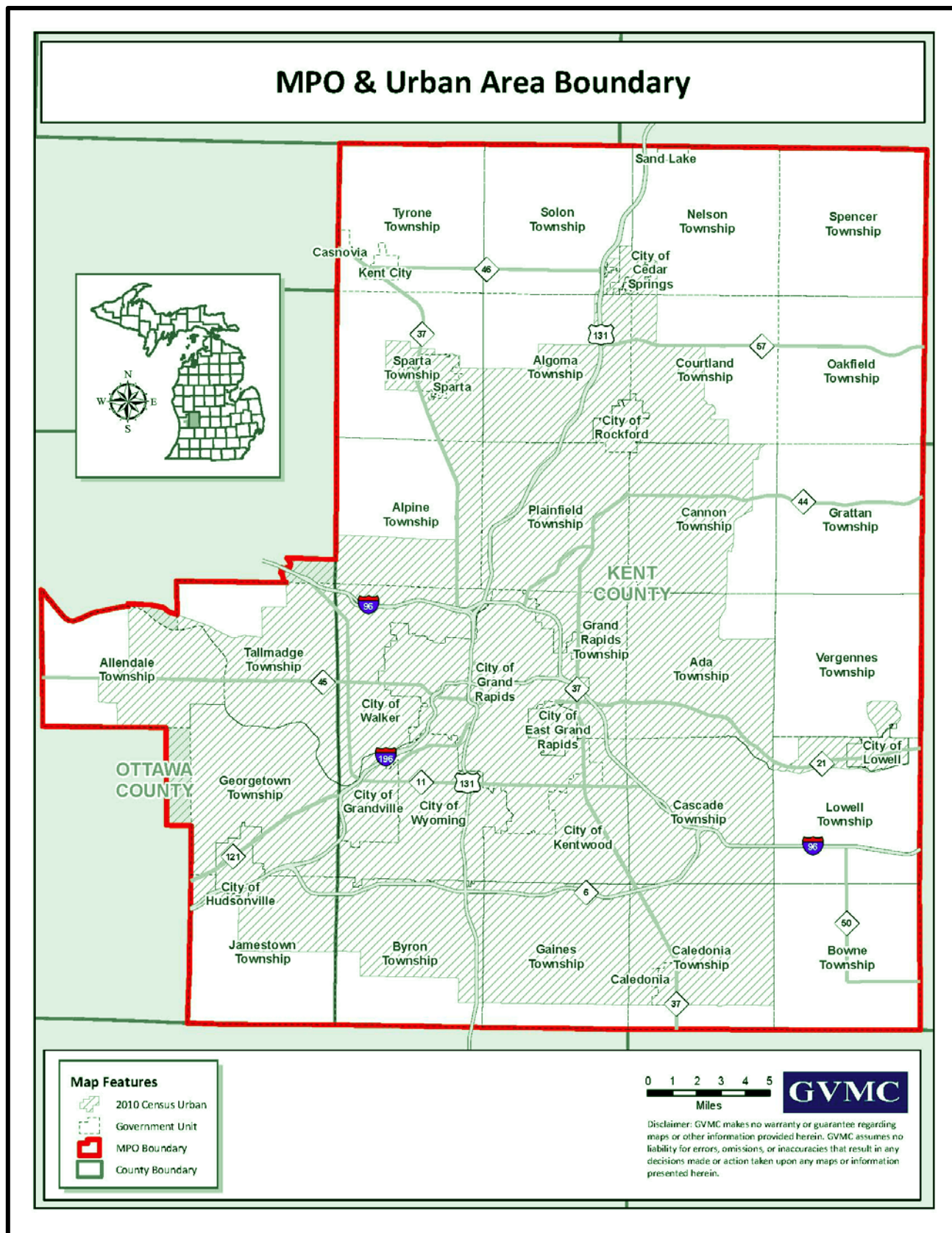
GVMC is responsible for carrying out all transportation-related planning activities for the Grand Rapids Metropolitan Area. Those duties include developing and maintaining both a short-term planning document, the Transportation Improvement Program (TIP), which lists road, transit and nonmotorized projects that communities and agencies plan to implement over a four-year period within GVMC's MPO area, and a long-range planning document, the Metropolitan Transportation Plan (MTP), described below.

## What is the Metropolitan Transportation Plan (MTP)?

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The Metropolitan Transportation Plan (MTP) is a visionary, long-range planning document with at least a 20-year horizon. The purpose of the MTP is to ensure that transportation investments in our area enhance the movement of people and freight efficiently, effectively, and safely over the next 20+ years. Without an MTP federal transportation funding could not be allocated in the region. The MTP must be financially constrained (meaning costs don't exceed resources), project specific, take into consideration public input as well as plans and feedback from stakeholder agencies, meet established air quality standards, and ensure that no people groups are adversely impacted by the projects in this document through our environmental justice (EJ) process. This MTP has a 25-year horizon, balancing transportation investments through the year 2045.





**Map 1: MPO and Urban Area Boundary**

As the region changes over time, the transportation infrastructure must adapt to accommodate for growth. The document investigates the state of the transportation system, identifies current and future needs for the system to be functioning optimally, and determines priorities, investment strategies and projects to meet these needs. To make these determinations, the MTP looks at the most recent data available, including the following:

- number and rate of fatalities and serious injuries on the transportation system
- traffic volumes
- transit ridership
- pavement condition
- population
- employment
- financial forecasts

The following chapters discuss the process for developing the MTP document.

## **History of Long-Range Planning**

Since the inception of the Kent County Planning Commission in 1961, officials in the Grand Rapids area have been committed to developing and maintaining a comprehensive transportation planning process that included the long-range planning of transportation infrastructure. Below is a listing of long-range plans that have been completed:

- In 1974, GRETS completed a comprehensive long-range transportation plan with a terminal year of 1990.
- Between 1974 and 1988, no long-range plans were completed.
- In the fall of 1989, GRETS approved the 2010 Long Range Transportation Plan (LRTP), which represented the first effort in more than 15 years to provide a comprehensive long-range transportation plan for the metropolitan area.
- Subsequently, there have been plans developed for 2015, 2020, 2025, 2030, 2035 and 2040.

A brief history of transportation planning in Grand Rapids can be found in Appendix A. The 2045 MTP replaces the 2040 Metropolitan Transportation Plan.

## **Federal Transportation Legislation**

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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—at over \$305 billion for fiscal years (FY) 2016 through 2020. This reauthorization builds off of MAP-21 (explained below) 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 21st 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, apportioning 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 authorizes \$226.3 billion in Federal funding for FY2016 through 2020 for road, bridge, bicycling, and walking improvements. In addition, the FAST Act includes a number of 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 Every Day 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<sup>1</sup>.

## **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 Moving Ahead for Progress in the 21<sup>st</sup> Century (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, which include: 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 part 625 became effective Oct. 1, 2016, and established performance measures for rolling stock, equipment, facilities, and infrastructure.

### **State Targets**

Within one year of the US DOT 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 an urbanized area not represented by an MPO. [§1202; 23 USC 135(d)(2)(B)]

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<sup>1</sup> <https://www.fhwa.dot.gov/fastact/summary.cfm>

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 GVMC's determination of modal needs and project selection are included as spotlights in the following sections of Chapter 5: Transit, Bridge, Pavement Condition, Safety, and Congestion.

### 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 the performance measures (where applicable). To ensure consistency, each MPO must, to the maximum extent practicable, coordinate with the relevant State and public transportation providers when setting performance targets. Table 1 below provides a summary of the performance measure areas and the current implementation status.

Summary of Performance Measures and 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 Nonmotorized 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 GVMC region (listed for information only)</i>

**Table 1: Summary of Performance Measures and Target Setting Status**

*\* 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 measure targets and data collection, and outdoor advertisement/junkyard control. Not all NFC roads are classed as part of NHS.*

At this point, GVMC 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:

<https://www.gvmc.org/performance-based-planning-and-programming>.

## 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 the chart below. 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.

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

**Table 2: FAST Act Planning Factors**

## Chapter 2: Developing the MTP

This document is the culmination of efforts which began during the summer of 2018. The development of a comprehensive transportation plan for any Metropolitan Planning Organization (MPO) is a complex and lengthy process. (See Figure 2 below.) Drawing on the success of development processes for previous long-range MTPs that the MPO has developed, GVMC staff worked closely with the Grand Rapids area's transit provider, The Rapid; the Michigan Department of Transportation (MDOT); and the Federal Highway Administration (FHWA) to discuss plan coordination and improving coordination and outreach among the major transportation planning agencies in the Grand Rapids metro area. Meetings were also held with numerous committees and subcommittees to gather and share data; GVMC Transportation Committee meetings are open to the public. Public input was sought continuously throughout the development of the document, with GVMC staff making additional efforts to engage the public at key milestones during the development of the document. (See Figure 2 below.)

The steps below outline the process GVMC used to develop the 2045 MTP.

MTP Development Timeline	
MTP Development Step	Month and Year
2015 and 2045 Base Year Socio-Economic Data Developed	August/September 2018
Updated Public Participation Plan (PPP) Approved	November 2018
Travel Demand Model Calibration	April 2019
MTP Development Kickoff*	June 2019
MTP Survey	June – August 2019
Vision Statement, Goals and Objectives Revised and Approved	August/September 2019
Transportation Needs Subcommittees – Need Identification*	September 2019
Deficiency Analysis	September 2019
Financial Analysis	September-October 2019
Deficiencies Approved by Technical and Policy Committees	October 2019
Investment Strategy Developed and Approved	October 2019
Project List Developed and Approved	October-November 2019
Transportation Alternatives Analyzed	October-November 2019
Consultation	November 2019-January 2020
Environmental Justice Analysis	December 2019
Environmental Mitigation Analysis	December 2019
Presentation of Draft MTP	January 2020
Public Comment on Draft Document*	January-March 2020
Committee Approval of MTP*	March-April 2020
GVMC Board Approval of MTP*	May 2020

*Figure 2: MTP development timeline*

*\*Denotes public outreach milestone in the development of the MTP*

The chapters that follow provide additional information about these MTP development steps, including how important decisions were made and the data behind them, how input from the public and stakeholders was sought, and how this feedback influenced the development of the document.



## Collaborative Efforts

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GVMC collaborated with regional stakeholders and the Metropolitan Transportation Plan (MTP) Steering Committee, as well as modal committees, consultation agencies, and the public during key points in the development of the MTP, including:

- (1) Updating socio-economic data
- (2) Engaging the public
- (3) Revising the vision statement, goals and objectives
- (4) Conducting a mode-based needs analysis to determine needs for various aspects of the system
- (5) Completing a financial analysis to determine anticipated local, federal, and state revenue
- (6) Determining an investment strategy for addressing identified need based on available resources
- (7) Developing a project list based on the identified investment strategy and available resources
- (8) Approving the draft and final documents

Furthermore, GVMC made additional collaborative efforts by reviewing other long-range planning documents from regional planning partners in order to sync elements of our plan with theirs. How GVMC collaborated with these parties at these pivotal milestones is detailed in the remainder of this section. Key decisions made at major Plan development milestones were also brought to the Technical and Policy Committees for approval through the process outlined on page 18.

### **Collaboration with Local Jurisdictions and Regional Stakeholders**

GVMC's first step in developing the 2045 MTP was updating socio-economic data. To achieve this, GVMC staff scheduled individual meetings with every jurisdiction within the MPO area to discuss where they expected population and employment growth to occur through 2045, safety issues, transit needs, nonmotorized deficiencies, bottlenecks in the freight network, congestion and delay issues, among others. These meetings helped determine need directly from the source. Furthermore, staff also had several meetings and conversations with staff from The Rapid, the Gerald R. Ford International Airport, transit operators, and business organizations to determine transportation needs throughout the region.

GVMC also worked with local jurisdictions and regional stakeholders to help spread the word about our public survey in order to increase the response rate and to ensure that the responses were representative of the area as a whole. Because of the strong relationship GVMC has with our member agencies, many of them shared the link for the survey on their own webpages and social media pages on their own. For areas that had low survey response rates, GVMC reached out to the city, village, or township directly and requested that they share the link on their website or social media pages. The Rapid, LINC UP, and Senior Neighbors also shared the survey link on their Facebook pages, as did many other agencies and interested parties. Senior Neighbors also requested paper copies of the survey to hand out to their volunteers, the Village of Sparta invited GVMC to pass out surveys at a concert, and the City of Wyoming invited GVMC to pass out surveys at the Metro Cruise event. In all, the survey was shared on Facebook 86 times and received 867 completed responses. For more information on the survey, please visit Appendix I.

### **Collaboration with the Metropolitan Transportation Plan Steering Committee**

The MTP Steering Committee was developed to help guide the formation of the MTP. This Committee was instrumental throughout the development of the document and offered their expertise at two milestones: (1) updating the vision statement, goals and objectives, and (2) determining an investment strategy for addressing identified needs based on available resources. The MTP Steering Committee's recommendations

were brought through our Committee structure outlined on page 18 for approval. The MTP Steering Committee was comprised of the chairs and vice chairs of our Technical and Policy Committees and the chair of GVMC's board, and representatives from the agencies listed below:

Algoma Township	GVSU/GR Mayor's Transportation Workgroup
Alpine Township	Greater Grand Rapids Bicycle Coalition
City of Grand Rapids	Hope Network
City of Kentwood	Kent County Road Commission
City of Walker	LINC UP
Disability Advocates	MDOT
Federal Highway Administration	Ottawa County Road Commission
Gerald R. Ford International Airport Authority	The Rapid
Grand Rapids Chamber of Commerce	West Michigan Hispanic Chamber of Commerce
Grand Rapids Township	

## **Collaboration with Modal Committees**

Federal legislation has long required that long-range transportation plans be multi-modal in nature, meaning they address transit, rail, air, nonmotorized, and roads. GVMC staff leaned on the work of its modal committees for assistance at the third milestone: Conducting a mode-based needs analysis to determine needs for various aspects of the system. These modal committees include: Intermodal, Freight, Rail & Air; Nonmotorized; Transit & Passenger Rail; Congestion Management; Safety & Operations; and Pavement Asset Management. These modal subcommittees include representatives from the Technical and Policy Committees and organizations that have technical expertise that contributes to our understanding of regional transportation needs. The results of this comprehensive needs-based analysis are included in Chapter 5.

## **Collaboration with the Public**

GVMC followed the procedures explained in the 2018 Public Participation Plan to encourage public involvement throughout the development of the MTP. GVMC also solicited feedback from the public through a survey at the beginning of the MTP development process, which received 867 responses, and made additional efforts to engage the public at four milestones: (1) Kickoff to MTP Development, (2) Pre-Programming Collaboration (invitation for the public to review and comment on the results of the modal needs analysis), (3) Draft MTP, environmental justice, and air quality results (if applicable) completed and available for public comment, (4) Adoption of draft document. GVMC's Transportation Committee meetings are also open to the public, and meeting notices are posted online.

For more information, please refer to the following:

- (1) GVMC's Public Participation Plan at [www.gvmc.org/public-involvement](http://www.gvmc.org/public-involvement), which details how the public is engaged during the development of all of GVMC's major documents
- (2) The Public Participation Summary Report (see Appendix I), which includes the full results of GVMC's public survey and describes how GVMC collaborated with the public, including methods used, comments received, and how feedback was incorporated in the document.

## **Collaboration with Consultation Organizations**

GVMC collaborated with consultation organizations during the development of the MTP per the process described in our Consultation Plan. More information on consultation outreach efforts is included in Chapter 9.

## **Collaboration with Other Regional Plans and Recognition of our Own**

GVMC recognizes the importance of cooperation and collaboration in regional planning efforts, and therefore references several regional plans and documents, including our own, that support determined needs or initiatives throughout the remaining chapters of this document. These documents, with brief descriptions, include:

### **City of Grand Rapids – Bicycle Action Plan (2019)**

The Bicycle Action Plan has information on the City’s current bicycling conditions, programs, policies and culture. It also includes a vision for bicycling in Grand Rapids in the near future with goals focused on connectivity, safety, comfort, equity, ridership, community, and health.

### **City of Grand Rapids – Bike Share Feasibility Study (Currently Ongoing)**

The City of Grand Rapids is undergoing a bike share study to see if a market exists in Grand Rapids to support a bike share program and keep it running. Bike share is a low-cost way to connect to and from transit stops, run errands, get to appointments, visit Grand Rapids destinations, and access remote parking. They have hired consultants to work with them on developing a strategic business plan.

### **City of Grand Rapids – Vital Streets Plan (2016)**

The Vital Streets Program focuses on making roadways in the City of Grand Rapids as accessible, attractive, safe, and accommodating as possible. By prioritizing multimodal transportation, the Vital Streets Program contributes to the livability, environmental sustainability, and economic success of the city. The intention of the Vital Streets Plan is to promote consistency and provide a framework to use best practices in project-based decision-making. Through this Plan, the City aspires to ensure that Vital Streets projects serve the City’s overall vision and deliver a complete and viable network that sustains Grand Rapids over time.

### **City of Kentwood – Nonmotorized Facilities Plan (2017)**

This document focuses on nonmotorized movement within the city and interconnections with the regional nonmotorized and transit networks. The resulting plan is intended to reflect the city’s future vision as well as identify projects and prospective funding resources that can be drawn upon and implemented through the City’s capital improvements programming.

### **GFIA – Gerald R. Ford International Airport Master Plan Update Executive Summary (2004)**

Not only does air travel provide a fast travel option to its users, it also supports economic growth, development, regional employment, and investment. This Master Plan cites eight goals and objectives for the future, addressing topics such as safety, development of facilities, self-sustainability, and efficiency.

### **GVMC – 2019 Regional Pavement Condition Survey Report (2019)**

The purpose of this report is to document the annual survey undertaken by GVMC and its member agencies to determine the overall pavement condition of the federal aid road network in the Grand Rapids urban area. The report has been developed with the distinct intent that updates can be made without significant commitment of financial or staffing resources.

### **GVMC – FY2020-23 Transportation Improvement Program (2019)**

The Transportation Improvement Program (TIP) identifies proposed projects developed by local agencies in accordance with the joint regulations of the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). These regulations establish the TIP as the programming phase of the overall

continuing, comprehensive, and cooperative (3C) planning process. This planning process includes local jurisdictions, transit agencies, and state and federal transportation officials. All federal monies returned to the Grand Rapids metro area from the federal fuel tax are distributed through this process.

#### **GVMC – Congestion Management Document (2018)**

A Congestion Management Process (CMP) is intended to be a systematic way of monitoring, measuring and diagnosing the causes of current and future congestion on a region's multi-modal transportation systems; evaluating and recommending alternative strategies to manage or mitigate current and future regional congestion; and monitoring and evaluating the performance of strategies implemented to manage or mitigate congestion.

#### **GVMC – Environmental Justice Transportation Accessibility Analysis (2017)**

GVMC's Environmental Justice and Transportation Accessibility Analysis was preformed to assess regional access to roadway, transit, and nonmotorized transportation networks, as well as accessibility to key destinations via transportation systems.

#### **GVMC – Nonmotorized Plan (2014)**

The nonmotorized element of the MTP contains information about existing non-motorized facilities as well as recommended projects and funding 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.

#### **GVMC – Policies and Practices for Programming Projects**

As the title implies, this document describes GVMC's policies and practices for determining which projects are eligible for federal funding and what type of fixes they qualify to receive.

#### **GVMC – Traffic Safety Plan (2018)**

The primary purpose of this document is to identify locations on GVMC's highway network system where safety issues may exist and where countermeasures, when applied, can lead to a reduction in the number of crashes at specified locations, thus improving the overall safety of the transportation system in the GVMC region. This effort, and indirectly the collaborative efforts of GVMC and its member communities, focus on the transportation infrastructure. This study focuses on aspects related to transportation infrastructure improvements.

#### **MDOT – 2020-24 Five-Year Transportation Plan (2019)**

This document provides information on planned investments for all components of the transportation network for which MDOT is responsible, including highways, bridges, bus, rail, aviation, marine, and nonmotorized transportation. This document is created in alignment with the established State Long-Range Transportation Plan (SLRTP) and State Transportation Commission (STC) goals established to ensure the preservation of the transportation network to provide a safe and connected system for Michigan's citizens, as required.

#### **MDOT – Grand Region Nonmotorized Plan (2017)**

This plan identifies nonmotorized needs for the Grand Region as a whole, which includes 13 counties in West Michigan, as well as needs and priorities by county. The focus of this document is on regional facilities

for bicyclists and pedestrians. Specifically, how a regional network of trails, paths, and on-road facilities can provide connections between communities, counties, and adjacent regions

#### **MDOT – Michigan Freight Plan (2017)**

The Michigan Freight Plan, created as a supplemental piece to MDOT’s 2040 Michigan Transportation Plan, focuses on the importance of freight mobility in relation to the movement of goods across the state. Consumer demand, congestion, infrastructure, and market forces increasing costs are factors cited for making a Freight Plan necessary. This plan’s goal is to increase the cost effectiveness of freight transportation in the state with a major focus on the National Highway System.

#### **MDOT – Michigan Mobility 2045 (in development)**

Prioritizing investment in multimodal transportation systems, the MM45 plan cites this as a direct source of economic viability and competitiveness for Michigan’s future. This 25-year plan incorporates the state’s transportation system with the State Rail Plan and State Freight Plan to create one vision for the future of transportation.

#### **MDOT – Michigan State Rail Plan (2011)**

MDOT’s State Rail Plan acts as a guide for the development of rail systems and services for the state. Centered on the maintenance and expansion of rail services, this plan hopes to create an integrated freight and passenger rail network as part of a balanced transportation system across the state.

#### **NACTO Blueprint for Autonomous Urbanism (2019)**

This document describes the impact autonomous vehicles may have on the transportation system and is organized into three parts: shaping the autonomous future today, policies to shape the autonomous age, and design for the autonomous age. This document takes the reader through the principles and political structures that underscore and shape our vision of the future, key policy choices around transit, pricing, freight, and data that can reshape our cities, and finally, explores the vision for city streets of the future.

#### **Plainfield Township – Nonmotorized Pathways and Trails Plan (2019)**

Plainfield Charter Township is proud of its natural setting and its abundance of opportunities for residents to lead a healthy and active lifestyle. The goal of the plan is to be able to link up the trail system wherever possible, connecting residents to parks, lakes, schools, and shops.

#### **The Rapid – Align: The Rapid’s Transit Improvement Plan (2018)**

The Align Study was a year-long project that identifies possible transit upgrades to be made to the existing bus system to improve the transit experience with the help of public input. The study builds upon previous transit projects to recognize areas of improvement and potentially expand service.

#### **The Rapid – FY2020-2024 Capital Improvement Plan (CIP) (2019)**

The Rapid is using a Capital Investment Decision Model to score and evaluate the capital projects within the 5-Year Capital Plan. These criteria facilitate a system that is customer focused, prioritizes employees as an asset, and maximizes The Rapid’s capital investments to bring the best service possible to the community. All of the projects contained in the 5-Year Capital Plan are aimed at furthering this mission and these goals.

#### **The Rapid – Transit Master Plan Final Report (2010)**

The Transit Master Plan sets out to create a 20-year plan of action and vision for The Rapid. This plan’s

framework is based on 5 key priorities determined by the public: Expand Span of Service, Improve Service Frequencies, Expand Choices, Extend Service outside of ITP Service Area, and Improve Service in Underserved Areas. Building on these priorities, three scenarios were created with a chief objective to improve local service, expand regional commuter bus services, and expand the modern streetcar network.

### **West Michigan Express Study (2018)**

WMES is an effort to link communities in West Michigan along the Chicago Drive corridor between Grand Rapids and Holland with commuter-based public transportation. The study plans to begin with an express bus service spanning the area before potentially establishing a commuter rail to enhance economic growth.

### **West Michigan Traffic Safety Plan (2017)**

The purpose of creating the West Michigan Traffic Safety Plan is to identify the unique issues and assist with making informed safety investment decisions to reduce fatalities and serious injuries for all road users.

### **Other noteworthy plans that support regional long-range planning efforts include:**

Ada Township – Master Plan (2007)

Algoma Township – Master Plan Update (2018)

Allendale Charter Township – Master Plan (2013)

Alpine Township – Master Plan Update (2015)

Caledonia Charter Township – Master Plan (2015)

Cascade Charter Township – Master Plan (2009)

City of Cedar Springs – Master Plan Update (2017)

Courtland Township – Master Plan (2007)

City of East Grand Rapids – Master Plan (2018)

Gaines Charter Township – Master Plan Update (2008)

Georgetown Township – Master Plan (2015)

City of Grand Rapids – Master Plan (2002)

City of Grand Rapids – Bicycle Action Plan (2019)

City of Grand Rapids – Vital Streets Plan (2016)

Grand Rapids Charter Township – Comprehensive Plan (2007)

Grand Rapids Charter Township – Non-Motorized Plan (2013)

City of Grandville – Master Plan 2020 (2008)

City of Hudsonville – Master Plan (2015)

Jamestown Charter Township – Master Plan (2014)

Kent County Parks Department – Master Plan (2019)

Kent County Road Commission – Long Range Plan (2017)

City of Kentwood – Master Plan (2012)

City of Kentwood – Non-Motorized Facilities Plan (2017)

City of Lowell – Master Plan (2007)

Lowell Charter Township – Master Plan (2014)

Michigan Department of Transportation – State Long Range Transportation Plan (2016)

Michigan Department of Transportation – Grand Region Regional Non-Motorized Plan (2017)

Michigan Department of Transportation – 2045 State Long Range Transportation Plan (2019)

Nelson Township – Master Plan (2007)

Ottawa County Parks Department – Parks, Recreation, and Open Space Plan (2016)

Ottawa County Road Commission – 2045 Long Range Plan (2019)

Ottawa County Road Commission – Strategic Improvement Plan (2018)

Plainfield Charter Township – Master Plan Update Supplement (2017)

Plainfield Charter Township – Non-Motorized Pathways and Trails (2019)

The Rapid – Transit Improvement Plan (2018)

City of Rockford – Master Plan 2020 (2002)

City of Rockford – North End Subarea Plan (2011)

Village of Sparta – Master Plan (2015)

Tallmadge Charter Township – Master Plan

City of Walker – Future Land Use Plan Update (2016)

City of Walker – 2040 Master Plan Update (2011)

City of Wyoming – Land Use Plan 2020 (2012)



## **Collaboration and Transportation System Security and Emergency Preparedness**

Increasing the security of the transportation system for motorized and nonmotorized users is a FAST Act planning factor. To achieve system security, GVMC collaborates with MDOT, which has a statewide Emergency Management Steering Committee in place to address Homeland Security Issues. Any threats or potential threats identified by the federal Department of Homeland Security (DHS) or Michigan State Police (MSP) are then communicated to MDOT field staff to monitor specific or categories of targeted facilities, structures, etc. Monitoring can be accomplished visually by MDOT staff, local law enforcement, or using the ITS cameras, which are now covering a greater proportion of the state transportation system. Any unusual activities observed are reported to the MSP and/or the federal DHS. State of Michigan efforts are also coordinated with the Federal Highway Administration and DHS activities. In addition, any potential threats identified to local facilities are communicated to local officials and/or law enforcement agencies. Generally, transportation emergency and disaster situations are initially identified by local agencies and then communicated and coordinated with local MDOT and MSP offices; if needed, the Governor may request federal disaster or emergency declarations, which then can make federal resources available.

GVMC supports MDOT's efforts to maintain an Emergency Response Plan which "provides for MDOT actions during all-hazards incidents that indirectly or directly affect the traveling public, local and/or MDOT resources, particularly as these incidents escalate." These hazards may include flooding, severe weather, power outages, fires, civil disturbances, MDOT or local facility damage, mass transportation service interruption and more which "trigger actions to prevent or minimize loss of life, injuries, damage to property and/or the environment as well as preserve public health or safety, and to minimize disruptions of government, social or economic activities." This plan can expand and contract as appropriate in direct proportion to the level of the incident and outlines MDOT's responsibility to expedite core functions as incidents escalate. This plan is in compliance with all applicable provisions under the authority of Michigan Emergency Management, Act 390 of 1976, as amended, as well as components of the Michigan Emergency Management Plan and MDOT Emergency Management Manual. MDOT's Business Continuity Plan (BCP) supports this plan by providing guidance during all-hazards incidents that disrupt operations and/or prevent occupancy of normal workplaces.

These focused efforts will ensure that security issues are integrated into the GVMC transportation planning process.

# Transportation Committee Oversight of MTP Development

The Grand Valley Metropolitan Council's transportation committees are comprised of members that represent all modes of transportation throughout the local transportation community, as well as eligible cities, townships, and villages. Additionally, the Kent and Ottawa County Road Commissions, The Rapid, Gerald R. Ford International Airport Authority, the Grand Rapids Area Chamber of Commerce, the West Michigan Environmental Action Council, and the Michigan Department of Transportation also participate.

There are four primary committees that impact the transportation planning and decision-making process in the Grand Rapids Metropolitan Area. The **Transportation Programming Study Group (TPSG)** is an ad-hoc

committee of the Technical Committee that is charged with one task: making programming decisions about specific transportation projects through the short-range Transportation Improvement Program. All other issues that need to be considered are brought first to the Technical Committee and subsequently make their way "up" the committee structure explained in the chart above. The **Technical Committee** includes representatives from each of the member agencies and communities that has expertise in the technical areas of the transportation process. The **Policy Committee** is made up of representatives of each member agency who have a policy development responsibility in their respective agencies/communities. Most members are elected officials or appointed by the elected officials of their agency/community. The **GVMC Board** is composed of the chief elected officials (and/or their designee) for the member agencies. Many of the GVMC Board members participate on the Policy Committee so there is often familiarity with transportation issues and discussions at this level.

A list of member agencies and jurisdictions is on the following page, while a complete list that includes designated representatives is included in Appendix C.

## Committee Meeting Schedule

**Technical Committee** meets at 9:30 a.m. the first Wednesday of the month at the Kent County Road Commission, 1500 Scribner Ave. NW, Grand Rapids, Michigan.

**Policy Committee** meets at 9:30 a.m. the third Wednesday of the month at the Kent County Road Commission, 1500 Scribner Ave. NW, Grand Rapids, Michigan.

**GVMC Board** meets at 8:30 a.m. the first Thursday of the month at the Kent County Administration Building, 300 Monroe Ave. NW, Grand Rapids, Michigan.

All meetings are open to the public, and meeting notices and agendas are posted on our website to encourage public participation and attendance.

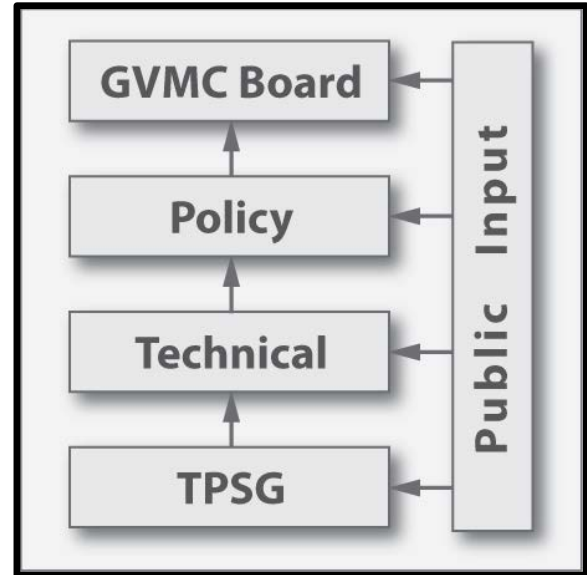


Figure 3: MPO Committee Structure

## **Committee Representation**

### **Transportation Programming Study Group**

City of Cedar Springs

City of East Grand Rapids

City of Grand Rapids

City of Grandville

City of Hudsonville

City of Kentwood

City of Lowell

City of Rockford

City of Walker

City of Wyoming

Gerald R. Ford International Airport

Grand Rapids Chamber of Commerce\*

Hope Network\*

ITP/The Rapid

Kent County Road Commission

Kent County townships

Michigan Department of Transportation

Ottawa County Road Commission

Ottawa County townships

### **Technical and Policy Committee**

Ada Township

Algoma Township

Allendale Township

Alpine Township

Byron Township

Caledonia Township

Cannon Township

Cascade Charter Township

City of Cedar Springs

City of East Grand Rapids

City of Grand Rapids

City of Grandville

City of Hudsonville

City of Kentwood

City of Lowell

City of Rockford

City of Walker

City of Wyoming

Courtland Township

Federal Highway Administration\*

Federal Transit Administration\*

Gaines Charter Township

Georgetown Charter Township

Gerald R. Ford International Airport

Grand Rapids Chamber of Commerce\*

Grand Rapids Charter Township

Hope Network\* (Technical Committee only)

ITP/The Rapid

Jamestown Township

Kent County Board of Commissioners

Kent County Road Commission

Michigan Department of Transportation

Ottawa County Board of Commissioners

Ottawa County Road Commission

Plainfield Charter Township

Tallmadge Township

West Michigan Environmental Action Council\*

*\*Non-Voting Member*

## 2045 MTP Approval Process

GVMC brought various elements of the MTP document through the Technical and Policy Committee structure outlined on page 18. These elements included (1) the vision statement, goals and objectives, (2) the modal needs analysis (including the results of the financial analysis), and (3) the project list. After the consultation process and an environmental justice and environmental mitigation analysis were completed for the project list, the draft document was brought to the Technical and Policy Committees for approval. Upon approval, the public was asked to review and comment on the draft MTP. After the conclusion of this public comment period, all comments were considered, and the final document was presented to the Technical and Policy Committees, and lastly, the GVMC Board, for approval. The public was given one last opportunity to comment before final approval by the Board, the final approving body for this document.

Because GVMC is considered an orphan maintenance area for the 1997 ozone standard, GVMC must also send the document on to MDOT, FHWA, and the EPA after receiving Board approval to ensure that all air quality requirements have been completed according to federal regulation. The graphic below depicts the approval process for the 2045 MTP.

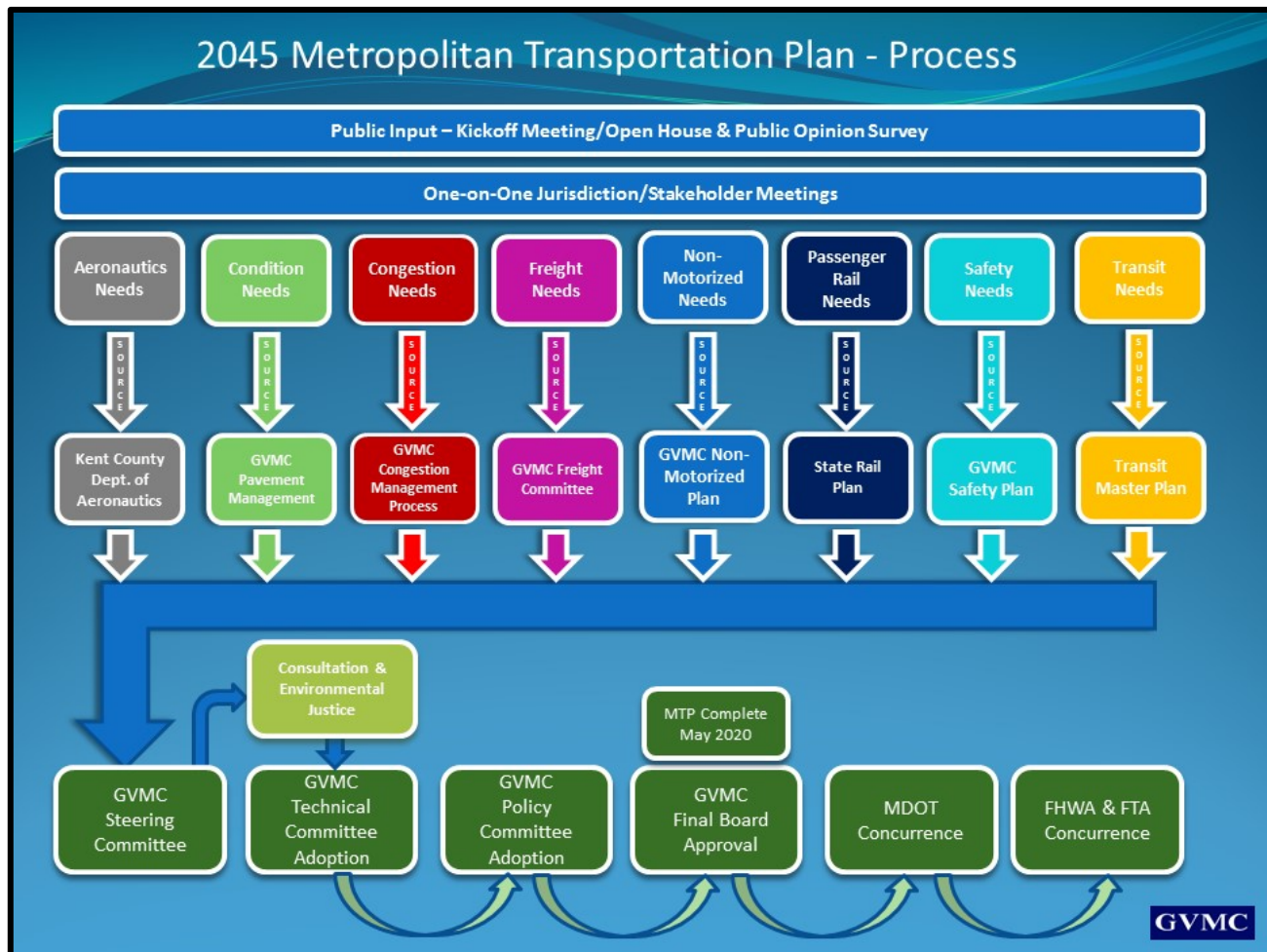


Figure 4: MTP Approval Process

## Chapter 3: Determining a Vision for the Future

The vision statement, goals and objectives of the Metropolitan Transportation Plan (MTP) are pivotal in the planning process as they provide the direction and basic framework upon which future decisions can be made. They also embody a desired state of affairs to be achieved through future planning efforts, contribute strongly to the selection and evaluation of projects, influence the development of the short-range Transportation Improvement Program (TIP), and are meant to guide the transportation planning process for the entire region.

GVMC started the process of developing the vision statement, goals and objectives for the 2045 MTP by reviewing the vision statement, goals and objectives of the 2040 MTP to evaluate if they were still relevant. GVMC determined that the vision statement needed to be refreshed and that the goals and objectives from the 2040 MTP were too cumbersome to be achievable. Taking into consideration the previous plan's goals and objectives, data from the public survey included in Appendix I, federal performance measure requirements, and the planning factors on page 9, GVMC worked with the MTP Steering Committee during August 2019 to significantly condense the goals and objectives. Staff also collaborated with the MTP Steering Committee to develop a new vision statement for the 2045 MTP. Staff brought the revised vision statement, goals and objectives to the Technical and Policy Committees for approval in September, 2019.

### Vision Statement

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The 2045 MTP establishes a vision of how the future multimodal transportation system will serve the people and businesses of Kent and eastern Ottawa counties. The vision statement, adopted by the GVMC Policy Committee in September 2019, is:

Through cooperation and collaboration with our members, regional stakeholders, and the public, GVMC will continue to enhance a sustainable and resilient multimodal transportation system that is accessible, safe, reliable, environmentally sound, socially equitable, economically viable and adaptable for future growth within the constraints of available resources.

### Goals and Objectives

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To achieve the vision statement, the transportation system must be maintained in a state of good repair and the region's agencies and jurisdictions must work cooperatively to develop strategies to effectively distribute transportation funding. The following goals reflect the vision statement and are supported by several measurable objectives that are described in association with specific transportation components. The goals and objectives are not ranked or listed in order of importance; however, they support the federal planning factors as demonstrated in Table 2 on page 9.

## Goal 1: Further Develop an Efficient Multimodal System

Objective 1a: Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight

Objective 1b: 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

Objective 1c: Implement strategies to promote efficient and reliable system management and operation that result in the reliable and safe movement of people and freight

Objective 1d: Increase security of the transportation system by incorporating applicable emergency relief and disaster preparedness plans, strategies and policies that support homeland security, as appropriate, to safeguard the security of all motorized and nonmotorized users

Objective 1e: Prepare for new and emerging operation and propulsion technology in support of the goals and objectives of the Metropolitan Transportation Plan

## Goal 2: Preserve the System

Objective 2a: Apply transportation asset management principles and techniques to identify, assess, and maintain existing transportation infrastructure in support of federal performance measures

Objective 2b: Support the State of Good Repair federal performance measures and the priorities established in the ITP Transit Master Plan

Objective 2c: Identify strategies and recommend investments that preserve and enhance regional transit systems

## Goal 3: Enhance Safety and Reduce Congestion

Objective 3a: Promote services, such as Rideshare, that increase vehicle occupancy rates

Objective 3b: Reduce the reliance on Single Occupancy Vehicles (SOVs) by developing policies that encourage the use or development of active modes of transportation

Objective 3c: Employ the Congestion Management Process to systematically monitor, measure, diagnose, and recommend travel management alternatives for current and future congestion on our region's multi-modal transportation system

Objective 3d: Promote Travel Demand Management (TDM) practices to manage future traffic growth, improve system efficiency, mitigate congestion, and spread the travel demand evenly to other times of the day, where feasible

Objective 3e: Support the use of Intelligent Transportation Systems (ITS) and incident management to reduce the potential for secondary traffic incidents and non-recurring congestion

Objective 3f: Promote sharing ITS data between agencies to streamline and improve incident management response

Objective 3g: Improve safety of the transportation system for motorized and nonmotorized users in support of federal performance measures by identifying and prioritizing projects that will reduce the likelihood or severity of crashes and incorporating safety improvements with all transportation projects where feasible and practical

Objective 3h: Improve the travel time reliability of the system in support of federal performance measures and improve quality of life

## Goal 4: Strengthen Land Use and Transportation Policies

Objective 4a: Link transportation and land use policies to encourage people and businesses to live and work in a manner that improves equitable access to the entire system for all users and streamlines number and length of trips when possible

Objective 4b: Coordinate land use decisions with transportation plans to increase accessibility and mobility of people and freight

Objective 4c: Develop transportation plan data and projections using up-to-date local land use data and regional population and employment forecasts

## Goal 5: Engage Stakeholders and the Public

Objective 5a: Provide continual and transparent opportunities for stakeholders and the public to actively participate in the transportation decision making process

Objective 5b: Ensure that the public involvement process is equitable by using outreach strategies that reach and engage stakeholders and the public, with special consideration given to ensuring the inclusion of people traditionally underserved by the transportation planning process

## Goal 6: Ensure Equity, Access and Mobility

Objective 6a: Provide access to employment, education, medical facilities, housing, services, neighborhoods, recreation and fresh food for all people, regardless of age, ability, or economic status

Objective 6b: Foster Environmental Justice through the maintenance of a planning process that does not unfairly affect any one segment of our community

Objective 6c: Implement improvements for all transportation system users that foster increased accessibility, economic development and vitality

## Goal 7: Protect and Enhance the Environment

Objective 7a: Promote energy conservation and improve air quality by encouraging active modes of transportation that reduce emissions and improve quality of life and public health

Objective 7b: Encourage the reduction or mitigation of storm water impacts of surface transportation projects

## Relating Planning Factors to MTP Goals

The table below shows how the goals and objectives for the 2045 MTP support FAST Act planning factors.

FAST ACT Planning Factors	Related MTP Goals	MTP Incorporation of FAST Act Planning Factors
1.) Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency	Goal 1 Goal 2 Goal 3 Goal 4 Goal 6	The projects contained in this plan preserve and enhance access (by all modes) to major employment centers.
2.) Increase the safety of the transportation system for motorized and nonmotorized users	Goal 3	In support of federal performance measures, safety improvements for all modes are encouraged in this plan, such as crash reductions at intersections, along corridors, and for all users, including seniors, bicyclists, and pedestrians.
3.) Increase the security of the transportation system for motorized and nonmotorized users	Goal 1	GVMC employs ITS strategies and collaborates with MDOT 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 Goal 6	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 4 Goal 6 Goal 7	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 GVMC members, road agencies, ITP/The Rapid, 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 3 Goal 4 Goal 6	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 1 Goal 2 Goal 3 Goal 4 Goal 6	The programs/projects in this plan were developed with GVMC 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 1 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 4 Goal 7	System reliability is a federal performance measure and therefore a high priority. GVMC strives to reduce congestion through our congestion management process, and the projects in this plan must be congestion-deficient to be eligible for federal funding. We also consider environmental resources through our consultation and environmental mitigation processes.
10.) Enhance travel and tourism	Goal 1 Goal 2 Goal 3 Goal 4	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.

**Table 3: Relating Planning Factors to MTP Goals**

# Chapter 4: Identifying Household and Employment Growth

In GVMC’s planning area—which includes our MPO area as well as Blendon, Polkton, Wright, and Chester Townships and the City of Coopersville—population is expected to increase by 142,305 between 2015 and 2045. That’s the equivalent of adding the population of the City of Wyoming to our planning area twice over. Currently, the population of our planning area is 743,024. For additional information on growth by location, please view the table in Appendix D.

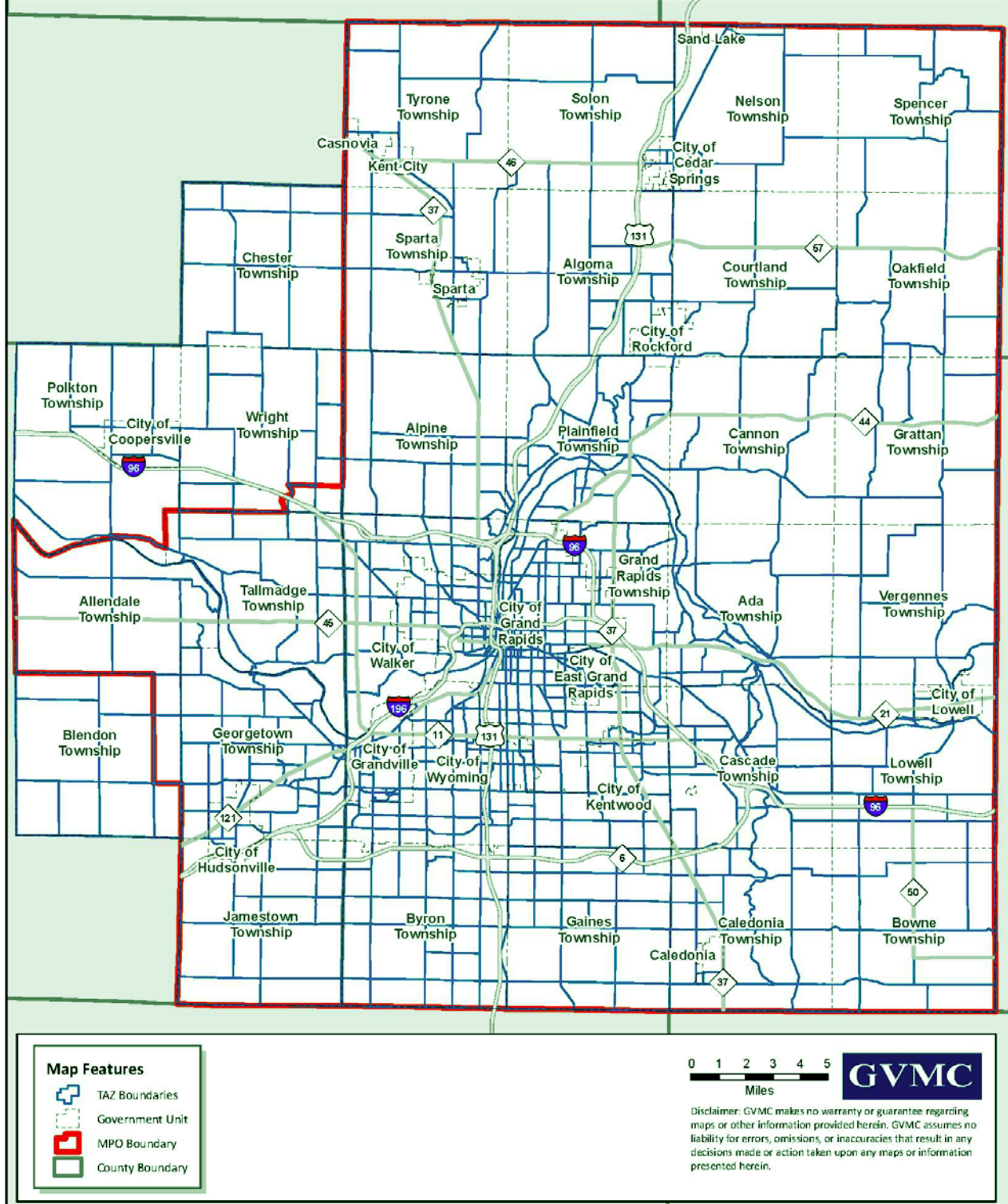
One of the most important elements in the development of a long-range transportation plan is an assessment of household and employment data for the region. Socioeconomic (SE) data forecasts are essentially an inventory of what currently exists in terms of households and employment and what is projected for the year 2045. For the 2045 Metropolitan Transportation Plan (MTP), GVMC, in collaboration with the Transportation Committees and local jurisdictions, collected household and employment projections through the year 2045 for use in the travel demand model.

Household and employment projections developed for the 2045 MTP used nationally recognized data sources such as U.S. Census Data, American Community Survey (ACS) data, InfoUSA and Hoovers employment data, Bureau of Economic Analysis (BEA) data, and Regional Economic Model Inc. (REMI) data as the basis for projections. Local information, such as building permits, and examining the accuracy of employer data can help to refine the national data sets and better reflect regional trends. Together the household and employment projections are referred to as the socioeconomic projections, and they serve as the basis for projecting future travel patterns and for identifying current and future deficiencies in the transportation system.

The SE data collected is recorded by Traffic Analysis Zone (TAZ), as this is the unit used in the travel demand model. The boundary of a TAZ is usually a major street or highway, body of water, or another major physical feature, and there are approximately 860 of them in the area. Please refer to Map 2 on the following page for additional information. The TAZs allow for the transportation network to be divided into smaller pieces that have similar transportation characteristics to allow for more effective analysis of travel patterns and a better simulation of future transportation activities.

Household and employment information is populated into the travel demand model by TAZ to help understand the number of trips produced and attracted to each zone. With information about the number of trips by zone, the model can calculate those road segments anticipated to be near or over capacity (capacity deficient) in the future. Road segments that are near or over capacity can result in unreliable travel times, congestion, inefficient movement of people and goods, and unsafe travel conditions. This process is discussed in the “Congestion” section in Chapter 5. It is important to keep in mind that GVMC is responsible for modeling for some areas beyond the MPO boundaries for the Michigan Department of Transportation (MDOT). These areas, including Blendon, Polkton, Wright, and Chester Townships and the City of Coopersville, are not part of any MPO, but they were included in the SE data collection process. Please see Map 2 on the following page for additional information.

## Traffic Analysis Zones (TAZ) for GVMC's Modeled Area

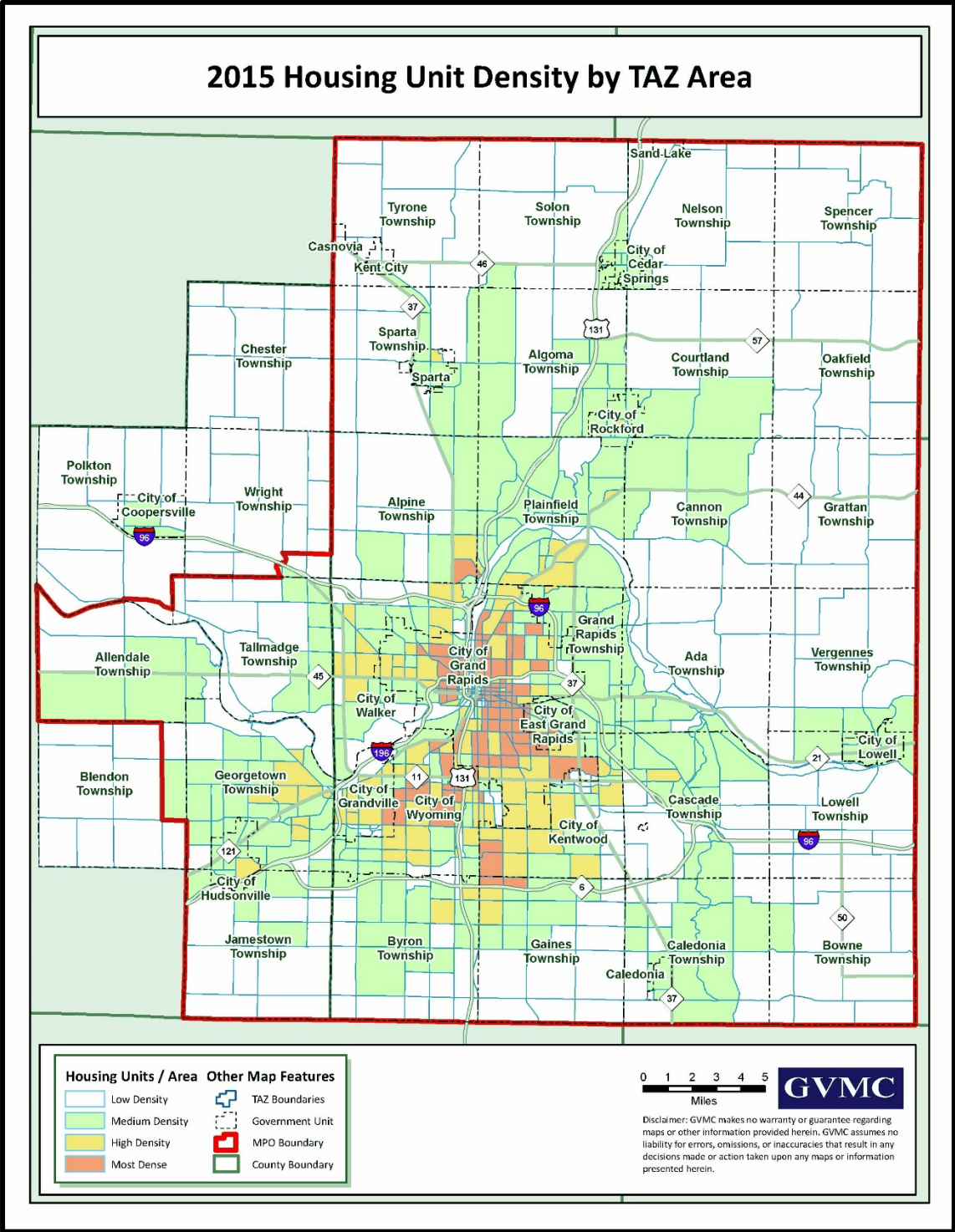


Map 2: Traffic Analysis Zones (TAZs) for GVMC's Modeled Area

# 2015 Base Year Data

To initiate the SE data process, staff first established a 2015 base for households and employment, from which projections into the outer years of the MTP could be made. Much of this work was conducted with assistance from GIS software, as this data is geographical in nature. Household totals were developed by applying MDOT’s TAZ household growth adjustment factor to 2010 U.S. Census information and interpolating 2015 estimates. These estimates were then adjusted to sum REMI county forecast totals. See Map 3 below.

## Households 2015

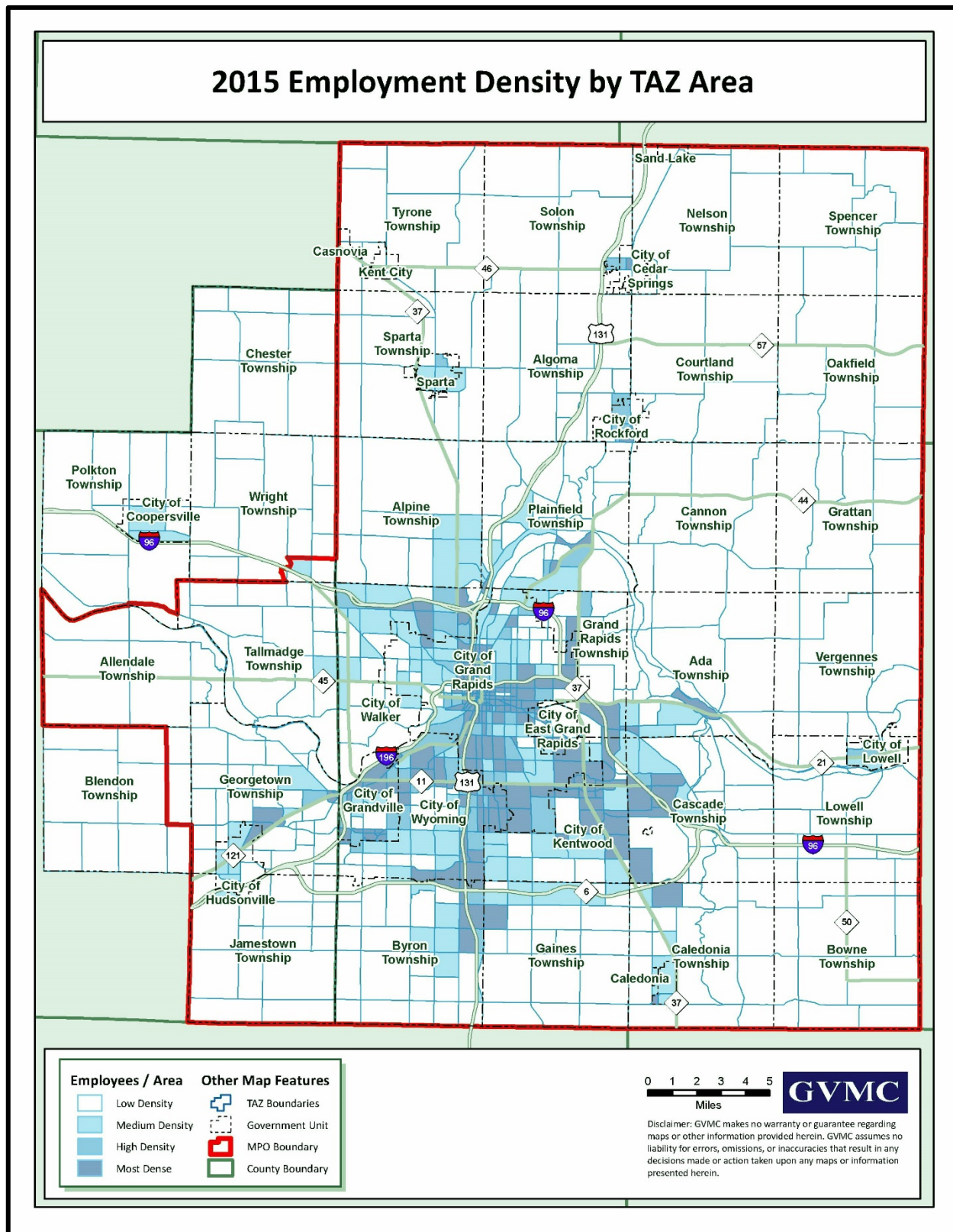


Map 3: 2015 Housing Unit Density by TAZ Area



## Employment – 2015

2015 TAZ EMP was based on MDOT's 2014 combined employer database (InfoUSA and Hoovers) estimates aggregated to the TAZ level and adjusted to 2015 BEA county sector estimates. Staff also verified that the data points for the largest employers were placed in the correct location to ensure they were incorporated into the correct TAZ.



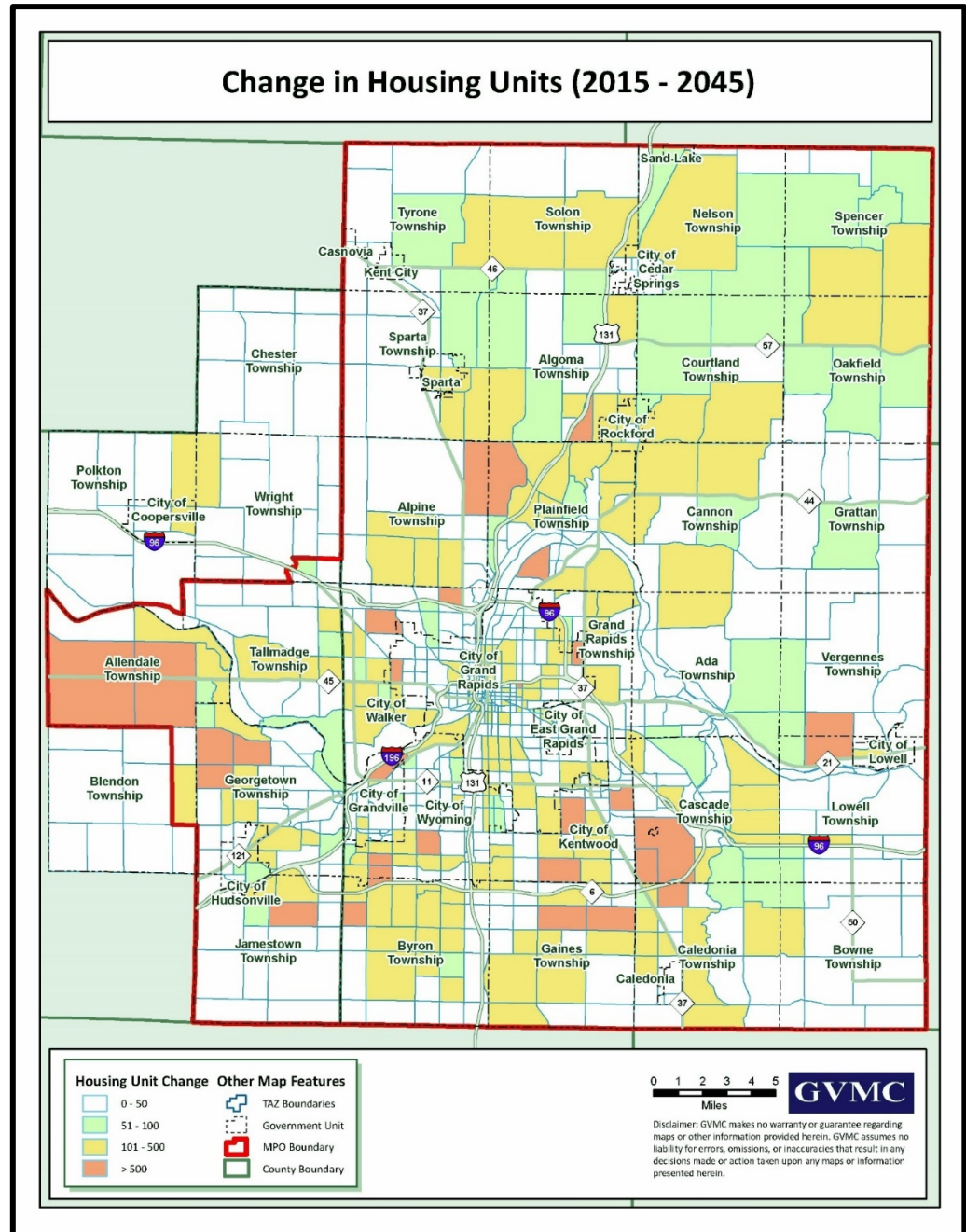
Map 4: 2015 Employment Density by TAZ Area

## 2045 Data

GVMC received initial household and employment TAZ-level estimates for 2045 (as well as interim years 2020, 2025, and 2035) from the State Demographer. Staff then aggregated these totals up to the jurisdiction level and met with local planners throughout the region to place growth back at the TAZ-level based on their local knowledge of development expectations. This local input was incorporated using GIS, and County control totals were maintained throughout this process.

### Households – 2045

It is expected that the region will grow by about 85,630 households by 2045. Of this number, about 25% are expected to be added within the City of Grand Rapids, and over 50% are expected to be added in townships in the region. While many areas are anticipated to see growth in households, about 35% of the TAZs are projected to have zero household growth – almost 50% of which are located within the City of Grand Rapids. In fact, 72% of Grand Rapids' TAZs are projected to add zero households, indicating more concentrated pockets of growth within that city. Please refer to the map at right for additional details.

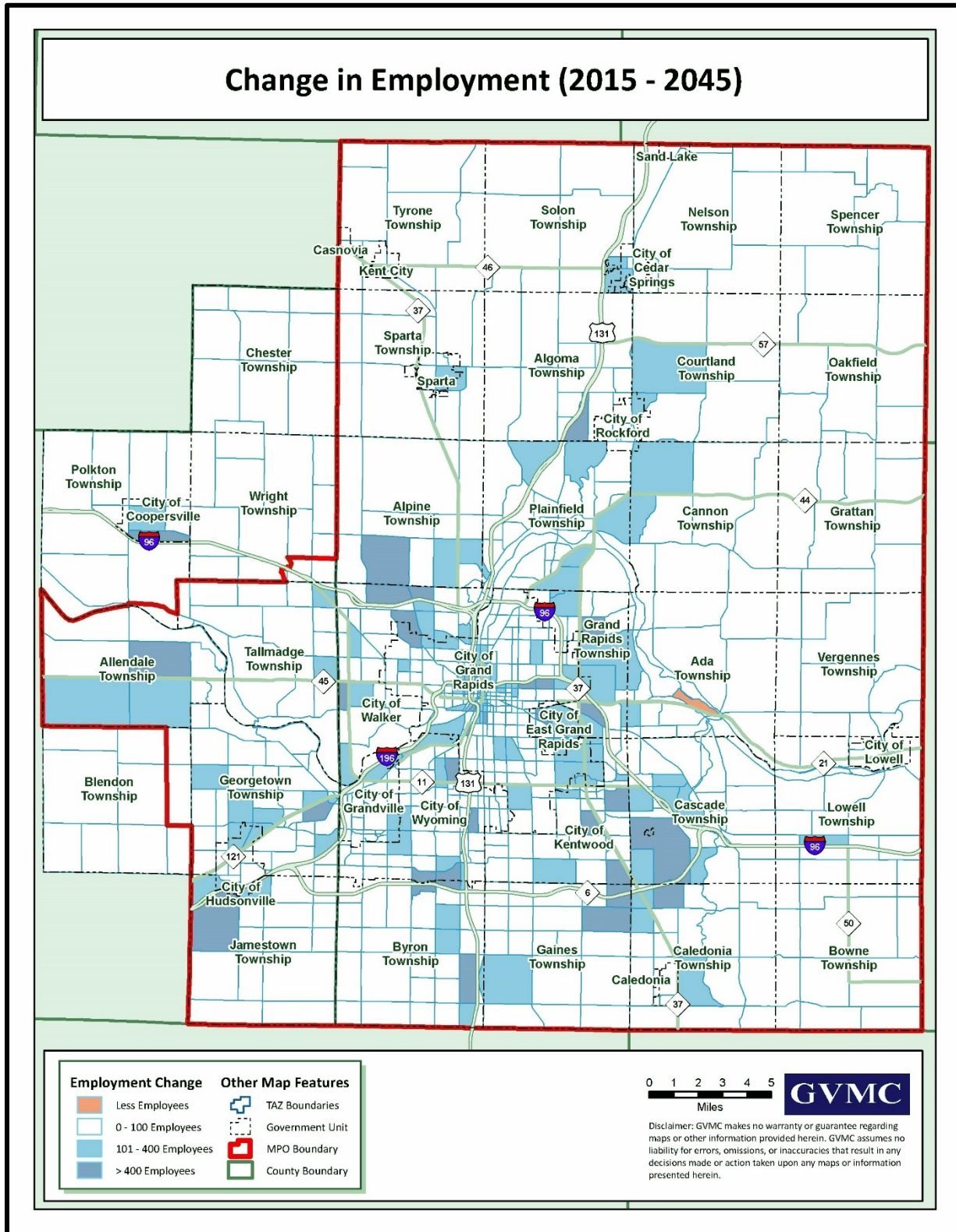


Map 5: Change in Housing Units 2015-2045



## Employment – 2045

About 64,500 additional jobs are projected to be in the region by 2045. Approximately 30% of these additional jobs are anticipated to be located within the City of Grand Rapids, but other pockets of job growth are also expected in the “Four Corners” area of Kentwood, Gaines Township, Cascade Township, and Caledonia Township; along M-6 and US-131 in southern Wyoming/Byron Township; 4 Mile Rd and I-96 area in Walker/Alpine Township; along Chicago Drive, and along Michigan Street in Grand Rapids.



Map 6: Change in Employment 2015-2045

# Chapter 5: Evaluating the State of the Transportation System

Once the SE data was approved and the goals and objectives were developed and affirmed by the Technical and Policy Committees, GVMC staff began the next phase of the MTP development process: evaluating the state of the transportation system by mode to determine how the system was functioning. This comprehensive needs analysis looked critically at the following modes of transportation in light of the approved goals and objectives, public survey data, and planning factors, and determined current initiatives and challenges:

- (1) Transit
- (2) Freight Movement
- (3) Air Travel
- (4) Passenger Rail
- (5) Nonmotorized

As part of this needs analysis, staff also conducted a region-wide deficiency analysis for the following areas to determine where the system is falling below acceptable levels:

- (1) Safety
- (2) Pavement and Bridge Condition
- (3) Capacity Deficiency (congestion)

Currently, only projects that are deficient in one of the three categories above are eligible to receive federal funds. Only capacity-deficient expand and improve projects are required to be listed on the project list in this document. GVMC staff used our new travel demand model to determine capacity deficiencies on our system, and the congestion section of this chapter discusses the process for how some capacity deficient road segments have become projects. Not all identified capacity deficiencies have a project associated to alleviate the identified issues. However, when prioritizing operational or capacity projects long-term, these deficiencies provide a context of what road segments should be considered by the appropriate road agencies. This also allows for opportunities to coordinate development or enhance other modal facilities where feasible. Identified deficiencies without committed funding are included in the illustrative list of projects in Appendix G.

The remainder of this chapter details the results of GVMC's mode-based needs analysis and carries through the discussion from Chapter 3 as we show how each mode of transportation and the identified needs align with the approved vision statement, goals and objectives for the 2045 MTP. Integrating goals and objectives into the needs and deficiencies discussion provides structure and guidelines for transportation planning in every area and will help guide the implementation of the 2045 Metropolitan Transportation Plan.



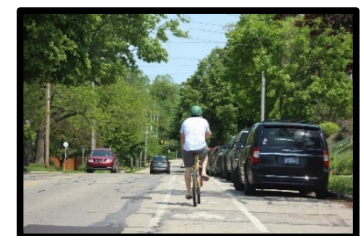
*FedEx plane at airport*



*Plane on the runway*



*A Rapid bus*



*Grand Rapids area bicyclist*



*Pere Marquette Train*

*Photos on this page are courtesy of GFIA (plane photos) The Rapid (Rapid Bus), MDOT and MODOT (Pere Marquette train), and Kendell Joseph (GR area bicyclist).*



# Transit



*Rapid bus; photo courtesy of The Rapid*

## Overview

The Grand Rapids area has a long history of public transportation dating back over 135 years from horse-drawn carriages, to streetcars, to buses. Transit is an integral part of a multi-modal transportation system providing an alternative to personal vehicles and increasing access to jobs, healthcare, and other services and destinations for residents and visitors who may not have access to a car. Transit will continue to become increasingly important as the region grows and grapples with more roadway congestion and the consequential impacts, such as poorer air quality, that congestion brings.

## Fixed-Route Services

The Rapid operates 28 fixed route bus lines throughout their 185-mile service area, which covers Grand Rapids, Kentwood, Wyoming, East Grand Rapids, Grandville, and Walker. The Rapid also partners with four townships just outside the regular service area to extend certain routes to key destinations in those townships. The Rapid is home to Michigan's first bus rapid transit (BRT) line, the Silver Line, and will soon have a second BRT line when the Laker Line, which will go between Grand Valley State University's Allendale and Grand Rapids campuses, begins operating in August 2020.

## Specialized Services

### *The Rapid*

In addition to the fixed route system, The Rapid operates paratransit services through the Go!Bus program providing door-to-door service for seniors age 65 and over and persons with disabilities. They also participate in RideLink – a network of area transportation providers that offer transportation to persons aged 60 or older to any necessary destination – as well as car, bike, and vanpooling services.

## Highlights:

- The Rapid operates 28 fixed-route bus lines throughout their 185-mile service area.
- In 2019, The Rapid provided 10.5 million rides.
- The Rapid launched Michigan's first bus rapid transit (BRT) line in 2014 with the Silver Line and will have a second when the Laker Line opens in August 2020.
- Based on an economic model developed for MDOT, the current operating investment in The Rapid creates 829 jobs and returns more than \$97 million to the economy.
- In addition to the fixed-route system, multiple transit agencies provide specialized transportation to help ensure older adults and people with disabilities can access necessary destinations throughout the region.

### *Hope Network*

Hope Network provides door-through-door transportation for older adults and individuals with disabilities under several specialized transportation programs including Network 180, senior transportation, Wheels to Work, and North Kent Transit. Hope Network also provides specialized transportation services in Ada, Alpine, Byron, Cascade, and Gaines Townships.

### *Senior Neighbors*

Senior Neighbors distributes fixed route and Go!Bus tickets to seniors and seniors with disabilities so they can access essential services. With their own buses they provide transportation to adults 60 and older through RideLink.

### *Georgetown Seniors*

Georgetown Seniors provides transportation for Georgetown Township residents age 55 and older, persons with disabilities, and others with hardships or special needs.



*Senior Neighbors at work in Sparta; photo courtesy of Senior Neighbors*

### *Kent County Community Action*

Kent County Community Action offers transportation for senior citizens who live in Kent County for medical appointments, grocery shopping, socialization and other services through Kent County Senior Millage Ride Link and The Rapid. Transportation services are offered at a suggested donation of \$2.00 per trip.

## **Process for Determining and Addressing Needs**

To determine regional transit needs GVMC staff met with The Rapid to discuss their capital improvement plans, planning studies, emerging issues, and challenges they see to meeting transit needs. Staff also reviewed The Rapid's studies and GVMC's Environmental Justice Accessibility Analysis to inform the needs discussion.

## **Identified Needs and Proposed Solutions**

### **Need 1: Improving and Expanding Transit Service in the Urbanized Area**

#### **Proposed Solution 1: Implementation of Study Recommendations**

Looking toward the future of their transit service in identifying needs and priorities, The Rapid has completed, or is in the process of completing, multiple studies. The Align Study (2018) is a comprehensive operations analysis (COA) (ongoing), and a transit-oriented development (TOD) study (ongoing).

The Align Study was a year-long study that identified and prioritized opportunities to improve and expand transit service in the urbanized area. Based on input from the public and regional stakeholders, as well as The Rapid's current opportunities and challenges, the following strategies to meet short- and long-term transit needs emerged:

- Leverage investment in existing BRT Corridors
- Invest in amenities and service upgrades in the high-ridership, high frequency network
- Move toward and strengthen the core system based around more of an all-day/all-week service model
- Provide new connections and service types to key growing travel markets, including expansion areas

The first implementation task in the Align Study was completing a comprehensive operations analysis (COA), which is currently underway in the data collection phase. Looking at where jobs and household growth is happening, all transportation options will be analyzed, from minor tweaking of existing routes to a complete system redesign. Additionally, new service modes will be evaluated, including mobility on demand options.

The Rapid also received a federal discretionary grant to conduct a transit-oriented development (TOD) planning study along the Silver Line Corridor to encourage TOD along the route, building on its success. This will be an 18-month process involving a steering committee with regional stakeholders. Potential outcomes include impacts to capital improvement plans for the communities involved and land use/zoning implications.



*Silver Line Bus in downtown Grand Rapids; photo courtesy of The Rapid*

The Rapid also sees first mile/last mile service as a need and has been piloting a project in the southeast portion of their service area that provides this service for Go!Bus eligible riders.

Townships outside The Rapid's current service area have also expressed interest in service expansion, but in addition to the operational costs associated with expanded service, it is limited by the current bus fleet size, which is fully utilized during the afternoon/evening peak period. Adding to the fleet could help expand service but would also necessitate facility expansion and more regional facilities. The Rapid also needs an off-site training facility for bus operators.

### **Proposed Solution 2: West Michigan Express**

Spearheaded by the City of Hudsonville, studies are ongoing for a potential commuter transit line (West Michigan Express – WMX) between Holland and Grand Rapids along Chicago Drive. The Rapid is working with the WMX task force, exploring the potential for a three-year pilot program and developing routing options and capital and operational costs.

### **Need 2: Improving Transit Accessibility**

#### **Proposed Solution: Further Study and Collaboration with Regional Partners**

In 2017, GVMC staff completed an Environmental Justice and Transportation Accessibility study as an initial effort to see how accessible the transportation system is in the region and how well the system provides access to jobs, healthcare, and higher education. Transit was a key element of this study, and results showed that the majority of areas in the region are within a 15-minute walk to a transit stop, but that there are potential unmet needs primarily beyond The Rapid's current service area. The study also showed that the transit system provides good access to employment and key destinations in the region, but at a significantly lower level than a personal vehicle provides. Overall, this study was a starting point, and more study and collaboration with regional partners will be necessary to meet the needs identified here and in other documents.

## Spotlight: Transit Performance Measures, Needs, and Project Selection

As stated in Chapter 1, the FAST Act requires MPOs to set targets for performance measures, including State of Good Repair Targets (SGR) for transit asset management (TAM). Transit targets are goals associated with performance that are used to track the progress of capital assets toward achieving a state of good repair and connect a provider's strategic goals to the actions that the provider will take to reach them.

According to FTA, under the TAM final rule, FTA established four measures to approximate the State of Good Repair (SGR) for four categories of capital assets, including:

- Rolling Stock—% of revenue vehicles exceeding Useful Life Benchmark (ULB)
- Equipment—% of non-revenue service vehicles exceeding ULB
- Facilities—% of facilities rated under 3.0 on the TERM scale
- Infrastructure—% of track segments under performance restriction

Calculating performance measures helps transit agencies to quantify the condition of their assets, which facilitates setting targets that support local funding. Both states and MPOs must establish performance targets that address performance measures. MPOs must establish performance targets 180 days after the transit agencies establish their targets.

Though GVMC received agency-level SGR targets from The Rapid in 2017 – which were approved and supported by the Technical and Policy Committees in September of 2017—staff began the coordination process to cooperatively develop a single set of regional SGR targets in early 2018 when GVMC received updated targets from The Rapid, as well as targets from MDOT (applicable to MDOT Section 5311 and 5310 subrecipients) and Hope Network. Through coordination with the regional transit agencies, the region-level targets below were developed and presented to the Technical and Policy Committees at the May 2018 meetings where they were adopted. At the time of the writing of this document, they remain unchanged. For updates on current performance measure targets, please visit: [www.gvmc.org/performance-based-planning-and-programming](http://www.gvmc.org/performance-based-planning-and-programming)

Asset Class	Sub-Class	MPO Target
Rolling Stock	Revenue Vehicles: Large Bus	Not more than 15% will meet or exceed FTA ULB
	Revenue Vehicles: small bus and vans	Not more than 10% will meet or exceed FTA ULB
	Revenue vehicles: Sedan/SUV	Not more than 10% will meet or exceed FTA ULB
Equipment	Service vehicles	Not more than 20% will meet or exceed FTA ULB
	Maintenance equipment	Not more than 20% will be below 3.0 on TERM Scale
	Building subsystems	Not more than 10% will be below 3.0 on TERM Scale
Facilities	All fixed facilities	Not more than 10% will be below 3.0 on TERM Scale

Further supporting these targets are GVMC's policy that capital transit projects should be consistent with agency Transit Asset Management (TAM) requirements and contribute to meeting regional TAM targets, as well as the MTP's goal to preserve the system, which includes objectives to support the State of Good Repair federal performance measures and the priorities established in the ITP Transit Master Plan and identify strategies and recommend investments that preserve and enhance regional transit systems.

GVMC also met with the Rapid during the needs analysis in order to collaborate with them to ensure that targets and priorities remained aligned. Transit projects in the 2045 MTP between 2024-2045 total \$416,787,535, with an additional \$61,325,522 programmed in the FY2020-2023 TIP. These projects are expected to move the needle favorably in meeting the State of Good Repair targets. The Rapid's illustrative list contains \$615,980,327 in unfunded illustrative projects, which again demonstrates how the need for transportation funding significantly outweighs available resources.



## Challenges

### Balancing Areas Served

Challenges to meeting regional transit needs identified by The Rapid include struggling with the balance between serving new employment sites that don't currently have transit service and serving the densifying urban area and environmental justice/opportunity areas where the core ridership is. Hope Network's Wheels to Work program works to help meet these needs and the West Michigan Express effort is also aiming to help employees reach employment sites outside The Rapid's service area between Holland and Grand Rapids. Additional solutions to this jobs/transit spatial mismatch will need to be explored as the region continues to develop an efficient multimodal system that stimulates and supports long-term economic vitality, travel and tourism, global competitiveness, productivity, and efficiency.

### Limitations on Facilities

Additional challenges to a fully integrated transit system include limitations based on facilities in service jurisdictions that The Rapid doesn't have authority over, like crosswalks, curbs, and pedestrian facilities. Increasing coordination and partnerships among services, jurisdictions, and The Rapid will be key to overcoming these challenges.

## Emerging Issues

The introduction of automated/autonomous vehicles in the transit world is something regional transit providers are monitoring. While supportive, The Rapid has indicated there will always be a staff member on every Rapid bus, but that opportunities for driver assist technology may prove to be helpful in the future. There is also interest in establishing a mode shift goal for the region, potentially as part of a future planning effort.

## Previous Accomplishments

Examples of large transit capital projects that have gone through the MPO process within the last five years include:

- CNG Fueling Facility
- Laker Line opening in August 2020
- The Silver Line opened in 2014

The Rapid also established a partnership with West Michigan's largest private employer, Spectrum Health, and the City of Grand Rapids to enhance service on Route 19.

## Public Involvement Spotlight: What Does the Public Say about Expanding and Improving Transit Service?

Investing in public transit ranked as the public's fourth highest investment priority in our recent survey. Here are two public comments to highlight:

*"Public transportation and last mile service need vast improvement. I live in the city of Grand Rapids but to use the bus I need to walk 1.6 miles to the nearest bus stop. That effectively excludes use of public transit for me as an option. I dislike driving but the time to walk that distance takes too long. I would love to see more frequent stops and ensure distances to bus stops are not so far to exclude use."*

*"I believe if the Rapid can get buses running every 15 mins on most routes throughout the day along with improved nonmotorized networks (bike lanes) I think we'll see more people shift to those methods. Advocating for reduced auto lanes for bus and bike lanes would go a long way and I hope GVMC takes every step necessary to push for these improvements."*



*Dash bus in downtown Grand Rapids*

## **Supporting Documents**

- The Rapid's Capital Improvement Plan
- The Rapid Align Study
- West Michigan Express Study
- GVMC's Environmental Justice Transportation Accessibility Analysis
- City of Grand Rapids Vital Streets Plan

## **Supporting MTP Goals and Objectives**

### **Goal 1: Further Develop an Efficient Multimodal System**

**Objective 1a:** Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight

**Objective 1b:** 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

### **Goal 2: Preserve the System**

**Objective 2a:** Apply transportation asset management principles and techniques to identify, assess, and maintain existing transportation infrastructure in support of federal performance measures

**Objective 2b:** Support the State of Good Repair federal performance measures and the priorities established in the ITP Transit Master Plan

**Objective 2c:** Identify strategies and recommend investments that preserve and enhance regional transit systems

### **Goal 3: Enhance Safety and Reduce Congestion**

**Objective 3b:** Reduce the reliance on Single Occupancy Vehicles (SOVs) by developing policies that encourage the use or development of active modes of transportation

### **Goal 7: Protect and Enhance the Environment**

**Objective 7a:** Promote energy conservation and improve air quality by encouraging active modes of transportation that reduce emissions and improve quality of life and public health

# Air Transportation



*Passengers inside the GFIA; photo courtesy of GFIA*

## Highlights:

- GFIA served 3.26 million passengers in 2018.
- Over 9,000 travelers pass through the GFIA every day.
- GFIA generates over \$3.1 billion in annual economic output throughout West Michigan annually.
- GFIA employs over 2,000 people.
- GFIA has its own police, fire, and maintenance departments.
- There are approximately 9,600 public parking spaces for passenger convenience.
- The airport has 1,550,000 square yards of pavement, which equates to enough concrete to construct a two-lane road (10 inches thick) from Grand Rapids to the Mackinac Bridge.

## Overview

With seven passenger airlines offering more than 140 daily nonstop flights to 32 major market destinations, the Gerald R. Ford International Airport (GFIA) is the second busiest airport in Michigan. The airport is located in Cascade Township east of Patterson Avenue off 44<sup>th</sup> Street and covers nearly 3,200 acres (over five square miles), an area almost as large as the City of Grandville and a bit larger than East Grand Rapids.

The GFIA is managed and operated by the Gerald R. Ford International Airport Authority. The airport is financially self-supporting and requires no funding from property taxes, general funds, or special taxes. Airport operations and improvements generate local net airport revenue, rather than spend valuable tax dollars. GFIA's capital requirements are met through various sources, including earned surpluses, revenue bonds, passenger facility charges, and grants under the Federal Airport Improvement Program and the Michigan State Aviation Grant Program. Operational requirements are met through rates and charges assessed to airport tenants and airport patrons for the use of airport services and facilities.

## Process for Determining and Addressing Need

GVMC and its members work with staff from the GFIA to determine transportation access deficiencies in and around the airport property. When issues are identified, GVMC works with member communities to address these issues through the process outlined in Chapter 2.

## Air Transportation Needs and Proposed Solutions

### Need 1: Additional Access Route

The Airport currently has one primary access point for passengers which is via Oostema Boulevard. During peak demand, this access point can become congested, which may increase delays. While the existing capacity of Oostema Boulevard is sufficient to handle airport traffic, if there is an accident on Oostema Boulevard at the intersection with Patterson Avenue, the primary access point to GFIA is blocked, leaving Van Laar Drive as the only access point to the airport.

### Proposed Solution: Develop an access route to GFIA's passenger terminal along Patterson Avenue north of Oostema Boulevard just south of Danvers Drive.

Creating this access route will achieve the following benefits:

- Address safety issues along the roadway from merging traffic (Michigan left turns) and vehicle accidents at the Patterson/Oostema Intersection
- Separate West Michigan Aviation Academy traffic from airport traffic
- Improve capacity or reduce delays
- Allow for access to development areas north and east of the Patterson Avenue and Oostema Boulevard intersection
- Provide some redundancy of the facilities and increase the resiliency of the Airport

## Challenges

Challenges include adhering to more and more onerous environmental regulations/requirements for all construction projects as well as lack of funding. FAA funding levels for facilities were nearly eliminated about 10 years ago. Funding levels must be restored to previous levels to fund needed projects.

## Emerging Issues

### Consideration of Additional Modes of Transportation

The Grand Rapids metropolitan area has experienced success with the Silver Line, a bus rapid transit (BRT) line currently in operation in Grand Rapids. Bus rapid transit has grown significantly in the United States in recent years and is continuing to grow. Although no demand currently exists at GFIA for additional bus service or rail, for future planning purposes, additional modes should be considered. This has a benefit of reducing congestion region-wide and improving air quality.

## Accomplishments

Examples of previous access improvements completed through the MPO process include:

- The addition of an interchange to/from I-96 onto 36<sup>th</sup> St.
- Improvements to Oostema Boulevard, the main access point for the airport.

## Public Involvement Spotlight: What Does the Public Say about the Availability of Air Transportation?

In GVMC's recent public survey, the results showed that the aspect of the transportation system the public is most happy with is the availability of air transportation service. Here is one happy passenger.



Photo courtesy of GFIA



## Supporting Documents

The needs identified are consistent with the Gerald R. Ford International Airport Master Plan Update.

## Supporting MTP Goals and Objectives

### Goal 1: Further Develop an Efficient Multimodal System

**Objective 1a:** Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight

**Objective 1b:** 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

**Objective 1c:** Implement strategies to promote efficient and reliable system management and operation that result in the reliable and safe movement of people and freight

**Objective 1d:** Increase security of the transportation system by incorporating applicable emergency relief and disaster preparedness plans, strategies and policies that support homeland security, as appropriate, to safeguard the security of all motorized and nonmotorized users

### Goal 2: Preserve the System

**Objective 2a:** Apply transportation asset management principles and techniques to identify, assess, and maintain existing transportation infrastructure in support of federal performance measures

### Goal 3: Enhance Safety and Reduce Congestion

**Objective 3b:** Reduce the reliance on Single Occupancy Vehicles (SOVs) by developing policies that encourage the use or development of active modes of transportation

**Objective 3c:** Employ the Congestion Management Process to systematically monitor, measure, diagnose, and recommend travel management alternatives for current and future congestion on our region's multi-modal transportation system

**Objective 3g:** Improve safety of the transportation system for motorized and nonmotorized users in support of federal performance measures by identifying and prioritizing projects that will reduce the likelihood or severity of crashes and incorporating safety improvements with all transportation projects where feasible and practical

### Goal 4: Strengthen Land Use and Transportation Policies

**Objective 4b:** Coordinate land use decisions with transportation plans to increase accessibility and mobility of people and freight

### Goal 6: Ensure Equity, Access and Mobility

**Objective 6c:** Implement improvements for all transportation system users that foster increased accessibility, economic development, and vitality

### Goal 7: Protect and Enhance the Environment

**Objective 7a:** Promote energy conservation and improve air quality by encouraging active modes of transportation that reduce emissions and improve quality of life and public health

**Objective 7b:** Encourage the reduction or mitigation of storm water impacts of surface transportation projects

# Freight



*FedEx plane at airport ramp; photo courtesy of GFIA*

## Highlights:

- More than 91,043,937 pounds of freight were shipped through the airport in 2018, which computes to more than 249,000 pounds, or 124 tons, of freight each day.
- Over 50,000 trucks carrying freight travel across our regional roads every day

## Overview

The Michigan Department of Transportation (MDOT) Michigan Freight Plan defines freight as “any good, product, or raw material, carried by a commercial means of transportation—including air, highway, rail, water, and pipeline.” In the GVMC area, the primary ways of transporting freight are rail, trucking, and air. The efficient movement of freight is a nationwide issue, with freight often transferring between modes at various hubs, for instance, rail to truck, before it reaches its final destination. In order to help provide the foundation for the country to compete in the global economy, the latest federal transportation bill, the FAST Act, includes a number of provisions focused to ensure the safe, efficient, and reliable movement of freight. Highlights of this bill include:

- *Creating a new discretionary freight-focused grant program that will invest \$4.5 billion over 5 years.* This new program allows states, Metropolitan Planning Organizations (MPOs), local governments, tribal governments, special purpose districts and public authorities (including port authorities), and other parties to apply for funding to complete projects that improve safety and hold the greatest promise to eliminate freight bottlenecks and improve critical freight movements.
- *Establishing a National Highway Freight Program.* The Act provides \$6.3 billion in formula funds over five years for States to invest in freight projects on the National Highway Freight Network. Up to 10 percent of these funds may be used for intermodal projects.
- *Including new authorities and requirements to improve project delivery and facilitate innovative finance.* The FAST Act includes provisions intended to reduce the time it takes to break ground on new freight transportation projects, including by promoting best contracting practices and innovating financing and funding opportunities, and by reducing uncertainty and delays with respect to environmental reviews and permitting.

For a complete list of provisions, please visit <https://www.transportation.gov/fastact/freight-factsheet>.

## Rail

There are approximately 3,600 total miles of active railroad lines in the State of Michigan. Freight service is provided by four Class I railroads—Canadian National (CN), Canadian Pacific (CP), CSX Transportation (CSX), and Norfolk Southern (NS)—and 24 regional or short-line railroads. The Grand Rapids Metropolitan Area is fortunate to have five freight rail companies—Grand Rapids Eastern Railroad (GRE), Marquette Rail (MQT), CSX Transportation, Grand Elk Railroad (GDLK), and the Coopersville and Marne Railroad—and one passenger rail option, the Amtrak *Pere Marquette* service to Chicago on the CSX line through Holland. There are approximately 120 miles of operational track in the metropolitan area. However, several major corridors have been abandoned within the past decade and have been converted for use by nonmotorized travel (rail-trails). Two shortline railroads are now owned by the G&W Railroad, which is a national shortline operator.



**Map 7: Michigan's Rail System; map courtesy of MDOT**

## Truck

In Michigan, the trucking industry accounts for more than 65% of the total freight tonnage moved and more than 73% of the tonnage moved by value. The trucking industry is a vital element of all industrial/commercial sectors, especially manufacturing, agriculture, wholesale, retail and construction.

## Air

The Gerald R. Ford International Airport (GRFIA) moved 91,043,947 pounds of freight in 2018. That number has continued to grow annually. A total of 17 airports offer scheduled services that handle air cargo throughout the state. Local airports continue to serve as strong economic engines for local communities by providing service to airport-dependent businesses to connect to the global marketplace in the quickest way possible.



*Grand Rapids area FedEx truck at parking facility*

The GRFIA, Michigan's second largest airport, serves as a vital connection to Grand Rapids. Highway access to the airport is a critical issue to ensure freight is moved efficiently between modes and local shippers/receivers in the MPO area.

## Process for Determining and Addressing Need

To stay updated about the needs of the freight community, GVMC leans on the Freight Committee, which includes members from the Grand Rapids Chamber of Commerce, The Right Place (an economic development organization in Grand Rapids), MDOT, local railroads, the GRFIA, and area shippers, as well as the Grand Rapids Chamber of Commerce's Transportation Committee, which includes representatives from several area organizations that ship and receive goods and discusses freight issues. Organizations representing rail, truck, and air freight/shipping interests are also included on GVMC's Public Participation mailing list and consultation list. All of these efforts keep the freight conversation going.

GVMC is exploring other options for connecting with the freight community to better plan for their needs and enhance the economic competitiveness of our region. GVMC plans to continue hosting Freight Committee meetings twice a year to continue the conversation and to stay updated on issues and needs.

## Determining Freight Projects

GVMC relies on our members to suggest freight-related projects and often considers projects that improve roadway capacity as also serving to enhance freight access. Projects that improve pavement condition can also enhance freight movement. To address freight issues, GVMC uses our Congestion Management Program, which incorporates performance measures for the total number of capacity deficient miles on the freight network. GVMC also maintains an area freight network map which lists the state and county truck routes, all



season routes, rail lines, intermodal facilities (such as the Gerald R. Ford International Airport and railroad freight yards), and major employers/shippers. (See Map 8 on page 46.)

In an exercise to highlight some areas of concern, staff overlaid some of the major employers/shippers in the MPO area with GVMC's congestion deficient segments as determined by the Transportation Demand Model. Staff then put in a buffer of one mile, and Map 9 on page 47 is a preliminary result of road segments that may inhibit these employers/shippers to move freight in an efficient manner.

GVMC has also been working with the ten cities and two road commissions to refine the traffic count program to better record commercial traffic. Over the past few years, GVMC has phased out the old counting equipment and purchased new software to initiate more comprehensive commercial traffic counting.

### **Freight Project Requirements and Federal Performance Measures**

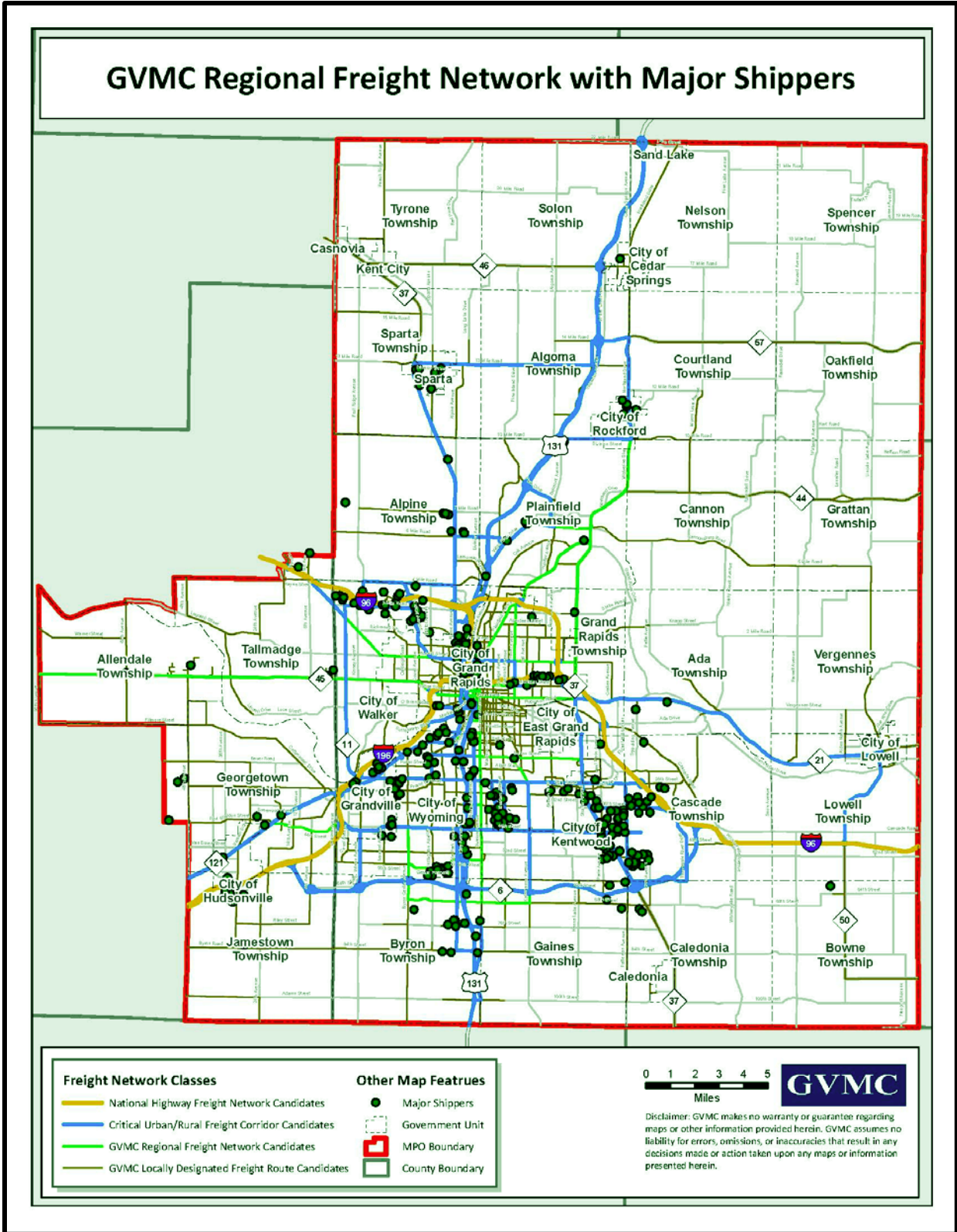
Freight projects are required to have adequate funding sources identified, demonstrate improvements to the efficient movement of freight, and meet national performance targets, such as the measurement of truck travel time reliability (TTTR) on the Interstate System. Whether or not a project helps to achieve a performance measure is considered in the project selection process. MPOs must establish targets or support statewide targets for applicable measures and document the strategies and investments used to achieve the targets in their transportation plans. TTTR targets provide direction for the identification and prioritization of freight projects in the GVMC MPO area.

More information on the TTTR performance target is included in the Congestion section of this chapter, starting on page 105, as part of the discussion on System Reliability. Progress toward meeting all targets is included in the System Performance Report in Appendix H. Freight may become more of an issue for project selection for GVMC's Transportation Improvement Program (TIP) with FAST Act performance-based planning and future federal transportation legislation.



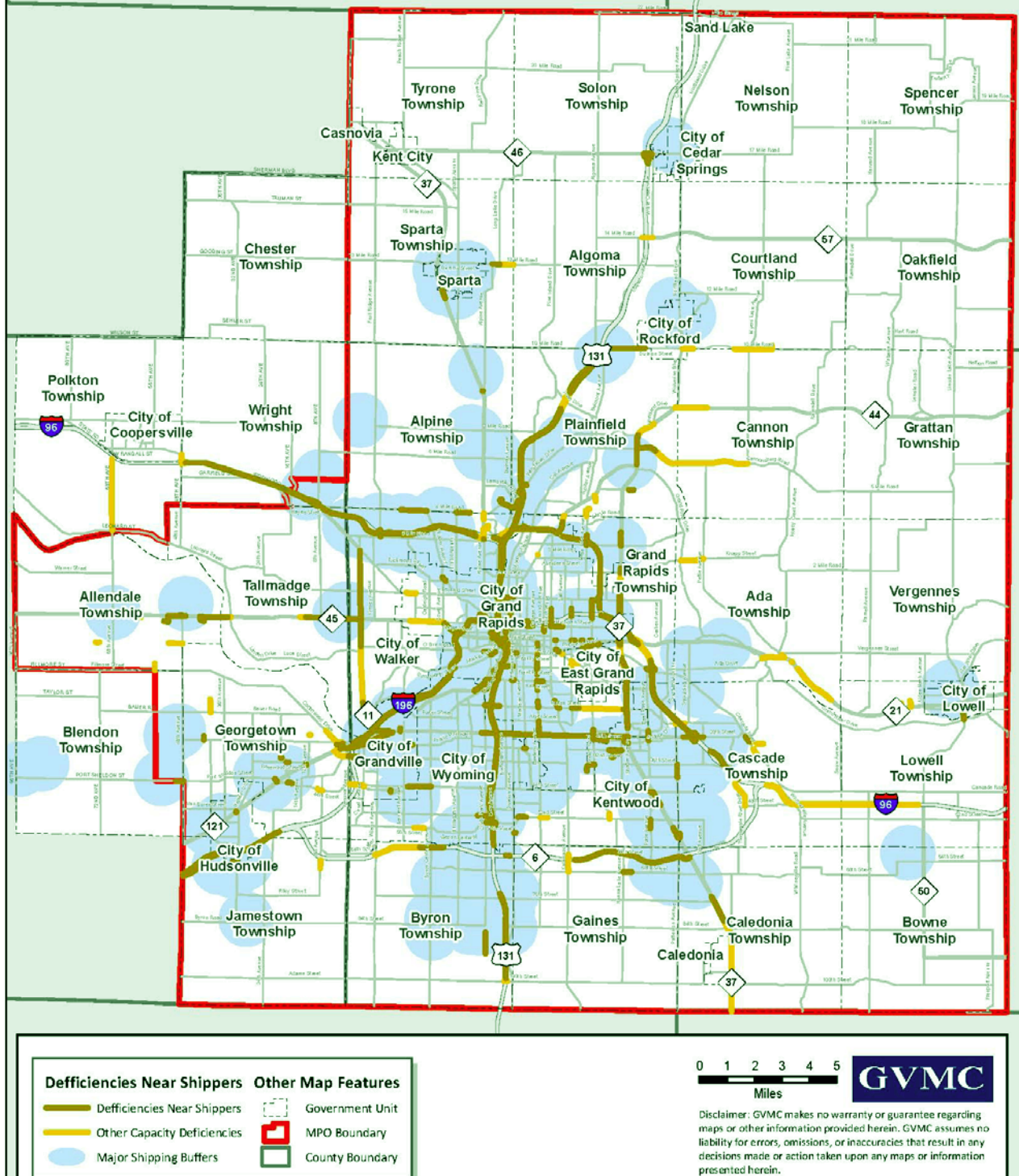
*Founder's Brewing Company Barrel House, the distribution center where they store/ship all of their finished goods to their customers; photo courtesy of Founder's*

The MPO freight network map below includes the National Highway System (NHS) and critical urban and rural freight network and network candidates as noted in the Michigan Freight Plan criteria. Please note that there are currently no formally designated critical urban/rural freight corridors in GVMC’s region at this time. Critical rural and urban freight corridors are formally designated on a rolling basis to help with mileage limitations.



Map 8: MPO's Regional Freight Network with Major Shippers

## 2045 Capacity Deficiencies Near Major Shippers



Map 9: Capacity Deficiencies near Major Shippers

## **Freight Needs and Proposed Solutions**

To determine freight needs for the 2045 MTP, GVMC Staff met with the Freight Subcommittee on Wednesday, September 25, 2019, for a discussion on current issues in shipping and receiving freight. The Freight Subcommittee determined the following needs, proposed solutions, and challenges during the meeting.

### **Need 1: Bottlenecks**

It was noted that the City of Grand Rapids has grown significantly in number of jobs versus residents, which has resulted in additional commuters in and out of the city and therefore more congestion. Currently, there are no secondary routes. Areas where bottlenecks consistently occur causing driver delays and loss of profit include:

- East Beltline/WB I-196/96 interchange backups due to construction
- I-96 between Cascade Road and I-196
- Northbound US-131 to Cedar Springs
- US-131 between 28<sup>th</sup> and the S-Curve (This segment has the oldest pavement in Grand Rapids and the highest traffic volumes per day outside of Detroit)
- US-131 and Hall/Franklin/Wealthy area needs to be reconfigured due to closely placed interchanges and congestion issues
- Work may need to be done to accommodate the new Amazon Distribution Center in Gaines Township, as bottlenecks may occur there in the future

### **Need 2: Safety and Operational Concerns**

The Freight Committee determined the following safety and operational concerns:

- Sixty trucks/day travel from US-131 to Hall to Godfrey alongside an elementary school. The City of Grand Rapids is trying to redirect truck traffic away from Grandville Ave. in this area; there are limited routing options.
- Clearing incidents on US-131 can cause delays also.
- There is a need for a new bridge on Freeman Ave. over the CSX line/yard between Hall St. and Market Ave. (primarily for truck traffic).
- Waste haulers start at 3:00 am for garbage pickup to reduce congestion from vehicles traveling behind them. However, some locations have noise ordinances in place that restrict operating times, which can make it difficult for refuse/waste trucks to avoid hauling trash at peak times. Congestion, and the resulting delays, can further shorten the refuse/waste trucks' operational window in communities where there are noise ordinances.

### **Need 3: Freight and Rail Issues**

The Freight Committee determined the following freight and rail issues:

- The Grand Elk railyard along Hynes Ave., east of US-131, is at capacity more often than not, and the railyard is landlocked by US-131 and businesses. Therefore, additional yard capacity is needed to accommodate growth.
- The Genesee Wyoming (Grand Rapids Eastern RR and Marquette Rail) lines from Lowell to Grand Rapids and Grand Rapids to Ludington/Manistee have new ownership pending and may result in service changes.
- There is a need for direct intermodal rail service from Grand Rapids, versus Chicago or Ohio.
- There are few access points to the M-6 freeway in the southeast Grand Rapids metropolitan area, and drivers cross M-6 twice to get to the East Beltline Ave. interchange.



### **Proposed Solutions to Needs 1, 2, and 3:**

- Improving US-131 operation between Hall Street and the S-Curve area. There is currently an active Planning and Environmental Linkages (PEL) study targeting this segment.
- Building peak use lanes/applying Active Traffic Management (ATM), which includes shoulders that are built to the standard of a lane and are opened up during peak periods along some freeway corridors. The benefit is that less space is needed (instead of a lane and a shoulder, which is how lanes are traditionally built, only a lane-width shoulder is needed), but ITS infrastructure cost is also involved.
- Expanding the CSX rail yard, which impacts the potential bridge on Freeman Ave. between Hall St. and Market Ave. Conceptual plans are in the City of Grand Rapids' engineering office, but it is costly. This bridge could take truck traffic away from the current routing along Hall Street to US-131, through neighborhoods and schools.
- Shifting toward a more intermodal system to ship and receive freight. There was significant interest from industry in taking trailers off the road and using rail to move goods. This would enhance safety, reduce congestion, and improve air quality. An intermodal facility could potentially be built on vacant land along existing rail lines.
- Developing a container rail service in the Grand Rapids area.
- Increasing connectivity and reducing congestion between Holland and Grand Rapids by promoting the West Michigan Express.
- Reacting more quickly to clear incidents and crashes to reduce traffic congestion.
- Increasing the use of weave/merge lanes on area freeways.
- Adding an interchange at M-6/48th St. east of the GRFIA airport.

### **Need 4: Truck Parking at FedEx Facility at Airport**

While the existing landside requirements for the air cargo area far exceeds the requirements, there is limited truck parking at the FedEx facility.

**Proposed Solution:** Potential for expansion exists by building truck parking positions in other adjacent locations.

**Need 5: Enhancing visibility at critical intersection near GRFIA airport.** Due to the bridge over the CSX railroad north of this intersection, visibility is limited for drivers turning from Air Cargo Drive onto Thornapple River Drive. This sometimes creates a difficult turning maneuver as a result of unanticipated fast-moving vehicles appearing over the bridge.

**Proposed Solution:** Within the next five years, a safety project is anticipated to improve access to the air cargo area by construction of a new connector from the vicinity of FedEx with Thornapple River Drive. This new road is sufficiently south of the intersection of Air Cargo Road with Thornapple River Drive to permit safer turns onto the roadway, especially for large trucks.

## **Challenges**

The Freight Committee identified the following challenges in meeting the identified needs:

- The US-131 freeway between 28<sup>th</sup> St. and the S-curve improvement project is cost prohibitive at current funding levels.
- CSX is a large company and sees Grand Rapids as the end of a spoke versus a hub, which could make it difficult to enhance intermodal service options in Grand Rapids. The Committee expressed interest in reaching out to the intermodal department at CSX and speaking to them directly. The Chamber of Commerce is open to facilitating these conversations but needs a strong case and buy-in from the

business community. CSX has 40 acres of property on Market Street that is not currently in use, and there may be opportunity there for an intermodal shipping terminal.

- The downside of vital streets (complete streets) is that they often result in road diets being used and a loss of lanes, which makes it difficult for bus and truck traffic to navigate, especially when a bus and truck are traveling the same segment at the same time. The result is pushing the truck traffic to highways, which can lead to congestion and more travel time delays for all traffic. In addition, trucks experience more difficulty navigating the narrow local street system, which can be a safety hazard.

## Emerging Issues

Ongoing and emerging issues in the GVMC MPO area include the following:

### I-196/I-96 EA projects

Adequate funding is needed to complete the I-196/I-96 EA projects to improve freeway operations and access.

### The US-131/I-96 Planning and Environmental Linkages Study

This study is assessing the movement of freight along these critical freeway corridors and connecting surface routes; any future improvements should consider freight transportation needs.

### More Consideration of Surface Road Access and Operations

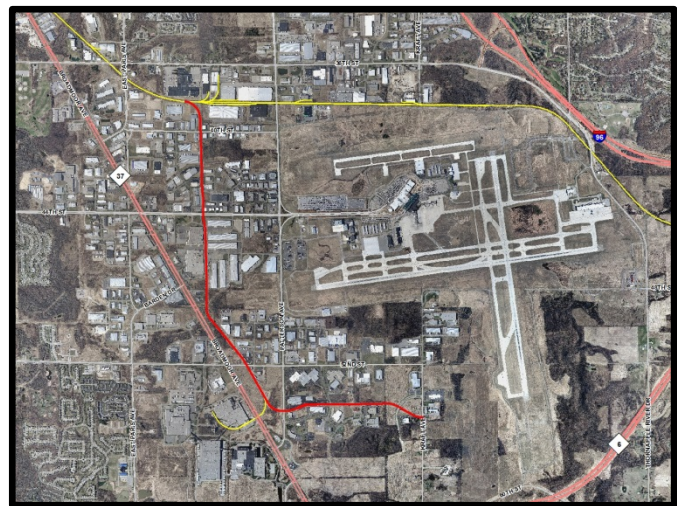
As railroads focus more on intermodal and bulk distribution transload facilities at their major yards, surface road access and operations need to be considered as part of the MPO project prioritization process.

### Evaluation of Proposed Intermodal Facilities

Any new intermodal (COFC/TOFC) facilities proposed will need to be evaluated to determine if the highway and local road access is adequate to accommodate truck traffic in and out of that facility.

### CSX Southeast Rail Spur

One issue that received numerous comments throughout the MTP development process is the state-owned rail spur from the CSX main east-west line south of 36<sup>th</sup> Street and east of East Paris Avenue in the City of Kentwood, which is currently not in service. The line runs south until reaching Patterson Avenue. From there the rail and ties have been removed but the bed still seems to be available. Eventually the line ends in Cascade Township near Kraft Avenue. The map at right shows the line and the adjacent industrial development that could take advantage of the spur if it was to resume operations.



Map 10: CSX Southeast Rail Spur

Careful consideration should be given to this line and others in the region prior to allowing development to encroach to the point where they are no longer maintained in an operational capacity. While not listed as a formal project in this MTP, GVMC would likely support any activities that preserve these lines for future use and productivity.

### **Railroad Service Changes**

The impact of additional ownership changes and the resulting effect on rail service in the MPO area needs to be monitored.

### **I-96 @ Fruit Ridge Avenue**

This project has been submitted for two federal BUILD grants and one INFRA grant. Improvements are needed to the interchange to address continuing industrial growth in the Walker area.

### **GVMC Freight Study**

GVMC staff is looking at options to improve information about freight in our region, including conducting a comprehensive freight study and survey. This study would be used to determine desired routes, specific system deficiencies, commercial safety issues, and the potential for enhanced inter-modalism in the freight community. Staff is also exploring the development of a sustainable freight network, developed in conjunction with the GVMC Pavement Asset Management and Freight Committees, which would incorporate acceptable levels of congestion, pavement and bridge condition, as well as coordinated routing. Deficiencies and incidents on Freight networks in the MPO area will be monitored and used as potential criteria for the selection of future operational and capacity improvement projects.

GVMC staff will continue to work with area rail, truck and air freight interests and consider the issues and priorities put forward by those groups and incorporate those items into the transportation planning process, and also encourage consideration of freight needs during the project development process. GVMC also intends to continue to work with state and federal partners to improve freight movement data analysis within our region.

### **West Michigan Competitiveness in Transportation Study**

There has been on-going interest among some shippers to develop improved intermodal opportunities with the metro area railroads. There are several bulk commodity distribution facilities in the MPO area, but not container (COFC/TOFC) facilities. This has required industries in the area to truck commodities in containers, to and from intermodal train yards in Detroit and Chicago, where there are multiple routing options. At this time, railroads have determined this model is the most cost effective for their operations. However, fuel prices may make that option less desirable and cost effective in the future for local shippers. The lack of a nearby COFC/TOFC facility is noted as a concern for some business location and expansion decisions.

As a result of this issue, the Grand Rapids Area Chamber of Commerce and The Right Place took on a privately funded effort entitled: West Michigan Competitiveness in Transportation Study. The Chamber, The Right Place and several major businesses came together to determine how they could enhance competitiveness and reduce logistics costs. It was determined that the best way to achieve significant savings was through collaboration, increased efficiency and alternative methods of moving products. It was decided that as a first phase, an origin-destination study was necessary to determine the best way to position West Michigan for success. The purpose of this study was to develop a clear picture of the movement of products in and out of our region by major shippers, in order to identify opportunities for efficiency, cost reduction and savings.

The first phase of the study, completed in May 2014, recommended the development of an intermodal logistics hub in West Michigan.

An Intermodal Hub provides:

- Ability to handle rail, motor carrier and container shipments in one location
- Opportunity for inbound and outbound freight cost reductions
- A location for multi-company shipment consolidation
- Alignment with Class I rail volumes and operations
- Opportunities for developing transportation service locations

The study recommended the following next steps:

- Evaluate 500+ mile shipments for viable rail opportunities to shift modes and consolidate shipment to and from major east coast, west coast and Gulf of Mexico ports
- Lobby Michigan legislature to relax trucking regulations (weight and speed)
- Possible tax credit for relocation of manufacturing facilities closer to shipping lanes

While there continue to be discussions regarding this study, it is essentially on hiatus because of lack of capacity to move forward.

### Local Freight Planning Activities

GVMC staff regularly attend the Transportation Committee meetings hosted by the Grand Rapids Chamber of Commerce and The Right Place, Inc., an economic development organization in Grand Rapids, to stay up-to-date on the latest issues impacting the movement of freight within our region.

## Accomplishments

Identified freight projects from the 2035 and 2040 MTP that have been completed or are underway:

- Bridge improvements along I-196 and US-131 as well as operational improvements such as weave and merge lanes between 36<sup>th</sup> and 44<sup>th</sup> Street and Leonard and Ann Street along US-131
- Additional lanes on I-196 over the Grand River connecting to US-131, and improvements at the I-96/I-196 junction
- US-131 @ 100<sup>th</sup> Street interchange improvement (obligated in FY2019 and under construction in 2020)
- Long-term pavement pilot projects on US-131 between 10 Mile Road and M-46 (17 Mile Road)
- Improvements to 68th Street near M-37 to support, and in partnership with, the new Amazon Warehouse



*I-196 bridge expansion project underway; project completed in late summer, 2019. Photo courtesy of MDOT.*

Improved maintenance of existing traffic during construction times and completing more construction activities during off-peak hours, which was also included in the two previous MTPs, continues to be part of the freight discussion.

MDOT rail loans and grants have been provided by MDOT to construct or improve sidings to industries located on the existing rail corridors in the MPO area, including Columbian Logistics in Grand Rapids, Grand Elk/Brinks transload facility in Walker and Profile Films in Walker, and upgrading the C&M line between Coopersville and Walker. The objective is to make efficient use of the existing rail infrastructure in the MPO area and identify opportunities to develop public/private partnerships to enhance the system.

## **Supporting Documents**

MDOT Freight Plan

State Rail Plan

Airport Master Plan

## **Supporting Goals and Objectives**

### **Goal 1: Further Develop an Efficient Multimodal System**

**Objective 1a:** Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight

**Objective 1b:** 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

**Objective 1c:** Implement strategies to promote efficient and reliable system management and operation that result in the reliable and safe movement of people and freight

### **Goal 2: Preserve the System**

**Objective 1a:** Apply transportation asset management principles and techniques to identify, assess, and maintain existing transportation infrastructure in support of federal performance measures

### **Goal 3: Enhance Safety and Reduce Congestion**

**Objective 3c:** Employ the Congestion Management Process to systematically monitor, measure, diagnose, and recommend travel management alternatives for current and future congestion on our region's multi-modal transportation system

**Objective 3d:** Promote Travel Demand Management (TDM) practices to manage future traffic growth, improve system efficiency, mitigate congestion, and spread the travel demand evenly to other times of the day, where feasible

**Objective 3e:** Support the use of Intelligent Transportation Systems (ITS) and incident management to reduce the potential for secondary traffic incidents and non-recurring congestion

**Objective 3f:** Promote sharing ITS data between agencies to streamline and improve incident management response

**Objective 3g:** Improve safety of the transportation system for motorized and nonmotorized users in support of federal performance measures by identifying and prioritizing projects that will reduce the likelihood or severity of crashes and incorporating safety improvements with all transportation projects where feasible and practical

**Objective 3h:** Improve the travel time reliability of the system in support of federal performance measures and improve quality of life

### **Goal 4: Strengthen Land Use and Transportation Policies**

**Objective 4b:** Coordinate land use decisions with transportation plans to increase accessibility and mobility of people and freight

### **Goal 6: Ensure Equity, Access and Mobility**

**Objective 6c:** Implement improvements for all transportation system users that foster increased accessibility, economic development and vitality



## Passenger Rail



*The Pere Marquette; photo courtesy of MDOT and MODOT*

### Highlights:

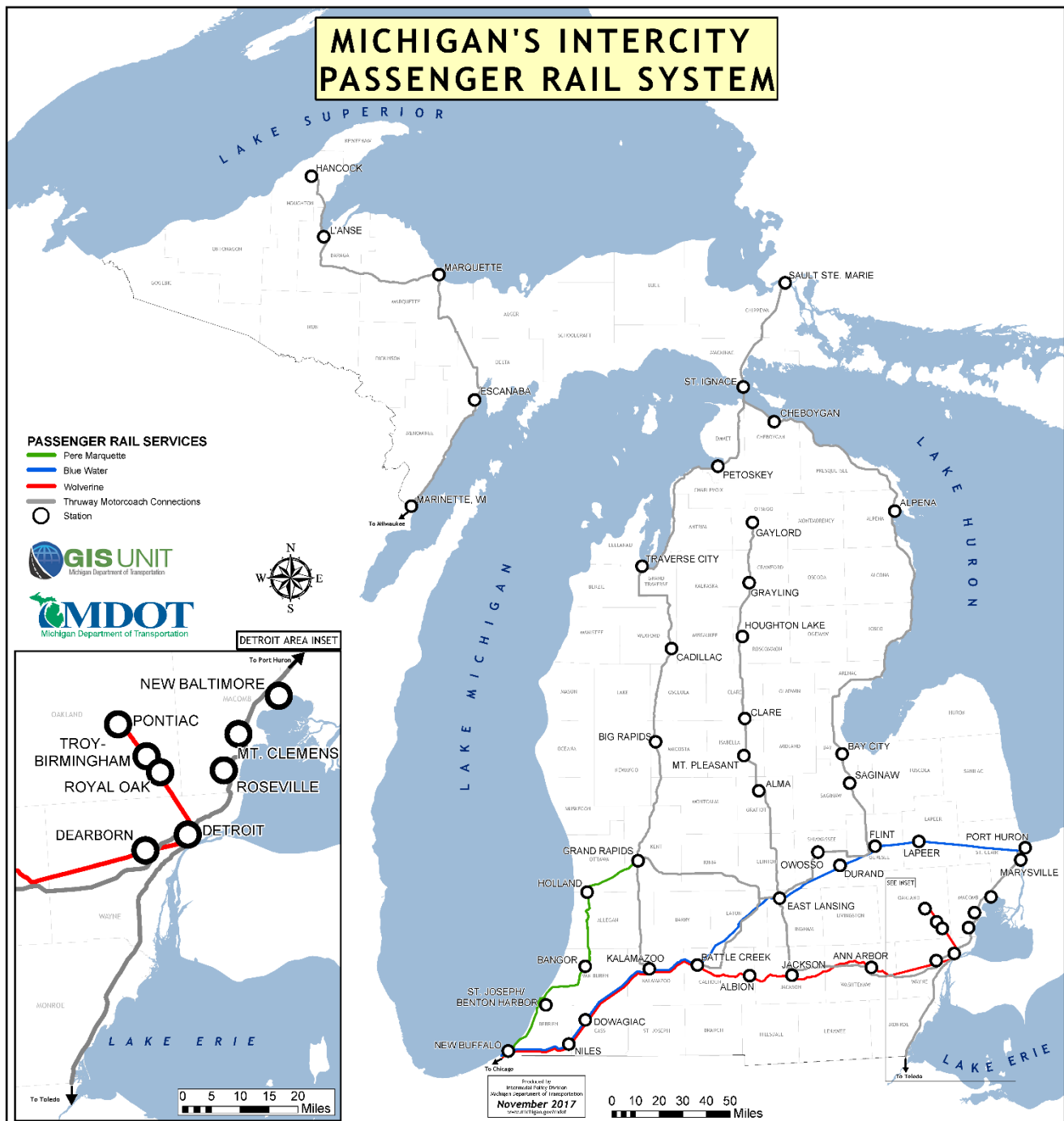
- 96,643 passengers rode the *Pere Marquette* in 2018
- Amtrak provides passenger rail service on 521 miles of railroad in Michigan

### Overview

There are currently three passenger rail routes in Michigan: the *Wolverine* (Chicago-Detroit/Pontiac), the *Blue Water* (Chicago-Port Huron), and the *Pere Marquette* (Chicago-Grand Rapids). Please refer to Map 11 on page 55 to view the Michigan Intercity Passenger Rail System. Michigan passenger rail service is provided by the National Railroad Passenger Corporation (Amtrak), which was created by the passage of the National Railway Passenger Service Act by Congress in 1970. Amtrak began service on May 1, 1971, and the *Pere Marquette*, which runs roundtrip between Grand Rapids and Chicago seven days a week, began service in Michigan on August 5, 1984. The *Pere Marquette* is operated by Amtrak at the request of the State of Michigan, which provides an operating subsidy for service. Today, Amtrak provides passenger rail service on 521 of the total miles of railroad in Michigan, and approximately 135 miles are owned by the State of Michigan and 80 miles by Amtrak, generally between New Buffalo and Dearborn in Michigan.

Fifteen states, including Michigan, contract with Amtrak for the operation of trains to supplement the national Amtrak network, extending passenger rail service and/or increasing frequencies on national routes. This operating assistance helps to provide some of Michigan's heaviest travel corridors and population centers with intercity passenger rail service.

Traveling to Chicago by passenger rail is often an attractive choice for passengers, as taking the train eliminates the hassle of finding and paying for parking and driving on congested streets. It is also beneficial for the environment, as train travel helps to reduce congestion and consequently air pollution.



Map 11: Michigan Statewide Intercity Passenger Rail Routes and Stations; map courtesy of MDOT Office of Rail

## Process for Determining and Addressing Need

### WESTRAIN Collaborative

Local passenger rail issues are monitored by the WESTRAIN Collaborative, a group of agencies working to identify passenger rail service issues in West Michigan. Participants include Amtrak, the Michigan Department of Transportation, GVMC, the Macatawa Area Coordinating Council (MACC), the Michigan Association of Railroad Passengers (MARP), the Cornerstone Chamber of Commerce, Sharp Marketing, the City of Bangor, The Rapid, and the Southwest Michigan Planning Commission (SWMPC). The focus of WESTRAIN is to secure and maintain passenger rail service from Grand Rapids to communities along the *Pere Marquette* line to Chicago, IL, and connections beyond. Utilizing special promotions, giveaways, and other marketing strategies, WESTRAIN serves to help attract new riders to the passenger rail experience.

## Rail Needs and Proposed Solutions

### Need 1: Linking to High Speed Rail Network and Creating Greater Rail Access to Other Parts of the State and the Midwest

#### Proposed Solution: Establishment of a Rail Connection in New Buffalo

The WESTRAIN Collaborative supports building a rail connection in New Buffalo that would connect CSX tracks to Amtrak tracks which would allow the *Pere Marquette* to operate on Amtrak-owned 110 mph service tracks between New Buffalo and Porter, Indiana, where the service would continue on to Chicago. This new connection would allow *Pere Marquette* passengers to switch to the *Wolverine/Blue Water* services to access points east in Michigan and west to Chicago and for *Wolverine/Blue Water* passengers to access destinations along Michigan's west coast to Grand Rapids. The first step is a feasibility and engineering study that is currently unfunded.

#### Proposed Solution: Re-establish Passenger Rail Service between Detroit and Holland (Coast-to-Coast Study)

In late 2016, a feasibility study known as the Coast-to-Coast initiative concluded that the re-establishment of passenger rail service between Detroit, Lansing, Grand Rapids, and Holland is a concept worth pursuing. The study examined three different routes from Detroit to Holland via Lansing and Grand Rapids that could be established by upgrading existing rail. The first route passes through Ann Arbor and Jackson; the second passes through Ann Arbor and Howell; and the third bypasses Ann Arbor, heading from Wayne to Howell. The study concluded that the routes that pass through Ann Arbor are viable options that merit further study. The route through Jackson showed the greatest potential ridership and revenue, while the route through Ann Arbor and Howell promised the greatest return on investment. The study also looked at the cost of establishing basic, 79-mph service on the route through Ann Arbor and Howell and 110-mph service. While the 110-mph service would require greater capital investment, it would potentially yield higher ridership that could allow the service to possibly recover more of its operating costs.

#### Proposed Solution: Midwest Regional Rail Initiative (MWRI)

The Midwest Regional Rail Initiative (MWRI) is a cooperative effort between Amtrak, the Federal Railroad Administration (FRA), and nine states—Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin—to develop an improved and expanded passenger rail system in the Midwest. In September 2004, MWRI released a report conducted by their consultant, Transportation Economics & Management Systems, Inc., which outlines a new vision for passenger rail travel in the Midwest. This vision is a transportation plan known as the Midwest Regional Rail System (MWRRS), a 3,000-mile rail network serving nearly 60 million people. MWRRS would operate as a hub-and-spoke system providing through-service in Chicago to locations throughout the Midwest. Trains operating at speeds up to 110 mph would link Chicago with Milwaukee, Madison and Minneapolis; Des Moines and Omaha; St. Louis and Kansas City; Indianapolis and Cincinnati; Grand Rapids and Detroit; Toledo and Cleveland; as well as many smaller cities and towns. Increased speeds and service efficiencies would reduce travel times dramatically. The Chicago-Detroit trip, for

### Public Involvement Spotlight: What Does the Public Say about the Availability of Passenger Rail?

When asked to rank all aspects of the transportation system in Kent and eastern Ottawa Counties, the public ranked the availability of passenger rail service second to last, just ahead of roadway pavement condition. However, when it comes to investing in the transportation system, increasing the frequency of passenger rail service and freight rail was only a priority for 16.8% of the respondents. However, passenger rail was a frequent trend in the comments we received. Here is what one respondent had to say:

*"One Amtrak train per day to Chicago is extremely limiting - especially with such extreme departure/arrival times (6am and 11:30pm). I understand that Kalamazoo's 4 daily trains result from being on the Detroit-Chicago route, but it's frustrating not to have at least one other option from GR."*



example, would drop from the current five hours, thirty-six minutes to less than four, Chicago-Twin Cities from the current eight plus to less than six, and St. Louis-Kansas City from five hours, 40 minutes to just over four hours. The nearly eight-plus-hour Chicago-Cincinnati trip would be cut in half.



Map 12: Midwest Regional Rail Initiative

The total capital investment for the MWRRS, including infrastructure and rolling stock, was estimated to be \$7.7 billion (in 2002 dollars), according to the Michigan Regional Rail System Executive Report (2004). The rolling stock for the entire system will cost approximately \$1.1 billion. Infrastructure improvements required to implement the MWRRS are estimated to cost \$6.6 billion, or about \$2 million per mile. This compares favorably with typical highway costs of \$10 million per mile. The financing plan consists of a mix of funding sources, including federal loans and grants, state funding, general funds, and capital and revenue generated from system-related activities, such as joint development proceeds. Federal funding is expected to be the

primary source of capital funds. MWRRS funding is based on the establishment of an 80/20 federal/state funding program similar to those that already exist for highways; implementation will remain the responsibility of the states. The estimated State of Michigan contribution would be \$873 million for infrastructure and \$234 million for train equipment.

Through this initiative, passenger rail service would begin in Holland, continue to Grand Rapids and then south through Kalamazoo. This would provide improved access to the accelerated rail service both east and west out of Kalamazoo, providing additional higher speed connections from Grand Rapids and Holland. This routing could also support local efforts to establish commuter rail service between Holland and Grand Rapids and is being evaluated by the West Michigan Express (WMX) Task Force.

Because the Midwest Regional Rail Initiative may eliminate or change the Pere Marquette line south of Holland, specifically the St. Joseph and Bangor passenger rail stations, WESTRAIN does not support the initiative, preferring instead to continue providing Amtrak passenger rail service between Chicago, St. Joseph, Bangor, Holland, and Grand Rapids.

## **Challenges**

### **On-Time Performance**

The *Pere Marquette* operates over rail lines owned by CSX and Norfolk Southern. It is typical for Amtrak operations to run over freight-owned railroads. Significant coordination must occur between Amtrak operations and the freight-owned railroads in dispatching passenger trains, which may create on-time performance issues. Scheduled maintenance on the rail lines as well as unforeseen challenges, such as inclement weather, may impact on-time performance as well. Michigan's peninsular geography also poses challenges for railroad economics (both passenger and freight), since most of the rail lines must be supported by traffic originating or terminating in Michigan, with limited overhead traffic to support rail operations.

### **Maintaining Ridership and Revenue**

Ridership on the *Pere Marquette* continued to increase from 2004-2008, with a record-setting 111,575 riders in 2008. Ridership declined significantly in 2009, but continued to climb again in consecutive years until 2012, which saw 109,501 riders. Ridership declined from 2013-2016, and has gradually been climbing back up. A total of 96,643 passengers rode the *Pere Marquette* in 2018. There are a number of possible reasons for the decreases in ridership over the last decade, including ending service to and from New Buffalo along the line, which occurred in 2009 (see Figure 5 on the next page) and the competition from intercity bus service, which also travels to Chicago from West Michigan. Revenue suffers when ridership is low.

The *Pere Marquette* departs early—6:00 am—and returns late—11:30 pm. Because this schedule can be seen as inconvenient, adding more departure and return times on the *Pere Marquette* route has been discussed locally to increase ridership, but funding is not available for this at this time.

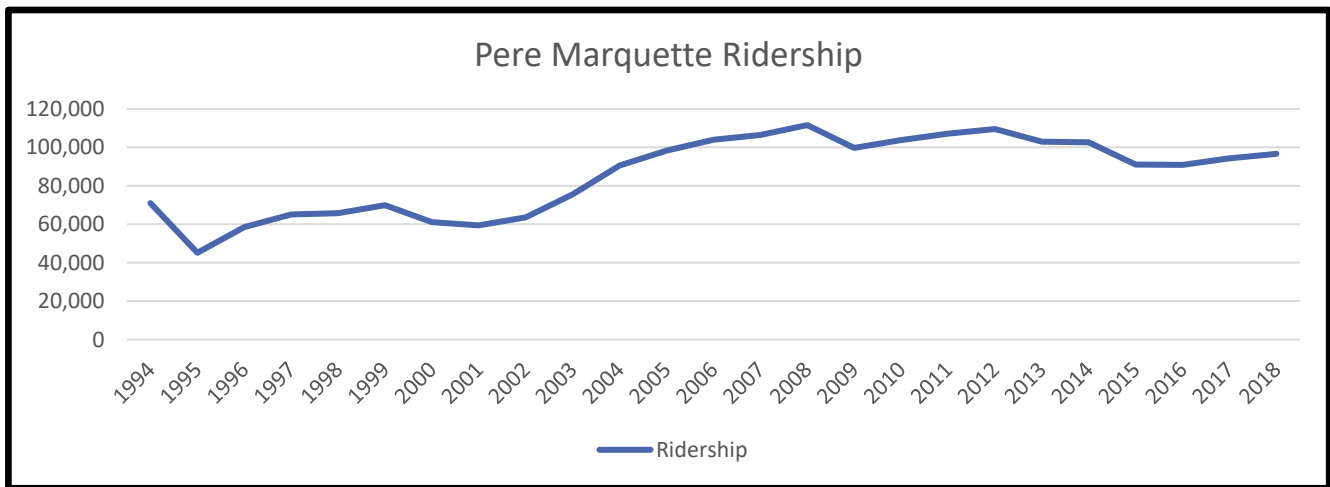


Figure 5: Pere Marquette Ridership; data courtesy of MDOT Office of Rail

### Funding

In FY2014, the operating subsidy the State of Michigan provided to Amtrak increased significantly to \$25.2 million because of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA), which required the state to also fund the Wolverine in addition to the Blue Water and the *Pere Marquette*. It is hoped that continued Michigan Department of Transportation funding, through the state legislature, will provide for a better and more viable national passenger rail system in the future.

Furthermore, the first step in establishing a New Buffalo connection is a feasibility and engineering study, and the next step toward establishing Coast-to-Coast passenger rail service is a full feasibility study to include environmental impact analyses, an implementation plan, and a review of public-private partnership options. Both studies are currently unfunded. As of 2019, the MWRRRI is still an active initiative and some states are making progress toward service improvements, including Michigan. However, most recently, states have been focused on completing work that has been awarded through FRA's High Speed Intercity Passenger Rail Grant Program. In addition, the State of Michigan has purchased the 135 mile rail line segment from Kalamazoo to Dearborn, to preserve and enhance accelerated rail passenger service along this route.

### Emerging Issues

Recommendations from the needs analysis conducted for the GVMC MTP include encouraging MDOT with the Federal Railroad Administration to conduct a more detailed study, alternative analysis, economic and environmental impact analysis for rail passenger service options in West Michigan. This study should include routes between Holland/Grand Rapids and Chicago and Holland/Grand Rapids and Detroit/Toledo. This could result in more than one rail passenger route to/from West Michigan, and could support future WMX Holland to Grand Rapids plans. This recommendation is consistent with the Michigan State Rail Plan recommended investment package of improvements.

## Accomplishments

### New Amtrak Station

The new Vernon J. Ehlers Amtrak station opened on October 27<sup>th</sup>, 2014. The \$6.1 million station, located at 440 Century Avenue SW, is located next to The Rapid's Central Station. This station serves one daily round trip of Amtrak's Grand Rapids-to-Chicago *Pere Marquette*. Named in honor of the former U.S. Congressman, the station has successfully integrated bus and rail transportation, offers more passenger amenities, and streamlines train operations.



*Vernon J. Ehlers Amtrak station; photo courtesy of The Rapid*

### Completion of Coast-to-Coast Study

GVMC staff participated on the Committee that oversaw the Coast-to-Coast Study, and the final results were shared with our Policy Committee in March of 2016. GVMC supports increased access from Grand Rapids to other parts of the state by rail.

## Supporting Documents

MDOT State Rail Plan

[Michigan Regional Rail System Executive Report](#)

## Supporting Goals and Objectives

### Goal 1: Further Develop an Efficient Multimodal System

**Objective 1a:** Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight

**Objective 1b:** 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

**Objective 1c:** Implement strategies to promote efficient and reliable system management and operation that result in the reliable and safe movement of people and freight

### Goal 3: Enhance Safety and Reduce Congestion

**Objective 3a:** Promote services, such as Rideshare, that increase vehicle occupancy rates

### Goal 6: Ensure Equity, Access and Mobility

**Objective 6a:** Provide access to employment, education, medical facilities, housing, services, neighborhoods, recreation and fresh food for all people, regardless of age, ability, or economic status

**Objective 6c:** Implement improvements for all transportation system users that foster increased accessibility, economic development and vitality

### Goal 7: Protect and Enhance the Environment

**Objective 7a:** Promote energy conservation and improve air quality by encouraging active modes of transportation that reduce emissions and improve quality of life and public health



# Nonmotorized Transportation

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*Grand Rapids area bicyclist; photo courtesy of Kendell Joseph*

## Highlights:

- There is over 1,000 miles of nonmotorized infrastructure in the region
- According to MDOT's study of the economic benefits of bicycling, Grand Rapids produces on average \$1.7 million in bicycle retail revenue annually, and Grand Rapids households spend \$4.3 million every year on bicycling events and vacations in Michigan

## Overview

Emphasis on the benefits of nonmotorized transportation has continued to grow in the region, increasing attention on enhancing nonmotorized transportation options. To provide for the most efficient network possible, these types of facilities are an essential element of transportation plans. While balancing available funds is always a challenge, there is broad acknowledgement that nonmotorized transportation increases transportation and accessibility options, supports transit, provides economic benefits, and helps improve air quality, health, and quality of life outcomes.

## Process for Determining and Addressing Needs

Nonmotorized needs are identified in GVMC's Nonmotorized Plan, which was developed in coordination with GVMC's nonmotorized subcommittee. The needs list associated with this plan is updated on a regular basis and continues to be a priority for GVMC and its members. Additionally, staff completed a nonmotorized-focused safety analysis to identify high crash locations for bicycles and pedestrians and reviewed the results of the Environmental Justice Transportation Accessibility Analysis to help identify additional regional nonmotorized needs.

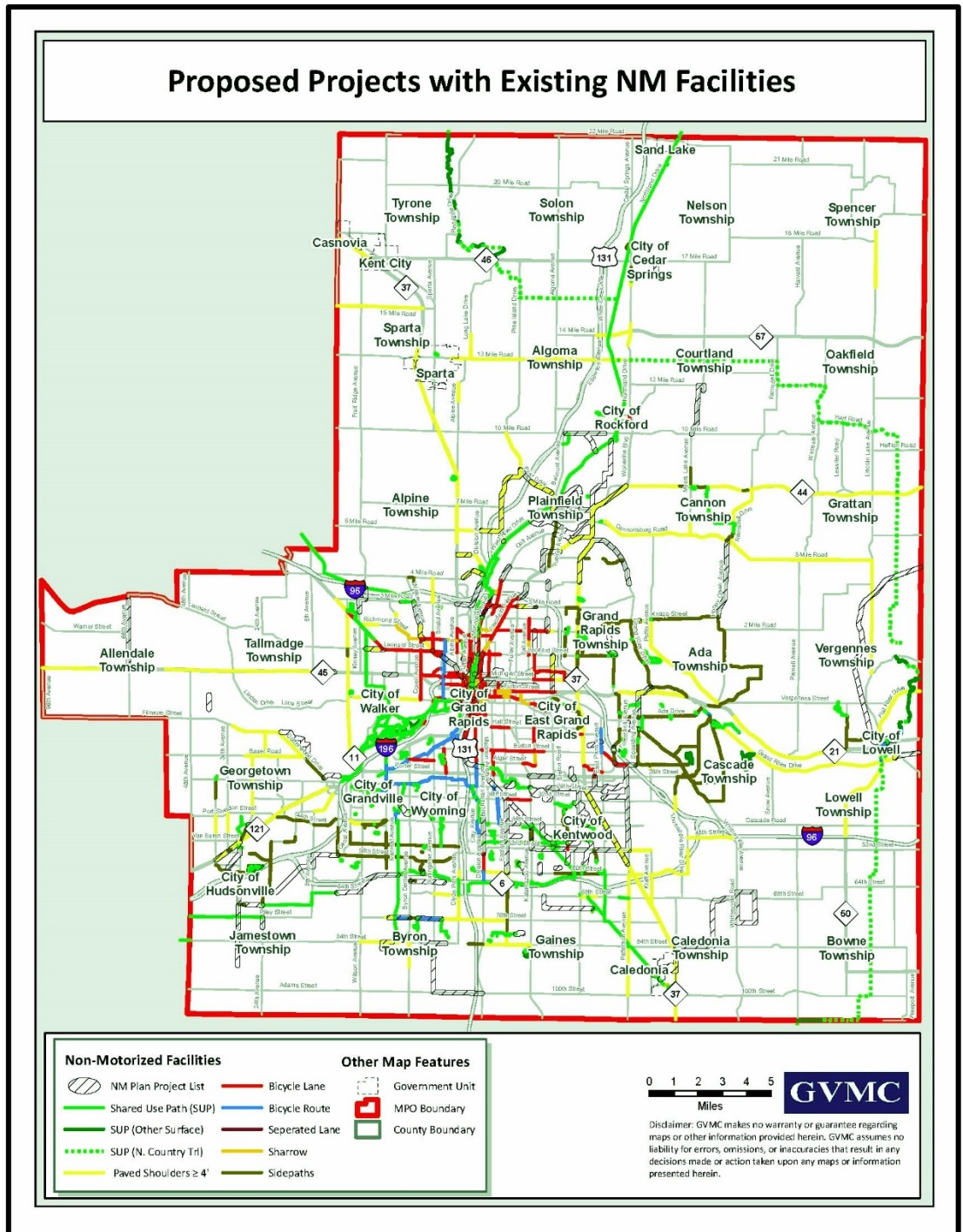
## Identified Needs and Proposed Solutions

### Need 1: Additional Funding

Nonmotorized needs are identified in GVMC's Nonmotorized Plan. The needs list is updated at least annually and includes about 200 projects that would cost over \$76.5 million to construct. These projects would add over 174 miles to the nonmotorized network in the region in the form of sidepaths/shared use paths, multi-use trails, bike lanes/paved shoulders, pedestrian bridges, sidewalks, pedestrian improvements, etc. On average, the total amount spent (including local match) leveraging GVMC

Transportation Alternatives Program (TAP) and

MDOT TAP funds in the region is about \$3.5 million annually; at that rate, using only these sources of funding, it will take over 20 years to implement all the projects on the needs list (not including maintenance costs or additional needs that emerge). The map above includes proposed projects with existing nonmotorized facilities.



**Map 13: Proposed Projects with Existing Nonmotorized Facilities**



### **MTP Recommendation and Proposed Solution: Work to increase transportation funding in GVMC's MPO area**

The needs for all transportation modes in GVMC's area significantly outweigh available resources. Currently, all Transportation Alternatives Program (TAP) money the area receives goes toward funding nonmotorized projects. However, other federal sources of funding, such as STP-Urban, are flexible, meaning that these funds could be used on nonmotorized projects should our Committees choose to do so. While STP-Urban funds have primarily been used for resurfacing and reconstruction projects in our region in the past, there is interest from some committee members in using them on nonmotorized projects as well. GVMC also encourages our members to pursue other sources of funding, such as millages, special assessments, and grants, to achieve their nonmotorized goals.

*Note: All MTP recommendations, including action steps to achieve them, are included in Chapter 12.*

### **Need 2: Region-Wide Needs Identified in the Grand Region Nonmotorized Plan**

In addition to GVMC's Nonmotorized Plan, MDOT completed the Grand Region Nonmotorized Plan in 2017, and GVMC participated on the Core Plan Team. This plan identified nonmotorized needs for the Grand Region as a whole, which includes 13 counties in West Michigan, as well as needs and priorities by county. The following needs and priorities were identified during that planning process:

#### *Grand Region Needs*

- (1) A coordinated and consistent nonmotorized wayfinding system
- (2) Expansion of the "Driving Change" education program
- (3) Communication and support regarding nonmotorized issues
- (4) Ongoing and long-term maintenance of the nonmotorized geographic information systems (GIS) database
- (5) Measurement of progress
- (6) Nonmotorized improvements on non-freeway state trunklines

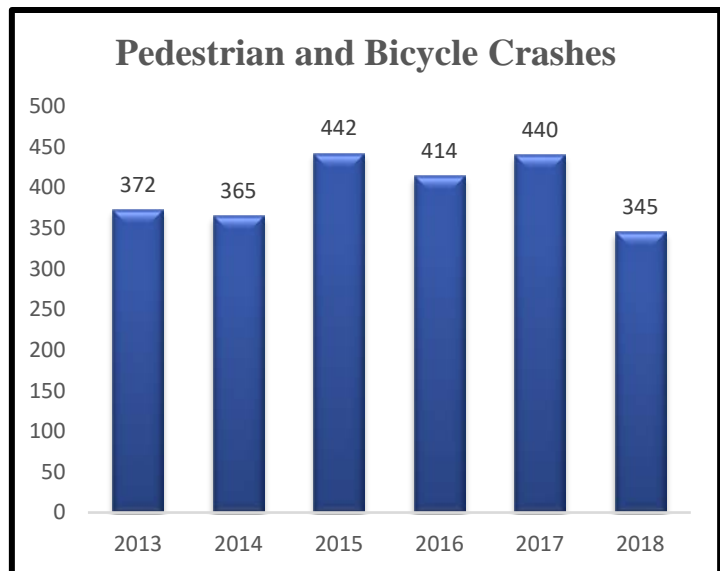
#### *Kent and Eastern Ottawa Counties (GVMC Region) Needs*

- (1) Interurban/River to River Trail
- (2) Connect Fred Meijer Kenowa Trail to the Fred Meijer M-6 and Kent Trails
- (3) Improve surface condition of Fred Meijer Flat River Valley Trail north of Lowell
- (4) Improve connectivity of Fred Meijer Grand River Valley Rail Trail to downtown Lowell and Fred Meijer Flat River Valley Rail Trail
- (5) Plainfield Township trail millage goal of over 30 miles of nonmotorized facilities connecting to the White Pine State Trail and more
- (6) Connecting Fred Meijer Standale Trail to Fred Meijer Pioneer Trail in Walker
- (7) Connecting Fred Meijer Pioneer Trail to Fred Meijer White Pine Trail in Walker
- (8) Modify route of North Country Trail to increase the amount of trail that is off-road
- (9) Nonmotorized bridge and/or nonmotorized facilities on the Forest Hill Avenue bridge over I-96 in Kentwood
- (10) Determine primary east-west nonmotorized corridor(s) between Grand Rapids and Lowell
- (11) Idema Explorers Trail along the Grand River in Ottawa County
- (12) Connecting North Bank Trail across Ottawa County connecting Spring Lake to Grand Rapids
- (13) 4-foot wide paved shoulders along Leonard Street/Drive from 24th Ave to 148th Avenue
- (14) North-south connection between Kenowa Trail in Jamestown Township and Allegan

**Proposed solution:** MDOT and GVMC are monitoring progress on the needs identified in the Grand Region Nonmotorized Plan.

### Need 3: Improved Bicycle and Pedestrian Safety

One of the federal performance measures for safety is the number of nonmotorized fatalities and serious injuries. In 2018, 148 crashes involved bicyclists in the GVMC region and two of those crashes resulted in fatalities and 11 resulted in suspected serious injuries. In the same year, 197 crashes involved pedestrians with eight resulting in fatalities and 45 resulting in suspected serious injuries. While nonmotorized crashes comprise a small portion of all crashes in the region (there were over 24,000 in 2018), nonmotorized users are significantly more likely to suffer injuries or death as a result of a crash with a vehicle. A summary of the number of pedestrian and bicycle crashes over the last six years is summarized in the table above. For additional information on pedestrian and bicycle crashes, proposed solutions to reducing nonmotorized crash rates, and information on the safety performance measure, please refer to the safety section of this chapter.



## Challenges

### Adequate Facilities

Adequate facilities are lacking in many areas, like sidewalks, safe intersections, transit accessibility, bicycle lanes, bicycle parking and storage, and shared-use paths. In particular, bridge crossings in key areas, especially over and beneath limited-access highways, are a significant impediment to safe pedestrian movements.

### Weather

Seasonal weather, such as cold, heat, humidity, rain, wind and snow, can hamper bicycling and pedestrian commutes. However, people can, and do, elect to bicycle and walk during all seasons. Municipalities can make nonmotorized options more appealing, especially in the winter months, with regular snow plowing and other weather-related maintenance initiatives.

### Land Use Patterns

The density and pattern of land use greatly influences the amount of nonmotorized trips. Mixed-use developments encourage more walking trips as more destinations are located within a reasonable distance. Current zoning regulations in some parts of the region group similar uses together to increase land use “compatibility.” This practice discourages efficient and direct pedestrian or bicycle trips. Typical suburban travel characteristics break up nonmotorized routes and heighten traffic levels for nonmotorized travelers. However, developers, planners, and government agencies are recognizing the value of designing for “walkability”—the idea of location efficiency—having the ability and convenience of using nonmotorized modes to get to work, school, or social centers.

### Time and Distance

While time and distance are perceived as obstacles to nonmotorized transportation, the short distances of most commutes indicate one could walk or bicycle to destinations instead of driving a vehicle without adding significant time to their journey. Nonmotorized transportation is an option that may often only add a few extra minutes, and the benefit of exercise, to the vast majority of short trips. This was affirmed in GVMC’s Environmental Justice Transportation Accessibility Analysis which found that after personal vehicle use, bicycle transportation provides the best access to jobs, healthcare, and higher education centers in the region.

## Funding

The cost of, and funding available for, nonmotorized facilities may be the chief deterrent to completing the nonmotorized network. Funding has been limited by the historic emphasis on automobile travel as the most demanded mode of transportation. However, Federal surface transportation law provides flexibility to organizations like GVMC to help fund bicycle and pedestrian improvements from a wide variety of programs. GVMC also encourages our members to pursue other sources of funding, such as millages, special assessments, and grants, to achieve their nonmotorized goals.

## Emerging Issues

### Bike Shares

The Grand Rapids Feasibility Study and Bicycle Action Plan have investigated bike share plans. The question is how and when to implement such a program.

### Scooters

There are uncertainties as to whether to allow them in communities and how to regulate them.

### E-Assist Bikes

Again, there are questions about whether to allow them on certain trail systems and how to categorize them when there is a small motor involved.

### Wayfinding

With all the work that's been done on individual nonmotorized networks, the question remains: How do we connect them through wayfinding to make them more accessible for users and emergency services?



Grand Rapids area cyclist; photo courtesy of Kendell Joseph

## Public Involvement Spotlight: What Does the Public Say about Safety and Accessibility for Nonmotorized Transportation?

The public ranked improving road and intersection safety as their fifth highest investment priority in our recent survey. Improving and adding sidewalks along major roads and transit routes and improving and adding bicycle lanes and shared-use paths ranked sixth and seventh, respectively, with just under 30% of the survey respondents choosing these options as investment priorities. Yet for those who prioritized investment in the nonmotorized system, two trends emerged in their comments: increasing safety for bicyclists and pedestrians and increasing access to the nonmotorized system. Here are two comments to highlight:

*"Please improve biking accessibility, biking safety and pathways that are not on streets. More biking will decrease wear and tear on streets, it's environmentally friendly, and could solve many of our local commute problems—but it is dangerous here and there are not great pathways that connect the regional areas."*

*"As more housing is developed within a 2-mile radius of downtown GR, I feel more bicycle/shared lanes need to go in. With parking not increasing as rapidly as housing, more accessibility for bikes would help those of us who live close to downtown (within the 2 mile radius) but are too scared to bike."*

## Accomplishments

Over time, cross-jurisdictional cooperation has improved, and multiple jurisdictions have coordinated to fill a gap in the nonmotorized network at one time. The area continues to make investments in connecting the anticipated expansion of the region's nonmotorized network. This includes coordinating construction of nonmotorized bridges and paths with existing and programmed road and bridge projects, where feasible. These connections are identified from the GVMC and the MDOT-Grand Region nonmotorized plans.



*An enhanced bike lane connects Downtown, Monroe North & Creston neighborhoods as part of a pilot program with the goal to “build the most bicycle friendly city in the Midwest”*

Examples of large nonmotorized projects and efforts that have been completed within the last five years include:

- Fred Meijer Standale Trail tunnel under M-45
- Grand Riveredge Trail section from Canal Park to Leonard
- Caledonia Trails Phase I
- Remembrance Trail
- River to River Trail planning effort
- Better Bikeway Pilot Project (see photo at right)
- Nonmotorized bridge over the Grand River in Ada (Ada added paths into town, to the west, and participated in bridge cost)
- Nonmotorized bridge over the Grand Rapids Eastern railroad, at the Grand Rapids and Ada Township border (Grand Rapids Township participated in the cost)

## Supporting Documents

- GVMC Nonmotorized Plan (2014)
- Grand Region Nonmotorized Plan (2017)
- Municipal Nonmotorized Plans—A few to highlight are below
  - Grand Rapids Vital Streets Plan
  - Grand Rapids Bicycle Action Plan
  - Grand Rapids Bike Share Feasibility Study
  - Plainfield Township Nonmotorized Pathways and Trails Plan
  - Walker Sidewalk Plan
  - Kentwood Nonmotorized Plan

## **Supporting MTP Goals and Objectives**

### **Goal 1: Further Develop an Efficient Multimodal System**

**Objective 1a:** Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight

**Objective 1b:** 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

### **Goal 2: Preserve the System**

**Objective 2a:** Apply transportation asset management principles and techniques to identify, assess, and maintain existing transportation infrastructure in support of federal performance measures

### **Goal 3: Enhance Safety and Reduce Congestion**

**Objective 3b:** Reduce the reliance on Single Occupancy Vehicles (SOVs) by developing policies that encourage the use or development of active modes of transportation

**Objective 3g:** Improve safety of the transportation system for motorized and nonmotorized users in support of federal performance measures by identifying and prioritizing projects that will reduce the likelihood or severity of crashes and incorporating safety improvements with all transportation projects where feasible and practical

### **Goal 7: Protect and Enhance the Environment**

**Objective 7a:** Promote energy conservation and improve air quality by encouraging active modes of transportation that reduce emissions and improve quality of life and public health



# Safety



*Intersection of Michigan and Fuller, which is ranked in the top 20 intersections for pedestrian and bicyclist crashes in the GVMC area*

## Highlights:

- Over the past five years, an average of 67 people have died each year from traffic crashes in the Grand Rapids Metro area
- 33% of these fatalities involved a pedestrian, bicyclist, or motorcyclist
- 23% of all serious injuries involved a pedestrian, bicyclist, or motorcyclist
- \$36 million was invested in safety projects between 2017-2019

## Overview

**Traffic collision** (“crash”): A **traffic collision** is defined as a vehicle colliding into another vehicle, pedestrian, animal, road debris, or other geographical or architectural obstacle. Traffic collisions can result in injury, property damage, and death.

According to the National Highway Traffic Safety Administration, 36,560 people died in U.S. motor vehicle crashes in 2018, a decrease of 2.4% from 2017. This is the lowest fatality rate since 2014 and coincided with a 0.3% increase in vehicle miles traveled. Estimates for the first half of 2019 show this trend continuing. In 2018, motor vehicle crashes were the 13th leading cause of death nationwide. While traffic fatalities have declined 19% over the last decade, motor vehicle crashes remain the leading cause of death for people between the ages of 8 and 24.

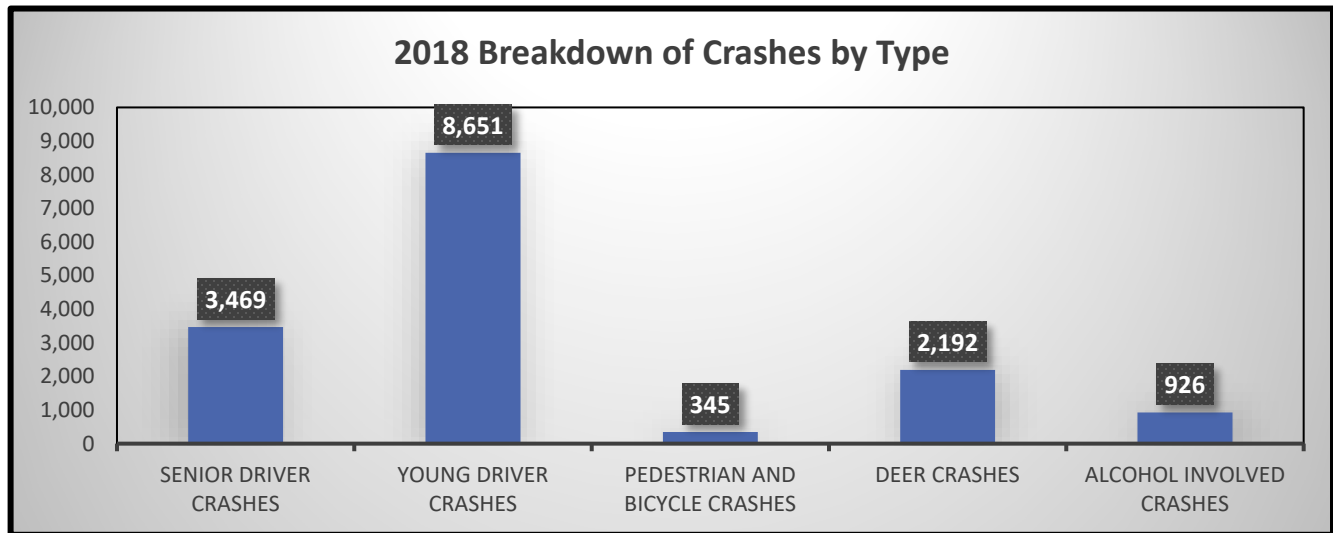
Over the last five years, in the GVMC study area, there have been an average of 23,567 crashes, 413 serious injuries, and 67 fatal traffic accidents. (See tables on the following page.) Unlike the nationwide trend, the five year moving average fatality rate in the GVMC region increased from 0.75/100 Million Vehicle Miles Traveled (MVMT) in 2014 to 0.92/100 MVMT in 2018, and the five year moving average serious injury rate increased from 4.57/100 MVMT in 2014 to 5.66/100 MVMT in 2018.



Crashes, Fatalities, and Serious Injuries in GVMC's Area 2009-2018										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Crashes	19,586	18,771	19,843	19,301	21,246	22,521	22,139	24,180	24,683	24,314
Fatalities	60	68	43	49	50	58	71	62	73	71
Serious Injuries	353	327	346	340	324	298	370	471	490	435

**Table 5: Crashes, Fatalities, and Serious Injuries in GVMC's Area 2009-2018**

The table below summarizes the breakdown of crashes by type from 2018.



**Table 6: Breakdown of 2018 crashes by type**

With these statistics in mind, GVMC has focused planning resources on reducing traffic crashes as well as traffic fatalities and serious injuries in order to minimize the loss of human life and the negative impact they have on the region's economy. These efforts ensure that safety planning remains a cornerstone of GVMC's transportation planning process.

## Process for Determining and Addressing Need

Studies suggest that there are four basic causes of traffic crashes: equipment failure, roadway design, poor roadway maintenance, and driver behavior. Over 95% of crashes can be attributed to some degree of driver behavior combined with one of the other three factors. GVMC has taken numerous steps to address these causes of traffic crashes on our own and in collaboration with Committees and individuals and to determine ways to improve the safety of our system. These efforts are outlined below.

### Collaboration with Other Committees

There are currently several Traffic Safety Committees in the state of Michigan sponsored by the Office of Highway Safety Planning and AAA Michigan. In 2005, the Grand Valley Traffic Safety Committee (TSC) was formed through the involvement of the GVMC. The TSC consists of agencies in Kent, Ottawa, and Allegan Counties. The goal of this committee is to bring traffic safety professionals together on a regular basis to exchange information on best practices being utilized in their individual agencies and to maximize the resources available to them.

GVMC also collaborates with the West Michigan Traffic Safety Committee to maintain our Traffic Safety Plan, which is updated at least every four years, before the development of the Metropolitan Transportation Plan (MTP). This data-driven plan identifies safety issues and establishes goals, targets, emphasis areas and strategies to reduce fatalities and serious injuries for all road users, thereby helping to direct safety investment decisions. The Traffic Safety Plan integrates strategies from the four E's of traffic safety: engineering, enforcement, education, and emergency medical services. Regional safety policies to help guide GVMC's Traffic Safety Plan implementation include:

- Apply a comprehensive, integrated approach when addressing highway safety problems that include the vehicle, driver, other road users, and roadway elements through a combination of engineering, education, enforcement, and emergency services solutions.
- Focus safety funding on high-priority road segments, intersections, and initiatives as identified in the West Michigan Traffic Safety Plan and the GVMC Traffic Safety Plan.
- Educate road users on their role and responsibilities in traffic safety, including distracted driving.
- Promote and educate residents on safe walking and bicycling as a means to improve the health of residents, reduce traffic congestion, and provide viable alternatives to driving.
- Incorporate elements of complete streets and green streets to holistically manage the transportation system for all users and reduce conflicts between vehicles, transit, rail, and nonmotorized modes of travel.
- Increase connectivity and accessibility for all modes of the transportation system to core services in the GVMC region, including hospitals, educational institutions, job centers, grocery stores, downtowns, and parks as a mechanism of improving safety.
- Coordinate with stakeholders, including the Governor's Traffic Safety Advisory Commission (GTSAC), local government, road agencies, advocacy groups, and other public and private entities, on safety implementation activities.
- Support and promote the use of transportation-related technologies and travel demand management techniques that lead to safer, more efficient, and more economical highway systems in the region.
- Support traffic incident management that is designed to facilitate the safety of motorists and first responders as well as the expeditious restoration of traffic flow stemming from both major and minor traffic incidents back to normal conditions.

### **Safety Needs Analysis**

GVMC staff analyzed the safety of the transportation system during the comprehensive needs analysis performed in September of 2019 and discussed our findings with our Technical and Policy Committees in October. The Committee members were actively engaged in this process and identified additional safety needs that have been integrated into this chapter. GVMC staff also received comments from the public about this needs analysis, including recommendations for safety improvements.

### **Project-Level Safety Needs**

While it is rare for our members to have a project that is purely safety-related, **safety improvements are considered during the design phase for all projects.** If changes can be made that improve safety, they are incorporated at this time. All projects are also built according to the Association of State Highway and Transportation Officials (AASHTO) standards, which include safety requirements.

## Spotlight: Integration of Performance-Based Planning In Identifying Needs

### Safety Performance Measure and Targets

As stated in Chapter 1, the FAST Act requires State DOTs and MPOs to set targets for performance measures, including safety. Safety targets include:

- Number of fatalities
- Rate of fatalities per 100 million vehicle miles traveled
- Number of serious injuries
- Rate of serious injury per 100 million vehicle miles traveled
- Number of nonmotorized (pedestrian and bicycle) fatalities and serious injuries

Once State DOTs establish their safety targets, MPOs have 180 days to either decide to support the state safety targets or to set their own. State DOTs and MPOs must approve their safety targets every year. GVMC has historically supported state safety targets. The state's safety targets for 2020, which GVMC's Technical and Policy Committees voted to support in November 2019, are below, along with GVMC's baseline safety conditions.

**Michigan State Safety Targets for Calendar Year 2020**

Measure (5-year rolling average)	Baseline Condition (2014-2018)	2020 Targets (2016-2020)	GVMC Baseline Condition (2014-2018)
Number of Fatalities	987.4	999.4	67
Rate of Fatalities per 100 million VMT	0.99	0.97	0.97
Number of Serious Injuries	5,415.6	5,520.4	412.8
Rate of Serious Injury per 100 million VMT	5.41	5.34	5.96
Number of Nonmotorized (Pedestrians and Bicycle) Fatalities & Serious Injuries	742.4	735.8	65.8

Please note that these targets are part of a larger goal and must incorporate current trends. Though the target for fatalities is expected to grow, the rate itself is expected to decline, so the targets are set accordingly. Aspirational goals are incorporated through each road agencies' program, not through the transportation performance measure process. However, the federal performance measures can help to assess progress in meeting the aspirational goals.

### Safety Targets, Needs, and Project Selection

Safety was of paramount importance during the development of the 2045 MTP, and meeting our safety targets for all users of the transportation system was a goal and objective affirmed by all committees:

#### Goal 3: Enhance Safety and Reduce Congestion

**Objective 3g:** Improve safety of the transportation system for motorized and nonmotorized users in support of federal performance measures by identifying and prioritizing projects that will reduce the likelihood or severity of crashes and incorporating safety improvements with all transportation projects where feasible and practical

The paragraphs that follow describe how this goal and the related safety performance measures were integrated into the needs assessments and project selection process for all users of the system.

### *Safety and Road Projects*

As part of the comprehensive needs analysis, GVMC staff performed a safety deficiency analysis which included whether or not road segments were safety deficient for the following areas:

- The average rate of traffic serious injuries per 100 million vehicle miles traveled on the road segment
- The average rate of traffic fatalities per 100 million vehicle miles traveled on the road segment

This analysis determined whether the roadway segment was considered safety deficient based on the fatality or serious injury rate being greater than 2019 state targets for those performance measures.

In order for a segment to become a project, it must be determined to be deficient for safety, capacity, or pavement/bridge condition based on the protocol established in GVMC's Policies and Practices for Programming Projects document. This document was updated prior to the development of the FY2020-2023 TIP to incorporate safety performance measures. GVMC revisited this document again during the development of the 2045 Metropolitan Transportation Plan and made appropriate updates to the safety section based on committee feedback.

Furthermore, GVMC has maintained a safety plan or safety management system for many years. Currently, this plan lists the top 25 intersections ranked by the following safety criteria:

- Intersections Rank by Expected Excess Fatal and Injury Crash
- Intersections Ranking by Total Crash (2012-2016)
- Intersections Ranking by Fatal and Serious Injury Crash (2012-2016)
- Freeway Segments Ranking by Expected Excess Fatal and Injury Crash
- Non-Freeway Segments Ranking by Expected Excess Fatal and Injury Crash
- Segments Ranking by Total Crash (2012-2016)
- Segments Ranking by Fatal and Serious Injury Crash (2012-2016)
- Intersection Ranking by Expected Excess Fatal and Injury Pedestrian Crash
- Intersection Ranking by Pedestrian Crash (2012-2016)
- Intersection Ranking by Expected Excess Fatal and Injury Bicycle Crash

With each update to this plan (most recent being 2018), staff meets with jurisdictions and provides crash data and additional relevant information upon request. GVMC also participated in the development of the West Michigan Traffic Safety plan (2017), which covered eight counties (Allegan, Barry, Ionia, Kent, Mecosta, Montcalm, Osceola, and Ottawa) in the West Michigan region. The Policies and Practices document lists the federal performance measures and also identifies low, medium, and high deficiency rankings from the West Michigan Traffic Safety Plan.

### *Safety and Nonmotorized Projects*

Safety was considered during the project evaluation process for nonmotorized projects listed in the current Nonmotorized Plan (last updated in 2014) as well. A list of projects from this plan is included in Appendix G. This includes awarding evaluation points if the projects help eliminate conflict points between vehicles and forms of nonmotorized travel. Such projects should minimize the incidents of crashes, injuries, and fatalities as well.

## **Achieving our Safety Targets Going Forward**

### *Road Projects*

While GVMC has limited access to federal safety funds provided to the state because they are managed by the state through a statewide grant pool, GVMC encourages local jurisdictions to submit safety deficiency project proposals to MDOT for consideration and provides them with crash data for these projects. The

Policies and Practices document recommends prioritizing roadways, segments, intersections, and initiatives identified in both safety plans and, where possible, considering safety enhancements with reconstruction projects. Furthermore, GVMC will continue to maintain our safety plan and to program projects using all sources of funding that target identified intersections and corridors with high crash rates as well as intersections and corridors with high fatalities and serious injuries. Together, these efforts will ensure that safety is emphasized in project selection and will make progress toward achieving the safety targets the MPO has adopted/supported.

#### *Nonmotorized*

When the Nonmotorized Plan is updated, the Nonmotorized Subcommittee will be tasked with evaluating the evaluation criteria and scoring process to more directly link to the federal nonmotorized safety performance measures.

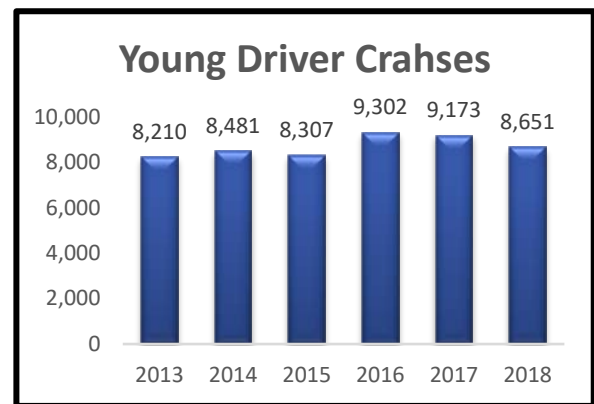
## Identified Needs and Proposed Solutions

### Traffic Safety Plan Identified Needs

GVMC's Safety Plan emphasizes five areas of need, which were selected based on crash data trends and stakeholder input. They are described below.

#### **Need 1: Address Crash Rate for Drivers Age 24 and Younger**

It is widely known that young drivers lack basic driving experience and are more likely to engage in risky and aggressive driving behaviors like speeding and tailgating. They also tend to have more passengers in their vehicles. Therefore, young drivers are much more likely than other groups to be involved in violent traffic crashes. In the GVMC region, young drivers under age 24 were involved in 37.3% of all traffic crashes and 35.1% of fatal and serious injury crashes between 2014 and 2018.



**Table 7: Young Driver Crashes 2013-2018**

Some work has been accomplished to address this need. For instance, the Graduated Driver Licensing (GDL) system is designed to teach teens to drive by gradually increasing their driving privileges as they advance through the system. GDL consists of two segments of driver education instruction and three licensing levels, which are: (1) a supervised learner's license (Level 1 License), (2) an intermediate license that limits passengers and unsupervised nighttime driving (Level 2 License), and (3) a full-privilege driver's license (Level 3 License) issued after a teen driver has successfully completed all previous instruction and driving requirements. GDL license levels 1 and 2 have certain restrictions to limit teens' driving exposure to high-risk situations to help protect them while they are learning to drive. However, in spite of the GDL, crash rates among young drivers remain high.

#### **Proposed Solution: Develop an Education Campaign to Reach Young Drivers**

GVMC plans to work with other agencies, including MPOs, MDOT, and the Michigan State Police, to develop an education campaign designed to reach young drivers. This public education campaign may include posters, brochures or info cards, or other promotional materials that educate young drivers about safety, as well as

social media posts to reach students online. GVMC staff also plans to offer presentations about safe driving practices to area schools in order to educate students prior to, or shortly after, they receive their license.

### **Need 2: Address Distracted Driving**

With the advent of smart devices, distracted driving has received an increased emphasis from transportation agencies across the United States. The National Highway Traffic Safety Administration (NHTSA) reported that distracted driving claimed 3,166 lives across the nation in 2017 alone. Distraction is not just limited to drivers, but also effects pedestrians, where studies have shown mobile phone use is correlated and parallels the same increased crash risk experienced by motorists. Due to the variety of distractions effecting motorists, the true impact of distraction in crashes is generally considered as underreported since pre-crash distractions often leave no evidence to observe. This is confounded by the fact that drivers are typically reluctant to admit distraction as a cause for a crash.

Recognizing that distracted driving among teenagers needed to be addressed, Governor Rick Snyder signed Kelsey's Law on January 8, 2013, which prohibits drivers under age 21 from using a smart device for any purpose while driving. Under this law, a teen caught using a cell phone while driving is subject to a civil infraction. While this law represents movement toward positive change, distracted driving continues to be a leading cause of traffic crashes.

### **Proposed Solution: Grass-Roots and National Programs**

The NHTSA currently leads the national effort to save lives by preventing dangerous driving. They ask that everyone play a part in the fight to save lives by encouraging teens to speak up if they see a friend distracted while driving, asking parents to lead by example and talk with their young drivers about the responsibilities that come with driving, and urging everyone to spread the word at their school, workplace, or on social media about the dangers of distracted driving.

### **Need 3: Improve Pedestrian and Bicycle Safety**

As explained in the nonmotorized section of this chapter, one of the federal performance measures for safety is the number of nonmotorized fatalities and serious injuries. In 2018, 148 crashes involved bicyclists in the GVMC region. Two of those crashes resulted in fatalities and 11 resulted in suspected serious injuries. In the same year, 197 crashes involved pedestrians with eight resulting in fatalities and 45 resulting in suspected serious injuries. While nonmotorized crashes comprise a small portion of all crashes in the region (there were over 24,000 in 2018), nonmotorized users are significantly more

likely to suffer injuries or death as a result of a crash with a vehicle. Therefore, in locations where bicycle and pedestrian crashes occur, safety interventions should be investigated. The map on the following page shows the top 20 intersections for number of fatalities and serious injuries for bicyclists and pedestrians 2013-2017. A full list of these locations is available in Appendix F.

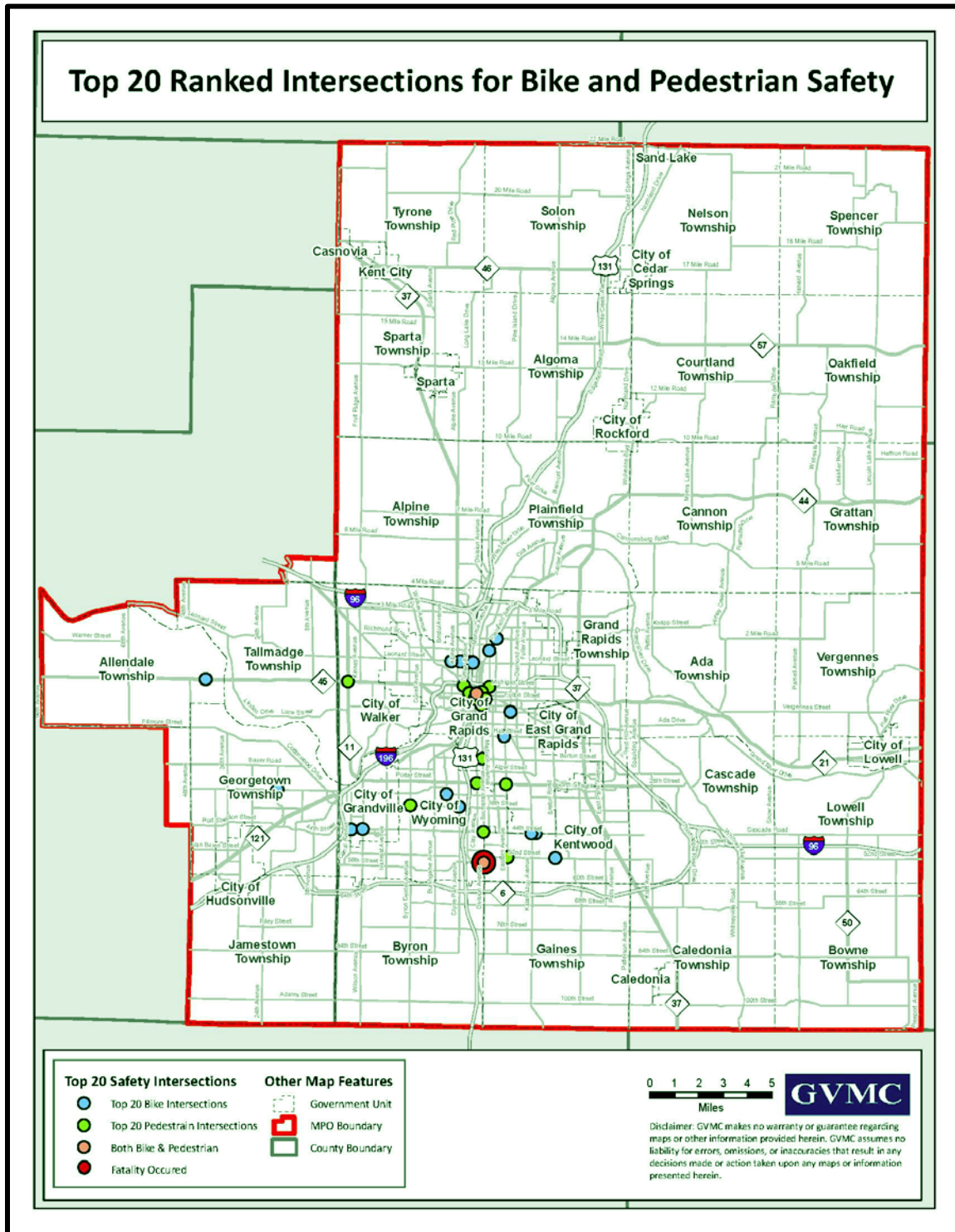


*Intersection of Ransom Ave NE and E Fulton Street, one of the top 20 intersections for number of fatalities and serious injuries for bicyclists and pedestrians*



### Proposed Solution: Public Education Campaigns

While engineering and infrastructure improvements should be investigated to improve nonmotorized safety, additional public education campaigns may also help reduce crash, fatality, and injury rates. The City of Grand Rapids, through the help of a federal grant sponsored by the Michigan Department of Transportation (MDOT), partnered with GÜD Marketing to study, develop, and implement a bicycle safety education campaign that would educate both motorists and bicyclists about new bicycle infrastructure and the new bike laws. As part of this effort, a “playbook” was created to help other municipalities or organizations implement programs of their own by providing guidance for moving through the process. This playbook could be further utilized in the GVMC region to continue educating the public on this important safety topic.

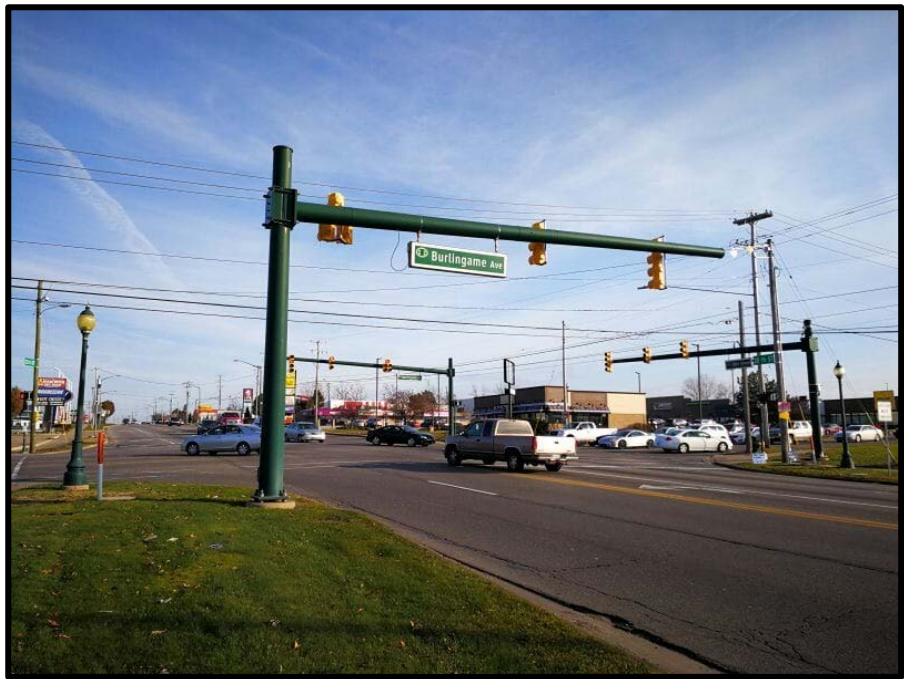


Map 14: Top 20 Intersections Ranked by Highest Number of Bicycle and Pedestrian Incidents

#### **Need 4: Improve Intersection & Corridor Safety**

Intersections are the place in the transportation system where all roadway users—cars, trucks, buses, pedestrians, bicyclists, and motorcyclists—converge creating potential for conflict. In GVMC region there were 9,660 intersection crashes in 2018 representing nearly 40% of all the reported crashes. The GVMC region exceeded the ratio of crashes at intersections reported at the state and MDOT regional level. These intersection crashes within the GVMC region resulted in 26 fatalities in 2018 (36.6% of all roadway fatalities in the

region) and 189 serious injuries (43.4% of all roadway serious injuries in the region). Intersection crashes accounted for about 29 percent of all traffic fatalities and 36.7 percent of all traffic serious injuries in Michigan. Again, the GVMC region exceeded the Michigan state ratio for traffic fatalities and serious injuries.



*Intersection of 28th St. and Burlingame, one of the top 20 crash intersections for number of fatalities and serious injuries*

Appendix F includes the top 20 ranked intersections and segments for fatalities and serious injuries from 2014-2018. This data is updated every year, but please note that the list changes due to where crashes, fatalities and serious injuries occur.

To determine corridor needs, GVMC employed a ranking process similar to the one used for intersections. Region-wide crash data from Roadsoft (software developed and maintained by Michigan Technological University) for the years 2013-2017 were obtained and used for the analysis.

Furthermore, the GVMC region contains in excess of 5,000 miles of public streets and highways. Within these 5,000 miles there are nearly 1,600 miles designated as “federal-aid eligible.” Between 2013 and 2017 there were 114,769 reported traffic crashes in the GVMC study region. Of these, nearly 80% were on the federal-aid road network. While the federal-aid network represents approximately 32% of the total road mileage in the region, it carries nearly 90% of the total miles traveled. It stands to reason that a high percentage of the accidents occur on the federal-aid system. For this reason and the fact that the MPO is required to limit planning efforts to the federal-aid network, corridor accident analysis will be limited to the federal-aid system.

#### **Proposed Solution: Employ Low-Cost Traffic Crash Interventions to Improve Traffic Safety**

Research indicates that low-cost safety improvements such as improved sight distance, channelization, signage, and other infrastructure treatments can produce positive results. While these infrastructure improvements can improve safety, it is often the behavior of the road user that can cause a crash, e.g., speeding, red light and stop sign running, failure to use a pedestrian crosswalk, etc.

A study conducted in 2015 by RAND Corporation for the Center for Disease Control and Prevention’s (CDC’s)

National Center for Injury Prevention and Control, an online tool MV PICCS (Motor Vehicle Prioritizing Interventions and Cost Calculator for States) was developed to evaluate the cost-effectiveness of various traffic crash interventions. Appendix F describes the 14 traffic crash interventions and definitions in the study used by CDC. All intervention strategies in the table are ranked by effectiveness on a scale of 1 to 5, with 5 being considered the most effective.

Based on the calculation from The MV PICCS, if the strategies shown in Appendix F were used in Michigan, 263 lives could be saved and 14,172 injuries could be prevented in Michigan with a cost of \$67,234,000/year for implementation, which means an average investment of \$255,642 in traffic safety for saving a life by using the strategies. The average traffic fatalities and injuries per year during the past five years in the GVMC area were 67 and 1,592, respectively. Therefore, a 20% reduction of traffic crash fatalities and injuries in 10 years in the GVMC area would cost \$3,323,346 for the implementation of these strategies. This would be a relatively low-cost endeavor.

In addition, The Michigan Department of Transportation Safety Programs Unit has developed a widely used spreadsheet that depicts benefits that can be expected through the implementation of a variety of improvements. This list of countermeasures and expected benefits can be found in Appendix F.

#### **Proposed Solution: Work with Safety Partners to Complete Intersection Safety Studies**

In the past GVMC and its member communities have partnered with Wayne State University, AAA, and the Michigan OHSP to complete intersection safety studies. Many of the suggested solutions identified during these efforts were low cost solutions that have been implemented by local jurisdictions using local funding sources. Higher cost improvements have either been put on hold as they wait for available funding or have been completed on a minimal basis using competitive statewide STP Safety funding administered through MDOT.

To proactively address intersection issues going forward, GVMC could work with safety partners as was done in the past to determine intersections that require additional attention. Under this scenario, a focused intersection safety study would be undertaken every 4 years. This study would identify a small number (6-8) of intersections that exhibited

### **Public Involvement Spotlight: What Does the Public Say about the Safety of our Transportation System?**

While our recent public survey showed that improving road and intersection safety was their fifth highest investment priority, the topic of safety appeared as a trend in the comments we received and was a common topic of feedback during the public comment periods for the document, especially when it came to bicycle and pedestrian safety. Here are two examples:

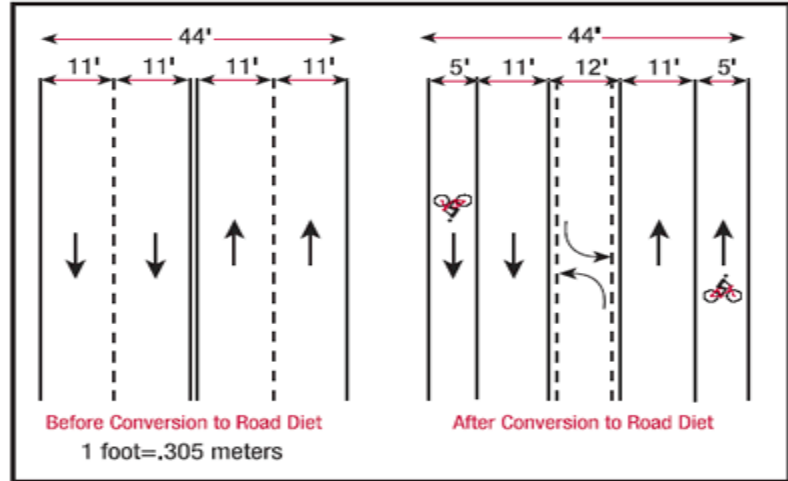
*"Trying to get from Grandville into Jenison by bike on Chicago Dr underneath the highway is terrible. The Jenison side of Chicago Dr is terrible, too (no shoulder, high traffic). I think every road project should take cyclist and pedestrian safety and access into account."*

*"We need to hold bicyclists, pedestrians and others accountable for following traffic rules and being ticketed when not. Bicyclists should be required to pay for licensing and be inspected for lights, safety skills, etc. just like a driver is required to pass a test, follow rules, etc. Points should be given for bicyclists who ride through red lights and stop signs, pass a vehicle along their side, etc. I love the momentum in creating an environment where we share the road. We need to focus on safety and currently I feel the responsibility for safety is dumped on motorists. More money should be spent on education and public safety officers need to enforce policies to help all of us."*

characteristics that warranted safety related improvements. Additionally, funding would be dedicated to implement solutions to address issues identified in the study process. This approach of having funding dedicated to solutions would lead to more efficient alleviation of identified intersection safety issues.

### Proposed Solution: Reduce Crash Rates through “Road Diets”

A recent study completed by the Federal Highway Administration revealed that crash rates can be reduced by as much as 29% when a road diet is implemented. A “road diet” converts four-lane facilities down to a three-lane configuration—two through lanes and a center turn lane—to make room for pedestrians and bicyclists. The fourth lane may be converted to bicycle lanes, sidewalks, and/or on-street parking. By eliminating the passing lane, vehicle speeds and vehicle interactions, the number and severity of vehicle-to-vehicle crashes can decline. More information about this study can be found here: <https://www.fhwa.dot.gov/publications/research/safety/10053/>



*Before and after the conversion to a road diet*

road diets may reduce potentially minimizing

### MTP Recommendation and Proposed Solution: Work to improve safety for all users of the transportation system

At their November 6, 2019, Technical Committee meeting, the Committee noted that safety is a goal of the members and in the MTP itself, is considered in the development of all projects, and that lower speeds can improve safety. The legislature and state police currently set speed limits. Member agencies must work collaboratively with the legislature and state police to lower speed limits, where appropriate, to improve safety for all users of the transportation system.

*Note: MTP recommendations and action steps are included in Chapter 12.*

### Need 5: Address Lane Departure

Lane departure or roadway departure crashes are the result of a vehicle leaving the roadway resulting in either crossing an edge line or centerline. These crashes tend to result mainly from fatigue, distraction, drowsy driving, or in some cases speeding or aggressive driving, and are compounded by the use of drugs or alcohol. Winter weather, poor traction between vehicles and road surfaces, poor visibility, and other compromised pavement conditions also lead to vehicles departing the roadway. Nationally, over 50 percent of all traffic fatalities are the result of lane departure crashes. About 30 percent of all fatalities and serious injury crashes each year in the GVMC area are the result of a lane departure crash, although lane departure crashes only account for about 15 percent of total crashes.

### Proposed Solution: Reduce Lane Departure Crashes through effective Countermeasures

Lane departure crashes are frequently severe and tend to be distributed across large areas of the highway network. Therefore, it is critical for selecting effective countermeasures to reduce lane departure crashes. The countermeasures developed by FHWA include cable barriers, pavement friction, rumble strips and stripes, and retroreflective signs, etc.



## Additional Needs Determined During Safety Needs Analysis

### Need 6: Impaired/Distracted/Young Driver Awareness Program

On average, drunk driving takes 17 lives in the GVMC study area every year. In addition, the rising use of the latest technologies (cell phones, GPS, DVD players) are cause for concern as distracted driving appears to be contributing to more and more crashes. There were approximately 1,900 crashes that resulted from distracted driving in the GVMC area in both 2017 and 2018, and eight fatalities caused by distracted driving in 2016 and 2017.

### Proposed Solution: Public Awareness Program

GVMC will need to determine if this is an area to expend federal resources. An awareness program similar to the Clean Air Action program or WESTRAIN could be established to bring a localized presence to this area. The estimated cost of one fatality now stands at \$4,538,000. If GVMC makes an investment of \$150,000 per year in a public awareness program, the total investment over the next 10 years would total \$1,500,000. If one life was saved as a result of this program over those 10 years, there would be a positive return on the funding invested of nearly 3 to 1.

### Need 7: Senior Mobility and Safety

Based on the latest estimates, there are 757,274 people in GVMC's area, and 101,644, or 13.4%, are over the age of 65. According to Michigan.gov, Michigan now has 1.2 million drivers 65 years old or older, and that number is growing. By 2025, one in five drivers is expected to be 65 or older. Based on currently available data, 90% of elderly residents use a passenger vehicle as their primary source of transportation with 70% doing the driving themselves. According to the Michigan Secretary of State, there are nearly 70,000 licensed drivers in the GVMC area over the age of 65. This represents nearly 15% of the total number of licensed drivers. By 2030, the elderly population in the GVMC area is expected to nearly double to 177,500 and make up more than 20% of the population. Crash data shows that the percentage of traffic crashes involving senior drivers accounted for about 13 percent from 2014 to 2018, while over the same period fatal crashes and serious injuries percentages for senior drivers accounted for 20 percent and 16 percent, respectively.

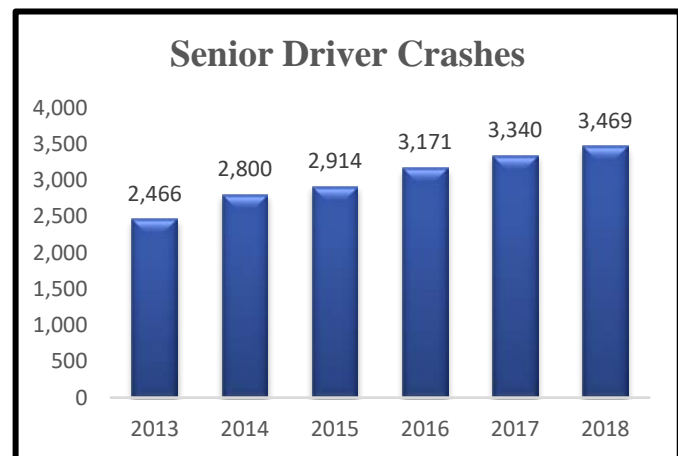


Table 8: Senior Driver Crashes 2013-2018

### Proposed Solution: Emphasize Improved Signage along Major Corridors

In combination with the revised Manual on Uniform Traffic Control Devices (MUTCD) requirements, GVMC can invest federal funding in the identification and replacement of substandard signage. Long considered one of the primary elements of a comprehensive asset management plan, many jurisdictions already have a sign inventory and a methodology for substandard sign replacement. This effort would ensure that appropriate resources are available to all agencies to bring signage up to standards and keep them there.

### Need 8: Car/Deer Crashes

In 2018, there were 2,192 deer crashes in Michigan. About 80% of all car-deer crashes take place on two-lane roads between dusk and dawn. Vehicle-deer crashes are costly. In Michigan, vehicle-deer crashes cost at least



\$130 million per year; the average insurance claim is about \$2,100 in damage, usually to the front of the vehicle.

The GVMC region—because of its physical size, amount of travel, and areas that are conducive to supporting large deer populations—leads the state in the number of car/deer crashes. In 2018, car/deer crashes represented over 9% of all traffic crashes in the GVMC study region.

**Proposed Solution: Educating Drivers during Peak Car/Deer Crash Periods**

There are no proven methods or technologies available to improve this safety condition. Deer whistles, fences, and reflective barriers have not proven an effective means for reducing the conflicts between motor vehicles and deer. The best approach to minimizing the impact of these unfortunate occurrences is to minimize the severity. Often, motorists will swerve to avoid hitting a deer in the roadway. This action can have more severe consequences when the vehicle leaves the road or swerves into the path of another vehicle. Short of educating the deer, the only other approach would be to educate the drivers during peak car deer crash periods from October through December. GVMC could help implement a localized coordinated effort with the Michigan Deer Crash Coalition (MDCC) to bring this issue to the forefront during peak fall months.

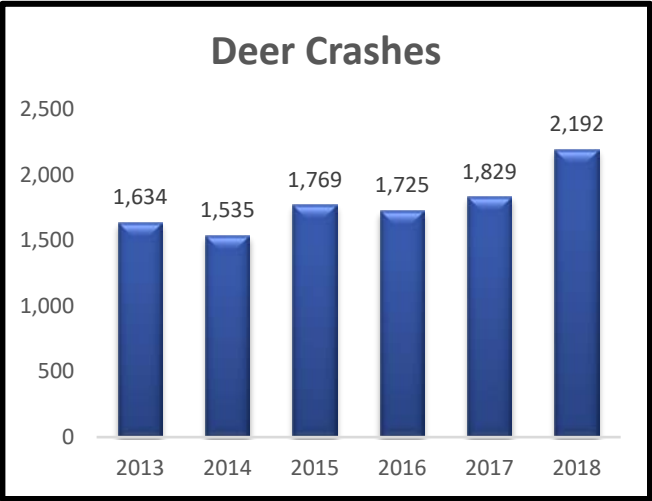


Table 9: Car/Deer Crashes 2013-2018

**Challenges**

**Cost to add Center Turn Lanes**

The addition of a center turn lane to all facilities could lead to improved corridor safety. However, this is not a luxury that is financially, environmentally, or socially viable. Adding a center turn lane can increase the cost of maintaining a facility between 20% and 33% annually, not to mention the cost (nearly \$900,000 per mile) of the initial construction.

**Predicting Need Long-Term**

For safety, need is difficult to determine long term. Advancements in technology, vehicle improvements, aging populations, and shifts in travel patterns and modes all contribute to changes in the needs of the transportation system.

**Addressing Causes of Traffic Crashes Outside of Roadway Design**

As stated earlier in the chapter, over 95% of all crashes are due, at least partly, to human error, which is difficult to control. Encouraging area drivers to change unsafe behavior, such as texting while driving, can be challenging. Also, aside from rear-end crashes, most accident types that occur in the region—fixed object, sideswipe and head on—typically have causes not based in roadway geometry.

Also, weather in West Michigan can be wildly unpredictable, and our area receives, on average, 76” of snowfall per year. Driving in icy and snowy conditions can increase the likelihood of a crash, even on well-designed roads. In order to combat this, emphasizing early and frequent treatment of snow-covered or slippery

roadways, through salting, snowplowing, etc., as well as promoting messages about driving for conditions, such as “ice and snow, take it slow,” may be necessary.

## **Emerging Issues**

### **Legalization of Marijuana**

In November of 2018, Michigan became the second most populous state in the country and first state in the Midwest to legalize marijuana with the passage of Proposal 1. The Michigan Department of Licensing and Regulatory Affairs (LARA) is currently developing business licensing regulations and application rules, and marijuana businesses are expected to open to residents by 2020. The impact of the legalization of marijuana on crash rates in the GVMC area is being monitored.

### **Opioid Crisis**

According to the National Institute on Drug Abuse, there were 2,033 overdose deaths involving opioids in Michigan in 2017—a rate of 21.2 deaths per 100,000 persons. This is higher than the national average of 14.6 deaths per 100,000 persons. These numbers included synthetic opioids (mainly fentanyl), prescription opioids, and heroin. The impact of the opioid crisis on crash rates in the GVMC area is also being monitored.

### **Toward Zero Deaths Strategy**

GVMC, in coordination with MDOT, supports Toward Zero Deaths, the United States’ traffic safety vision. According to the Toward Zero Deaths website, this is the only acceptable target for our nation, our families and us as individuals, as even one death is unacceptable.

### **Grass Roots Efforts**

One localized grassroots effort, Riding for Ryan, honors the memory of six-year-old Ryan, who was struck and killed while on a bike ride with his father in June of 2019 in Cascade Township, by giving out free bright yellow flags for young children to attach to their bicycles to increase their visibility. It is hoped that increased emphasis on visibility for young bicyclists will increase awareness and reduce the likelihood of such tragedies in the future.

Teens can also join their local Students against Destructive Decisions (SADD) chapter to help spread the word about distracted driving.

## **Accomplishments**

The list below includes noteworthy accomplishments in improving safety within GVMC’s region. Please note that this list is not all-inclusive. Most of the accomplishments were made through collaboration, cooperation, and partnerships between MDOT, local road agencies and jurisdictions, and area businesses:

- Upgrades to the intersection of East Paris Avenue and Sparks Drive, including modernization of the existing traffic signal equipment, pedestrian signal upgrades, new pavement markings, and pedestrian sidewalk ramps
- Upgrades to traffic safety equipment, including pedestrian signals, at the following intersections:
  - Division Avenue at Burton Street, Franklin Street, Hall Street and Wealthy Street
  - Alpine Avenue at Leonard Street NW
- Annual repainting of all trunkline pavement markings within the MDOT-Grand Region, which includes all of the GVMC Metropolitan Planning Area.
  - Studies have shown that well-defined pavement markings are one of the most important safety functions to the travelling public. The delineation of travel lanes, turn lanes, centerlines, crosswalks, etc. are important for all modes of travel, especially during nighttime hours.

Pavement markings are especially important in the GVMC area because of the strong winter season and during peak tourism seasons.

- Modernization of traffic and crosswalk signals, and/or construction/reconstruction/enhancement of ADA ramps and sidewalks:
  - ADA ramp, sidewalk, and traffic signal improvements at various locations along M-21, M-44 and M-45.
- Construction of new Indirect-Left Turn (ILT), otherwise known as a “Michigan left turn,” on M-21 (Fulton St) east of Carl Dr. near Ada, and removed existing dual-direction crossover.
- Added a center left turn lane on M-44 between Blakely Drive and Myers Lake Avenue.
- Completion of numerous freeway improvements, including:
  - Addition of weave-merge lanes for northbound and southbound US-131 between the Leonard St. and Ann St. interchanges.
  - Reconstruction of the I-96 at I-196 interchange (known as “the flip” project) and construction of separate, dedicated ramps from eastbound I-96 and eastbound I-196 to the M-37/M-44 (East Beltline Ave.) interchange in Grand Rapids/Grand Rapids Township. These new ramps allow safer access to M-37/M-44 (East Beltline Ave.) and eliminate cross-weaving for eastbound I-196 traffic merging with eastbound I-96.
  - Reconstruction of WB I-196 over the Grand River in downtown Grand Rapids. Extension of off-ramp to southbound US-131 to tie in with existing lane constructed on westbound I-196. Eliminates bottleneck of merging to mainline and then quickly back to the off-ramp to southbound US-131.
  - Reconstruction of I-96 at Cascade Rd interchange to a Diverging Diamond Interchange (DDI), with addition of sidewalk and crosswalks with ADA ramps.
- Constructed a roundabout at M-11 (Wilson Ave.) and Remembrance Rd. in 2015 to improve safety at that intersection.
- Sidewalk construction in coordination with roadway preservation projects at various locations along M-11 (28<sup>th</sup> St.) between Kalamazoo Ave. and I-96 (includes improved crosswalks and ADA ramps at various intersections along the corridor).
- Constructed a new intersection/crosswalk at M-21 (Fulton St.) at Bronson St. in Ada.
- Constructed a new nonmotorized tunnel under M-45 (Lake Michigan Dr.) in Walker.

## Supporting Documents

GVMC Traffic Safety Plan

West Michigan Traffic Safety Plan

## Supporting Goals and Objectives

### Goal 1: Further Develop an Efficient Multimodal System

**Objective 1c:** Implement strategies to promote efficient and reliable system management and operation that result in the reliable and safe movement of people and freight

### Goal 3: Enhance Safety and Reduce Congestion

**Objective 3e:** Support the use of Intelligent Transportation Systems (ITS) and incident management to reduce the potential for secondary traffic incidents and non-recurring congestion

**Objective 3g:** Improve safety of the transportation system for motorized and nonmotorized users in support of federal performance measures by identifying and prioritizing projects that will reduce the likelihood or severity of crashes and incorporating safety improvements with all transportation projects where feasible and practical

## Bridge



10 Mile bridge rehabilitation project; photo courtesy of the KCRC

### Highlights:

- There are 1,331 bridges in GVMC's area, amounting to more than 17.6 million square feet of bridge deck in the MPO region.
- Currently, 49% of bridge decks are in good condition, 48% are in fair condition, and 3% are in poor condition

### Overview

The Grand Rapids metropolitan area has numerous roads, highways, railways, culverts, and waterways that have led to a large collection of bridges in our region—1,331 to be exact. These bridges account for 17.6 million square feet of bridge deck. The design of the bridge, the number of lanes, and expected loads that will be carried define the facility's cost, which is much more expensive than a traditional roadway. With an average repair to replace 1 square foot of bridge deck costing \$255, bridges need to be built to last and be multi-modal to accommodate for all potential users in the future.

Bridges are an important asset to our region, as the number of bridges in an area determines travel accessibility, emergency response times, and impacts travel demand. The less opportunity for cross-community travel, the more demand there will be on the transportation network.

**Bridge:** a structure that spans 20 feet or greater in length.

### Process for Determining and Addressing Need

GVMC staff uses Roadsoft to access bridge condition ratings to determine how GVMC is meeting established performance measures. Bridge performance measures, and how they influence the identification of bridge need and project selection, are highlighted on the following pages. Because MDOT completes the vast majority of bridge projects in GVMC's area and administers all local bridge funds, the MPO has little influence over the projects selected. However, GVMC includes funded bridge projects in our Transportation Improvement Program (TIP) and the 2045 Metropolitan Transportation Plan (MTP). Unfunded bridge projects remain on our illustrative list of projects for future funding consideration. GVMC also encourages local agencies to apply for local bridge funds administered by MDOT. A list of MDOT's bridge preservation and replacement projects are included in their 2020-2024 Five-Year Transportation Program.

## Spotlight: Bridge Performance Measures, Needs, and Project Selection

GVMC staff must choose to either support the state's performance measure targets for bridge condition or to set their own every four years. On September 19, 2018, GVMC's Policy Committee voted unanimously to support the state's targets for the bridge performance measure. These targets include:

- Percent of National Highway System (NHS - see definition below) bridge deck area in good condition; and
- Percent of NHS bridge deck area in poor condition

**National Highway System (NHS):** Included in the NHS are public roads defined by the NFC (defined below) 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 measure targets and data collection, and outdoor advertisement/junkyard control. Not all NFC roads are classed as part of the NHS.

**National Function Classification System (NFC):** FHWA developed the NFC method for all public roads to delineate higher facility functions that emphasize mobility and moving traffic, from roads that have lower functions that might access residential properties, for example. The values are listed from the highest class to the lowest, which include: Interstate, Other Freeways, Other Principal Arterials, Minor Arterials, Major Collectors, Minor Collectors, and Local. Roads classified as local are not on the NFC Federal-aid system. The NFC system is intended to group roadways with similar characteristics and travel patterns, such as mobility on the system, access points to and from the system, as well as the function of the roadway itself (local trips, intercity and regional trips, freight, etc.).

MDOT's targets for 2020 and 2022 are depicted in the figure below:

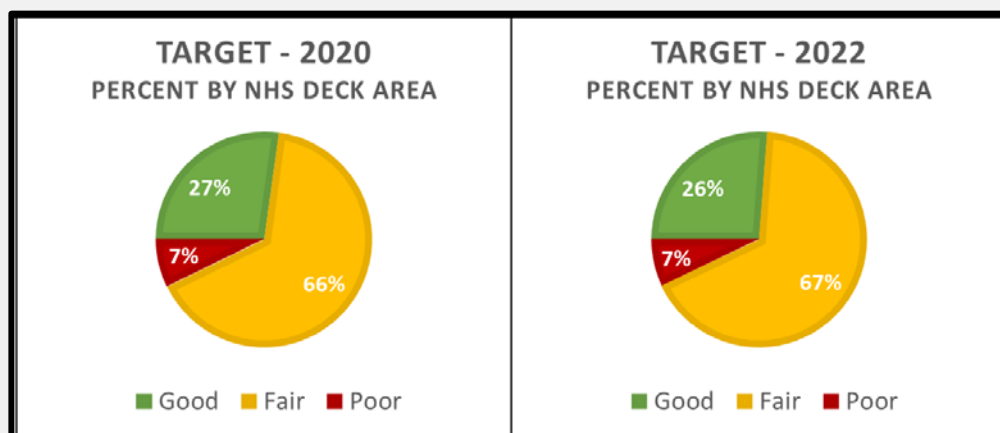


Figure 6: MDOT's targets for bridge condition

The National Bridge Inventory (NBI) rating system was used to identify bridge deficiencies for the GVMC area for 2018 on the NHS. The results of this analysis are depicted in the table on the following page.



Number of NHS Bridges by Condition (Feb 2018)			
	Good	Fair	Poor
Statewide	916	1869	178
Grand Valley Metropolitan Council			
MDOT	111	154	6
Local	11	7	1

**Table 10: Bridge condition in the GVMC area**

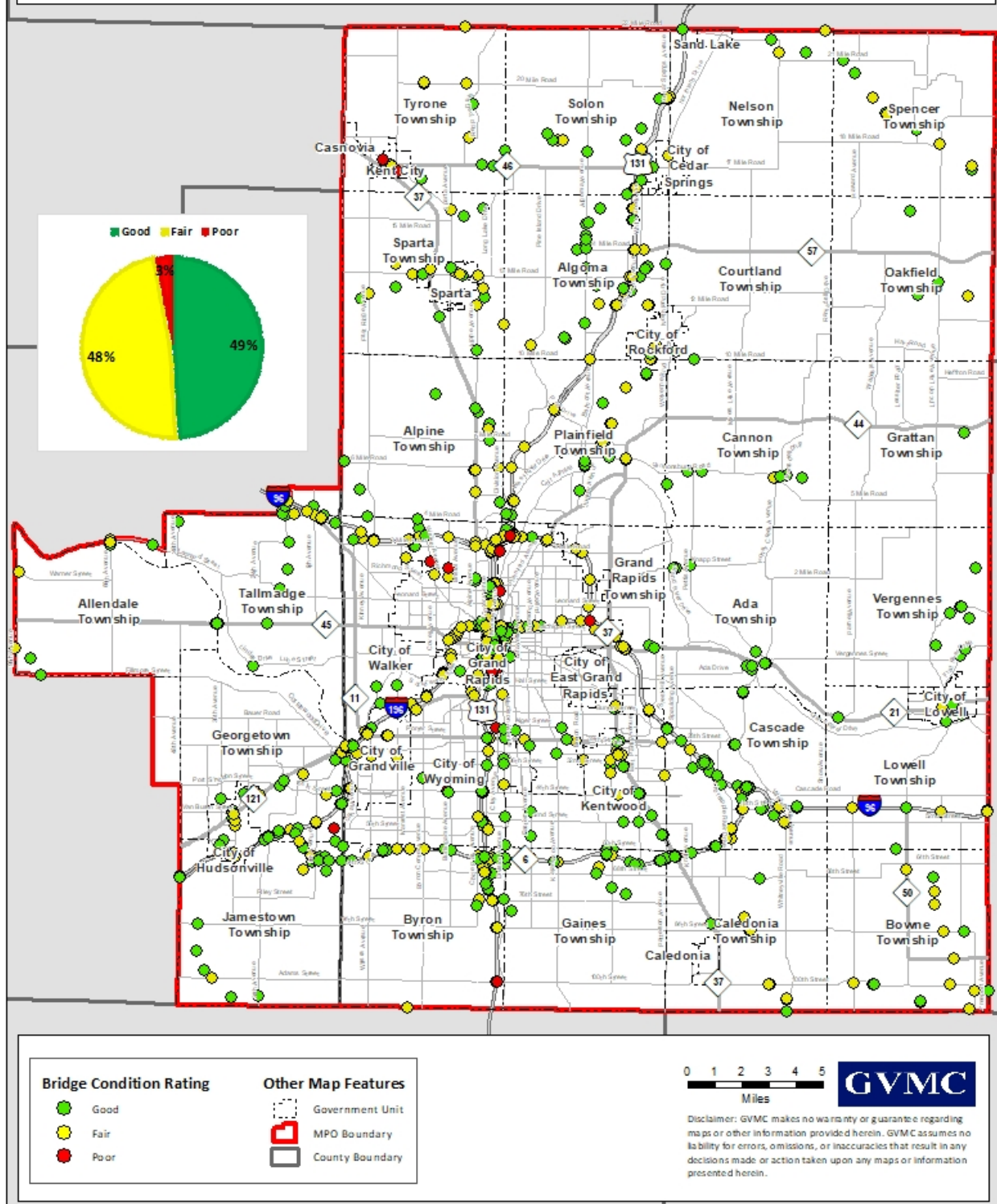
Current conditions of the bridges in our MPO area are 49% Good, 48% Fair, and 3% Poor, which are depicted in Map 15 on page 86. The percentage of bridges in the “Good” category in GVMC’s region falls short of this target.

GVMC coordinates with MDOT to improve the condition of the bridge network regionally by helping to identify good candidates for bridge maintenance and replacement. GVMC also supports efforts to improve the condition of area bridges and meet bridge condition targets by encouraging local agencies to apply for local bridge funds, which are administered by MDOT, and including selected projects (along with MDOT bridge projects) in the TIP. To further support bridge targets, the MPO periodically assesses the program to determine if progress is being made based on the funding available, as outlined in GVMC’s Policies and Practices for Programming Projects document. If the MPO system is not within the parameters set by the targets, the MPO will adjust pavement and bridge strategies to the extent feasible and practical. To the extent of the MPO’s ability, decisions related to bridge project funding are made in the context of federal bridge performance requirements and support regional bridge condition performance targets.



**Bridge over Broadway south of I-96 in downtown Grand Rapids**

## GVMC Regional Bridge Conditions



Map 15: Regional Bridge Conditions

## Identified Needs and Proposed Solutions

### Identified Need: Improve the Number of Bridges in the “Good” Category by Increasing Funding

#### MTP Recommendation and Proposed Solution: Work to increase transportation funding in GVMC’s MPO area

More funding is needed to increase the number of bridges in the “good” category. This could be achieved in a number of ways, including continuing to work with local transportation agencies, units of government, and partner organizations to encourage providing more federal, state and local funding for transportation in the GVMC MPO area or diverting additional funds toward bridge projects.

*Note: MTP recommendations, including action steps to achieve them, are included in Chapter 12.*

## Challenges

### Funding

The principal challenge in maintaining and rehabilitating bridges is funding. Funding available for bridge projects pales in comparison to the funds needed. Proper maintenance and funding strategies are required to both preserve bridge condition and improve multi-modal access for all users of our transportation system.

### Emerging Issues

One of GVMC’s goals is to improve and promote pedestrian and bicycle facility movement, which will take coordination with our local jurisdictions and MDOT. It’s essential for GVMC to identify gaps in our nonmotorized network when bridge improvements are scheduled and to pay close attention to the needs of all users of our transportation system.

## Accomplishments

One very notable accomplishment for the region over the past couple of years is the collaboration of multiple jurisdictions on the 2020 scheduled reconstruction of the 100<sup>th</sup> Street bridge over US-131 in Byron Center. This bridge gained notoriety in 2018 when several over-height trucks struck the bridge, spilling large loads. It has since been hit several times



*Picture of the 100th St. Bridge from its own designated Facebook page*

causing the need for coordination with multiple government and transportation entities to get creative in identifying design and funding options for a quick solution.

The \$10.5 million project is set to begin in mid-March 2020 and will continue through September to reconstruct the 1957 bridge. The design includes components to increase safety, create smoother truck travel,

includes a nonmotorized component, and obviously addresses the height issue bringing the new bottom height to 16 feet, 3-inches. GVMC, MDOT, the KCRC, and Byron Township also collaborated to include a nonmotorized facility as part of the reconstruction project, which is funded with MDOT, TAP, and local monies.

Furthermore, between FY2017-2019, \$50,618,935 was spent in our region on bridge capital preventative maintenance projects.

## **Supporting Documents**

MDOT 2020-2024 Five Year Transportation Program

## **Supporting MTP Goals and Objectives**

### **Goal 1: Further Develop an Efficient Multimodal System**

**Objective 1a:** Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight

**Objective 1b:** 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

**Objective 1c:** Implement strategies to promote efficient and reliable system management and operation that result in the reliable and safe movement of people and freight

### **Goal 2: Preserve the System**

**Objective 2a:** Apply transportation asset management principles and techniques to identify, assess, and maintain existing transportation infrastructure in support of federal performance measures

### **Goal 6: Ensure Equity, Access and Mobility**

**Objective 6c:** Implement improvements for all transportation system users that foster increased accessibility, economic development and vitality



## Pavement Condition



*Reconstruction project on Service St. in Hudsonville*

### Highlights:

- GVMC staff rates 1,600 federal aid miles and 800 miles on the local network annually in our data collection van using the Pavement Surface and Evaluation Rating (PASER) system.
- GVMC and its members contribute \$41 million annually to maintain the federal aid network.
- If we continue to invest in pavement condition at the current rate, GVMC's roadways will maintain an average PASER rating of 4.5, which is considered "poor."
- Pavement condition of federal aid roads in our region currently averages 11% good, 29% fair, 60% poor.
- Increasing our annual budget by 50% would allow our area to reach an average PASER rating of 6, or "fair" condition, by the year 2045.

### Overview

The Grand Rapids metropolitan area has been developing, improving, and maintaining a viable transportation system for area residents and businesses for over 100 years to efficiently move people and goods.

Every summer, GVMC staff uses a specially equipped data collection van to rate 1,600 federal aid miles and 800 miles on the local network with the Pavement Surface and Evaluation Rating (PASER) system. The PASER system allows staff to evaluate every road segment and assign it a score, which determines whether the segment qualifies for federal funding and the type of fix it is eligible to receive. These PASER ratings, and appropriate fixes by ratings, are included in the tables on page 90. This information is also included in GVMC's Policies and Practices for Programming Projects document, which outlines eligibility criteria for all federally funded projects.



PASER Scale	
PASER 10-8	Good; no maintenance necessary
PASER 7-5	Fair; in need of preventative maintenance (i.e., resurfacing)
PASER 4-1	Poor; in need of structural overlay or reconstruction

**Table 11: PASER Scale**

PASER Rating	PASER Investment Scale
PASER 10-8	Not eligible for federal funds
PASER 7	Eligible for crack sealing funding*
PASER 6-5	Eligible for sealcoat/thin overlay funding*
PASER 4	Eligible for structural overlay funding
PASER 3-1	Eligible for reconstruction funding

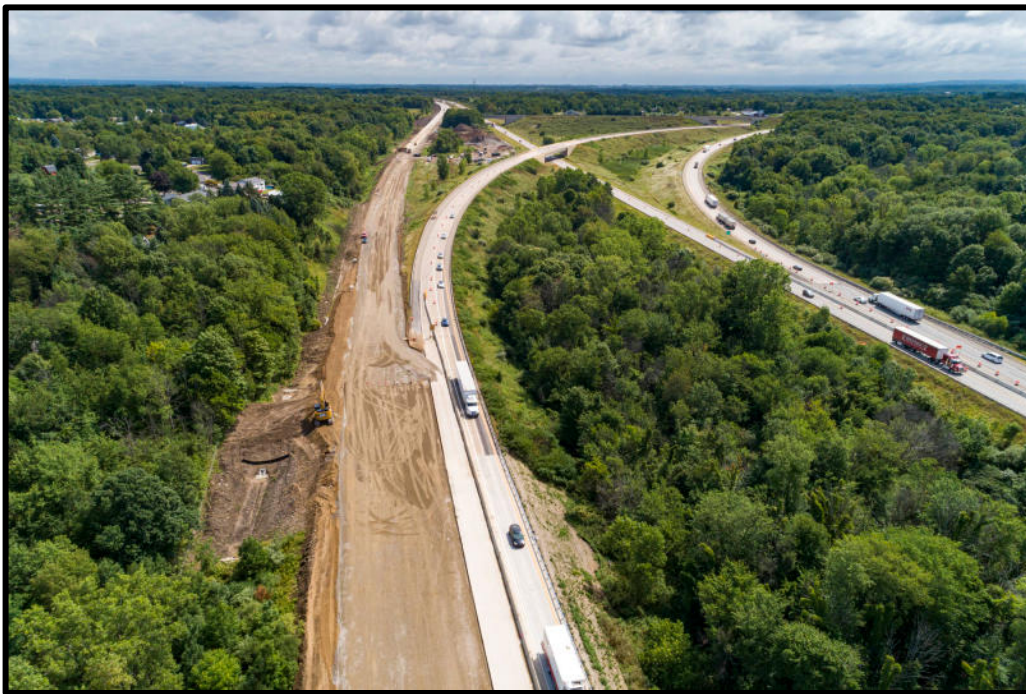
**Table 12: PASER Ratings and Investment Scale**

*\* Approved GVMC treatment. Subject to MDOT Programming approval.*

Once data collection is completed, GVMC staff provides PASER ratings to member road agencies and jurisdictions for consideration. This system ensures that our members are continually aware of the state of not only their roads, but of the condition of our entire system, which currently stands at 11% good, 29% fair,

60% poor. This data also allows local decision makers to make well-informed choices on prioritizing projects for roadway condition improvements and safeguards local federal funding by making certain that it is only allocated to eligible projects.

**Reconstruction:** when a distressed road requires a subgrade fix, a complete reconstruction is required. This type of project brings the roadway back to dirt temporarily in order to add a new road base. Reconstruction projects can last several months or longer and may involve significant delays to the traveling public. Reconstruction projects also cost more than a standard rehabilitation or preservation project. However, the life of a reconstruction project is much longer than rehabilitation or preservation maintenance projects.



*Eastbound I-196 reconstruction project in Ottawa County; photo courtesy of MDOT*

**Resurfacing:** restoring pavement by addressing surface issues and adding a fresh layer of asphalt. For concrete surfaces, this can be in the form of joint replacements, diamond grinding, inlay or other rehabilitation fixes. Resurfacing projects are also known as overlay projects. Resurfacing projects, as well as other rehabilitation or capital preventative maintenance projects, such as crack sealing, are short term, cost less than reconstruction, and have less impact on travel delays. (See photos below for examples.)



*Kraft Avenue Mill and Resurface project; photo courtesy of the KCRC*



*Crack sealing project; photo courtesy of MDOT*



*Thornapple River Overlay Project; photo courtesy of the KCRC*

## **Process for Determining and Addressing Need**

As stated above, GVMC is continually aware of the needs of our system through staff's annual PASER data collection efforts. But for the comprehensive needs analysis, staff took this data several steps further, investigating the level of investment that would be needed to bring our "poor" average pavement condition rating up to "fair."

The network for this analysis included all roads within the MPO defined by the National Functional Classification (NFC) system (see definition on page 84) as Federal Aid roads with the omission of MDOT facilities (trunkline system), which were removed because of budget variations, statewide and regional needs, and the extent of deteriorating roadways. More of the trunkline is deteriorating at a faster rate and as such, more reconstruction projects are, or may be, required to address the rapid rate of decline for these roads. The baseline budget for this network was \$41 million dollars, which included federal, state, and local match dollars, and reflected our area's investment in pavement expenditures in 2019. Please note that this figure includes all



local expenditures outside of the programmed Transportation Improvement Program (TIP), our short-range planning document, that our jurisdictions spend on the federal aid network.

Staff compared the available budget to the pavement deterioration curves in Roadsoft to determine deterioration rates for the GVMC federal aid network for several different scenarios, which included:

- Scenario 1: A “do nothing” scenario, which demonstrates how fast pavement would deteriorate if tomorrow there was no funding to fix our roads
- Scenario 2: A “maintenance” scenario, where GVMC maintained our current level of investment at \$41 million
- Scenario 3: A “25% increase in funds” scenario, where GVMC’s level of investment increased to \$51 million
- Scenario 4: A “50% increase in funds” scenario, where GVMC’s level of investment increased to \$61.5 million



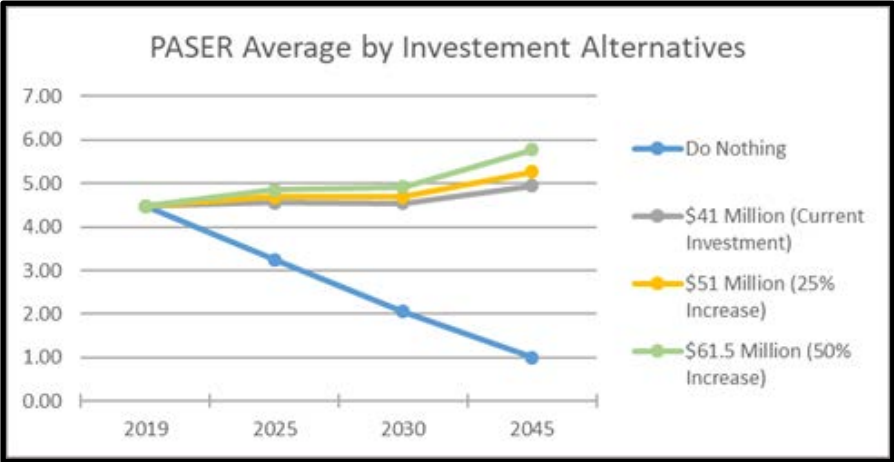
*GVMC's pavement data collection van*

Each scenario was optimized by using a mix of fixes, a quality method of managing pavement condition, and has a timeline out to 2045. With multiple jurisdictions represented in the analysis area, it was difficult to define an exact dollar figure for each improvement. Changes in road width and improvements made in the right of way vary greatly depending on the location of the facility. Input was provided at the state, county, and city level to determine a reasonable cost for various treatments.

Within the Roadsoft software, PASER ratings determine at what point a road surface type will be triggered and applied a fix to extend the service life of the facility. The

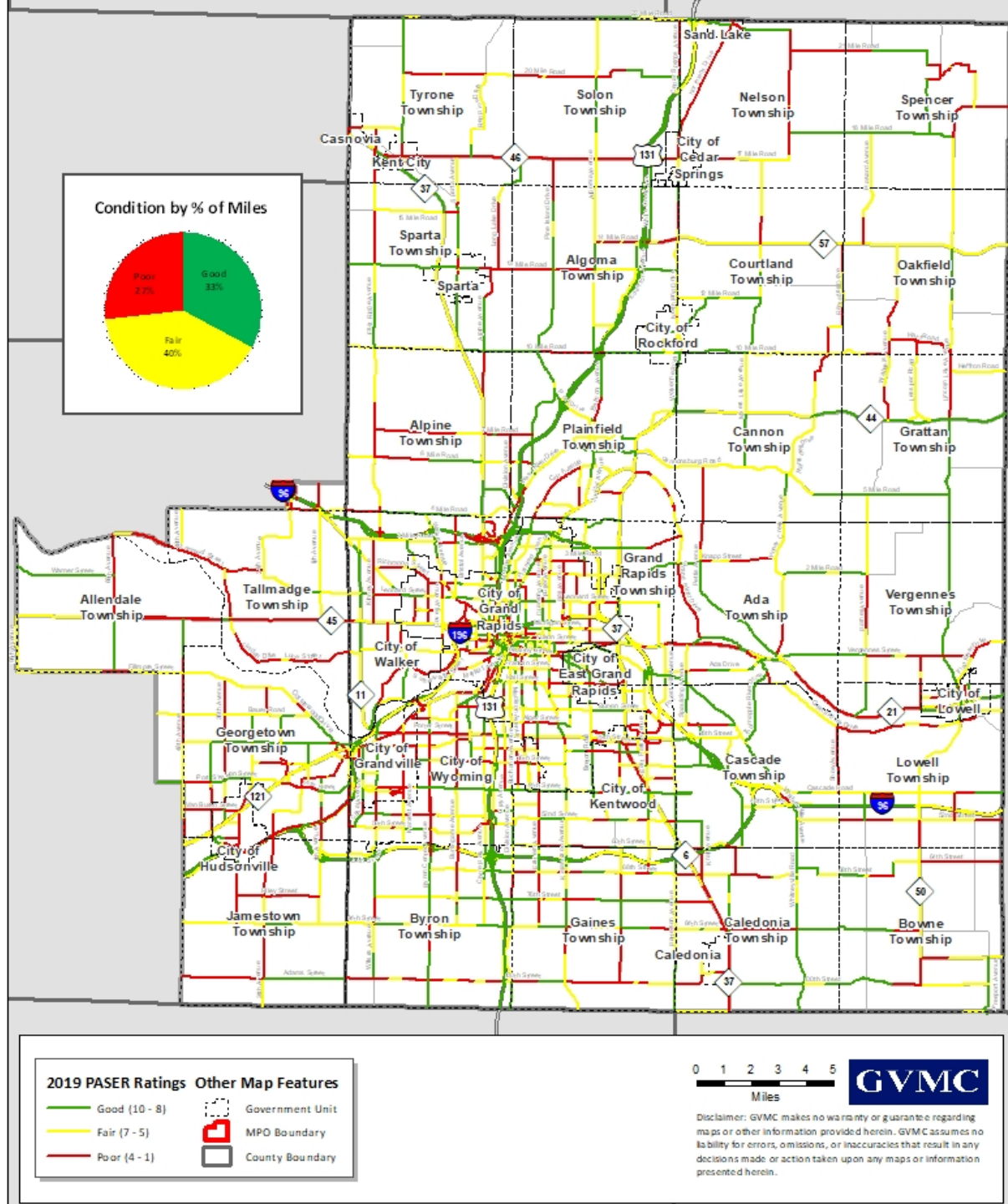
results of this analysis are below, which show that a 50% increase in funding would be needed to reach an average PASER rating of 6, or “fair” condition.

GVMC has historically addressed pavement condition needs at the Committee level during the development of the Transportation Improvement Program (TIP). Prior to selecting projects, GVMC staff provides our Committee members with a deficiency list of eligible projects, which includes PASER ratings for all deficient segments. As stated previously, PASER ratings determine whether a project is eligible for federal funding and the type of fix it can receive. Map 16 on page 93 shows existing pavement conditions in 2019 for the MPO.



*Table 13: PASER Average by Investment Alternatives*

## 2019 Existing Pavement Condition



Map 16: GVMC Pavement Condition 2019

## Spotlight: Pavement Condition Performance Measure, Needs, and Project Selection

As stated in Chapter 1, GVMC must choose to either support the state's performance measure targets for pavement condition or to set their own every two or four years, depending on the target. The measures shown in the table below, along with supporting information provided by MDOT and GVMC staff, were presented to the Technical and Policy Committees at their September 2018 meetings. Both Committees moved to support state targets for the current reporting period. These targets remain current at the time of the writing of this document. Future targets will be updated at

[www.gvmc.org/performance-based-planning-and-programming](http://www.gvmc.org/performance-based-planning-and-programming)

Performance Measure	State Target
% of pavements on the Interstate system in "Good" condition	4-year: 9% decrease to 47.8%
% of pavements on the Interstate system in "Poor" condition	4-year: 4.8% increase to 10%
% of pavements on the non-Interstate NHS in "Good" condition	2-year: 3% decrease to 46.7% 4-year: 6 decrease to 43.7%
% of pavements on the non-Interstate NHS in "Poor" condition	2-year: 3% increase to 21.6% 4-year: 6% increase to 24.6%

**Table 14: Michigan Pavement Performance Measure Targets**

### Pavement Condition Performance Targets and the Influence on Determining Needs and Project Selection

As stated previously, GVMC tracks pavement condition on all federal aid roads using the PASER system. GVMC staff coordinates with MDOT and the local jurisdictions to collect this data annually and then publishes a yearly pavement condition report. These condition ratings serve as a primary basis for determining project eligibility.

New pavement condition metrics were introduced in the federal rule in this performance area. They require the use of International Roughness Index (IRI), cracking, rutting, and faulting when determining whether a segment of the NHS is in good, fair, or poor condition. MDOT collects this data, and GVMC staff participated on the target coordination committee that collaboratively developed the state targets for pavement performance. While only congestion deficient expand and improve projects are required to be listed in the MTP at this time, staff did include PASER ratings on the deficiencies list that was provided to our TPSG Committee, Technical and Policy Committees, and MTP Steering Committee, thereby considering pavement condition in the project selection process.

### Achieving Performance Measures Going Forward

To further support the pavement condition targets, GVMC will periodically assess the program to determine if progress is being made locally and toward the statewide targets based on the funding available, as outlined in the Policies and Practices document. If the MPO system is not within the parameters set by the targets, the MPO will adjust pavement strategies to the extent feasible and practical. Furthermore, GVMC has a policy that projects receiving funding through the MPO process should be designed and constructed to ensure a long-lasting, improved condition.



## Public Involvement Spotlight: What Does the Public Say about the Condition of our Pavement?

Our recent survey showed that the public's top priority was improving roadway pavement condition, with nearly 70% of respondents choosing this option. (See Appendix I for complete survey results.) Public comments about the state of our roadway overwhelmingly echoed this sentiment, with many asking us to simply "fix the roads." Here are two comments to highlight:

*"Pot holes are terrible everywhere, but especially bad on the north west side of GR."*

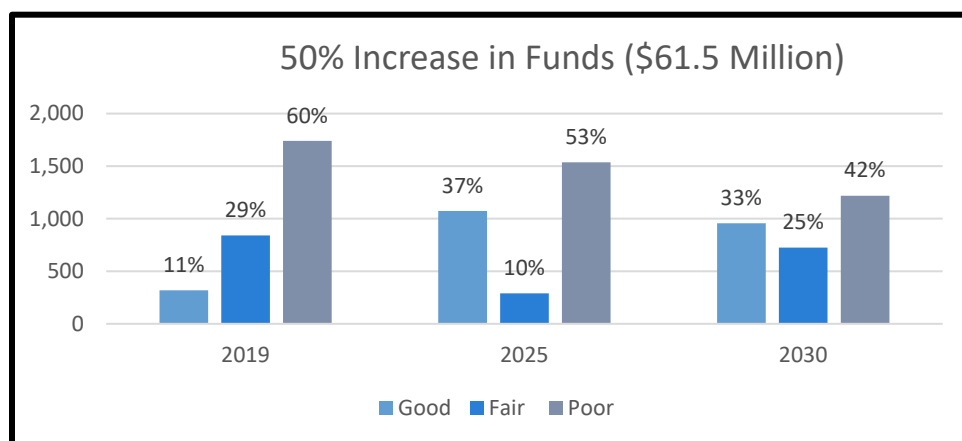
*"I feel a general urgency for filling potholes and repairing existing roadways is greatly needed in the Grand Rapids area. Ann Street off of Alpine went months after winter without repair and required heavy swerving to avoid very deep and dangerous potholes."*

## Identified Needs and Proposed Solutions

### Need 1: Additional Funding to Improve Pavement Condition

While it is nearly impossible to predict for certain our infrastructure conditions long term, certain realities are inevitable. The condition of the local federal aid system in the GVMC area, as well as the State of Michigan, is in decline, and without a significant increase in investment and optimal timing of improvements, this decline will become more rapid. Many factors are contributing to this situation. The stagnant and, in some cases, reduction of investment in the system combined with the increase in basic costs to maintain it are two prime factors.

Our road agencies' and jurisdictions' current investment of \$41 million dollars annually will only maintain the system condition that we currently have at an average PASER rating of 4.5, which is "poor." Our fourth investment scenario included a 50% annual increase in funding, which is depicted in the graph below. Investing at this level would allow the area to reach an average PASER rating of 6, or "fair" condition. In this scenario, 33% of our network would be in the good category by the year 2030.



**Table 15: How a 50% increase in funds would improve pavement condition**

### **Proposed Solution: Readiness**

The reality of a 50% increase in investment is not likely, but we need to plan for the possibility and put the preparations in place to take advantage of funding if it becomes available. For instance, GVMC maintains a lengthy illustrative list of projects that can move forward quickly when, or if, additional funding opportunities arise.

### **Proposed Solution: Use Mix of Fixes to Extend the Life of Our Pavement Region-Wide**

As it stands, the GVMC will define our priorities and deficiencies with care while incorporating a “mix of fixes” to extend the life of our pavement region-wide. For our short-range Transportation Improvement Program (TIP), we define any road that is fair or poor as being deficient and eligible to receive funding. The type of fix is regulated by policies and practices defined by our members and included on page 90.

#### **MTP Recommendation and Proposed Solution: Work to increase transportation funding in GVMC’s MPO area**

GVMC and its members must show that we’re using as many resources as possible to improve the condition of the network to gain the attention of those able to change future financial allocations. Furthermore, GVMC encourages its members to apply for grants through MDOT-based programs and to pursue local revenue sources, such as millages, special assessments, or grants, to help them maintain their roadways in a state of good repair.

#### **MTP Recommendation and Proposed Solution: Work to improve the condition and operation of the existing transportation system.**

There has been extensive discussion by the MPO committee members and public comments regarding the need to improve the condition of the existing roads and bridges. GVMC and its members will need to work to provide adequate funding to preservation activities and projects to maintain the multimodal transportation system in a state of good repair.

*Note: All MTP recommendations, including action steps to achieve them, are included in Chapter 12.*

## **Challenges**

### **Funding**

The principal challenge in maintaining our pavement condition in a state of good repair is a shortage of funding. As stated previously, it would take a 50% increase in funds, or an additional \$20.5 million, for our pavement condition to reach a PASER rating of 6 in the “fair” category. Without a significant funding boost, it is unlikely that the condition of our roads will improve beyond their current status.

### **Michigan’s Climate**

Michigan’s climate also plays a significant role in the decline of the system, as the freeze/thaw cycle of our winters causes snow on the roads to melt and refreeze, leading to potholes.

## Emerging Issues

### Climate Change

It is possible that the more frequent occurrence of extreme weather events resulting from climate change could cause our infrastructure to crumble even faster. For example, storms during the summer of 2019 caused flooding that resulted in roads and bridges being unpassable or washed out throughout the state. GVMC is able to monitor the state of our system every year by collecting pavement data and is therefore able to keep tabs on any climate-related impacts to our infrastructure.



*Construction on Newberry St. in downtown Grand Rapids; photo courtesy of Kendell Joseph*

## Accomplishments

Between FY2017-2019, the following amounts were invested in maintaining the condition of our regional roadways:

- Reconstruction – \$154,135,236 (covered 32.3 miles)
- Road Rehabilitation, which included mostly resurfacing projects– \$34,224,395 (49.5 miles)
- Road Capital Preventative Maintenance, such as crack filling minor overlays – \$24,151,999 (135.1 miles)

## Supporting Documents

- GVMC FY2020-2023 Transportation Improvement Program
- MDOT FY2020-2024 Five Year Plan
- GVMC’s Policies and Practices for Programming Projects
- GVMC’s 2019 Regional Pavement Condition Survey Report

## Supporting MTP Goals and Objectives

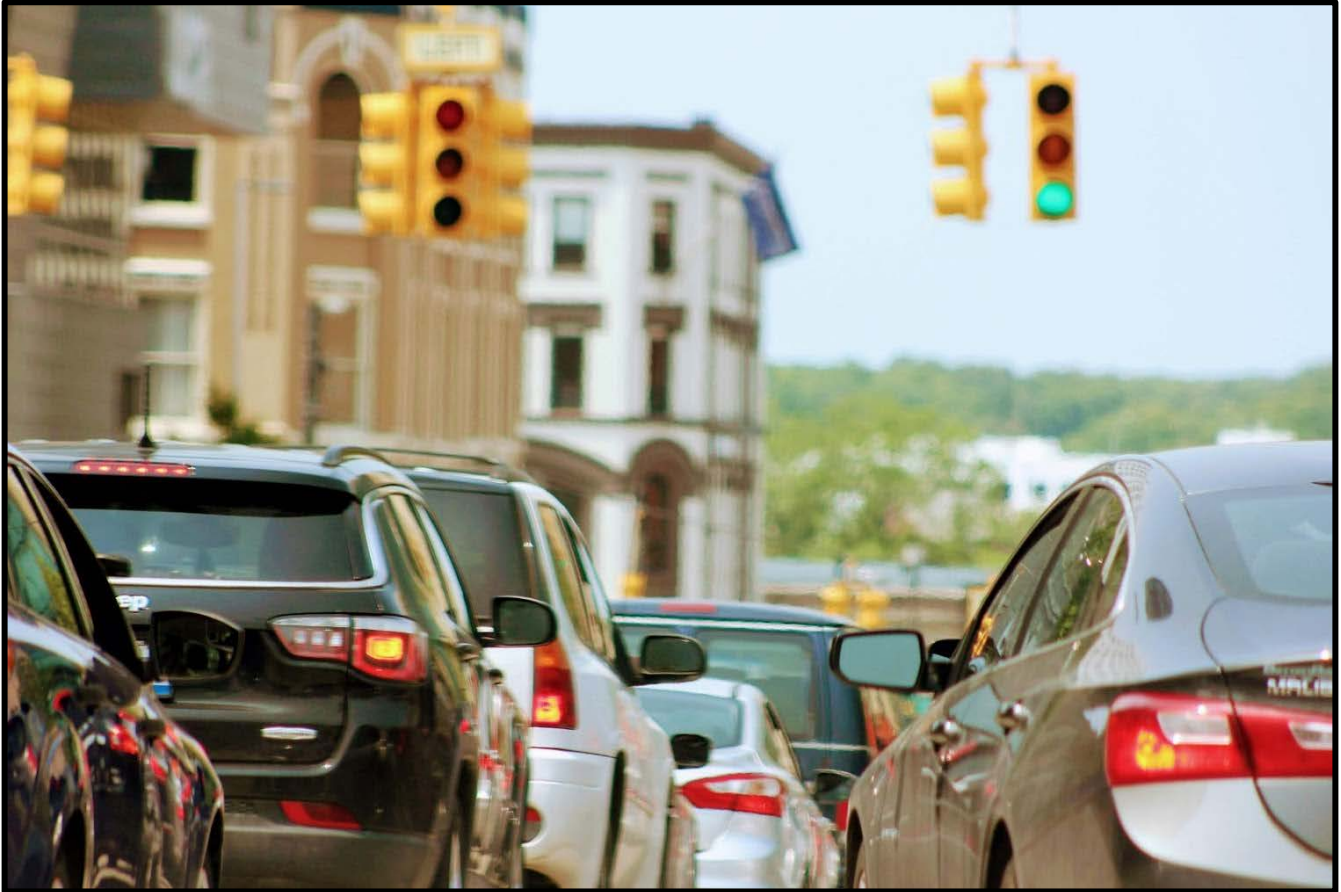
### Goal 1: Further Develop an Efficient Multimodal System

**Objective 1b:** 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

### Goal 2: Preserve the System

**Objective 2a:** Apply transportation asset management principles and techniques to identify, assess, and maintain existing transportation infrastructure in support of federal performance measures

# Congestion



*Congestion in downtown Grand Rapids; photo courtesy of Kendell Joseph*

## Highlights:

- More than 90% of commuters drive alone to work
- Commuters in our area spend 1.2 million hours in freeway delays, costing our region \$27.77 million annually

## Overview

Highway congestion 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 are constantly changing. Traffic demand varies significantly by time of day, day of the week, and season of the year, and is also subject to significant fluctuations due to recreational travel, special events, and emergencies (i.e., accidents and evacuations). Available highway capacity, which is often viewed as being fixed, also varies constantly, being frequently reduced by incidents (i.e., 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 a 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.

Commonly used measures to assess congestion are level of service, speed, travel time, and delay. 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 a 20-mile freeway trip taking 40 minutes during the peak period, so long as this predicted travel time is reliable and is not 25 minutes one day and two 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.

**Recurring Congestion:** the relatively predictable congestion caused by routine traffic volumes operating in a typical environment.

GVMC determines a roadway to be congested when the total number of vehicles exceeds the number of vehicles that roadway was designed to safely carry. For instance, a two-lane road in a suburban area may be designed to carry 13,200 vehicles per day. When the count reaches an average volume of 13,201 vehicles per day, that facility is deemed “severely congested.” This does not mean that adding capacity will occur; merely, the facility will be flagged as deficient and studied further to determine a means to alleviate that congested situation.

**Non-Recurring Congestion:** unexpected or unusual congestion caused by unpredictable or transient events, such as accidents, inclement weather, or construction.

Non-recurring congestion is usually caused by non-recurring causes, such as crashes, disabled vehicles, work zones, adverse weather events, and planned special events. Approximately half of all congestion is caused by temporary disruptions that take away part of the roadway from use—or “non-recurring” congestion.

The three main causes of non-recurring congestion are: incidents ranging from a flat tire to an overturned hazardous material truck (25 percent of congestion), work zones (10 percent of congestion), and weather (15 percent of congestion). Non-recurring events dramatically reduce the available capacity and reliability of the entire transportation system. This is the type of congestion that surprises the traveling public. We plan for a trip of 20 minutes and we experience a trip of 40 minutes. Travelers and shippers are especially sensitive to the unanticipated disruptions to tightly scheduled personal activities and manufacturing distribution procedures. Aggressive management of temporary disruptions, such as incidents, work zones, weather, and special events, can reduce the impacts of these disruptions and return the system to full capacity. In addition, improvements to temporary or unplanned disruptions promotes safety.

### **Process for Determining and Addressing Need (The Travel Demand Model)**

Staff used the household and employment data, as well as available traffic counts, as input into the travel demand model and began the process of using the model to project where roadway deficiencies were likely to occur by 2045 and identified corridors reaching capacity. At the time this document was written, only segments that are deficient in pavement condition, safety, or congestion based on the criteria outlined in our Policies and Practices for Programing Projects document are eligible to be considered for federal funding. Please note that only segments that are congestion deficient expand and improve (i.e., “widening”) projects that have been selected to receive federal funding are required to be listed in the 2045 MTP project list, which makes the needs analysis for this section unique from the previous sections because the segments flagged as being deficient have the potential to become MTP projects. Segments that are pavement condition, safety, or



congestion/capacity deficient that are awarded federal funding must be listed in our short-range Transportation Improvement Program (TIP) project list.

The process for conducting the deficiency analysis for the 2045 MTP was improved from previous plans as GVMC staff used a new and enhanced travel demand model. To perform the analysis, the model was calibrated to 2015 conditions using data from the 2015 Michigan Travel Counts (MTC) III Household Travel Survey, census, employment, and all available traffic data from that same year. The model utilizes innovative techniques to capture travel behavior. This updated model has a traditional four-step, trip-based approach and includes modules for trip generation, trip distribution, mode choice, and trip assignment. The model utilizes advanced GIS techniques to support the inputs to various model stages and includes a mode choice component designed and estimated entirely from the MTC III survey, which includes survey samples selected from the GVMC region.

Information on current highway geometrics is gathered and included in the model. Information such as number of lanes, capacity, roadway length, traffic count, and speed are included in modeling calculations. The GVMC travel demand model steps are summarized as follows:

- **Initialization.** Initialization includes the definition and development of highway network, transit network, and traffic analysis zones (TAZ), etc. The GVMC roadway network was established based upon the approved National Functional Classification (NFC) for the region. Every facility that is eligible for federal funding has been included in the model. A Traffic Analysis Zone (TAZ) is the geographic unit used for trip making data in the model. TAZs are used to divide the entire region into manageable “zones” to which socioeconomic data can be associated.
- **Trip generation.** Trip generation forecasts the number of person trips produced and attracted in each TAZ in the study area. Socioeconomic data are used to estimate the number of person trips within the study area.
- **Trip distribution.** Trip distribution procedure determines the destination of the trips produced in each zone and distributes the trips to all other zones in the study area.
- **Mode Split.** This step in the process determines what mode the person trips are utilizing for their journey.
- **Time of Day.** This modeling procedure produces travel demand and link volumes based on four time periods, including AM peak, PM peak, mid-day and evening.
- **Trip Assignment.** Trip assignment procedure determines the street network paths that the distributed trips will take. The assigned traffic volume on each link can then be compared with observed traffic counts to validate the travel demand model. Transit trips are also assigned to the transit network in this step.

The model has proven to be positively sensitive to changes in critical inputs, ranging from network (highway and transit) attributes and geographic data to land use and external information, along with generic model parameters. The availability of the MTC III Household Travel Survey was of immense assistance in developing this model and ensuring its high level of performance.

GVMC Transportation staff maintains a stand-alone document called the GVMC Travel Demand Model Calibration Report. This report provides documentation and technical details of the model calibration process. The report also provides a more detailed look at the modeling process.

To determine future travel demand on each of the federal aid facilities in the region, an analysis of the volume to capacity ratio (V/C) was accomplished. The enhanced GVMC travel demand model produced estimated volume, speed, and travel time for each road, and GVMC used the peak hour volume-capacity (V/C) ratio from the enhanced travel demand model to identify congested corridors on the existing and future highway

network. The greater of the AM and PM peak period V/C ratio was selected for the congestion deficiency analysis. Corridors are identified as “low/no congestion,” “moderate congestion,” or “severe congestion,” as summarized below.

V/C Ratio	Congestion Level
$V/C < 0.8$	Low/No Congestion
$0.8 \leq V/C < 1.0$	Moderate Congestion
$V/C \geq 1.0$	Severe Congestion

### Public Involvement Spotlight: What Does the Public Say about Congestion?

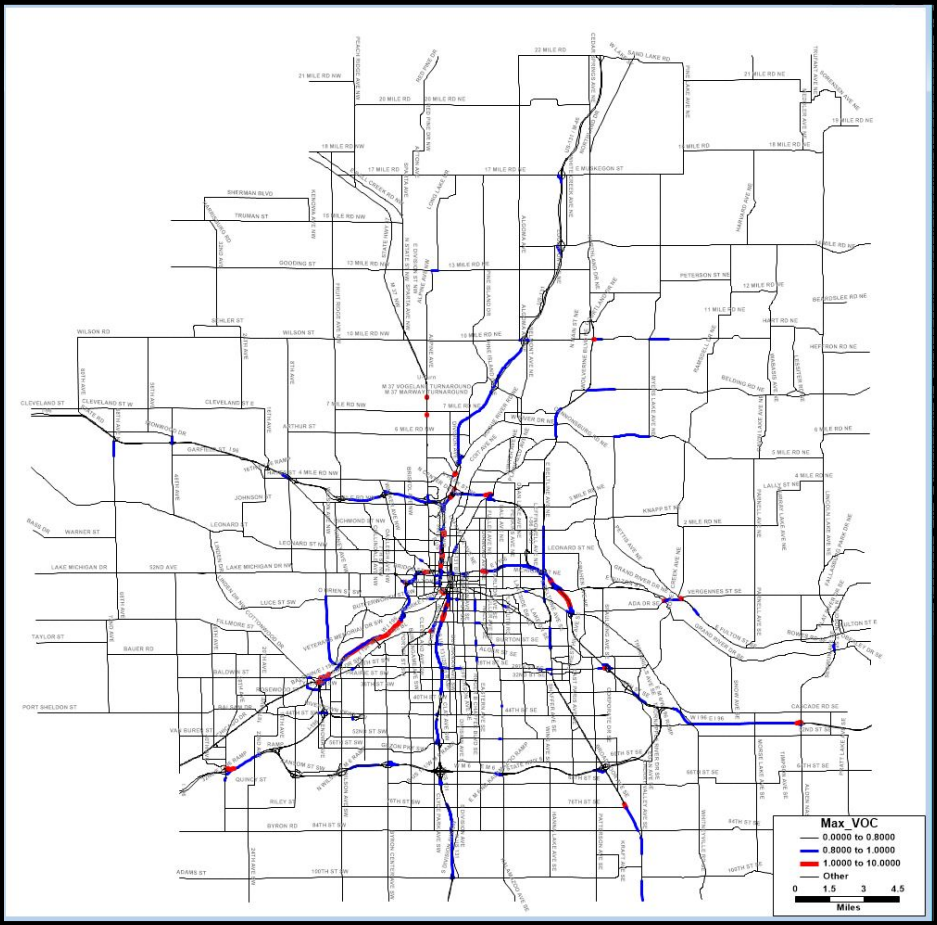
Our recent survey showed that the public’s second highest priority was to use technology to reduce traffic congestion and delays, with 43.5% of respondents choosing this option. The third highest priority was to widen busy roads and interchanges, which also reflects the public’s concern about congestion. (Please see Appendix I for complete survey results.) Here are several comments from the public that support this response:

*“The congestion has exploded. And going anywhere between 4-6 is horrible.”*

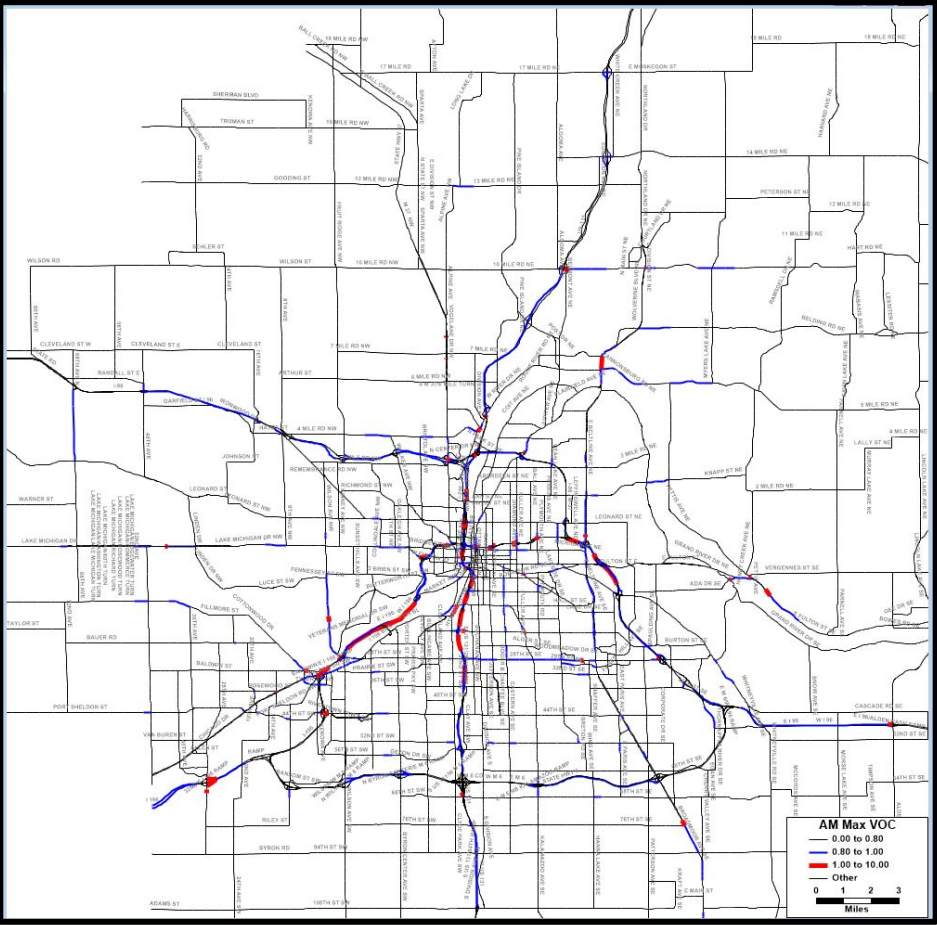
*“Highway congestion going in and out of downtown GR is horrible especially to the north. Could a bypass be built from Grandville area (196) to I96 north between Standale and Allendale - this would relieve congestion on Wilson Avenue north and bypass downtown area.”*

*“I am thankful for the reconfigurations at the I-96/I-196/E. Beltline interchange. Beyond that, for the fastest growing part of the state, highway infrastructure is sorely lacking relative to the east side of the state. If I-75/I-69 in Flint has four and three lanes respectively, US -131 should be 4 lanes in metro Grand Rapids and 3 lanes in the rest of Kent County. I-196 should be three lanes from Hudsonville (if not Holland) all the way through to I-96. Wilson Avenue from Johnson Park to Remembrance Road has enough congestion to warrant four lanes or divided highway. Particularly now with a large development going up at Lake Michigan Drive. Thank you.”*

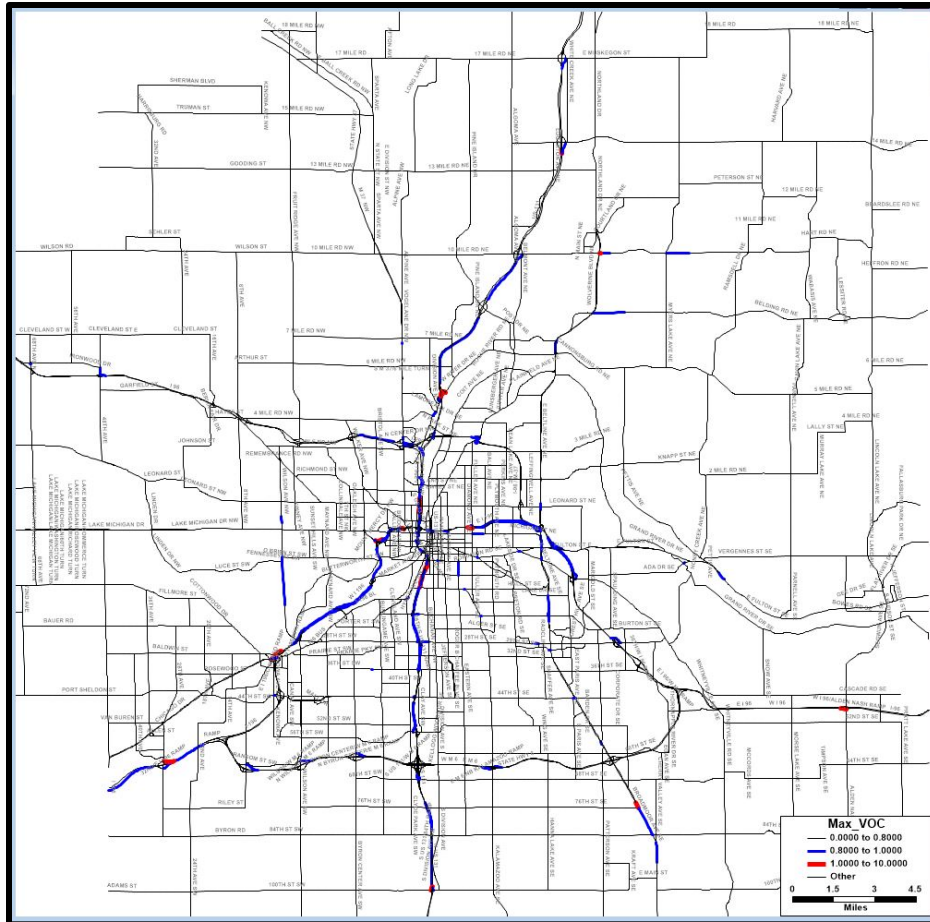
Map 17: 2015 AM PEAK V/C Ratio Map on CMP Corridors



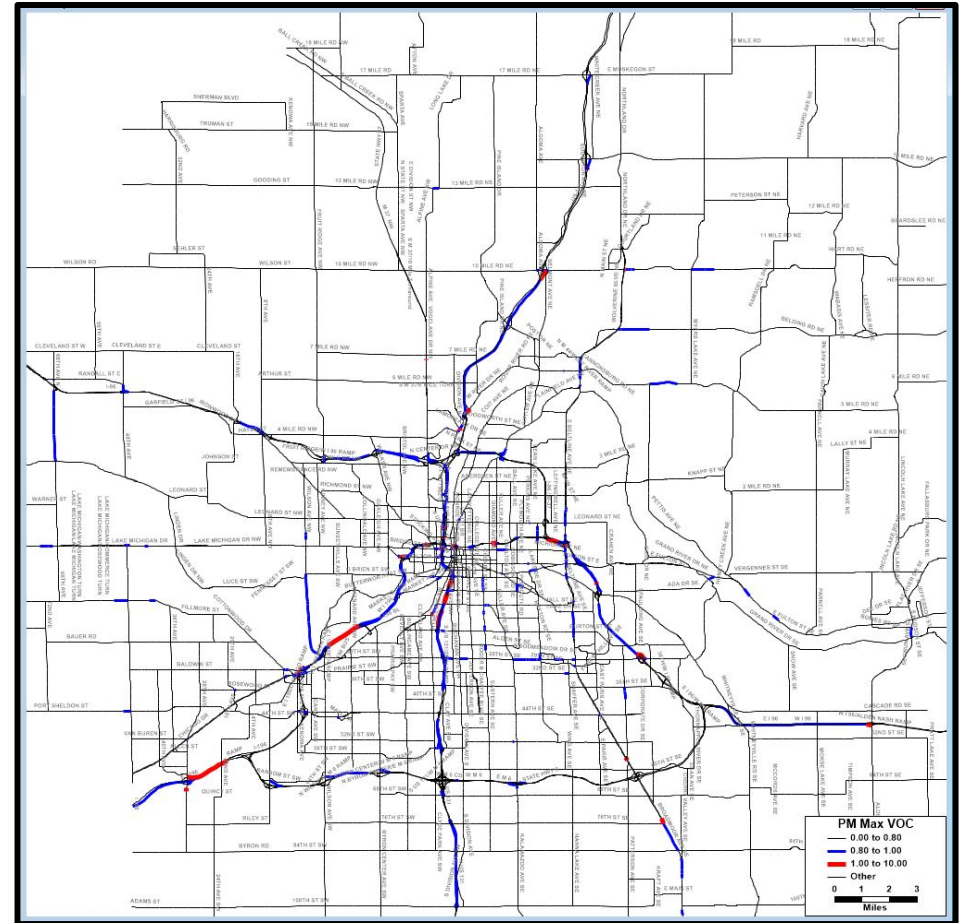
Map 18: 2045 AM PEAK V/C Ratio Map on CMP Corridor



**Map 19: 2015 PM PEAK V/C Ratio Map on CMP Corridors**



**Map 20: 2045 PM PEAK V/C Ratio Map on CMP Corridors**



The following tables show the intensity, duration, and extent of congestion for year 2015 and 2045 regional network in the GVMC travel demand model.

**Table 16: 15 AM Peak Intensity of Congestion for 2015 Base Year and 2045 No Build Year**

Network	Total Miles Traveled	Congested Miles of Traveled (V/C>0.8)		% of Cong. Miles Traveled (V/C>0.8)	
		2015 Base	2045 No Build	2015 Base	2045 No Build
Region-wide	11,265	113	212	1.00%	1.88%
Freeway	242	54	78	22.31%	32.23%
Arterial	1,364	23	61	1.69%	4.47%

**Table 17: Duration of Congestion during AM Peak Period for 2015 Base Year and 2045 No Build Year**

Network	Total Vehicle Hours Traveled (VHT)		Congested VHT (V/C>0.8)		% of Congested VHT (V/C>0.8)	
	2015 Base	2045 No Build	2015 Base	2045 No Build	2015 Base	2045 No Build
Region-wide	77,414	97,531	10,977	20,755	14.17	21.28
Freeway	17,233	20,091	6,464	10,074	37.51	50.15
Arterial	34,209	43,476	1,983	5,981	5.80	13.76

**Table 18: Duration of Congestion during PM Peak Period for 2015 Base Year and 2045 No Build Year**

Network	Total Vehicle Hours Traveled (VHT)		Congested VHT (V/C>0.8)		% of Congested VHT (V/C>0.8)	
	2015 Base	2045 No Build	2015 Base	2045 No Build	2015 Base	2045 No Build
Region-wide	122,482	150,278	13,189	23,047	10.77	15.34
Freeway	27,173	31,271	8,223	12,901	30.27	41.25
Arterial	53,781	66,401	1,507	4,238	2.80	6.38

**Table 19: Extent of Congestion during AM Peak Period for 2015 Base Year and 2045 No Build Year**

Network	Total Vehicle Miles Traveled (VMT)		Congested VMT (V/C>0.8)		% of Congested VMT (V/C>0.8)	
	2015 Base	2045 No Build	2015 Base	2045 No Build	2015 Base	2045 No Build
Region-wide	2,983,535	3,519,293	401,035	673,010	13.44	19.13
Freeway	1,009,705	1,102,456	312,422	456,163	30.94	41.38
Arterial	1,255,970	1,501,770	49,288	140,396	3.92	9.35



**Table 20: Extent of Congestion during PM Peak Period for 2015 Base Year and 2045 No Build Year**

Network	Total Vehicle Miles Traveled (VMT)		Congested VMT (V/C>0.8)		% of Congested VMT (V/C>0.8)	
	2015 Base	2045 No Build	2015 Base	2045 No Build	2015 Base	2045 No Build
Region-wide	4,819,037	5,622,415	503,048	800,186	10.44	14.24
Freeway	1,638,368	1,789,376	411,152	602,839	25.10	33.68
Arterial	2,022,705	2,394,734	39,994	104,450	1.98	4.36

## Spotlight: System Performance Measures, Needs, and Project Selection

### System Performance Measure and Targets

As stated in Chapter 1, the FAST Act requires State DOTs and MPOs to set targets for performance measures, including system performance (“reliability”) and freight performance. These targets include:

- Level of Travel Time Reliability – Person Miles Interstate
- Level of Travel Time Reliability – Person Miles Non-Interstate NHS
- Truck Travel Time Index

Once State DOTs established their system performance targets, MPOs had 180 days to either decide to support the state’s targets or to set their own. At the Technical and Policy Committee meetings in September 2018, staff recommended that the Committees support state targets. The GVMC area is currently performing well in these performance areas (see below), and thus could contribute to meeting State targets. The Committee members unanimously agreed to support state targets for the current performance period. These targets are still in place at the time this document was written. For the latest on safety performance measures, please visit: <https://www.gvmc.org/performance-based-planning-and-programming>

Performance Measure	Geographic Area	2016	2017	2018	2yr and 4yr Target
Level of Travel Time Reliability – Person Miles Interstate	Statewide	85.1%	85.2%	84.9%	75%
	GVMC Area	95.1%	96.7%	98.7%	
Level of Travel Time Reliability – Person Miles Non-Interstate NHS	Statewide	---	86.1%	85.7%	70%
	GVMC Area	---	84.9%	84.3%	
Truck Travel Time Index	Statewide	1.47	1.38	1.5	1.75
	GVMC Area	1.61	1.51	1.56	

### System Performance Targets, Needs, and Project Selection

Like other performance measures, system performance and freight performance measures have been incorporated into the Policies and Practices for Programming Projects document. Reliability factors were added to the congestion criteria section, and the MPO allows the use of federal funds, where eligible, to address identified freight constrained intersections, roadways, and corridors.

### System Reliability

There were two performance measures that were taken into consideration during the congestion deficiency analysis to identify both congestion and travel reliability on the highway network:

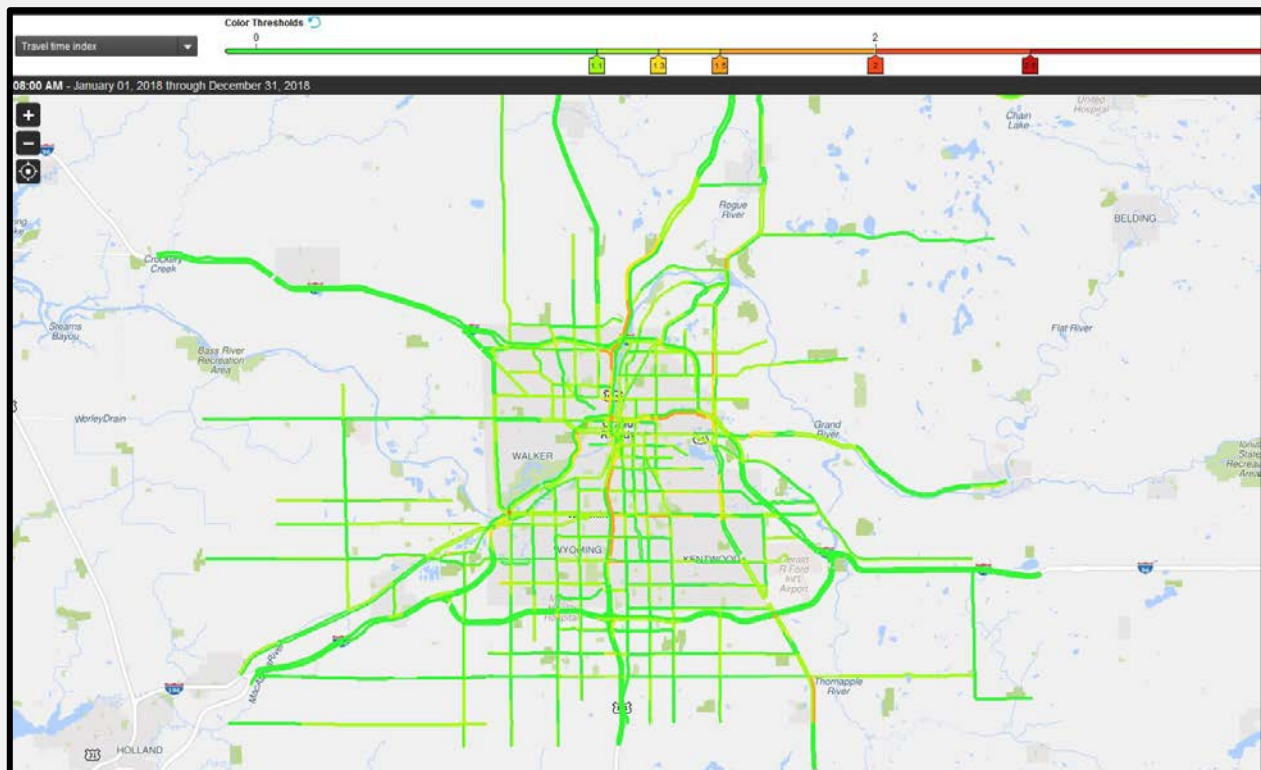
- Travel Time Index (TTI): defined as the ratio of actual travel time to free-flow travel time.
- Planning Time Index (PTI): defined as the ratio of 95<sup>th</sup> percentile travel time to free-flow travel time. It is a measure of travel time consistency over a period of time. When travel times are unreliable, travelers are more likely to experience unexpected delays.

The travel time index provides an easy way to understand the scale of congestion. GVMC staff uses an AM (7:00-9:00 AM) and PM (3:00-6:00 PM) travel time index on weekdays to identify congested corridors on the highway network. The thresholds for different congestion levels based on the travel time index are shown below.

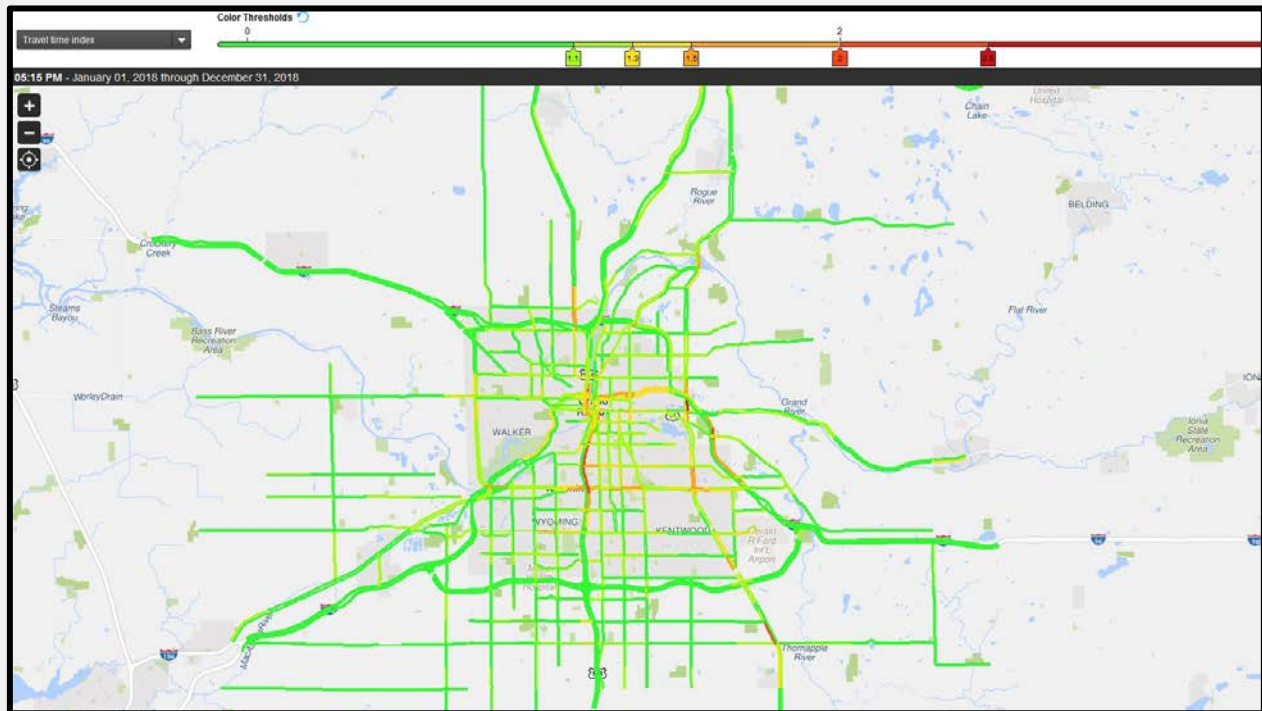
Travel Time Index for Different Congestion Levels for Freeways		
Low/No Congestion	Moderate Congestion	Severe Congestion
<1.25	1.25-1.5	>1.5

Travel Time Index for Different Congestion Levels for Arterials		
Low/No Congestion	Moderate Congestion	Severe Congestion
<1.5	1.5-2.0	>2.0

**Map 21: 2018 GVMC AM Peak TTI**



**Map 22: 2018 GVMC PM Peak TTI**

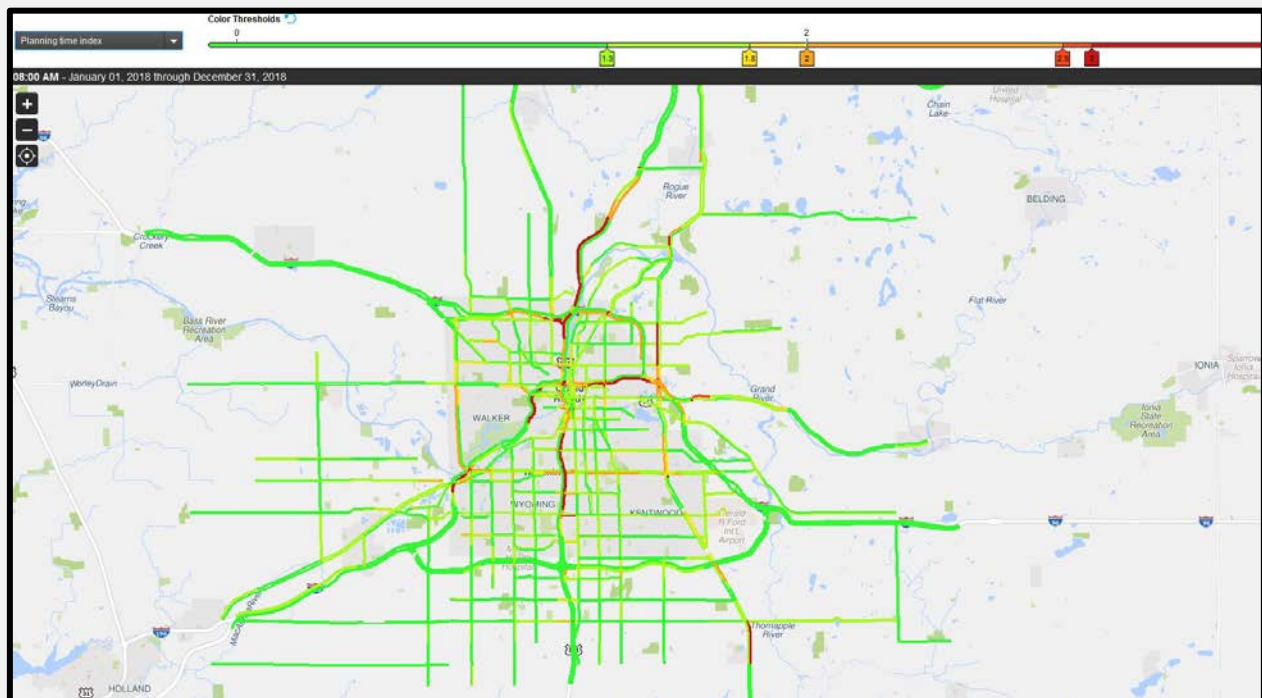


The thresholds for planning time index as a performance measure to show the reliability are below.

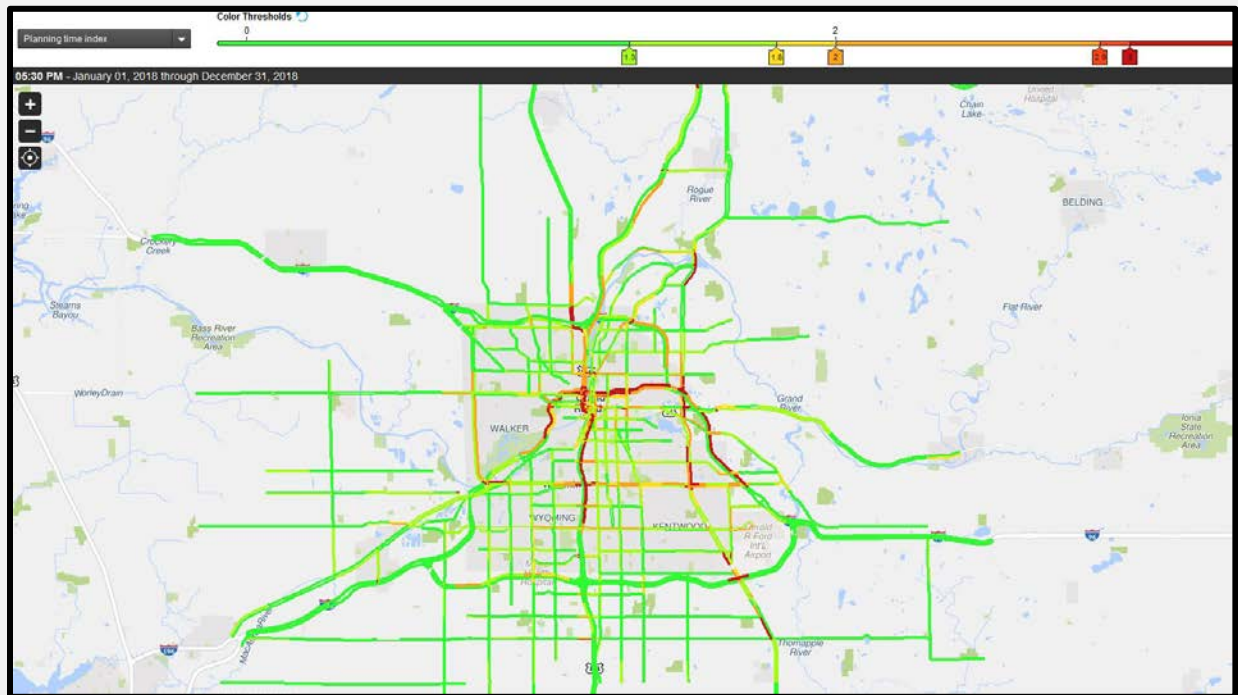
**Planning Time Index for Reliability**

No Reliability Deficiency	Moderate Reliability Deficiency	Severe Reliability Deficiency
<2.0	2.0-3.0	>3.0

**Map 23: 2018 GVMC AM Peak PTI**



**Map 24: 2018 GVMC PM Peak PTI**



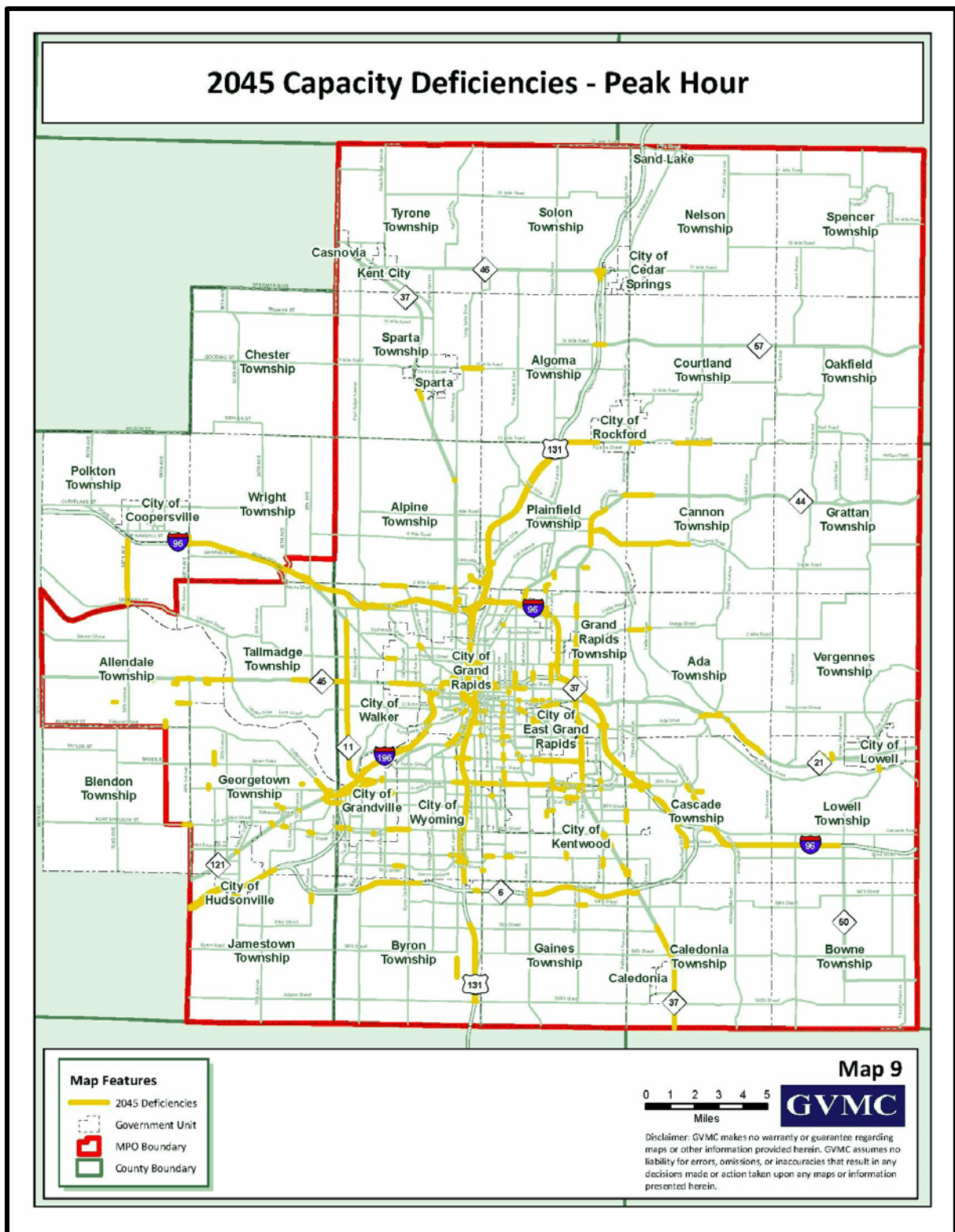
The product of the initial V/C analysis is a listing of all federal aid facilities that are either currently over their designed capacity or are projected to be deficient by the year 2045. Designation of a facility as deficient is not a determination that the facility is to be widened in the future; it merely means that special attention should be made on these “deficient” facilities. Once the list of capacity deficient facilities has been identified, the list is then submitted for analysis through the GVMC Congestion Management Process so that possible solutions can be analyzed and determined. The full list of 2045 Capacity Deficient Facilities can be found in Appendix E. Map 25 depicts the facilities that are projected to have exceeded their designed capacity by the year 2045.

Peak planning time index and whether an NHS segment was considered deficient in terms of reliability was provided on the deficiency list and sent to the TPSG Committee as well as the Technical and Policy Committees for consideration. This information was therefore used to inform and validate the programming process. Efforts to improve reliability are also supported by MTP Goal 3: Enhance safety and reduce congestion.

#### *Truck Travel Time Index*

In 2017, the MPO worked with MDOT to identify Critical Urban and Rural Freight Corridors within the MPO boundary to support the National Highway Freight Network. Due to the limited mileage allowed for the Urban and Rural Freight Corridors in the FAST Act, the MPO worked with MDOT to identify candidate freight routes, which serve critical local industries or provide connections to the formal freight network. These candidate routes could be formally designated if a project eligible for freight funding is identified and proposed in the future. (See Map 8 on page 46.) Freight-related projects and funding will target the formal and candidate MPO freight network corridors and applicable performance measure targets.





Map 25: 2045 Capacity Deficiencies – Peak Hour



## Identified Congestion Needs and Proposed Solutions

### Need 1: Address Congestion on Capacity Deficient Segments

#### **Proposed Solution: Use the Congestion Management Process (CMP) to Determine the Best Strategy for Addressing Congestion on Capacity Deficient Segments**

Federal transportation legislation requires large Metropolitan Planning Organizations, such as GVMC, to develop and implement a Congestion Management Process (CMP) as part of the metropolitan transportation planning process (23 CFR 500). GVMC staff used the CMP after deficiencies were identified through the modeling process in order to determine the best strategy for addressing every identified congested location. The CMP is intended to be a systematic way of monitoring, measuring and diagnosing the causes of current and future congestion on a region's multi-modal transportation system; evaluating and recommending alternative strategies to manage or mitigate current and future regional congestion; and monitoring and evaluating the performance of strategies implemented to manage or mitigate congestion. The CMP also emphasizes effective management of existing facilities through use of travel demand and operational management strategies. In cases where these methods are deemed ineffective to resolve the congestion issue of a corridor, capacity enhancing projects may be selected as the preferred alternative.

In Transportation Management Areas that are in non-attainment for ozone or carbon monoxide (CO) standards, federal funds may not be expended for any new project that will significantly increase the carrying capacity for single-occupant vehicles (SOVs) unless the project results from a CMP. For the Grand Rapids area, a significant increase in carrying capacity for SOVs is defined as a project that adds one or more through-travel lanes for a distance in excess of one mile or more on a roadway classified as a collector or higher on the federal functional class map for the area. Currently, the GVMC MPO area is classified as attainment for the most recent ozone standard and is considered an orphan maintenance area (OMA) for the 1997 ozone standard. Future changes or interpretations of environmental law/policy may cause this analysis to once again be required.

GVMC's CMP consists of nine major characteristics, which include:

1. Develop congestion management objectives
2. Identify area of application
3. Develop CMP network
4. Develop performance measures
5. Collect data/monitor system performance
6. Analyze congestion problems and needs
7. Identify and evaluate strategies
8. Program and implement strategies/improvements
9. Evaluate and monitor effectiveness

Additional information on the process can be found in the GVMC Congestion Management Process document.

The ability to identify and measure different types of congestion is key to developing appropriate responses. Recurring congestion is defined as the relatively predictable congestion caused by routine traffic volumes operating in a typical environment. Non-recurring congestion is defined as unexpected or unusual congestion caused by unpredictable or transient events, such as accidents, inclement weather, or construction. The CMP includes a third category, Corridor Progression, to addresses congestion caused within corridors at localized intersections.

The GVMC CMP provides information about a wide range of congestion management strategies applicable to the Grand Rapids area. Using CMP Strategies, the MPO committees can select the appropriate solution for congested locations.

The intent of the CMP Strategies is to provide a reference for the development of alternatives for consideration when Major Investment Studies (MIS) and Corridor Studies are required. These efforts, which may be conducted within the context of the Grand Rapids metropolitan transportation planning process, will lead to an identified preferred alternative or set of preferred alternatives. Preferred alternatives that do not require this level of further analysis may proceed directly to the MTP as identified.

GVMC CMP strategies include:

1. Highway projects
2. Transit projects
3. Intelligent Transportation System (ITS) and Transportation System Management (TSM) strategies
4. Transportation demand management (TDM) strategies
5. Land development strategies
6. Bicycle and pedestrian projects
7. Access management strategies

To address recurring congestion, in most situations, a remedy somewhat less than added capacity is selected as the preferred alternative. This represents a change of focus from past years when a widening project may have been the only solution considered. GVMC is taking this conservative approach in an effort to provide a transportation infrastructure that is as sustainable as possible and still meets the demands of the traveling public.

Deployment of Intelligent Transportation Systems (ITS) that includes cameras and automated detection on the freeways and main arterials has greatly advanced the area's capabilities when it comes to detecting and responding to non-recurring congestion.

**MTP Recommendation and Proposed Solution: Work to increase transportation funding in GVMC's MPO area**

The needs for all transportation modes in GVMC's area significantly outweigh available resources. GVMC's congestion deficiency analysis determined \$1.02 to \$1.5 billion in need in order to improve the system. Federal transportation funding is often flexible but always limited. Therefore, GVMC encourages our members to pursue other sources of funding, such as millages, special assessments, and grants, to enhance the transportation system in their respective areas.

**MTP Recommendation and Proposed Solution: Work to create a mode shift from single occupancy vehicles (SOVs) to more active forms of transportation**

The preferred mode of transportation for most within GVMC's MPO area is the single occupant vehicle (SOV). So many single occupant vehicles on the road can lead to traffic congestion and poorer air quality due to idling. Furthermore, according to the Michigan Department of Health and Human Services, Michigan consistently ranks in the top 10 to 15 most obese states in the U.S. Participating in more active forms of transportation can lead to healthier residents.

*Note: All MTP recommendations, including action steps to achieve them, are included in Chapter 12.*

**MTP Recommendation and Proposed Solution: Work to improve the condition and operation of the existing transportation system.**

There has been extensive discussion by the MPO committee members and numerous public comments regarding the need to reduce congestion and related delays, improve reliability, and continue to improve transit service where feasible.

*Note: All MTP recommendations, including action steps to achieve them, are included in Chapter 12.*

## **Challenges**

### **Model Challenges**

The model could be improved for certain market segments with additional data resources, particularly on the transit side, where only limited survey points were available for transit trips. Improvements to the model could include additional survey points to target these users. Furthermore:

- Number of trip purposes is limited.
- Nonmotorized modes are not assigned to the network. GVMC will need to explore options for further enhancing the nonmotorized component of the travel demand model.
- Technological developments, such as autonomous vehicles, are not considered.

### **Funding**

Funding has always fallen short of the regional needs; currently, the amount of funding the area receives is not enough to maintain the existing system.

### **Non-Recurring Congestion**

Traffic crashes have been increasing in the GVMC region during the past 3 years, causing more non-recurring congestion.

### **Congestion Severity**

With the booming economy and continued population growth, the Grand Rapids metropolitan area is expected to experience more severe congestion, and additional corridors will likely become more congested. In addition, the removal of travel lanes, reduction in lane widths, and removal of some roads altogether will continue to produce more congestion on other roadways and may negatively affect travel time reliability. This may have implications on safety, delay, tourism, and the overall movement of freight and the economy as well. The effects should be monitored as these changes are implemented.

### **Data**

Ensuring that data is consistent and accurate is critical for the annual system performance report.

## **Emerging Issues**

Based on the socioeconomic data, the population of the Grand Rapids metro area is expected to increase significantly in population over the next 25 years. More and more freight will be moved through our area in the future. The area is also growing in tourism, offering additional attractions that draw visitors to our area. (See Tourism section of Chapter 6). Altogether, increased population, tourists, and freight movement have the potential to significantly increase congestion in the area.

## Accomplishments

- \$14.7 million spent on major and minor widening projects in the FY2020-2023 Transportation Improvement Program (TIP)
- \$28,578,447 spent on major and minor widening projects covering 9.2 miles between FY2017-2019
- Grand Rapids Signal Optimization Projects
- Westbound I-196 bridge widening project over the Grand River



*Traffic heading into a construction zone on US131 near the 10 Mile exit*

## Supporting Documents

MDOT 2020-2024 Five Year Program

GVMC Congestion Management Document

## Supporting Goals and Objectives

### Goal 1: Further Develop an Efficient Multi-Modal System

**Objective 1c:** Implement strategies to promote efficient and reliable system management and operation that result in the reliable and safe movement of people and freight

### Goal 3: Enhance Safety and Reduce Congestion

**Objective 3a:** Promote services, such as Rideshare, that increase vehicle occupancy rates

**Objective 3b:** Reduce the reliance on Single Occupancy Vehicles (SOVs) by developing policies that encourage the use or development of active modes of transportation

**Objective 3c:** Employ the Congestion Management Process to systematically monitor, measure, diagnose, and recommend travel management alternatives for current and future congestion on our region's multi-modal transportation system

**Objective 3d:** Promote Travel Demand Management (TDM) practices to manage future traffic growth, improve system efficiency, mitigate congestion, and spread the travel demand evenly to other times of the day, where feasible

**Objective 3e:** Support the use of Intelligent Transportation Systems (ITS) and incident management to reduce the potential for secondary traffic incidents and non-recurring congestion

**Objective 3f:** Promote sharing ITS data between agencies to streamline and improve incident management response

**Objective 3g:** Improve safety of the transportation system for motorized and nonmotorized users in support of federal performance measures by identifying and prioritizing projects that will reduce the likelihood or severity of crashes and incorporating safety improvements with all transportation projects where feasible and practical

**Objective 3h:** Improve the travel time reliability of the system in support of federal performance measures and improve quality of life