

2035 Long Range Transportation Plan for the Grand Rapids Metropolitan Area



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GRAND VALLEY METROPOLITAN COUNCIL

DISCLAIMER

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Grand Valley Metropolitan Council Grand Rapids Area 2035 Long Range Transportation Plan

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INTRODUCTION

AREA PROFILE

The Grand Valley Metropolitan Council Metropolitan Planning Organization (MPO) area consists of all of Kent 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.

The 2000 Census defined urban area for the Grand Rapids Metropolitan area shows growth into two additional townships in Ottawa County: Blendon and Wright. A map depicting the MPO study area and the 2000 Census defined urban area follows on page 3.

TRANSPORTATION PLANNING IN GRAND RAPIDS PAST AND PRESENT

Beginning in 1961 with the establishment of the Kent County Planning Commission, comprehensive planning in the Grand Rapids area was done by the Kent County Planning Department. In the Mid-1960's, this agency began a comprehensive land use/transportation planning program encompassing the entire sphere of planning related activities in the Grand Rapids area. This program was designed to fulfill requirements of the Federal Aid Highway Act of 1962 as well as other federal, state and local planning requirements.

In 1964, the Grand Rapids and Environs Transportation Study (GRETS) Technical and Policy Committees were established. GRETS was formed to guide and direct the planning and development of the transportation infrastructure in the metropolitan area. Membership in GRETS originally included Grand Rapids, Wyoming, Walker, East Grand Rapids, Grandville, Kent County, Ottawa County, Kent County Road Commission, Ottawa County Road Commission, Michigan Department of State Highways, and the Federal Highway Administration. In 1967, the City of Kentwood was admitted. In 1974, the City of Rockford was added to the list of participants. Other participants include the Grand Rapids Area Transit Authority (now the Interurban Transit Partnership), the Grand Rapids Chamber of Commerce, and the Kent County Department of Aeronautics.

In 1966, the Kent-Ottawa Regional Planning Commission was formed because of a requirement by the Department of Housing and Urban Development that an agency be in existence to undertake comprehensive planning for the region. From 1966 to 1972, the Kent County Planning Commission and the Kent-Ottawa Regional Planning Commission (generally utilizing staff from the Kent County Planning Department) worked together within the broad conceptual framework provided by the comprehensive development plan for the region. Through an agreement with the GRETS Policy Committee, the Kent-Ottawa Planning Commission served as staff for the Metropolitan Planning Organization (MPO) carrying out all transportation related planning activities for the designated study area.

The Kent-Ottawa Regional Planning Commission became the official, independent, metropolitan planning agency responsible for coordinating all planning activities, in 1972, for the Kent-Ottawa Region, and was the coordinating agency for all transportation planning activities within the GRETS Study Area.

In 1974, the Kent-Ottawa Regional Planning Commission was dissolved and a new nine county region was formed by executive order of the Governor of the State of Michigan. The West Michigan Regional Planning Commission (WMRPC) was formed and given the responsibility for coordinating the GRETS Transportation Program. This relationship lasted until July 1990, when the State of Michigan in con-

junction with the GRETS Policy Committee withdrew the MPO designation from the WMRPC. In October 1990, the GRETS Policy Committee recommended the Grand Valley Metropolitan Council as the MPO for the Grand Rapids Metropolitan Area.

The Grand Valley Metropolitan Council (GVMC), as the currently designated MPO for the Grand Rapids Metropolitan Area, is responsible for carrying out all transportation related planning activities for the designated study area. Those duties include preparation of a Unified Work Program (UWP), Transportation Improvement Program (TIP), and the development and maintenance of the Long-Range Transportation Plan (LRTP) that follows.

The Year 2035 Plan is a vital step in allowing federal funds to be spent in the Grand Rapids area on transportation projects. Without a federally approved Plan in place, federal transportation dollars cannot be expended. The Plan looks at the most recent data available to assess transportation needs and priorities for the region including items such as traffic volumes, population, employment, and financial forecasts. As the region changes over time, the transportation infrastructure must change as well, to accommodate for the growth in West Michigan. The development and interpretation of the data for the area leads to informed analysis, identification, and prioritization of transportation related projects and programs.

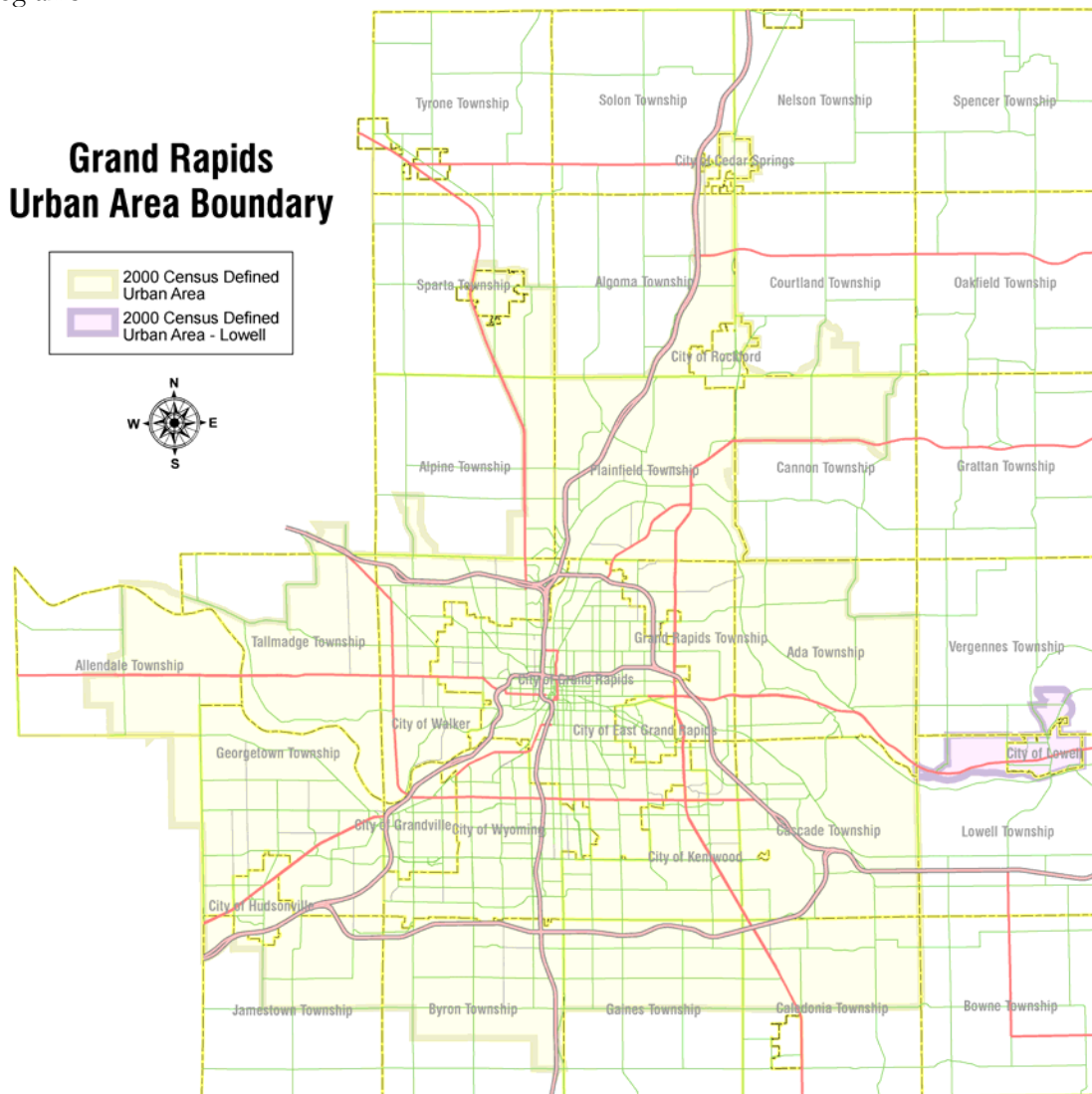


Figure 1 — Grand Rapids Urban Area Boundary

PURPOSE OF THE LONG RANGE TRANSPORTATION PLAN

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.

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. This plan 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 and 2030.

FEDERAL TRANSPORTATION LEGISLATION, PAST AND PRESENT

On December 18, 1991, the United States Congress passed the Intermodal Surface Transportation Efficiency Act (ISTEA). ISTEA would forever change the way transportation planning was undertaken in urbanized areas. ISTEA required that areas with a population of more than 50,000 update their long-range transportation plans at least every three years. In the fall of 1994, largely in response to ISTEA, the GVMC completed and approved an update to the 2010 Long Range Transportation Plan. This plan would cover transportation improvements through the year 2015.

The Transportation Equity Act for the 21st Century (TEA-21) was enacted June 9, 1998 as Public Law 105-178. TEA-21 authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 6-year period from 1998-2003. TEA-21 continues to emphasize increased awareness to a cooperative and comprehensive planning process that ISTEA had begun in 1991.

On August 10, 2005, the President signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). With guaranteed funding for highways, highway safety, and public transportation totaling \$244.1 billion, SAFETEA-LU represents the largest surface transportation investment in our Nation's history. The two landmark bills that brought surface transportation into the 21st century—the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21)—shaped the highway program to meet the Nation's changing transportation needs. SAFETEA-LU builds on this firm foundation, supplying the funds and refining the programmatic framework for investments needed to maintain and grow our vital transportation infrastructure.

SAFETEA-LU NEW EMPHASIS AREAS

The passage of SAFETEA-LU has resulted in many changes to the transportation planning process. The more significant changes include:

Changing from a Public Involvement Plan/Process to a Participation Plan/Process.

Since the enactment of ISTEA in 1991, MPOs have been required to develop and utilize a proactive public involvement process that provides complete information, timely public notice, full public access to key decisions, and supports early and continuing involvement of the public in developing metropolitan transportation plans. SAFETEA-LU expands the public involvement provisions by requiring MPOs to develop and utilize “participation plans” that are developed in consultation with an expanded list of “interested parties”. The previous requirement for a “Public Involvement Plan” was introduced through the rulemaking process; the new requirement for a “Participation Plan” is now in law.

Previously existing requirements will be largely retained. Additional emphasis will be placed on extensive stakeholder “participation,” specifically requirements to:

- Hold public meetings at convenient and accessible locations and times,
- Employ visualization techniques to describe metropolitan transportation plans and TIPs, and
- Make public information available in electronically accessible formats and means (such as the World Wide Web).

Requirement to consider environmental mitigation in transportation planning.

SAFETEA-LU requires that the adopted metropolitan transportation plan contain a discussion of potential environmental mitigation activities (area-wide, not project specific). This is a new requirement and should be developed in consultation with Federal, State, and Tribal regulatory agencies responsible for land management, wildlife, and other environmental issues.

The interaction with other agencies to achieve environmental mitigation is a logical part of the larger “Consultation” effort discussed in the next section.

Requirement of increased consultation with a diverse array of agencies and officials responsible for other planning activities affected by transportation.

Metropolitan planning under SAFETEA-LU requires increased consultation with a diverse array of agencies and officials responsible for other planning activities affected by transportation. It is suggested that contacts with State, local, Indian Tribes, and private agencies responsible for the following areas be contacted:

- Economic growth and development
- Environmental protection
- Airport operators
- Freight movement
- Land use management
- Natural resources
- Conservation
- Historical preservation
- Human Services Transportation Providers

Changing from a Congestion Management System/Plan to a Congestion Management Process.

This planning process change in Transportation Management Areas (TMAs-MPOs with a population of 200,000 persons and larger of which, the Grand Rapids area is one) requires making the Congestion Management Process (CMP) a more integral part of developing the Long Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP).

The steps toward integration include a common set of performance measures and a common set of goals and objectives between the CMP, the LRTP, and the transportation systems operational and management strategies for a region. Items such as the regional Intelligent Transportation System (ITS) architecture and the prioritization process for improvement to be included in the plan and TIP should be

consistent and seamless with the CMP. As part of developing the CMP, planners should be working in collaboration with others in the region, including public transportation operators, and State and local operations staff.

The requirement to use the CMP in TMAs designated as non-attainment for ozone or carbon monoxide to identify, evaluate, and program any project that would result in a significant increase in the carrying capacity for single occupant vehicles (SOVs) continues. Such evaluation must address the inability of all reasonable travel demand reduction and operational management strategies (including multimodal) to satisfy the need prior to choosing the SOV option.

SAFETEA-LU PLANNING FACTORS

The planning factors put forth by the federal legislation have changed slightly. SAFETEA-LU closely mirrors the planning factors from TEA-21. The seven TEA-21 Planning Factors that were in the previous bill now have safety listed as the eighth planning factor. The SAFETEA-LU Planning Factors are listed below:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the safety of the transportation system for motorized and non-motorized users;
- Increase the security of the transportation system for motorized and non-motorized users;
- Increase the accessibility and mobility options available to people and for freight;
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation; and
- Emphasize the preservation of the existing transportation system;

The planning factors contained with SAFETEA-LU shape the development of goals and objectives for the Long Range Transportation Plan. Likewise, they also guide the policies and practices that the MPO follows for carrying out the transportation planning process.

LONG-RANGE TRANSPORTATION PLANNING PROCESS

This 2035 Long Range Transportation Plan (LRTP) document is the culmination of efforts which began in September 2005. The development of a comprehensive transportation plan for any Metropolitan Planning Organization (MPO) is a complex and lengthy process. Drawing on the success of the development process that was used for the 2030 Long Range Transportation Plan, Grand Valley Metropolitan Council (GVMC) staff worked closely with the Grand Rapids area's transit provider, the Interurban Transit Partnership (ITP-The Rapid), and the State of Michigan in the Michigan Department of Transportation (MDOT). Meetings were held with staff from the three agencies to discuss plan coordination and public involvement. All of the public involvement efforts completed through this plan were performed jointly. The aim was to improve coordination and outreach among the three major transportation planning agencies in the Grand Rapids metro area.

The diagram below illustrates the process followed to complete the 2035 Long Range Plan. This update also adheres to the revised planning process highlighting the 3-C Planning Process as developed in cooperation with the Michigan Transportation Planning Association and the Michigan Department of Transportation. See Appendix H for more details on the revised planning process.

Initial 2035 Plan Timeline Developed	September 2005
Meetings with MPO/ITP members	January-August 2006
Mass Media Survey/PIP Mailing List Contact	April 2006
Community Forums	June 2006
Goals and Objectives Defined	July 2006
Transportation Alternatives Analyzed	October-November 2006
Socio-Economic Data Gathering/Analysis	February-October 2006
Deficiency Analysis	October-December 2006
Deficiencies Approved by Committees	December-January 2006/2007
Financial Analysis	November 2006
Environmental Analysis	December-January 2006/2007
Air Quality	
Environmental Justice	
Presentation of Draft Plan	February 2007
Committee Approval of Plan	March/April 2007
Final Approvals	May 2007

Figure 2 — 2035 LRP (Long Range Plan) Development Schedule

MPO COMMITTEE REPRESENTATION/2035 LONG RANGE PLAN OVERSIGHT

The Grand Valley Metropolitan Council's transportation committees are comprised of membership that represents all modes of transportation throughout the local transportation community. Local governments from the MPO Study Area include 10 cities and 25 townships, which are all eligible to participate. Additionally, the Kent and Ottawa County Road Commissions, the Interurban Transit Partnership, Gerald R. Ford International Airport, Grand Rapids Area Chamber of Commerce, the West Michigan Environmental Action Council, and the Michigan Department of Transportation participate in the MPO process as well.

There are four 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 making programming decisions about specific transportation projects through the short range Transportation Improvement Program. The TPSG only deals with programming issues. All other issues that need to be considered are brought first to the Technical Committee and subsequently make their way “up” the committee structure that you see on the following page. The Technical Committee is exactly what the name would imply, the representative from each of the member agencies/communities that have an 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 Grand Valley Metropolitan Council Board (GVMC Board) is usually the last committee to take action on transportation issues within the Grand Rapids Metropolitan Area. The GVMC Board is made up of the chief elected officials (and/or their designee) for the member agencies. Some of the GVMC Board members are participating in the Policy Committee so there is often a familiarity with transportation issues and discussions at this level.

The chart below represents the MPO Committee structure for the Grand Rapids Metropolitan Area. Public participation is provided for and encouraged at all of the committee meetings.

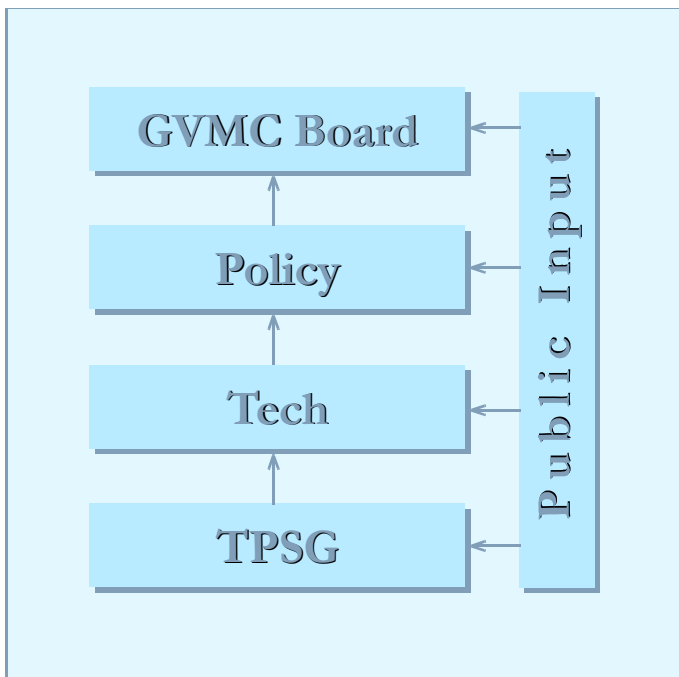


Figure 3 — MPO Committee Structure

DEVELOPMENT OF LONG RANGE GOALS AND OBJECTIVES

The need to develop goals and objectives for transportation in the GVMC area stems from the basic reasons for the organization of GVMC. Since its formation of the Metropolitan Planning Organization (MPO) in 1965, the obvious purpose of this has been to enhance the development and maintenance of an improved transportation network in the metro area.

Improvements to the urban transportation system are selected through a comprehensive decision-making process. Annually, transportation projects are evaluated, prioritized and submitted for implementation through the GVMC Transportation Improvement Program Committee. ISTEA and TEA-21 state that the projects selected in the annual program must be in accord with a long-range plan for the transportation system. Through utilization of a long-range plan, it is possible to progress in an orderly fashion, toward a pre-determined, desirable state of transportation system development.

The long-range plan for transportation must be updated as conditions change in order to maintain its integrity. The GVMC Long-Range Transportation Plan is now being revised to reflect a desirable state of the transportation system in the Year 2035. Changing population patterns, economic conditions, social values, environmental views and energy concerns necessitate the development of the 2035 Long-Range Transportation Plan. Values held by the public and the decision-makers in this area will definitely impact their views of how the transportation system for the year 2035 should be developed. In order to properly reflect these values, it is necessary to prepare the 2035 Long-Range Transportation Plan based upon some acceptable goals and objectives.

In progressing toward a future transportation plan, goals and objectives will contribute strongly to the selection and testing of alternatives in the transportation system. As goals embody a desired state of affairs to be realized through future efforts, the transportation goals and objectives embraced by GVMC will affect an overall design for the 2035 Long-Range Transportation Plan.

In creating the U.S. Department of Transportation, Congress specified that policies and programs should be developed to achieve certain goals and objectives. Congress stated that the goals should be geared toward the “provision of fast, safe, efficient, and convenient transportation at the lowest possible cost, consistent therewith and with other national objectives, including the efficient utilization and conservation of the Nation’s resources.” The need to develop goals goes beyond the desire to fulfill federal regulations as goals are extremely useful in the planning process as they provide the necessary direction and basic framework upon which future decisions can be made.

The MPO was organized with a set of initial objectives. The 1965 GRETS “Prospectus” details ten objectives of the transportation study. As these objectives were specific only to study methodology and organizational intent, a revision was deemed necessary to produce goals and objectives useable in developing the Year 2000 Transportation Plan (developed in 1976 and 1977). Changing conditions since 1965 also suggested that the need for fast, safe, efficient transportation must now be coordinated with concerns for social improvement, economic development, and environmental protection. In 1976, GRETS formed a joint subcommittee of the Policy, Technical, and Citizens’ Committees to develop new goals and objectives for the future transportation system. In 1996, a committee was formed, which was comprised of comprehensive representation from throughout the transportation and land use community to evaluate and revise those 20 year old goals and objectives. Minor modifications have been made to the goals and objectives that differ from the ones presented in the 2025 Plan.

PUBLIC PARTICIPATION PROCESS

Public involvement in transportation has a new emphasis since Congress passed the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). According to ISTEA, a public involvement process for transportation planning must be explicitly set forth and adopted by Metropolitan Planning Organizations (MPOs), which receive transportation funds from the Federal Highway Administration and Federal Transit Administration. Federal regulations to implement ISTEA call for “proactive public involvement processes that provide complete information, timely public notice, full public access to key decisions, and support early and continuing involvement of the public in developing plans and TIPs [Transportation Improvement Programs]...” The rules for this process are to be found in Section 316 of the Federal transportation legislation. SAFETEA-LU continues to emphasize comprehensive public input set forth by previous transportation bills.

To meet existing Federal transportation rules, the Grand Valley Metropolitan Council (GVMC) developed a Transportation Planning Public Involvement Process that was adopted on April 6, 1995. The Public Involvement Plan underwent a lengthy update process which included review by the GVMC transportation committees and state and federal transportation officials. The updated Public Involvement Plan was passed by the GVMC Transportation Policy Committee on November 19, 2003. The passage of SAFETEA-LU required additional changes in the way that MPOs include the public in the transportation planning process. The public participation process includes items carried forward including:

- Outreach for public opinion and needs, especially to those who are underserved, through public forums and survey materials.
- Opportunity for public comments at all public meetings.
- Making information easily available to the public.
- Public notification of meetings both by public media and direct mail.
- Appropriately scheduled public hearings.
- Opportunity for public comment on key decisions.
- Timely and forthright response to public comments.
- A bi-annual review of the public involvement process itself.
- Whenever possible, meetings will be held in locations on transit routes.

Additionally, SAFETEA-LU expands the public involvement provisions by requiring MPOs to develop and utilize “participation plans” that are developed in consultation with an expanded list of “interested parties”. The previous requirement for a “Public Involvement Plan” was introduced through the rule-making process; the new requirement for a “Participation Plan” is now in law. Additional emphasis will be placed on extensive stakeholder “participation,” specifically requirements to:

- Hold public meetings at convenient and accessible locations and times,
- Employ visualization techniques to describe metropolitan transportation plans and TIPs, and
- Make public information available in electronically accessible formats and means (such as the World Wide Web).

The goals of this process are:

1. Involve the public early in the planning process.
2. Obtain understanding of transportation needs, especially of the underserved.

3. Make information available to the public.
4. Provide timely and adequate notice to the public about meetings and plans.

The emphasis of this process is on early involvement of the public in all processes, in order to obtain input and insight before decisions are made.

In order to complete a comprehensive Long Range Transportation Plan, the involvement of the general public is crucial. Several opportunities for the public to become involved were incorporated throughout the development of the plan. As is contained in the GVMC Public Participation Plan (PIP), several methods were employed to involve the public.

Direct mailings - GVMC maintains a list of approximately 300 names and addresses of local citizens interested in participating in the development of transportation plans. Those represented on the Public Participation List include neighborhood associations, various church groups, senior citizen centers, social service agencies, etc. Notices of meeting locations and times were sent to each representative on the PIP list inviting those individuals or groups to provide input.

Internet Web Page – A webpage developed at the Grand Valley Metropolitan Council site, www.gvmc.org, provides periodic updates of plan development benchmarks, meeting times/sites information, contact information for GVMC staff for those who want more information, as well as copies of DRAFT and finalized documents related to the transportation planning process.

Community Forums – In an attempt to broaden the exposure of this Plan, eight community forums were held at different locations, days of the week, and times of day throughout the region. With considerable input and participation from MDOT and ITP, the forums, which were hosted by GVMC, provided additional opportunities for public input and education. The forums also served to explain the long range transportation planning process as well as answer questions and concerns from the public. A list of the times, dates, and locations of those meetings are provided in Appendix A.

Media Relations - At each of the LRTP milestones, the media was sent a notice of the activity that was to be undertaken. Members of both print and broadcast media were represented on that mailing list. The media was also invited to the eight community forums open house meetings that were held.

Public Meetings/Review Opportunities – The public was afforded many opportunities to have input into the planning process. As mentioned previously, five community forums were held to engage the public. Consistent with the new goals and objectives of the Public Participation Plan, four of the meetings were held in documented Environmental Justice areas and three of the meetings were held at locations on ITP Transit routes. Also, meetings that introduced transportation deficiencies and air quality conformity information were held later in the plan development.

Staff Outreach - Throughout the development of the plan, staff has offered to present information regarding the plan to various business groups and civic organizations. An exhaustive list of agencies that staff had interaction with through presentations or meetings is provided in Appendix A of this document.

Finally, GVMC staff has attempted to respond to every public comment that was received throughout this transportation plan development process. A complete list of all comments/questions received as well as how staff responded to those comments is provided in Appendix A of the document. Additionally, a complete review of all public involvement process and materials used specifically for this Plan development are provided in Appendix A.

TRANSPORTATION LONG RANGE PLAN GOALS AND OBJECTIVES

The Goals and Objectives that follow have been developed and approved by GVMC and are intended to apply not only to the Long-Range Transportation Plan (LRTP), but are meant to guide the entire regional transportation planning process. For this reason, the Goals and Objectives are more specific than the final LRTP conclusions can support. However, this specificity will become important during subsequent studies which will be completed after the LRTP is adopted. It may appear that some of the Goals and Objectives compete or conflict with each other. This occurs because the list that is presented below is comprehensive in nature and is designed to accommodate several different types of situations. When applying these Goals and Objectives to any effort, decision-makers will need to make trade-offs between different Goals and different Objectives. The Goals and Objectives are not ranked or listed in order of importance.

Applicable policy statements related to the goals and objectives are listed in Appendix C of this document. The policy statements are intended to provide the structure and guidelines for transportation planning in the area, in addition, the policy statements improve the overall transportation planning practices currently in use in the area. These goals, objectives, and policies will help guide the implementation of the 2035 Long-Range Transportation Plan.

Goal One: Safety, Security and Efficiency

The transportation system should maximize the safety and security of all its patrons and should be configured and utilized in the most efficient manner possible.

- Objective 1a: The transportation system should minimize traffic crashes.
- Objective 1b: Standard traffic control devices should be used to increase efficiency and safety.
- Objective 1c: The transportation system should operate to be multi-modal in character and provide a seamless interface between modes. Conflicts between the various modes shall be minimized and security among all modes should be maximized.
- Objective 1d: The transportation system should encourage the multiple and safe use of transportation rights-of-way by different modes, including non-motorized transportation.
- Objective 1e: The design, construction, and operation of the transportation system should be in accordance with accepted safety and security standards.
- Objective 1f: The transportation system should be supportive and adaptive to Intelligent Transportation System (ITS) concepts.
- Objective 1g: Transportation projects which reduce commuting distances and time spent traveling should be promoted.
- Objective 1h: Vehicle occupancy increases for all motorized modes will be encouraged.

Goal Two: Accessibility and Mobility

The transportation system should be accessible to all users and provide appropriate mobility to and from locations within the Grand Rapids Metropolitan Study Area.

- Objective 2a: Techniques aimed at encouraging transit and other multiple-occupant vehicle use and spreading travel demand to non-critical times of the day should be actively pursued and promoted.
- Objective 2b: Travel Demand Management practices will be utilized to manage future traffic growth and mitigate congestion.
- Objective 2c: The transportation system should provide continuous service across large portions of the region and needed capacity while providing access to major land uses.
- Objective 2d: The transportation system should be designed to operate at the highest level-of-service which can reasonably be provided.
- Objective 2e: The transportation system should minimize transportation barriers which disadvantage mobility-limited persons, senior citizens, and persons who do not have access automobiles or choose not to use them.
- Objective 2f: The transportation system will be accessible for both people and goods as freight operations and facilities will be encouraged while maintaining the overall integrity of the transportation system.

Goal Three: Environmental Impacts

The transportation system should maintain and improve the quality of the environment.

- Objective 3a: Air, noise, and water pollutant emissions and concentrations should be minimized.
- Objective 3b: The transportation system should minimize the energy resources consumed for transportation.
- Objective 3c: The use of alternative fuels by all transportation modes should be encouraged.
- Objective 3d: Transportation projects should minimize disruption to the natural and built environment.
- Objective 3e: The transportation system and providers should encourage the use of public transportation and ridesharing.

Goal Four: Economic and Financial Considerations

The transportation plan should reflect the ability to finance such a system, to best allocate resources, and to remain an economic asset to the region.

- Objective 4a: Transportation improvements should be cost-effective and should maximize the long-term cost/benefits by considering the overall life cycle costs.
- Objective 4b: Transportation improvements, for all modes, should minimize capital and operating costs.
- Objective 4c: The scale and character of transportation improvements should be consistent with the ability to finance such improvements.
- Objective 4d: Transportation system investments should be maximized from all available sources, including the private sector.
- Objective 4e: The transportation system should support the economic viability of West Michigan.
- Objective 4f: Transportation Management Systems developed in cooperation with state and local agencies should be employed to identify and assess the transportation system.
- Objective 4g: The existing transportation infrastructure system should be preserved and protected wherever feasible.

Goal Five: Community Impact and Planning

The transportation system should maximize positive impacts and minimize disruption of existing and anticipated land uses within the Grand Rapids Metropolitan Study Area. Transportation planning should be comprehensive, cooperative, and coordinated with other planning activities and agencies.

- Objective 5a: Environmental justice shall be fostered through the maintenance of a planning process that does not unfairly affect any one segment of our community regardless of race, color, national origin, age, sex, disability, religion or income.
- Objective 5b: The transportation system should minimize disruption of existing neighborhoods, households, prime farmlands, and open spaces.
- Objective 5c: Improvements to the transportation system should minimize negative effects on commercial and industrial facilities as well as historical sites and recreational, cultural, religious and educational activities.
- Objective 5d: The transportation system should minimize the disruption and maximize the preservation and enhancement of the aesthetics of transportation corridors.
- Objective 5e: The development of transportation services should be consistent with adopted community land use plans, water quality management plans, housing plans, and recreation/open space plans.
- Objective 5f: Wherever warranted, the development and expansion of existing and new mass transit options should be encouraged.
- Objective 5g: Local land use and master planning should be coordinated with the preservation of current and future right-of-way and transportation system improvements including land uses adjacent to fixed transportation facilities.

Objective 5h: The benefit of reducing commuting distances should be encouraged and reflected in local land use plans.

Objective 5i: Existing and recently abandoned rail corridors should be evaluated for their potential use as multi-use transportation corridors.

Policy statements and MPO operating procedures related to these goals and objectives are found in Appendix C of this document.

CORE POLICY AREAS OF THE 2035 LONG RANGE TRANSPORTATION PLAN

The function of the core policy areas section of the Long Range Transportation Plan was to identify and highlight the areas that have the most impact on the transportation system in the Grand Rapids metropolitan area. These core areas were originally developed in the 2030 Long Range Transportation Plan and have been adjusted to reflect new and/or additional emphasis that comes with SAFETEA-LU.

- Mobility
- Accessibility
- Reliability/Safety
- Efficiency
- Livability
- Sustainability
- Equity

MOBILITY - IMPROVE THE MOBILITY OF PEOPLE AND FREIGHT

- Tailor transportation modal improvements to reflect supporting land uses in major travel corridors.
- Develop a regionally significant transportation network and make it the highest priority for regional transportation funding.
- Minimize drive alone travel by making it fast, convenient, and safe to carpool, vanpool, ride transit walk, and bike.

ACCESSIBILITY - IMPROVE ACCESS TO MAJOR EMPLOYMENT AND OTHER REGIONAL ACTIVITY CENTERS

- Achieve higher transit mode share during peak and off-peak periods, with competitive transit travel times to major job centers.
- Encourage better walk and bicycle access within our local communities.

RELIABILITY/SAFETY - IMPROVE THE RELIABILITY AND SAFETY OF THE TRANSPORTATION SYSTEM

- Make the transportation system as safe as possible for all users.
- Apply new Intelligent Transportation Systems (ITS) technologies and management strategies to make travel services more reliable, convenient, and safe, and to reduce non-recurrent congestion.

EFFICIENCY - MAXIMIZE THE EFFICIENCY OF THE EXISTING AND FUTURE TRANSPORTATION SYSTEM

- Measure the performance of the regional transportation system on a regular basis and manage its efficiency.
- Develop cost-effective voluntary incentive programs for major employers, schools, and residential areas with a goal of reducing peak period travel demand by the year 2035.

LIVABILITY - PROMOTE LIVABLE COMMUNITIES

- Focus transit improvements in areas with compatible land uses that support an efficient transit system.
- Focus non-motorized improvements in areas that link to other local or regional non-motorized facilities.
- Continue to bridge the gap between land use planning and transportation planning.

SUSTAINABILITY - ELIMINATE OR MINIMIZE EFFECTS ON THE ENVIRONMENT

- Focus roadway, transit, and non-motorized improvements in urban/suburban areas, away from the region's rural areas.
- Evaluate all reasonable land use development alternatives and transportation improvement strategies before pursuing major expansion to roadway or fixed guideway capacity.

EQUITY - ENSURE AN EQUITABLE DISTRIBUTION OF THE BENEFITS AMONG VARIOUS DEMOGRAPHIC AND USER GROUPS

- Provide regional equitable levels of transportation services for low-income, minority, and elderly and disabled persons.

ELEMENTS OF THE LONG RANGE TRANSPORTATION PLAN

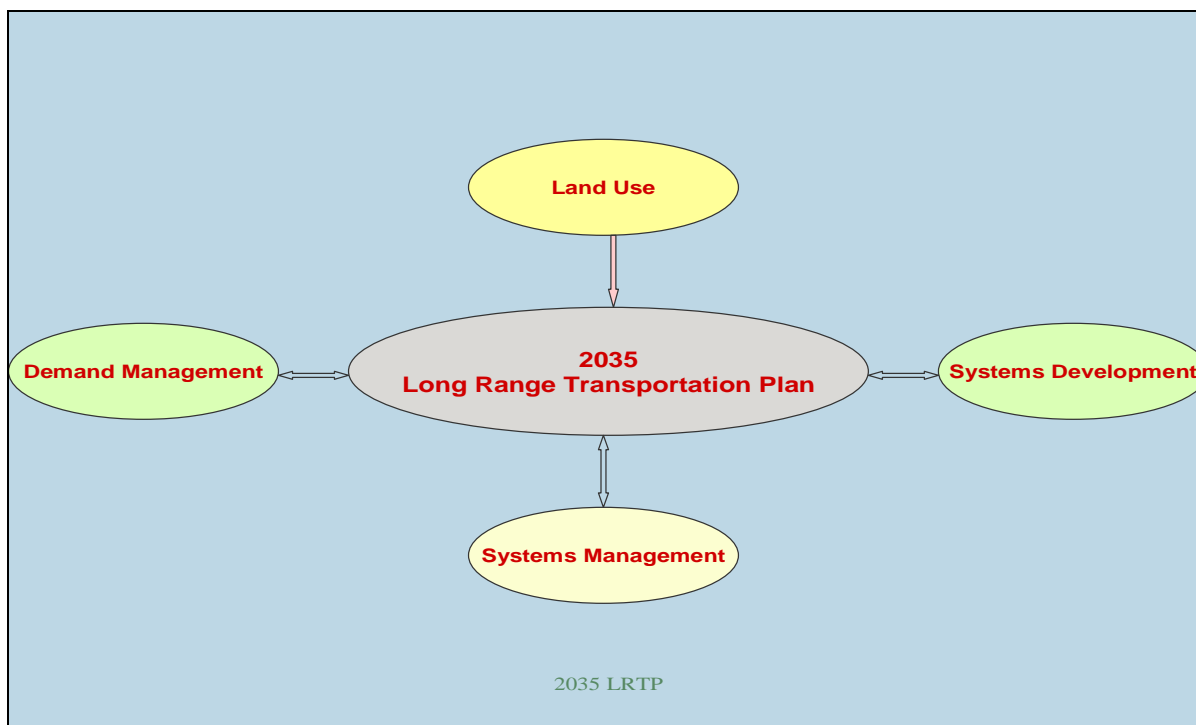


Figure 4 — Elements of the 2035 Long Range Transportation Plan

The Land Use of the area communities feeds directly into the 2035 Long Range Transportation Plan through the development of data and projections of population and employment.

DEMAND MANAGEMENT

Steps to reduce peak period travel or change when and how people travel will become increasingly important in the future. Demand management focuses on encouraging alternatives to driving alone and minimizing demand on the transportation system during peak periods. The approach to manage demand is not at all new, in fact, it has been used throughout the nation since the 1960's.

- Rideshare
- Regional vanpool program
- Regional bike locker program
- Provision of start-up funds to employers to provide their employees with financial incentives to try new ways to commute.
- New emphasis on encouraging teleworking and flexible work hours to help manage peak demand.

SYSTEMS MANAGEMENT

Billions of dollars have already been invested in roads and transit in the Grand Rapids urbanized area. We need to maximize the return on this significant investment through optimal management and more efficient operation of the existing networks. Systems Management helps get the most efficiency out of

our existing system, makes travel services more reliable, convenient, and safe, and reduces traffic delays caused by accidents and incidents.

- New Technologies
- Freeway Management
- Freeway Service Patrol
- High Occupancy Vehicle (HOV) Lanes
- Arterial Management
- Transit Management
- Transportation Information/Performance Monitoring
- Pavement Management System
- Congestion Management System
- Safety Management System
- Asset Management System

SYSTEMS DEVELOPMENT

Developing and maintaining existing systems help to make the system more efficient and plan for all aspects of the transportation system.

- System Efficiency
- Intelligent Transportation System
- Integrating Transit and Roadways
- Continuous bicycle/pedestrian network
- Freight Movement
- Maintenance, Preservation, and Pavement Condition Index
- Environmental Protection
- Environmental Justice
- Neighborhood Preservation
- Safety
- Intermodal Connectivity
- Level of Service (LOS) Standards
- Roadway Improvement Projects Prioritization Criteria
- Access Management
- Land Use Compatibility
- Financial Constraints

Implementing the elements of the 2035 Long Range Transportation Plan requires close cooperation and coordination among all transportation agencies, local jurisdictions, and the traveling public.

TRANSPORTATION VISION/LOCAL INPUT

The purpose of this section is to highlight the transportation vision for the area and share input that each individual MPO agency has provided us in dealing with the transportation issues of the region. Much of the input received ties into the collective transportation vision for the future of the Grand Rapids Metropolitan Area.

The summaries from the MPO agency meetings and the comments of each agency are located in Appendix E of this document. Staff has condensed the meetings that were held with each agency or unit of government into a few highlights that were discussed in each meeting.

This process served to be a great learning experience for staff in helping identify more information about our members, their agencies, and the specific issues each deals with. It also served as a “one-stop shopping” arrangement for the local units and agencies as they were provided with an opportunity to learn more about the long-range transportation process and the services that the Grand Valley Metropolitan Council provides in transportation and land use. It also provided an opportunity for agencies to learn more about the services and programs that the Michigan Department of Transportation (MDOT) and the Interurban Transit Partnership (ITP-The Rapid) provide as well.

The overall vision is coupled with goals, objectives, and policies to determine how resources for the area should be invested for transportation. The following Figure shows the relationship of the vision to the overall planning process.

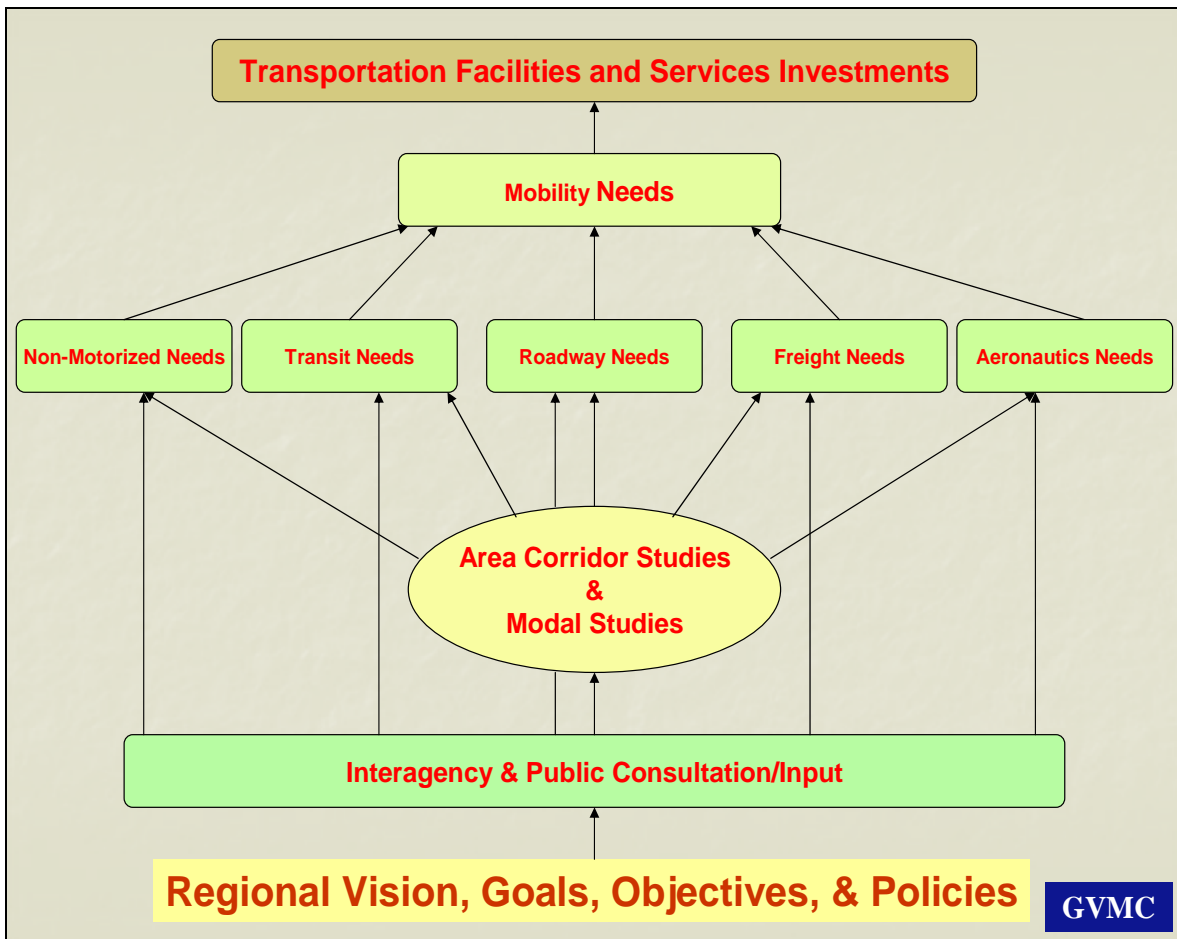


Figure 5 — How the Vision Fits within the Planning Process

The key relationship of the vision to the planning process is the identification and assessment of need. While there are many different types of transportation needs, ultimately, all needs go back to the most important ingredient—Mobility.

The 2035 Long Range Transportation Plan mobility vision will guide the development of a responsive and flexible transportation system that focuses on the needs of moving people and goods, not limited to just single occupancy vehicles.

The vision is to provide a range of choices for affordable, convenient, fast, and safe travel choices using highways, transit, air, rail, and non-motorized facilities. It demonstrates the region's commitment to preserve its existing transportation resources and infrastructure. The "fix it first" mentality applies here to manage the regional transportation system efficiently.

In summarizing the MPO meetings and the feedback received on the vision, a few items are worth noting. The overwhelming consensus from our MPO agencies is that the Grand Rapids Metropolitan Area is growing at a steady pace, although perhaps not as steady as when the 2030 Long Range Plan was developed back in 2003. Despite the downturn recently in the economy, most agencies felt that the rates of growth experienced in the early part of the decade will come back and West Michigan will continue to grow steadily through the year 2035 and beyond. MPO members, especially those members that are cities, townships, or villages, are putting more emphasis on the relationship between transportation and land use and the focus on efficiency in resources. Judging by the discussions with each member, and the input staff received from those meetings that were conducted in 2006, these topics will continue to be front and center in area government discussions.

Meeting with each MPO agency for this process was seen by GVMC staff as important for a number of reasons. First, it was felt that a better understanding of issues within each agency's jurisdiction would help frame long range planning issues more effectively. Secondly, learning about these issues would allow staff to be better informed of dynamics happening within the urban area. Third, staff wanted to understand the direction each agency sees itself taking in the future, paying special attention to any "vision" which may emerge.

The other main goal of this process is to have a starting point for historical reference of issues/projects for each MPO member. Future planning efforts can compare the issues listed here to new ones that come up over time. Staff can also track how issues raised here have been addressed by the Transportation Improvement Program (TIP) or the Long Range Transportation Plan.

SAFETEA-LU 8 FACTORS

The passage of SAFETEA-LU requires that certain factors must be considered as part of the regional transportation planning process for all metropolitan areas. In general, these factors address social, environmental and land use issues as related to the transportation system. The factors have been considered and are reflected in the Grand Valley Metropolitan Council Year 2035 Long-Range Transportation Plan as well as other transportation documents and activities in the comprehensive, continuing and coordinated transportation process of the Grand Rapids area. Each of the planning factors are listed below followed by the applicable Goals, Objectives and Policies that address each factor. This list is developed to specifically show how the Goals, Objectives, and Policies of the Grand Rapids 2035 Long Range Transportation Plan are consistent with the planning factors put forth by SAFETEA-LU.

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

SAFETEA-LU encourages the development of transportation systems that allow areas to be economically viable and competitive in the global marketplace.

Goal Four: Economic and Financial Considerations - The transportation plan should reflect the ability to finance such a system to best allocate resources, and to remain an economic asset to the region.

Objective 4a: Transportation improvements should be cost-effective and should maximize the long-term cost/benefits by considering the overall life cycle costs.

Objective 4b: Transportation improvements, for all modes, should minimize capital and operating costs.

Objective 4c: The scale and character of transportation improvements should be consistent with the ability to finance such improvements.

Objective 4d: Transportation system investments should be maximized from all available sources including the private sector.

Objective 4e: The transportation system should support the economic viability of West Michigan.

Goal One: Safety and Efficiency - The transportation system should maximize the safety and security of all its patrons and should be configured and utilized in the most efficient manner possible.

2. **Increase the safety of the transportation system for motorized and non-motorized users.**

The transportation system shall be safe for all users both motorized and non-motorized.

Goal One: Safety, Security and Efficiency - The transportation system should maximize the safety and security of all its patrons and should be configured and utilized in the most efficient manner possible.

Objective 1a: The transportation system should minimize traffic crashes.

Objective 1b: Standard traffic control devices should be used to increase efficiency and safety.

Objective 1c: The design, construction, and operation of the transportation system should be in accordance with accepted safety and security standards.

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

The transportation system shall be secure for all users both motorized and non-motorized.

Goal One: Safety, Security and Efficiency - The transportation system should maximize the safety and security of all its patrons and should be configured and utilized in the most efficient manner possible.

Objective 1c: The transportation system should operate to be multi-modal in character and provide a seamless interface between modes. Conflicts between the various modes shall be minimized and security among all modes should be maximized.

Objective 1e: The design, construction, and operation of the transportation system should be in accordance with accepted safety and security standards.

4. Increase the accessibility and mobility options available to people and for freight.

The need to efficiently and effectively move people and goods is paramount to a functional transportation system.

Goal Two: Accessibility and Mobility - The transportation system should be accessible to all users and provide appropriate mobility to and from locations within the Grand Rapids Metropolitan Study Area.

Objective 2c: The transportation system should provide continuous service across large portions of the region and needed capacity while providing access to land area.

Objective 2d: The transportation system should be designed to operate at the highest level-of-service which can reasonably be provided.

Objective 2e: The transportation system should minimize transportation barriers that disadvantage mobility-limited persons, senior citizens, and persons who do not have access to automobiles or choose not to use them.

Objective 2f: The transportation system will be accessible for people and goods as freight operations and facilities will be encouraged while maintaining the overall integrity of the transportation system.

5. Protect and enhance the environment, promote energy conservation, and improve the quality of life.

The likely effect of transportation policy decisions on land use development and the consistency of transportation plans and programs are stressed in TEA-21. Further, TEA-21 encourages the analysis of all applicable area short and long-term land use and development plans.

Goal Six: Environmental Impacts - The transportation system should maintain and improve the quality of the environment.

Objective 3a: Air, noise, and water pollutant emissions and concentrations should be minimized.

Objective 3b: The transportation system should minimize the energy resources consumed for transportation.

Objective 3c: The use of alternative fuels by all transportation modes should be encouraged.

Objective 3d: Transportation projects should minimize disruption to the natural and built environment.

Objective 3e: The transportation system and providers should encourage the use of public transportation and ridesharing.

6. Enhance the integration and connectivity of the transportation system, across and between modes for people and for freight

TEA-21 promotes integrated multi-modal planning for effective transportation systems.

Objective 1c: The transportation system should operate to be multi-modal in character and provide a seamless interface between modes. Conflicts between the various modes shall be minimized.

Objective 1d: The transportation system should encourage the multiple and safe use of transportation rights-of-way by different modes, including non-motorized transportation.

Objective 2e: The transportation system should minimize transportation barriers which disadvantage mobility-limited persons, senior citizens, and persons who do not have available automobiles.

Objective 2f: The transportation system will be accessible for both people and goods as freight operations and facilities will be encouraged while maintaining the overall integrity of the transportation system.

7. **Promote efficient system management and operation**

The transportation network will be managed and operated in an efficient manner.

Goal Five: Efficiency - The transportation system should be configured and utilized in the most efficient manner possible.

Objective 1b: Standard control devices should be used to increase efficiency and safety.

Objective 1c: The transportation system should operate to be multi-modal in character and provide a seamless interface between modes. Conflicts between the various modes shall be minimized.

8. **Emphasize the preservation of the existing transportation system**

Priority will be placed on preservation of the existing transportation system over transportation system expansion.

Objective 4g: The existing transportation infrastructure system should be preserved and protected wherever feasible.

Objective 5d: The transportation system should minimize the disruption and maximize the preservation and enhancement of the aesthetics of transportation corridors.

SOCIO-ECONOMIC DATA FORECAST

One of the most important elements in the development of a long range transportation plan is an assessment of population and employment data for the region. Socio-Economic (SE) data forecasts are essentially an inventory of what currently exists in terms of population and employment and what will exist for the Year 2030. Typically, staff will break down the area into smaller geographic areas called Traffic Analysis Zones (TAZ's). The boundary of a TAZ is usually a major street or highway, body of water, or any other major physical feature, there are approximately 800 of them within the metro area. The TAZs allow for the transportation network to be divided up into smaller pieces having similar transportation characteristics. This allows for more effective analysis of travel patterns and a better simulation of future transportation activities.

GVMC transportation staff worked closely with the GVMC land use planning staff, Transportation Technical and Policy Committees, and every local jurisdiction in the MPO area on the development of the SE data. Staff, using current and future land use plans, information provided by jurisdictions in the Long Range Plan meetings, and past population trends as a guide, developed a draft data set that included the increase in the number of households and employees figures for the year 2035. The projections are done at a Traffic Analysis Zone level. Even though the SE data projects future households, a simple conversion of persons per household can yield a population projection for future years. The result of the SE data population projections by jurisdiction are used to develop a 2035 population projection which is shown on the next page with 1990 and 2000 Census figures and the results from this effort for the last Plan done for the Year 2030 for comparison purposes. Once the initial SE data report was prepared, it was forwarded to the Technical and Policy Committees for review and revision. Each jurisdiction was given the opportunity to adjust the projections based on their estimates of growth. Staff incorporated all comments and compared the final figures to the Year 2030 control number levels for population and employment that were provided for the metropolitan area by the University of Michigan. The 2030 information provided the University of Michigan was prorated to 2035 to fit the same horizon years being used for the development of this Plan.

The development of this data works to drive the GVMC Transportation Model, which is used to estimate traffic volumes for future years. A brief explanation of the transportation modeling process follows later in the document.

Grand Valley Metropolitan Council MPO Jurisdictions
 Census Population and Estimates 1990-2035

		CENSUS 1990	CENSUS 2000	PROJECTED 2030	PROJECTED 2035
1	ADA TOWNSHIP	7,578	9,882	16,571	17,267
2	ALGOMA TOWNSHIP	5,496	7,596	15,309	17,211
3	ALLENDALE TOWNSHIP	8,022	13,042	29,656	32,629
4	ALPINE TOWNSHIP	9,863	13,976	29,225	30,084
5	BOWNE TOWNSHIP	1,907	2,743	5,137	5,285
6	BYRON TOWNSHIP	13,235	17,553	35,763	36,960
7	CALEDONIA TOWNSHIP	6,254	8,964	17,257	18,695
8	CANNON TOWNSHIP	7,928	12,075	21,685	22,237
9	CASCADE TOWNSHIP	12,869	15,107	21,646	22,933
10	CEDAR SPRINGS	2,600	3,112	3,588	4,094
11	COURTLAND TOWNSHIP	3,950	5,817	10,840	11,874
12	EAST GRAND RAPIDS	10,807	10,764	10,435	10,554
13	GAINES TOWNSHIP	14,533	20,112	35,477	39,270
14	GEORGETOWN TOWNSHIP	32,672	41,658	55,407	57,680
15	GRAND RAPIDS	189,126	197,800	211,071	214,561
16	GRAND RAPIDS TOWNSHIP	10,760	14,056	19,099	20,137
17	GRANDVILLE	15,624	16,263	18,266	18,284
18	GRATTAN TOWNSHIP	2,876	3,551	5,213	5,308
19	HUDSONVILLE	6,170	7,160	7,920	8,355
20	JAMESTOWN TOWNSHIP	4,059	5,062	9,481	10,595
21	KENTWOOD	37,826	45,255	57,746	58,162
22	LOWELL	3,983	4,013	4,472	4,544
23	LOWELL TOWNSHIP	4,774	5,219	10,055	10,760
24	NELSON TOWNSHIP	3,406	4,192	8,691	9,025
25	OAKFIELD TOWNSHIP	3,842	5,058	8,138	8,597
26	PLAINFIELD TOWNSHIP	24,946	30,195	46,257	52,570
27	ROCKFORD	3,750	4,626	5,966	6,339
28	SOLON TOWNSHIP	3,648	4,662	9,482	10,224
29	SPARTA TOWNSHIP	8,447	8,938	15,170	16,549
30	SPENCER TOWNSHIP	3,184	3,681	4,894	5,024
31	TALLMADGE TOWNSHIP	6,293	6,881	8,771	8,979
32	TYRONE TOWNSHIP	3,757	4,304	5,514	5,607
33	VERGENNES TOWNSHIP	2,492	3,611	7,101	7,445
34	WALKER	17,279	21,842	34,322	37,691
35	WYOMING	63,891	69,368	77,685	78,196
	TOTAL	557,847	648,138	883,308	923,727

Source: 1990 and 2000 U.S. Census of Population, 2030 and 2035 GVMC Socio-Economic Data projections

Figure 6 — GVMC MPO Area Population and Estimates

TRANSPORTATION MODELING PROCESS

Once all of the socio-economic (population and employment) data has been gathered and the most recent traffic counts are compiled, a transportation model is then used to project where roadway deficiencies are likely to occur by the year 2035. Information on current highway geometrics is gathered and included in the model. Information such as current number of lanes, capacity, roadway length, traffic count and speed are included in modeling calculations.

The results of the Grand Rapids regional model represent calibration to the year 2000. The last full model calibration was completed in 1999. This effort represents the migration of the travel demand modeling for the Grand Rapids urban area from the TRANPLAN platform which had been in use since the early 1990's to the TransCAD platform. TransCAD was chosen as the platform of choice by a statewide committee. This calibration effort involved not only the development of a completely new model there was a painstaking effort to duplicate the transportation network to an accuracy that had not been attained in older travel demand models to ensure that transportation planning decisions are made using the most accurate technology available.

The GVMC TransCAD model network is calibrated to a base year of 2000. The analysis included in as part of the plan process demonstrates that the GVMC model exceeds the calibration criteria established by the Federal Highway Administration (FHWA) and the Michigan Department of Transportation (MDOT) and the much stricter standards traditionally used by Grand Rapids MPO staff.

Once all of the deficiencies have been identified through the modeling process, an air quality analysis is completed to confirm that the activities proposed in the LRTP are not detrimental to air quality conditions in the metropolitan area. A more in depth explanation of the process used to make this determination is contained in the chapter on Air Quality Conformity.

GVMC Transportation Staff maintains a stand-alone document called the 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. The figure on the following page summarizes the Transportation Modeling Process undertaken in the Grand Rapids metropolitan area.

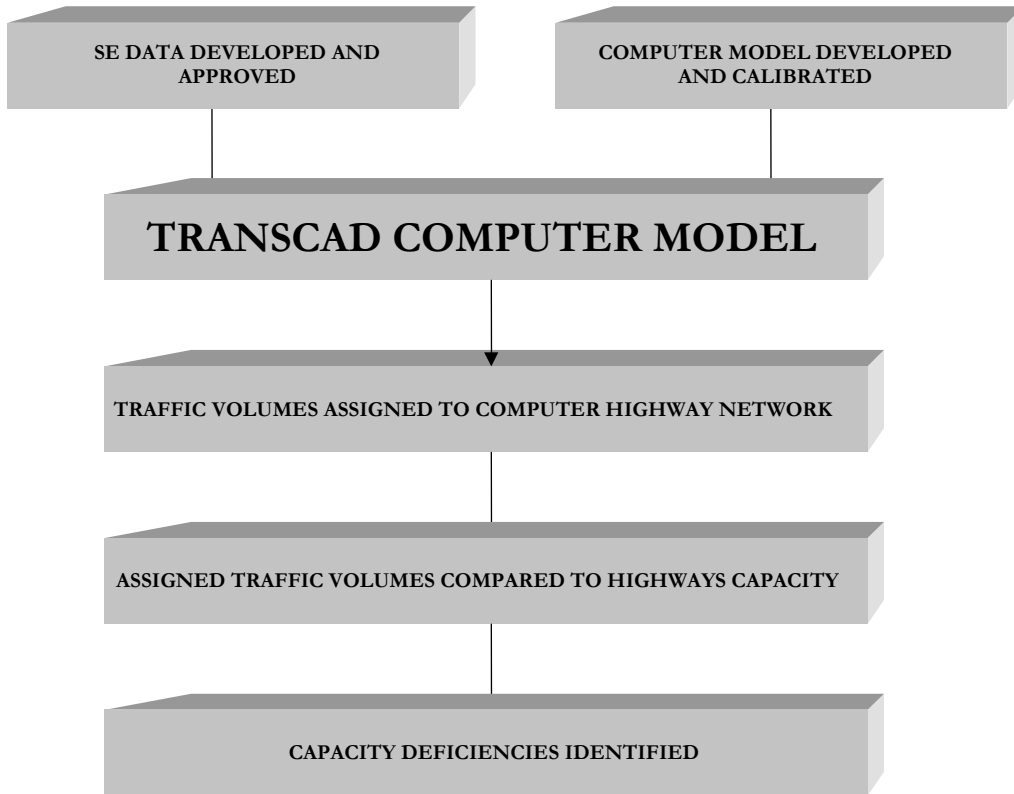


Figure 7 — Transportation Modeling Process

CONGESTION MANAGEMENT PROCESS

The passage of new legislation in the form of SAFETEA-LU has changed the way congestion is managed for urbanized areas. The planning process in Transportation Management Areas (TMAs) now must include a Congestion Management Process (CMP) rather than a Congestion Management System. The name change does not impact the core requirements nor diminish the importance of the congestion management process.

The change to a “process” comes about as a way to better incorporate congestion management into the more holistic planning process. In some cases, the congestion management function may have been carried out separate from the typical MPO planning process and separate from transportation system operational and management strategies. SAFETEA-LU strives to make the CMP an integral part of developing a long range transportation plan and a transportation improvement program.

In response to the changes in congestion management, GVMC has a Congestion Management Process in place which integrates the current traffic count database, the TransCAD model which includes current capacities, and future projections into one management system designed to identify congested facilities throughout the study area. Once congested facilities are identified, alternatives will be developed to alleviate the congested situation. Currently, GVMC maintains a database of over 4,000 counts at various locations throughout the area. A database containing capacities for every roadway facility is contained within the TransCAD model and the RIMS database. Annually, GVMC works with road agency to obtain 500-600 locations throughout the area. In addition, approach counts are taken at intersections, and vehicle occupancy rates are determined. Other information such as headways, peak hour factor, and commercial percentage, are also being gathered.

Federal transportation legislation requires Transportation Management Areas to develop and implement a Congestion Management Process (CMP) as part of the metropolitan transportation planning process (23 CFR 500). 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 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.

In Transportation Management Areas that are in non-attainment of 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 (SOV's) unless the project results from a CMP. For the Grand Rapids area, a significant increase in carrying capacity for SOV's is defined as a project that adds one or more through-travel lanes for one half mile or more on a roadway classified as a Collector or higher on the Federal functional class map for the area.

In the early 1990's MPO staff developed a CMP to meet the federal regulations and serve the transportation planning needs of the urban area. The CMP includes an ongoing method to provide information on the performance of the transportation system and on alternative strategies to alleviate congestion and enhance mobility. The CMP 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 will be selected as the preferred alternative.

Grand Valley Metropolitan Council (GVMC) as the designated Metropolitan Planning

Organization (MPO) for the Grand Rapids urban area serves as the central focus for a wide variety of transportation planning activities that encompass all modes of transportation. GVMC coordinates and provides technical support to many regional planning studies. GVMC is also an important source of transportation data used in various traffic engineering studies and roadway design projects undertaken by its member jurisdictions and private consultant organizations. Consequently, GVMC needs accurate and objective data in order to maintain both the validity and the credibility of the decisions that may be based on these studies.

CMP COMPONENTS

The GVMC Congestion Management Process consists of 8 major components. These components include:

- CMP Network Definition
- Performance Measures
- System Monitoring/Data Collection
- Congestion Management Strategies
- System Evaluation
- Integration into MPO planning process
- Regionally Significant Projects not in CMP
- Review and Update

CMP NETWORK

For the purposes of data collection and system monitoring, many MPO's identify a subset of the regional street and highway network as their "CMP Network". GVMC made the decision many years ago to include the entire functionally classified street system in the CMP. The justification for including all roadway facilities in the system is simple. The area was and continues to grow at such a rapid rate that a low volume collector today could become a high volume arterial serving major residential and commercial areas in a short period of time. In some cases, roadways that are not currently functionally classified have also been included in the CMP due to the potential these facilities exhibit. Currently, the CMP for the Grand Rapids Area includes in excess of 1,450 center lane miles.

PERFORMANCE MEASURES

The only performance measure currently used by GVMC is Level of Service (LOS) based upon observed and projected Volume to Capacity (V/C) ratios. As its name implies, the volume-to-capacity ratio is simply the demand for travel on a roadway divided by the capacity of the roadway. Observed daily traffic volumes and characteristics of the CMP transportation roadway segments assembled by GVMC are used to calculate the volume-to-capacity ratio. Level of service grades corresponding to volume-to-capacity ratios are shown in Table 1. In order to attain GVMC's goal of level of service D, a roadway would have to have a volume-to-capacity ratio of 1.0 or less.

Roadway Volume-to-Capacity Ratios and Corresponding Level of Service

Roadway Volume-to-Capacity Ratio Roadway Level of Service Grade

V/C ratio	LOS
Less than 0.75	LOS A up to C
0.76 to 1.00	LOS D
1.01 to 1.24	LOS E
1.25 or above	LOS F

GVMC established a level of service goal of “D” (a volume to capacity ratio of 1.00 or less) for regionally significant roadway facilities as part of its Long-Range Transportation Plan (LRP) process. The LRP level of service guidance is maintained for all of the roadways contained in the CMP transportation network.

SYSTEM MONITORING AND DATA COLLECTION

The GVMC CMP currently incorporates a vast amount of data collection and system monitoring activities into the CMP Network. These activities include:

- Collection and analysis of observed traffic volumes from state and local agencies and private consultants, under contract with GVMC;
- Maintenance of a system wide database that includes at a minimum 24 hour counts for over 500 stations annually. This database encompasses approximately 90% of the CMS network. Counts used for the CMP are no older than 4 years.
- Maintenance of historical traffic volume data.
- Incorporation of all CMP data into GVMC Regional Infrastructure Management System (RIMS). RIMS is a GIS based data management system.
- Travel demand forecasting through the regional travel model, maintained by GVMC staff.

CONGESTION MANAGEMENT STRATEGIES

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

The intent of the CMP “cafeteria plan” is to provide a reference for the development of alternative strategies for consideration in Corridor Studies and special studies, which may be conducted within the context of the Grand Rapids metropolitan transportation planning process.

GVMC CMP strategies include:

- A. Highway Projects;
- B. Transit Projects;
- C. Intelligent Transportation System (ITS) and Transportation System Management (TSM) Strategies;
- D. Transportation Demand Management (TDM) Strategies;
- E. Land Development Strategies
- F. Bicycle and Pedestrian Projects; and
- G. Access Management Strategies;

A. Highway Projects

The Long Range Transportation Plan for the area presents the potential highway infrastructure projects that may be applicable for the Grand Rapids area. The regional travel model and RIMS are the primary analysis tools to assess the transportation impacts.

B. Transit Projects

Transit services and infrastructure projects have traditionally been implemented in regions to provide an alternative to automobile travel potentially reducing peak-period congestion and improving mobility and accessibility for commuters. The 2020 Mobile Metro Plan presents the transit projects that may be applicable for the area. These projects tend to reduce system wide VMT in relatively small increments

but do improve corridor and system wide accessibility, improve roadway travel times, and decrease congestion on the roadway system. The 2020 Mobile Metro Plan is the Long Range Plan for the regional transit provider in the Grand Rapids area, the Interurban Transit Partnership (ITP-The Rapid). The contents of the 2020 Mobile Metro Plan are discussed in more detail in the Transit/Transportation Demand Management chapter.

C. Intelligent Transportation System (ITS) and Transportation System Management (TSM)

Intelligent Transportation System (ITS) and Transportation System Management (TSM) strategies have traditionally focused on improving the operation of the transportation system without major capital investment and cost. While ITS strategies may be costly compared to more traditional TSM strategies, their relative congestion reduction impacts can be significant. ITS and TSM strategies that may be applicable for the Grand Rapids area are discussed in the ITS section of this document.

D. TDM Measures

Transportation demand management (TDM) strategies are used to reduce travel during the peak, commute period. They are also used to help the area meet air quality conformity standards, and are intended to provide ways to provide congestion relief/mobility improvements without high cost infrastructure projects. TDM strategies can potentially build upon current initiatives being implemented in the region such as the local ride share program, funded through the MPO.

E. Land Development Strategies

Land development strategies have been used in some areas to manage transportation demand on the system, and to help agencies meet air quality conformity standards. Land development strategies can include limits on the amount and location of development until certain service standards are met, or policies that encourage development patterns better served by public transportation and non-motorized modes. The Grand Valley Metropolitan Council Blueprint strives to work with local jurisdictions to plan for land development strategies that strike an appropriate balance between land use and transportation.

F. Bicycle and Pedestrian Projects

Non-motorized modes of transportation, such as biking and walking, are often overlooked as alternatives for alleviating congestion. Investments in these modes can increase safety and mobility in a cost-efficient manner, while providing a zero-emission alternative to motorized modes. The strategies listed can be implemented in the area with relatively little cost, but tend to have local rather than system wide impacts. The effectiveness of an investment in non-motorized travel depends heavily on coordination with local land use policies and connections with other modes, such as transit, for longer distance travel. Safety and aesthetics should also be emphasized in the design of bicycle and pedestrian facilities in order to increase their attractiveness.

G. Access Management

Access management is a broad concept that can include everything from curb cut restrictions on local arterials to minimum interchange spacing on freeways. Restricting turning movements on local arterials can reduce accidents and prevent turning vehicles from impeding traffic flow. Similarly, eliminating

merge points and weaving sections at freeway interchanges increases the capacity of the facility. Access management strategies can be used in either the modification or original design of a facility.

SYSTEM EVALUATION

The implementation of CMP strategies are tracked through the development of the TIP. Evaluation of implemented CMP strategies are conducted as “before and after” studies for individual projects, through modeling exercises or through spot reviews of the benefits and costs of project types, as appropriate. At a minimum the network for the regional travel demand forecasting model will be updated every three years, in advance of each long range plan update, to reflect implemented CMP strategies involving highway or increased transit capacity into the existing network.

INTEGRATION INTO MPO PLANNING PROCESS

The GVMC CMP is only one component of the overall metropolitan planning process. It is integrated with the Long Range Transportation Plan (LRP), Transportation Improvement Program (TIP) and Corridor Studies/Special Studies through its data and analysis functions. These relationships are summarized below.

Relationship to the LRP

The GVMC CMP is related to the development of the regional Long-Range Transportation Plan in three ways:

1. The CMP provides system performance information which may be used by GVMC staff to identify corridors or segments for detailed analysis in Corridor or Special Studies, as recommended by the LRP; and
2. The CMP Cafeteria Plan provides alternative congestion management strategies for consideration in items such as Corridor Studies, which ultimately provide recommendations for preferred strategies to be incorporated into the LRP.
3. The CMP provides system performance information for local jurisdictions who sponsor improvement projects. This information may influence their recommended projects for incorporation in the LRP;

Relationship to the TIP

The GVMC CMP is related to the development of the regional Transportation Improvement Program in three ways:

1. The CMP provides system performance information for project sponsors, which may influence their recommended projects for incorporation in the TIP;
2. The CMP provides system performance information for use by GVMC in evaluating projects nominated for inclusion in the TIP; and
3. The CMP provides information about alternative congestion management strategies considered for SOV capacity projects to be advanced using federal funds.

Relationship to Other Special Studies

The GVMC CMP is related to the development of Corridor Studies and Special Studies in two ways:

1. The CMP provides system performance information which may be used by GVMC to identify corridors or segments for detailed analysis in Corridor or Areawide Studies; and
2. The CMP Cafeteria Plan provides alternative congestion management strategies for consideration in items such as Corridor Studies and Special Studies.

RELATIONSHIP TO THE REGIONAL INTELLIGENT TRANSPORTATION SYSTEMS (ITS) ARCHITECTURE

All ITS strategies implemented from the CMP Cafeteria Plan will be consistent with the Regional ITS Architecture. GVMC will ensure that both the Regional ITS Architecture and the CMS Cafeteria Plan are reviewed for consistency and reconciled as necessary when either is updated.

REGIONALLY SIGNIFICANT PROJECTS NOT IN CMP

Occasionally, regionally significant projects on facilities not included on the CMP network are considered for implementation. Due to the fact that all federal aid urban facilities in the study area are included in the GVMC CMP, only new facilities would fall into the category of regionally significant facilities not in the CMP. In these cases CMP cafeteria options are followed as described below:

1. An analysis of alternatives, including TDM and TSM, is conducted in the context of a Major Investment Study, Corridor Study or development of a NEPA Environmental Document to develop the preferred strategy for the project; and
2. The development of alternatives for Corridor Studies, Special Studies or NEPA Document includes a review of the strategies catalogued in the GVMC CMP cafeteria plan; and
3. The documentation of the study describes how the CMP cafeteria plan strategies were addressed in the development of the preferred strategy.

REVIEW AND UPDATE

All elements of the GVMC CMP are reviewed and updated periodically to reflect changes to the region's transportation goals and objectives and transportation systems.

At a minimum:

1. The CMP Network is updated every four years, in advance of each update to the Long-Range Transportation Plan;
2. CMP Network performance is analyzed every four years by GVMC, in advance of each update to the Plan;
3. The regional travel demand forecasting model network is updated every four years, in advance of each Plan update;

4. Observed traffic volumes are incorporated into the CMP database and RIMS as they are made available to GVMC;
5. Policies and procedures governing the CMP are reviewed and revised as necessary to address changes to regional transportation goals and/or federal rules and requirements.

CORRIDORS/SEGMENTS IN THE CMP

A product generated through the CMP in conjunction with the transportation demand model is a list of congested corridors and segments. A corridor or segment must appear on this list to be considered for future capacity related improvements. Each corridor or segment on this list is compared with the congestion management strategies to identify possible alternatives to address the deficiency.

Figure 8 — List of Congested Corridors and Segments by Jurisdiction

	Corridor/Segment	From	To	Jurisdiction
1	Northland Dr	13 Mile Rd	14 Mile Rd	Algoma Twp - KCRC
2	10 Mile Rd	2700' West of Wolven Ave	Childsdale Ave	Algoma Twp - KCRC
3	Northland Dr	M-57 (14 Mile Rd)	15 Mile Rd	Algoma Twp - KCRC
4	10 Mile Rd	Mary Ester Dr	Algoma Ave	Algoma Twp - KCRC
5	10 Mile Rd	Pine Island Dr	Mary Ester Dr	Algoma Twp - KCRC
6	10 Mile Rd	Division Ave	Pine Island Dr	Algoma Twp - KCRC
7	48th Ave	Fillmore St	M-45 (Lake Michigan Dr)	Allendale Twp - OCRC
8	68th Ave	M-45 (Lake Michigan Dr)	Warner St	Allendale Twp - OCRC
9	68th Ave	Warner St	Leonard St	Allendale Twp - OCRC
10	68th Ave	Pierce St	M-45 (Lake Michigan Dr)	Allendale Twp - OCRC
11	68th Ave	Fillmore St	Pierce St	Allendale Twp - OCRC
12	4 Mile Rd	Bristol Ave	Old Orchard Dr	Alpine Twp - KCRC
13	4 Mile Rd	Peach Ridge Ave	Walker Ave	Alpine Twp - KCRC
14	4 Mile Rd	Walker Ave	Bristol Ave	Alpine Twp - KCRC
15	Fruit Ridge Ave	4 Mile Rd	5 Mile Rd	Alpine Twp - KCRC
16	Fruit Ridge Ave	5 Mile Rd	6 Mile Rd	Alpine Twp - KCRC
17	Fruit Ridge Ave	6 Mile Rd	7 Mile Rd	Alpine Twp - KCRC
18	Fruit Ridge Ave	7 Mile Rd	8 Mile Rd	Alpine Twp - KCRC
19	100th St	NB US-131 Ramps	Division Ave	Byron Twp - KCRC
20	68th St	Clyde Park	Burlingame	Byron Twp - KCRC
21	76th St	Burlingame Ave	Clyde Park Ave	Byron Twp - KCRC
22	Patterson Ave	28th St	36th St	Cascade Twp - KCRC
23	Wealthy St	East Grand Rapids CL	Plymouth	City of East Grand Rapids
24	Breton Rd	Lake St	Hall St	City of East Grand Rapids
25	Wealthy St	Division Ave	Lafayette Ave	City of Grand Rapids
26	Fuller St	Franklin St	Wealthy St	City of Grand Rapids
27	Leonard St	Carpenter	Oakleigh Ave	City of Grand Rapids
28	Covell St	Lake Michigan Dr	Leonard St	City of Grand Rapids
29	Lake Michigan Dr	Fulton St Turnoff	Garfield Ave	City of Grand Rapids
30	Division Ave	Cottage Grove	Home	City of Grand Rapids
31	Lyon St	Division Ave	Lafayette	City of Grand Rapids
32	Walker Ave	32' N of CL Leonard St	Grand Rapids north CL	City of Grand Rapids
33	3 Mile Rd	Fuller Ave	Grand Rapids east CL	City of Grand Rapids
34	Knapp St	Plainfield Ave	Diamond Ave	City of Grand Rapids
35	Knapp St	Diamond Ave	Fuller Ave	City of Grand Rapids

36	Breton Ave	28th St	Burton St	City of Grand Rapids
37	College Ave	EB I-196 ramps	WB I-196 ramps	City of Grand Rapids
38	College Ave	Michigan St	I-196 Ramps	City of Grand Rapids
39	Burton St	US-131	Buchanan Ave	City of Grand Rapids
40	Burton St	Division Ave	Eastern Ave	City of Grand Rapids
41	Burton St	Plymouth Ave	Breton Ave	City of Grand Rapids
42	Burton St	Breton Ave	M-37 (East Beltline)	City of Grand Rapids
43	Knapp St	M-44 (East Beltline Ave)	Dunnigan Ave	City of Grand Rapids - KCRC
44	Rivertown Pkwy	Ivanrest Ave	Wilson Ave	City of Grandville
45	Ivanrest Ave	Rivertown Pkwy	Grandville south CL	City of Grandville
46	Kenowa Ave	Curve (Ottawa/Kent Co line)	Tyler/36th St	City of Grandville
47	44th St (WB)	Grandville east CL	Ivanrest Ave	City of Grandville - KCRC
48	52nd St/Kellogg Woods Dr	Division Ave	Eastern Ave	City of Kentwood
49	East Paris Ave	36th St	Swank Dr	City of Kentwood
50	Kalamazoo Ave	44th St	52nd St	City of Kentwood
51	32nd St	Grand Rapids/Kentwood CL	Breton Ave	City of Kentwood
52	32nd St	Breton Ave	Shaffer Ave	City of Kentwood
53	Kalamazoo Ave	52nd St	60th St	City of Kentwood
54	44th St	Eastern Ave	Kalamazoo Ave	City of Kentwood - KCRC
55	Forest Hill Ave	Cascade Rd	I-96	City of Kentwood - KCRC
56	3 Mile Rd	West of Walker Ave	Peach Ridge Ave	City of Walker
57	Walker Ave	Sharp St	Waldorf St	City of Walker
58	Fruit Ridge Ave	I-96 EB On Ramp	I-96 WB Off Ramp	City of Walker
59	Walker Ave	Northridge Dr	4 Mile Rd	City of Walker
60	Division Ave	54th St	60th St	City of Wyoming
61	44th St	Clyde Park Ave	500' West	City of Wyoming
62	44th St	Clyde Park Ave	SB US-131 Ramps	City of Wyoming
63	44th St	SB US-131 Ramps	NB US-131 Ramps	City of Wyoming
64	44th St	Clay Ave	Buchanan Ave	City of Wyoming
65	44th St	NB US-131 Ramps	Clay Ave	City of Wyoming
66	44th St	Buchanan Ave	Division Ave	City of Wyoming
67	44th St	Wyoming west CL	Byron Center Ave	City of Wyoming
68	52nd St	Ivanrest Ave	Byron Center Ave	City of Wyoming
69	52nd St	Byron Center Ave	Burlingame Ave	City of Wyoming
70	52nd St	Burlingame Ave	Clyde Park Ave	City of Wyoming
71	56th St	Ivanrest Ave	Byron Center Ave	City of Wyoming
72	Burton St	De Hoop Ave	Clyde Park Ave	City of Wyoming
73	68th St	Division Ave	Kalamazoo Ave	Gaines Twp - KCRC
74	60th St	Division Ave	Eastern Ave	Gaines Twp - KCRC
75	Eastern Ave	60th St	68th St	Gaines Twp - KCRC
76	76th St	Eastern Ave	Kalamazoo Ave	Gaines Twp - KCRC
77	68th St	Plaster Creek	2700' east of Hanna Lake	Gaines Twp - KCRC
78	Hanna Lake Ave	68th St	Wing Ave	Gaines Twp - KCRC
79	28th Ave	Hudsonville CL	Baldwin St	Georgetown Twp - OCRC
80	Fillmore St/Cottonwood Dr	48th Ave	Taylor St	Georgetown Twp - OCRC
81	Baldwin St	Cottonwood Dr	Main St Curve	Georgetown Twp - OCRC
82	Port Sheldon St	48th Ave	40th Ave	Georgetown Twp - OCRC
83	28th Ave	Baldwin St	Bauer Rd	Georgetown Twp - OCRC
84	Cottonwood Dr	Bauer Rd	Fillmore St	Georgetown Twp - OCRC
85	Cottonwood Dr	Baldwin St	Bauer Rd	Georgetown Twp - OCRC

86	48th Ave	Bauer Rd	Fillmore St	Georgetown Twp - OCRC
87	I-196/ Baldwin Int.	I-196	Baldwin Rd	Georgetown Twp/MDOT
88	3 Mile Rd	Dean Lake Ave	Leffingwell Ave	Grand Rapids Twp - KCRC
89	3 Mile Rd	Leffingwell Ave	M-44 (East Beltline Ave)	Grand Rapids Twp - KCRC
90	Knapp St	Grand Rapids east CL	Leffingwell Ave	Grand Rapids Twp - KCRC
91	Forest Hill Ave	M-21 (Fulton St)	Ada Dr	Grand Rapids Twp - KCRC
92	Knapp St	East Grand Rapids CL	West of Leffingwell	Grand Rapids Twp - KCRC
93	I-196	Grand River/US-131 int.	Fuller Ave	MDOT
94	I-196 Bridges	Ottawa Ave/Ionia Ave	I-196/I-96 Junction	MDOT
95	I-196	Fuller Ave	I-96/I-196 Junction	MDOT
96	I-196	Grand River/US-131 int.	Fuller Ave	MDOT
97	I-196	Fuller Ave	I-96/I-196 Junction	MDOT
98	M-44/M-37	Knapp St	M-21 (Fulton St)	MDOT
99	I-196	Ottawa Ave	Division Ave	MDOT
100	I-96	Leonard St	Cascade Rd	MDOT
101	I-96	At I-196 and M-21 (Fulton St)		MDOT
102	I-196	US-131	M-45 (Lake Michigan Dr)	MDOT
103	I-96	Walker Ave	M-37 (Alpine Ave)	MDOT
104	I-96	M-37 (Alpine Ave)	US-131	MDOT
105	I-96	Leonard St	M-37 (East Beltline)	MDOT
106	I-96	M-37 (East Beltline Ave)	M-21 (Fulton St)	MDOT
107	I-96	M-21 (Fulton St)	Cascade Rd	MDOT
108	I-96	Cascade Rd	M-11 (28th St)	MDOT
109	I-96	M-11 (28th St)	M-6 Interchange	MDOT
110	I-196	Chicago Dr	44th St	MDOT
111	I-196	44th St	M-6 Interchange	MDOT
112	I-196	M-6 Interchange	32nd Ave	MDOT
113	I-96	US-131	M-44 CONN (Plainfield Ave)	MDOT
114	I-96	M-44 CONN (Plainfield Ave)	Leonard St	MDOT
115	I-96	M-6 Interchange	East Kent County Line	MDOT
116	US-131	South Kent County Line	76th St	MDOT
117	US-131	36th St	M-11 (28th St)	MDOT
118	US-131	Wealthy St	Pearl St	MDOT
119	US-131	Pearl St	I-196 Interchange	MDOT
120	US-131	I-196 Interchange	Leonard St	MDOT
121	US-131	10 Mile Rd	14 Mile Rd	MDOT
122	M-11 (28th St)	Breton Ave	M-37 (East Beltline Ave)	MDOT
123	M-11 (28th St)	Buchanan Ave	Division Ave	MDOT
124	M-11 (28th St)	Burlingame Ave	Michael/DeHoop Ave	MDOT
125	M-11 (28th St)	Byron Center Ave	Burlingame Ave	MDOT
126	M-11 (28th St)	Clyde Park Ave	Buchanan Ave	MDOT
127	M-11 (28th St)	Division Ave	Madison Ave	MDOT
128	M-11 (28th St)	M-37 (East Beltline Ave)	Lake Eastbrook Ave	MDOT
129	M-11 (28th St)	East Paris Ave	Patterson Ave	MDOT
130	M-11 (28th St)	Eastern Ave	Kalamazoo Ave	MDOT
131	M-11 (28th St)	I-196	Ivanrest Ave	MDOT
132	M-11 (28th St)	Ivanrest Ave	Byron Center Ave	MDOT
133	M-11 (28th St)	Kalamazoo Ave	Breton Ave	MDOT
134	M-11 (28th St)	Lake Eastbrook Ave	East Paris Ave	MDOT
135	M-11 (28th St)	Madison Ave	Eastern Ave	MDOT

136	M-11 (28th St)	Michael/De Hoop Ave	Clyde Park Ave	MDOT
137	M-11 (28th St)	Patterson Ave	I-96	MDOT
138	M-11 (Wilson Ave)	Remembrance Rd	Leonard St	MDOT
139	M-11 (Wilson Ave)	Leonard St	M-45 (Lake Michigan Dr)	MDOT
140	M-21 (Fulton St)	Pettis Ave	Alden Nash Ave	MDOT
141	M-37 (Alpine Ave)	South of 6 Mile Rd	I-96	MDOT
142	M-37 (Broadmoor Ave)	M-11 (28th St)	32nd St Bridges	MDOT
143	M-37 (Broadmoor Ave)	92nd Ave	South Kent County Line	MDOT
144	M-37 (Broadmoor Ave)	North of 76th St	92nd Ave	MDOT
145	M-37 (East Beltline)	M-11 (28th St)	North of Lake Eastbrook Ave	MDOT
146	M-37 (East Beltline)	North of Lake Eastbrook Ave	I-96	MDOT
147	M-44 (Belding Rd)	Wolverine Blvd	Myers Lake Ave	MDOT
148	M-44 (East Beltline)	I-96	Knapp St	MDOT
149	M-44 (Northland Dr)	M-44 CONN (Plainfield Ave)	Belding Rd	MDOT
150	M-44CONN (Plainfield Ave)	North of I-96	Jupiter Ave Extension	MDOT
151	M-57 (14 Mile Rd)	East of US-131	Northland Dr	MDOT
152	M-11 (Wilson Ave)	South of M-45	I-196	MDOT
153	US-131	Ann St	Leonard St	MDOT
154	US-131	I-96	10 Mile Rd	MDOT
155	I-96	Walker Ave	M-44 CONN (Plainfield Ave)	MDOT
156	US-131	Wealthy St	M-11 (28th St)	MDOT
157	College Ave/Fuller Ave	at I-196		MDOT/Grand Rapids
158	Northland Dr	16 Mile Rd	Cedar Springs South Limits	Nelson Twp - KCRC
159	West River Dr	Jupiter Ave	Verta Ave	Plainfield Twp - KCRC
160	West River Dr	Verta Ave	M-44 (Northland Dr)	Plainfield Twp - KCRC
161	Post Dr	US-131	Pine Island Dr	Plainfield Twp - KCRC
162	7 Mile Rd	Division Ave	Pine Island Dr	Plainfield Twp - KCRC
163	US-131	At 44th St		Wyoming/MDOT

INTERSECTIONS IN THE CMP

Intersection data and management is not encompassed within the 8 major components of the GVMC Congestion Management Process but is a vital part of the process nonetheless. Well over 100 intersections have been identified as having some form of congestion and have further been identified as needing additional study or analysis to formulate a recommendation. Most of the intersections have been studied by Grand Valley Metropolitan Council staff, consultants retained by Grand Valley Metropolitan Council staff or by a local agency within the MPO. The list of intersections is provided on the next page with information about the location of the intersection and what actions or recommendations have taken place for that particular intersection.

Other intersections/corridors will be identified for future study or analysis. This list will be reviewed periodically to see if any improvements made reduce the amount of future congestion seen on those intersections.

Figure 9 — List of Congested Intersections with Location and Status

	Boundary 1	Boundary 2	Agency	Status
1	Northland Dr	17 Mile Rd	Cedar Springs	Improved with non-federal funds 2003
2	29th St	Breton Ave	Grand Rapids	
3	Alpine Ave	Ann St	Grand Rapids	
4	Alpine Ave	Leonard St	Grand Rapids	Submitted for Safety funding 2006-2007
5	Alpine Ave	Richmond St	Grand Rapids	Submitted for Safety funding 2006-2007
6	Burton St	Breton Ave	Grand Rapids	
7	Burton St	Division Ave	Grand Rapids	
8	Burton St	Eastern Ave	Grand Rapids	
9	Division Ave	Fulton St	Grand Rapids	
10	Division Ave	Hall St	Grand Rapids	
11	Division Ave	Wealthy St	Grand Rapids	
12	Fuller Ave	Fulton St	Grand Rapids	
13	Fuller Ave	Michigan St	Grand Rapids	Improved with Safety funds 2005
14	Fuller Ave	Plainfield Ave	Grand Rapids	
15	Ionia Ave	Michigan St	Grand Rapids	Part of Wayne State Study Improvements Pending
16	Lake Dr	Fulton St	Grand Rapids	
17	Leonard St	Diamond Ave	Grand Rapids	Improved with CMAQ funds 2003
18	Leonard St	Fuller Ave	Grand Rapids	
19	Leonard St	Plainfield Ave	Grand Rapids	
20	Leonard St	US-131/Scribner/Front	Grand Rapids	Constrained Intersection
21	Leonard St	Walker Ave	Grand Rapids	
22	Market Ave	Wealthy St	Grand Rapids	
23	Michigan St	College Ave	Grand Rapids	Improved with Safety funds 2004
24	Monroe Ave	Ann St	Grand Rapids	
25	Monroe Ave	Pearl St	Grand Rapids	Constrained Intersection
26	Plainfield Ave	Knapp St	Grand Rapids	
27	Chicago Dr	Wilson Ave	Grandville	Improved with Safety funds 2004
28	32nd Ave	New Holland St	Hudsonville	Improved as part of 2002 STP-Urban project
29	Chicago Dr	32nd Ave	Hudsonville	
30	32nd Ave	Highland Dr	Hudsonville	Future CMAQ submittal
31	28th St	Thornhills Ave	KCRC	Signal to be improved in 2007
32	36th St	Patterson Ave	KCRC	Improved with local funds in 2006
33	44th St	Patterson Ave	KCRC	Improved with non-federal funds in 2004
34	44th St	Shaffer Ave	KCRC	Improved with CMAQ project 2006
35	68th St	Division Ave	KCRC	Improved with STP-Urban project 2002
36	84th St	Byron Center Ave	KCRC	Improved with Safety funds 2005
37	84th St	Division Ave	KCRC	
38	84th St	Eastern Ave	KCRC	Improved with Safety funds 2005
39	84th St	Kalamazoo Ave	KCRC	Improved with CMAQ funds 2003
40	Belmont Ave	10 Mile Rd	KCRC	Submitted for CMAQ funding 2009

41	Cascade Rd	East Paris Ave	KCRC	Part of Wayne State Study Improvements Pending
42	Forrest Hills Ave	Cascade Rd	KCRC	Submitted for CMAQ funding 2007
43	Wilson Ave	Rivertown Parkway	KCRC	Improved as part of Rivertown Mall development
44	28th St	Kraft Ave	KCRC	New Submittal
45	28th St	Cascade Rd	KCRC	New Submittal
46	84th St	Burlingame Ave	KCRC	New Submittal
47	76th St	Division Ave	KCRC	New Submittal
48	68th St	Clyde Park Ave	KCRC	New Submittal
49	76th St	Clyde Park Ave	KCRC	New Submittal
50	68th St	Clay Ave	KCRC	New Submittal
51	68th St	Kalamazoo Ave	KCRC	New Submittal
52	Kalamazoo Ave	Edgeknoll Dr	KCRC	New Submittal
53	Kalamazoo Ave	Eastport Dr	KCRC	New Submittal
54	Knapp St	Grand River Ave	KCRC	New Submittal
55	Knapp St	Pettis Ave	KCRC	New Submittal
56	West River Dr	Jupiter Ave	KCRC	New Submittal
57	Post Dr	US-131	KCRC	New Submittal
58	10 Mile Rd	US-131	KCRC	New Submittal
59	West River Dr	Lamoureaux Dr	KCRC	New Submittal
60	West River Dr	4 Mile Rd	KCRC	New Submittal
61	100th St	US-131	KCRC	New Submittal
62	100th St	Division Ave	KCRC	New Submittal
63	36th St	Thornapple River Dr	KCRC	New Submittal
64	Cascade Rd	Alden Nash Dr	KCRC	New Submittal
65	44th St	I-196	KCRC/GVILLE	Part of Wayne State Study Improvements Pending
66	44th St	Ivanrest Ave	KCRC/GVILLE	Improved with EDF-C project 2006
67	28th St	Patterson Ave	KCRC/KW	Part of Wayne State Study Improvements Pending
68	44th St	Eastern Ave	KCRC/KW	Improved with CMAQ project 2005
69	60th St	Kalamazoo Ave	KCRC/KW	Will be improved as part of future Safety project
70	60th St	Valley Lane	KCRC/KW	New Submittal
71	44th St	Division Ave	KCRC/KW/WY	Improved with EDF-C project 2005
72	10 Mile Rd	Main St	KCRC/Rock	New Submittal
73	10 Mile Rd	Fremont St	KCRC/Rock	New Submittal
74	10 Mile Rd	Wolverine Blvd	KCRC/Rock	New Submittal
75	4 Mile Rd	Walker Ave	KCRC/Walker	New Submittal
76	4 Mile Rd	Fruitridge Ave	KCRC/Walker	New Submittal
77	32nd St	Breton Ave	Kentwood	Part of Wayne State Study Improvements Pending
78	44th St	Breton Ave	Kentwood	Improved with EDF-C project 2002 To be improved with future extension project (pre.plat.)
79	52nd St	Breton Ave	Kentwood	
80	52nd St	Eastern Ave	Kentwood	Part of Wayne State Study Improvements Pending
81	52nd St	Kalamazoo Ave	Kentwood	Submitted for CMAQ funding 2009
82	Burton St	East Paris Ave	Kentwood	Will be improved with added turn lane, date TBD

83	54th St	Division Ave	KW/WY	Part of Wayne State Study Improvements Pending
84	28th St	Breton Ave	MDOT/GR	Part of Wayne State Study Improvements Pending
85	28th St	Eastern Ave	MDOT/GR	Part of Wayne State Study Improvements Pending
86	28th St	Kalamazoo Ave	MDOT/GR	Part of Wayne State Study Improvements Pending
87	East Beltline Ave	Burton St	MDOT/GR	Part of Wayne State Study Improvements Pending
88	28th St	Broadmoor Ave	MDOT/GR/KW	Improved with MDOT project 2004
89	28th St	East Paris Ave	MDOT/GR/KW	Part of Wayne State Study Improvements Pending
90	28th St	Lake Eastbrook Blvd	MDOT/GR/KW	Part of Wayne State Study Improvements Pending
91	East Beltline Ave	Lake Eastbrook Blvd	MDOT/GR/KW	Submitted for CMAQ funding 2007-2008
92	28th St	Division Ave	MDOT/GR/WY	Improved with MDOT project 2004
93	Alpine Ave	Henze Dr	MDOT/KCRC	Part of Wayne State Study/To be improved 2008
94	Alpine Ave	4 Mile Rd	MDOT/KCRC/WK	Studied as part of 4 Mile Rd Corridor Study
95	Alpine Ave	3 Mile Rd	MDOT/Walker	Improved with non-federal funds in 2003
96	Alpine Ave	Center Dr	MDOT/Walker	Submitted for CMAQ funding 2009
97	Alpine Ave	Kingsbury St	MDOT/Walker	Part of Wayne State Study Improvements Pending
98	Alpine Ave	Old Orchard Dr	MDOT/Walker	Part of Wayne State Study Improvements Pending
99	Lake Michigan Dr	Kinney Ave	MDOT/Walker	New Submittal
100	28th St	Burlingame Ave	MDOT/Wyoming	Part of Wayne State Study Improvements Pending
101	28th St	Clyde Park Ave	MDOT/Wyoming	Part of Wayne State Study Improvements Pending
102	44th St	US-131 NB	MDOT/Wyoming	Will be improved as part of HPPP in 2009
103	44th St	US-131 SB	MDOT/Wyoming	Will be improved as part of HPPP in 2009
104	12th Ave	Baldwin St	OCRC	
105	12th Ave	Chicago Dr/Rosewood	OCRC	
106	20th Ave	Baldwin St	OCRC	Will be improved as part of 2007 STP-Urban project
107	36th Ave	Port Sheldon Rd	OCRC	
108	48th Ave	Port Sheldon Rd	OCRC	
109	Baldwin St	Cottonwood Dr	OCRC	Part of Wayne State Study Improvements Pending
110	Chicago Dr	Main St	OCRC	Part of Wayne State Study Improvements Pending
111	Chicago Dr	Port Sheldon Rd	OCRC	
112	Port Sheldon Rd	40th Ave	OCRC	New Submittal
113	Port Sheldon Rd	48th Ave	OCRC	New Submittal
114	48th Ave	Fillmore St	OCRC	New Submittal
115	44th St	Kenowa Ave	OCRC/Gville	
116	3 Mile Rd	Fruitridge Ave	Walker	Submitted for CMAQ funding 2008
117	Alpine Ave	3 Mile Rd	Walker	New Submittal
118	Wilson Ave	Remembrance Rd	Walker	New Submittal
119	3 Mile Rd	Walker Ave	Walker	New Submittal
120	3 Mile Rd	Kinney Ave	Walker	New Submittal
121	36th St	Clyde Park Ave	Wyoming	
122	36th St	Division Ave	Wyoming	
123	44th St	Burlingame Ave	Wyoming	
124	44th St	Byron Center Ave	Wyoming	Improved with CMAQ project 2003

125	44th St	Clyde Park Ave	Wyoming	Submitted for EDF-C funding 2007
126	52nd St	Burlingame Ave	Wyoming	
127	Burton St	Burlingame Ave	Wyoming	
128	Burton St	Clyde Park Ave	Wyoming	Improved with Safety funds 2004

Essentially, a corridor or segment must be identified as a capacity deficiency before it can be included as a capacity improvement project in the Long Range Transportation Plan. The process dictates that the Grand Rapids metropolitan area strives to address as many of the deficiencies as there is funding available. In cases where funding levels do not meet the level of demand for improvements, projects are listed in the unfunded (illustrative) section of the Plan.

All capacity deficiencies identified through the Congestion Management Process are compared with all of the options provided in the CMP Cafeteria Plan. An alternative that somehow widens a roadway facility is the last option of the CMP. The widening alternative is only pursued when all other alternatives within the CMP Cafeteria Plan have been analyzed and found to not adequately address the capacity deficiency in question.

PAVEMENT MANAGEMENT SYSTEM

The Grand Valley Metropolitan Council has made a conscious decision to be a national leader in the field of pavement management and was one of the first MPOs in the United States to employ a pavement management system.

In 1995, a subcommittee of the GVMC Technical Committee was formed to evaluate various needs associated with developing a pavement management system for the area. The PaMS Committee, with the assistance of a consultant decided that the PAVER system was the most efficient and cost effective platform for the PaMS. PAVER was originally developed by the Army Corps of Engineers as an airport runway condition system. In later years, it was modified to accommodate the inclusion of highway conditions. PAVER measures for 38 unique distress types, 19 for concrete and 19 for asphalt. The PaMS data was gathered over a period of two years. Initial data gathering began in the Summer of 1996. The remainder of the network data was gathered in the Summer of 1997. Data was updated regularly in order to keep the system current.

A unique aspect of the PaMS development was that each road-providing member was given the opportunity to have data gathered on their local street system at the same cost as was provided to GVMC. In addition, training was provided on the process of pavement condition data gathering, and the use of the PAVER software. Funding was allocated through GVMC to provide software, training, and technical support to any local road-provider who would like to include local roads in their surveys.

Through participation on the PaMS Committee a community was given the opportunity to maintain their own database in regard to which roadway segments have had maintenance work implemented. GVMC staff will be responsible for the maintenance of the entire system on an annual basis. Annually, staff gathered maintenance records or PaMS databases from each of the road providing jurisdictions. Then when the PAVER database was updated, new condition information could be derived.

Beginning in 1998 and running through 2005, the GVMC began gathering information on 1/3 of the system every year, so that the entire functionally classified system will be surveyed at least once every three years. Data was manually collected in the field by consultant staff physically walking each segment and manually measuring distresses. Data was collected at a rate of up to 8 miles per day. While this system served its purpose for local members, there were some drawbacks including cost per mile, which by 2005 had grown to \$235 per mile. Also, data was gathered using a sampling system which reflected about 10% of the entire federal aid network.

The data gathered through this process served to identify the PCI (pavement condition index) for every segment of the federal aid roadway system in the Grand Rapids metro area. The range of values is 100 for a new roadway and 0 for a roadway that has reached complete failure. Thresholds were set by the GVMC Transportation Committees to identify roadways that were eligible for resurfacing projects (70 PCI or lower) and reconstruction projects (45 PCI or lower). Staff generates a master database/list of the PCI ratings for every segment on the network. When the project programming is done in the Grand Rapids area through the development of the Transportation Improvement Program, only segments which qualify based on their PCI can be selected for federal aid funding. All eligible segments are identified by GVMC staff and the Transportation Programming Study Group selects which segments will be included in the program.

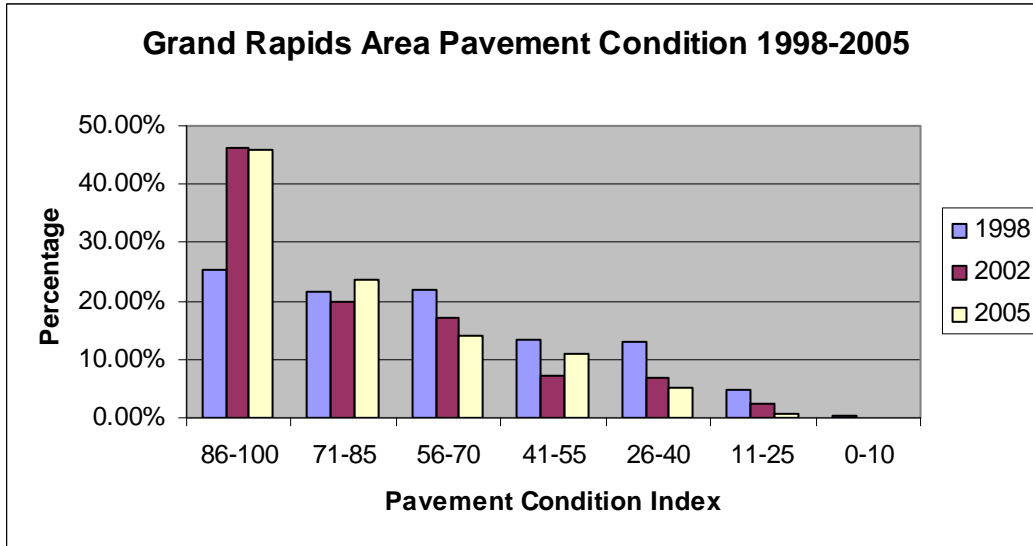
In 2005, GVMC staff began a comprehensive review of the Pavement Management System with a list of goals/issues in mind including reducing the cost of data gathering for both the federal aid/MPO network and individual local jurisdictions. Other goals include improving efficiency and flexibility, gen-

erating consistent data between jurisdictions, improving safety in the data collection process, and maintaining current management systems. The recommendation by GVMC staff was the purchase of a semi-automated vehicle (about the size of a cargo van) specially equipped to perform pavement management duties. The system that was selected is equipped to produce digital downward line scan images of the pavement that reveal distresses down to 1 millimeter in size. Data can be collected at highway speeds up to 65 miles per hour and processed manually in the office on a specially designed computer system. The system also has the ability to collect digital photographs (straight forward and side right-of-way views) every 25 feet of the network. This allows for a wide variety of analysis in a controlled office setting rather than sending staff into the field and exposing them to potential harm. The side right-of-way views allow for the measurement of other roadside assets including signs, guardrail, non-motorized facilities, utilities, and geometric configuration at sub-meter accuracy. The ability to collect familiar PAVER data was also cited as an important factor in using the semi-automated vehicle. The vehicle was purchased from a vendor in the Tampa, Florida area. Staff took possession of the van in Spring of 2006.

Basically, the benefits of the semi-automated system include being safer, more accurate, cheaper, more efficient, more consistent, and more prolific. Beyond the safety and other benefits listed above, the benefits of the semi-automated system also included long term cost effectiveness. Rather than collecting 350 miles per year at \$235 per mile, upwards of 4,000 miles could be collected annually at costs of less than \$100 per mile. The projected savings for member agencies amounted to approximately \$75,000 per year on the local road system. The quantity of data processed has also changed greatly as previously, data was collected at 8 miles per day. The semi-automated system collects up to 50 miles of data a day and the data can be processed in the office at a rate of 6-8 miles per hour. Most importantly, 4,000 plus miles of the roadway system (federal aid and local) can be surveyed in a given year.

The GVMC Pavement Management System will continue to be an invaluable tool for managing and keeping a close inventory on pavement conditions throughout the metropolitan area. The PaMS will provide local decision makers with the data necessary to make well informed decisions on roadway condition improvements.

The chart on the following page depicts the area's average pavement condition as surveyed within the Pavement Management system:



Pavement Condition Comparison 1998-2005

PCI	1998	2002	2005
86-100	25.34%	46.38%	45.96%
71-85	21.53%	19.99%	23.69%
56-70	21.75%	17.16%	13.90%
41-55	13.22%	7.18%	10.84%
26-40	13.13%	6.96%	5.05%
11-25	4.81%	2.29%	0.56%
0-10	0.22%	0.04%	0.00%

Pavement Condition Comparison 1998-2005

PCI	1998	2002	2005
71-100	46.87%	66.37%	69.65%
41-70	34.97%	24.34%	24.74%
0-40	18.16%	9.29%	5.61%

Figure 10 — Pavement Condition for Federal Aid Roadways in the MPO Area Comparing 1998, 2002, and 2005 data

CONDITION		PCI	GVMC PROJECT ELIGIBILITY		PCI
EXCELLENT		100			100
		86	ROUTINE		
VERY GOOD		85	MAINTENANCE		
		71			71
GOOD		70			70
		56	OVERLAY		
FAIR		55			46
		41			45
POOR		40			
		26			
SERIOUS		25	RECONSTRUCT		
		11			
FAILED		10			
		0			0

Figure 11 — Pavement Condition Index (PCI) and MPO Programming Eligibility

The U.S. Army Corps of Engineers developed the Pavement Condition Index for airport pavements through funding provided by the U.S. Air Force. The PCI is the basic measurement of the PMS and gives a relative numeric value from 0 (failed) to 100 (excellent). The numeric score is based on the number and type of cracks and imperfections found by visual surface inspection. To maintain consistency, the same inspector(s) conducts the inspection systematically under similar conditions on the selected sample units of pavement.

ENVIRONMENTAL JUSTICE

The Grand Valley Metropolitan Council works diligently to ensure that all people have access to the transportation planning process, especially those citizens that have traditionally been under-represented, including those residents that are members of racial and ethnic minority populations and low income persons. The GVMC transportation planning process has always been open to the public, but with recently enacted Federal guidance, the means of evaluating interaction with traditionally under-represented groups is more defined.

Title VI of the 1964 Civil Rights Act (42 U.S.C. 2000d-1) states that “No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”

Expanding on what had been done previously, President Clinton issued Executive Order 12898 on February 11, 1994, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. The main objective of this order furthers what had been expected with Title VI including “achieving environmental justice as part of (each Federal agency’s) mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

GVMC has chosen to address environmental justice by first identifying those areas with concentrations of traditionally under-served populations through thematic mapping. Once those areas of under-served populations were identified, those areas were compared to a map of the projects identified in the Long Range Transportation Plan to be completed over the next 28 years. Staff then compared the two maps across the entire region, paying special attention to the projects proposed in areas of traditionally under-served population. If any portion of a proposed project touched any of the highlighted environmental justice areas, that project was included in the environmental justice analysis.

Based on the spirit and intent of Environmental Justice, GVMC is striving to identify and inform two major sectors of the population, targeted minority populations and low income residents. Low-income means persons whose “household income is at or below the Department of Health and Human Services poverty guidelines.” Minority populations, as defined by the United States Department of Transportation (USDOT) Environmental Justice order, are those individuals that are of African-American, Hispanic, Asian/Pacific Islander, and Native American descent.

Environmental justice areas are designated based on the population of the targeted population group as it compares to the overall population of the entire metropolitan area. Because not all of the data for all of the population groups is available at a census block level, it was determined that the data be collected and analyzed at the census block group level. Census block level information was available for all of the targeted populations including the low-income group.

Once the environmental justice areas have been identified and compared with the Long Range Transportation Plan project list, the notification process is put into action. Any property parcel that touches the proposed roadway improvement within an environmental justice area is highlighted through the use of Geographic Information System (GIS) technology. A mailing list is generated for that roadway corridor and a letter is sent to each adjoining parcel. The letter explains the environmental justice process and encourages input from the property owner on the proposed project. GVMC staff phone numbers, addresses, e-mail addresses, and fax numbers are provided. A public meeting was also held for the purpose of providing property owners the opportunity to learn more about the proposed project in their

area and the transportation planning process as a whole. The meeting also gives interested citizens the chance to communicate with GVMC staff on the environmental justice projects in the Plan. Once a project is identified as an environmental justice project, it only goes through the notification process once. After that, the project will also be flagged and the notification process will take place as part of the environmental justice process for the Transportation Improvement Program (TIP).

The comparison of scheduled projects to areas of under-represented populations is being more carefully scrutinized and analyzed than ever before as part of this ongoing process. The level of analysis now being done will insure that neighborhoods are informed of projects, have the ability to have input into the transportation planning process, and are minimally impacted by future transportation improvements.

Grand Valley Metropolitan Council staff sends Environmental Justice notices the first time a project appears in a Long Range Plan. For the 2030 Long Range Transportation Plan, there were 91 projects that were identified as environmental justice projects. Those 91 projects generated 2,851 letters that were sent to local property owners within the metropolitan area. Some of those projects were made up of more than one segment from the Long Range Plan project list. Projects ultimately progress through the Long Range Transportation Plan phases and plan cycles/years until being included in the short range plan, the Transportation Improvement Program (TIP). All TIP projects also go through the Environmental Justice process as well so all of the Plan projects will undergo a second notification process as a project gets closer to construction.

For the 2035 Plan, 82 projects were identified as Environmental Justice projects. Of those 82 projects, 12 projects are new to this Plan. The parcel owners along the corridors of those 12 projects will receive letters from Grand Valley Metropolitan Council staff informing them of future roadway improvements that might come to their area. A total of 565 letters will be sent through this Environmental Justice notification. A sample of the letter sent to property owners identifying the environmental justice projects and a list of the environmental projects are listed in the Appendix A of this document.

The conclusion of the environmental justice analysis is that there is an appropriate level of transportation improvement taking place in those areas with affected populations. That conclusion is based on the following analysis. There are 127 projects in the Long Range Transportation Plan that fall under the criteria for analysis as part of this Plan. Out of that 127, 82 projects, or 64.6% of the total number of projects fall within environmental justice areas. Environmental justice areas in the Grand Rapids metropolitan area encompass 38.8% of the total MPO study area. It has been determined that there is no disproportionately high or adverse human health or environmental effects as a result of the proposed transportation projects contained in this document.

	Total	White	African-American	Native American	Asian-American	Hispanic	Low Income
MPO Total	648,138	548,357	52,148	3,375	11,404	41,312	53,593
Percent of Total		84.60%	8.05%	0.52%	1.76%	6.37%	8.27%

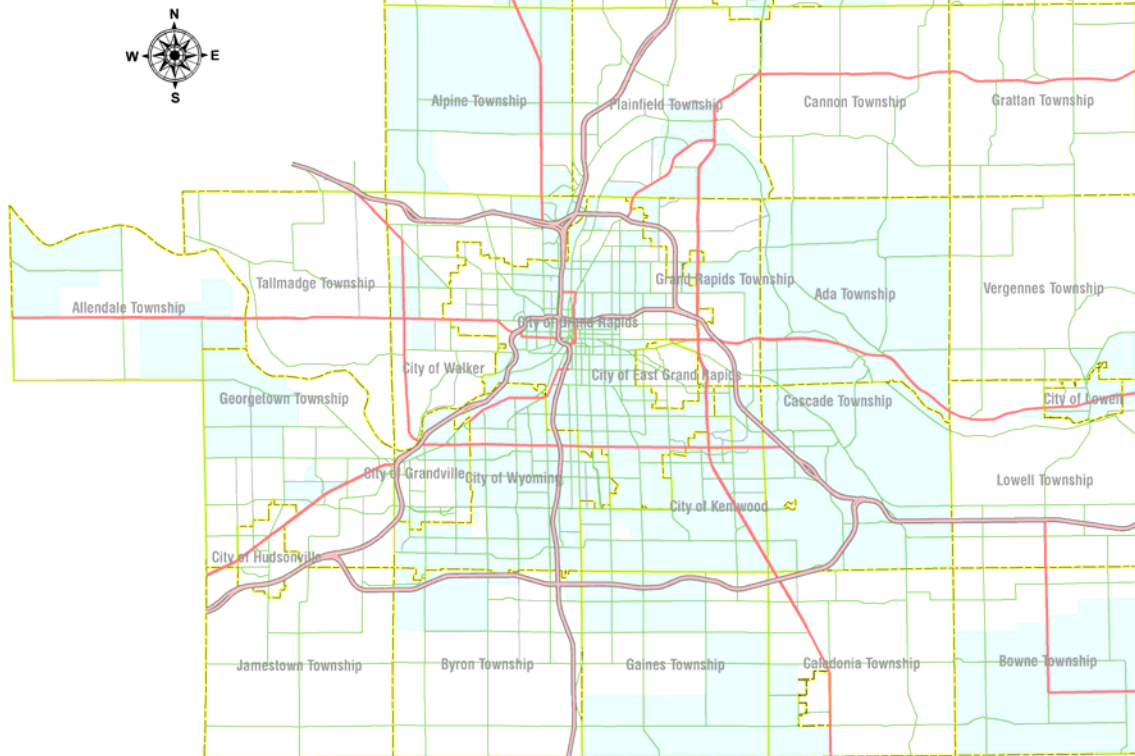
Source: 2000 U.S. Census of Population

For more specific analysis, other data sources should be used to verify Census data.

Figure 12 — Percent of Minority Populations and Low-Income Populations in the Grand Rapids Metropolitan Area for the Year 2000

A map showing the environmental justice areas is presented on the following page.

Grand Rapids Environmental Justice Area



Source: 2000 U.S. Census of Population

Figure 13 — Environmental Justice Area in the Grand Rapids Metropolitan Area

ENVIRONMENTALLY SENSITIVE RESOURCE MITIGATION GUIDELINES

INTRODUCTION

Transportation infrastructure and its users, by their very nature, impact the physical landscape, including the natural environment. With this in mind it is important to take this impact into consideration when planning, designing, constructing, and maintaining a transportation system. The goal being, to balance transportation needs with environmental protection, constructing and maintaining a system that minimizes negative impacts where impacts cannot be avoided.

Federal transportation legislation dictates a series of requirements for transportation plans. The current federal legislation, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), lists a requirement for the “discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan. This discussion shall be developed in consultation with Federal, State, and tribal wildlife, land management, and regulatory agencies.”

The GVMC has developed a three-step process for addressing the technical aspects of the SAFETEA-LU legislation:

- Defining and creating an inventory of environmentally sensitive resources
- Identifying and assessing likely impacts on these areas from transportation projects
- Addressing possible mitigation at the system-wide level

Essentially, the purpose of this process is to identify possible impacts on environmentally sensitive resources, list useful guidelines for mitigating these impacts, and provide all of this information to implementation agencies and officials for use in transportation decision-making. This analysis was performed at a regional level only and is not intended to provide detailed design alternatives or impacts at the project level. However, it is anticipated that the data collected will be useful in those project-level activities.

ENVIRONMENTALLY SENSITIVE RESOURCES

The seven environmentally sensitive resources defined by the GVMC for the purpose of this study are outlined in Table 1. It is important to note that not all resources have been included in this analysis. Only those resources that had data readily available in digital format for Geographic Information System mapping, and those resources where the data were reasonably up-to-date were included. Environmentally sensitive resources not included in this analysis may deserve attention at the project level; however for the purposes of this system-wide report, fewer environmentally sensitive resources were analyzed.

Environmentally Sensitive Resources Analyzed

Water Features (Lakes, Ponds, Streams & Rivers)

Wetlands

Flood Zones

Woodlands

Parks & Recreation Areas

Cemeteries

Nonmotorized Facilities (Sidewalks, Bikeways, and Trails)

METHODOLOGY

Once the environmentally sensitive resources were defined and identified, the GVMC analyzed the likelihood of possible impacts from planned 2035 Projects. With the assistance of GVMC-REGIS (Regional Geographic Information System) staff, software, and data, the 2035 projects were mapped and buffered to display an area around each project that could possibly be affected. The size of the buffer used varied by project type and environmental resource.

Project Buffers by Resource Type

Environmental Resource	Buffer Size
Water Features (Lakes, Ponds, Streams, Rivers)	¼ mile buffer (1320 feet)
Wetlands	¼ mile buffer (1320 feet)
Flood Zones	¼ mile buffer (1320 feet)
Woodlands	¼ mile buffer (1320 feet)
Parks & Recreation Areas	250 feet
Cemeteries	250 feet
Non-motorized Facilities	250 feet

The next step taken was the intersection of the project buffers with each environmentally sensitive resource. Where a project buffer and environmentally sensitive resource are found to intersect, an impact is considered possible; however it is important to understand that no additional analysis of possible impacts was performed for the purposes of this report. It is possible that although an environmentally sensitive resource intersects with a buffer, no impact could be present; it is also possible that environmentally sensitive resources beyond the mapped buffer could be impacted by a project. This assessment simply draws attention to possible areas of concern that should be further examined at the project level.

Maps for each of the seven environmentally sensitive resources were produced to display at a system-wide level those projects with potential impact.

GUIDELINES FOR MITIGATING 2035 PROJECT IMPACTS

In general, the purpose of this report is to draw attention to those projects that could potentially impact environmentally sensitive resources, as well as to provide guidelines for consideration with respect to transportation projects. Overall guidelines are provided for consideration for all types of projects regardless of the resource impacted. These guidelines are introduced for reference purposes only. The GVMC has no authority to require implementation of the guidelines listed. However, they represent best management practices and should only serve to enhance the quality of the transportation planning process. The implementation of these guidelines may also assist in a jurisdiction's compliance with other regulatory mandates and for this reason should be implemented where appropriate.

OVERALL GUIDELINES

Regardless of the type of project or resource that may be impacted, these guidelines deserve consideration during the planning, design, construction, and maintenance of transportation projects. Implementation of these guidelines will help to ensure good planning practice that is in accord with overall environmental protection objectives.

Planning and Design Guidelines

- Utilize Context Sensitive Solution (CSS) principles as early as possible in project development and throughout the planning process. CSS is a process that considers the entire context within

which a transportation project takes place including financial limitations and safety issues. This method involves all stakeholders in a collaborative and interdisciplinary approach to developing transportation projects.

- Identify the area of potential impact related to each transportation project including the immediate project area as well as other related project development areas.
- Perform an inventory to determine if any environmentally sensitive resources could be impacted by the project per the National Environmental Policy Act (NEPA) of 1969.
- Investigate as to whether a County Hazard Mitigation Plan exists, and if the plan speaks to the impacted resources in question. (A County Hazard Mitigation Plan is a required for a county to be eligible to receive federal Hazard Mitigation Grant funds in order to protect communities from a variety of hazards, including those to the natural environment.
- Coordinate design and construction with local plans, such as watershed management plans, community recreation plans, preservation plans, cemetery preservation plans, local community master plans and nonmotorized plans.
- Organize and conduct a meeting with local community officials, contractors/subcontractors, and relevant stakeholders prior to construction to discuss environmental protection issues, form goals, and communicate any special requirements for the project.
- Avoid impacts, as possible, to environmental resources by limiting project magnitude or redesigning the project.
- Where impacts are unavoidable, mitigate them to the extent possible as required through local, state, and federal regulations and laws.
- Incorporate storm water management into the site design.
- Reduce the use of culverts where possible.

Construction and Maintenance Guidelines

- Include all special requirements that address environmentally sensitive resources into plans and estimates used by contractors and subcontractors. Bring attention to the types of activities prohibited in environmentally sensitive areas.
- Minimize construction and staging areas and clearly mark boundaries.
 - Install flagging or fencing around sensitive areas to prevent intrusion
- Utilize the least intrusive construction techniques and materials.
- Avoid disturbing the site as much as possible including:
 - Protecting established vegetation and habitat
 - If vegetation is damaged or removed during construction, replace with native species as soon as possible.
 - Protect the tree and drip zone during construction (where the majority of the tree's root system is located.)
 - Implementing sediment and erosion control techniques
 - Minimize extent and duration of exposed bare ground.
 - Establish vegetation immediately after grading is complete.
 - Prevent tracking of sediment onto paved surfaces.
 - Do not stockpile materials in sensitive areas.
 - Protecting water quality
 - Prevent direct runoff of water containing sediments.
 - Sweep streets to reduce sediment entering the storm drainage system.
 - Block/control storm drains to prevent construction debris from polluting waterways.
 - Implement salt management techniques.
 - Protecting cultural/historic resources
 - Prevent the disturbance of soil/material near cultural resources.

- Minimizing noise and vibrations
- Providing for solid waste disposal
 - Properly handle, store, and dispose of hazardous materials and use the least hazardous materials when possible.
 - Implement spill control and clean up and dry clean up methods as appropriate, never letting a spill enter the storm drainage system or waterways.
- Whenever possible keep construction activities away from wildlife crossings and corridors.
- Order and organize construction activities to reduce land disturbances.
- Conscientious consideration of the unearthing of archeological remains when using heavy equipment.
- Avoid equipment maintenance, fueling, and leaks, as well as the spraying down of equipment near sensitive areas.
- Incorporate Integrated Pest Management techniques if pesticides are used during maintenance.
- Conduct on-site monitoring during and immediately after construction to ensure environmental resources are protected as planned.

The maps of the 2035 Long Range Transportation Plan Projects compared to each of the environmental layers is contained in Appendices G1-G7.

CONCLUSION

As stated previously, the purpose of this process is to identify possible impacts on environmentally sensitive resources, list useful guidelines for mitigating these impacts, and provide all of this information to implementation agencies and officials for use in transportation decision-making. The comments received from the implementation agencies and officials have been included in Appendix A and forwarded to the implementing agencies. The Grand Valley Metro Council will continue to use the environmental mitigation methodology and consultation with the appropriate local, state, and federal agencies to minimize the impact that transportation improvements have on the environment.

SOURCES

Regional Geographic Information System (REGIS) Mapping Services, Grand Valley Metropolitan Council.

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

AASHTO Center for Environmental Excellence. Environmental Stewardship Practices, Procedures, and Policies for Highway Construction and Maintenance.
www.environment.transportation.org/environmental_issues/construc_maint_prac/compendium/manual/

CONSULTATION

A new addition for SAFETEA-LU to the transportation planning process involves consultation. There are specific requirements that outline what types of agencies or stakeholders need to be consulted during the transportation planning process and the type of information that needs to be shared with these interested parties. It is suggested that contacts with State, local, Indian Tribes, and private agencies responsible for the following areas be contacted:

- Economic growth and development
- Environmental protection
- Airport operators
- Freight movement
- Land use management
- Natural resources
- Conservation
- Historical preservation
- Human Services Transportation Providers

The process that the Grand Valley Metro Council used for consultation was based on the recommendations of the Federal Highway Administration and the Michigan Department of Transportation. The consultation process had some similarities to the environmental mitigation notification process and because of that, some crossover was used between the two processes.

The Public Participation List that the Grand Valley Metro Council uses for transportation planning outreach was used as a starting point for the consultation process. The participation list encompasses many of the types of agencies and contacts listed above. Some of the agencies listed for consultation (the natural resource agencies, environmental protection agencies and conservation agencies) were targeted as part of the environmental mitigation outreach but were sent information on both processes.

For those agencies targeted strictly for consultation, a process of notification and information was chosen. A letter explaining the consultation process was provided to those agencies in the participation list that fit the criteria set forth in SAFETEA-LU. A sample of the letter is listed later in this chapter. An explanation of the long range transportation planning process along with information about how that process is utilized in the Grand Rapids metropolitan area and the role of Grand Valley Metro Council (GVMC) was included in the mailing. Finally, a listing of the DRAFT 2035 Long Range Transportation Plan project was also provided along with directions on how to provide input on the planning process, how to submit comments on the project list and how to contact GVMC staff if direct interaction was preferred. Those agencies targeted through the Environmental Mitigation process received the same materials as the consultation agencies plus an additional explanation of mitigation process and a series of maps showing the projected environmental impacts of the proposed projects listed in the DRAFT 2035 Long Range Transportation Plan project list. The environmental mitigation sample letter is listed here also as that process was part of the consultation process as well. The responses received from the environmental mitigation letters are included in Appendix A.

The listing of the specific agencies that were included in the outreach performed by Grand Valley Metro Council Transportation staff is included in Appendix A as well.

MEMORANDUM

DATE: January 25, 2007
TO: Consultation Agencies
FROM: Chris Dingman, Senior Transportation Planner
RE: 2035 Long Range Transportation Plan Proposed Projects

The Grand Valley Metro Council is seeking input on its 2035 Long Range Transportation Plan list of Proposed Projects. The purpose for this notification is to promote cooperation and consultation in the transportation planning process with agencies that are responsible for environmental protection, historical preservation, natural resource management, transportation services, economic development, human services, and land use planning. Enclosed you will find a spreadsheet detailing the Proposed Projects list for the Grand Rapids metropolitan area as well as a brief summary of the Grand Valley Metro Council and the Council's involvement in metropolitan transportation planning.

The projects listed beyond the Year 2009 are capacity (widening) projects only and are in the planning stages only. For projects beyond 2009, this list is a draft only and the inclusion of a specific project does not guarantee construction. A master map has been developed that matches the project list with the attached spreadsheet. The map is available at the Grand Valley Metro Council website (www.gvmc.org).

Please review the list of proposed projects and forward any comments and concerns you may have on them. Please contact us using the information below by February 28, 2007. Your comments are an integral part of the transportation planning process. The input from your agency helps to identify potential issues on the Proposed Projects list. Lack of comment on your part will be viewed as endorsement of the Proposed Projects list.

If you have any questions or comments or wish to meet with Grand Valley Metro Council staff regarding the Proposed Projects list, please use the contact information below. Thank you in advance for your attention to this matter.

Sincerely,

Christopher M. Dingman
Senior Transportation Planner
Grand Valley Metro Council
40 Pearl St. NW, Suite 410
Grand Rapids, MI 49503

P: (616) 776-7669
F: (616) 774-9292
E-mail: dingmanc@gvmc.org

MEMORANDUM

DATE: January 25, 2007
TO: Environmental Review Agencies
FROM: Chris Dingman, Senior Transportation Planner
RE: 2035 Long Range Transportation Plan Proposed Projects

The Grand Valley Metro Council is seeking input on its 2035 Long Range Transportation Plan list of Proposed Projects. The purpose for this notification is to promote cooperation and consultation in the transportation planning process with agencies that are responsible for environmental protection, historical preservation, natural resource management, transportation services, economic development, human services, and land use planning. Enclosed you will find a spreadsheet detailing the Proposed Projects list for the Grand Rapids metropolitan area as well as a brief summary of the Grand Valley Metro Council and the Council's involvement in metropolitan transportation planning. Enclosed, you will also find the proposed projects in map form as compared to areas such as wetlands, parks, woodlands, non-motorized projects, cemeteries, and lakes/rivers. Included with these maps is a document proposing general, system-wide, mitigation strategies to take into consideration as road agencies implement the proposed projects.

The purpose of this mailing is to take into account potential system-wide environmental impacts of transportation improvements and how such impacts, if they affect environmentally sensitive areas, might be mitigated. This review is based on federal requirements to perform a system-wide analysis of environmental impacts, not project level analysis. The proposed projects listed beyond the Year 2009 are capacity (widening) projects only and are in the planning stages only. For projects beyond 2009, this list is a draft only and the inclusion of a specific project does not guarantee construction.

Please review the enclosed maps and documents and forward any comments or concerns you may have. Please respond to us by using the contact information below by February 28, 2007. Grand Valley Metro Council staff would be happy to meet with you regarding the Proposed Projects list or the maps presented here as well. The input from your agency helps to identify potential issues on the Proposed Projects list. Thank you in advance for your attention to this matter.

Sincerely,

Christopher M. Dingman
Senior Transportation Planner
Grand Valley Metro Council
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AIR QUALITY CONFORMITY ANALYSIS

Determining whether a Long Range Plan is in conformity with air quality standards is a somewhat complex process. Air quality thresholds and impacts on a statewide level are provided for in the State Implementation Plan (SIP). The intent of the SIP is to develop an integrated, multi-modal transportation system which results in reduced pollution emissions to meet National Ambient Air Quality Standards (NAAQS). One of the key effects of the Clean Air Act of 1990 (as amended) has been that no new roadway facilities can be built unless other congestion management programs have been established within the metropolitan area which offset the increased level of air pollution likely to result from the new facility. In addition, a plan must be established which results in improved air quality from the levels observed in 1990, not just stabilized levels.

The conformity determination considered the following factors:

1. The adopted plan supports the intention of the SIP, in that the projects identified make progress toward achieving and maintaining the NAAQS. This is accomplished through congestion reduction projects, and encouraging alternatives to the single occupant vehicle, such as transit and ride-sharing.
2. No Long-Range Transportation Plan goal, directive, recommendation or project identified will adversely affect SIP requirements or commitments.
3. The Long-Range Transportation Plan provides for the expeditious implementation of plan elements.
4. A determination was made through the quantitative conformity analysis that the Long-Range Transportation Plan will contribute to reductions in annual Volatile Organic Compounds (VOC)/ozone emissions in the non-attainment area.
5. A determination was made through the quantitative conformity analysis that the Long-Range Transportation Plan does not increase the frequency or severity of the NAAQS for the Grand Rapids ozone non-attainment area.

The impacts of air quality and more specifically, the status of those areas represented by the Grand Valley Metro Council are shown on the map on the following page. Later in this chapter, a chart showing the calculated emissions of the proposed transportation improvements along with the budgeted emissions allowed by the State and Federal environmental agencies is detailed. The calculated emissions for the Plan are based on a set of proposed transportation improvements that are scheduled for the life of the Plan. That list of proposed improvements are also listed in this chapter along with the range of years that each improvement is expected to take place.

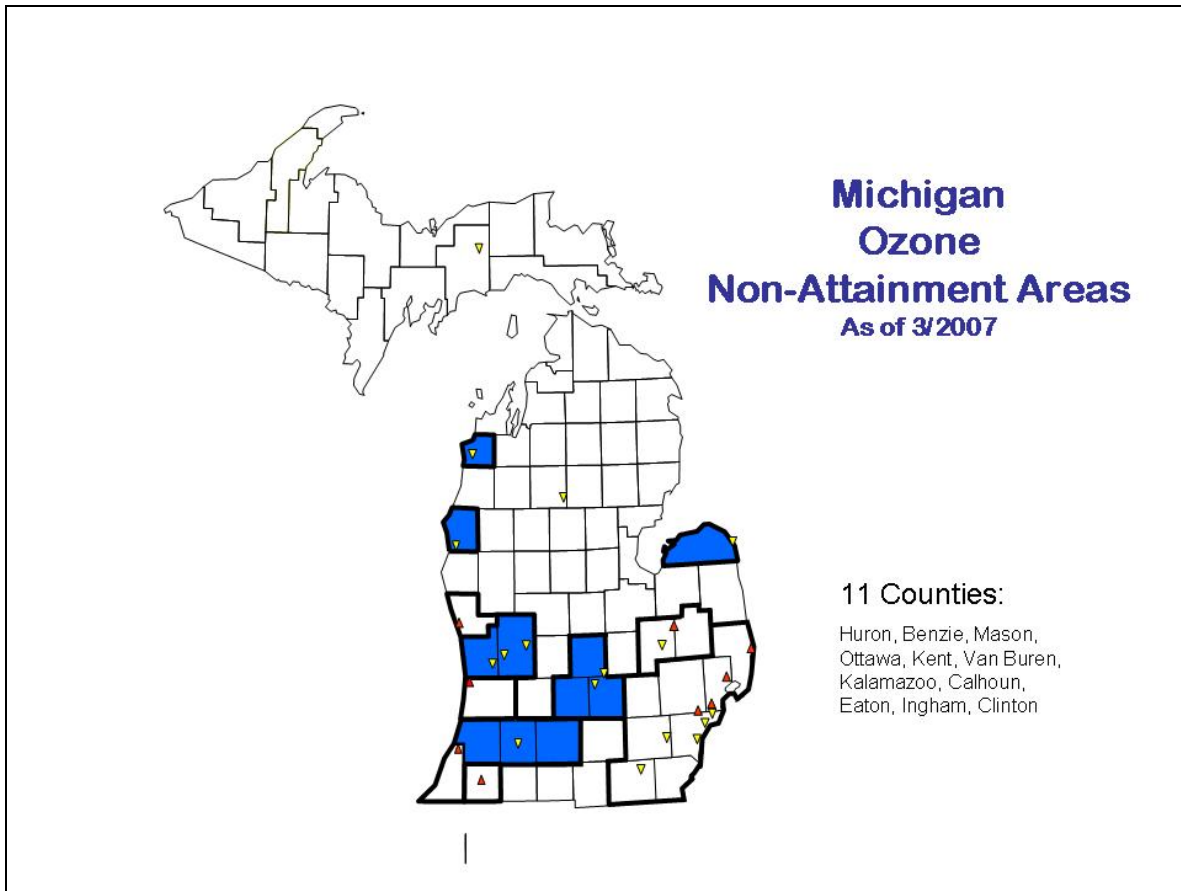


Figure 14 – Michigan Ozone Non-Attainment Areas

The map above denotes those areas that are classified as Non-Attainment areas for Ozone as of March 2007. The Grand Valley Metro Council/Grand Rapids MPO area includes Kent and Ottawa County, which are currently designated. The red and yellow symbols denoted on the map represent stations where ozone is measured. Those areas that are outlined in black but not shaded blue have a different air quality status than do the blue shaded counties. Air quality impacts of transportation improvements are scrutinized very seriously in the transportation planning process. Federal and State environmental agencies provide the Grand Rapids area with an air quality budget for Volatile Organic Compounds (VOC) and for Nitrous Oxide (Nox).

PROPOSED TRANSPORTATION IMPROVEMENTS

The proposed transportation improvements included on the following pages is a list of roadway facilities that have been identified because they are currently, or are projected to be, deficient by the year 2035. The projects listed after the 2009 are projected to be capacity deficient by the year that is listed within the project scope. This list was developed with the full concurrence of the GVMC Technical and Policy Committees, and the respective communities and agencies represented on those committees.

The list is to be considered a “work in progress” due to the fact that projects may be added or taken off of the list depending upon ever changing circumstances in the metropolitan area. MPO staff will be responsible for the maintenance of the following list and subsequent updates.

The projects are presented in chronological order and are not intended to be “prioritized” in any manner. It is the sole discretion of the GVMC Committees to prioritize and program projects based upon circumstances that exist when programming efforts occur.

The list that follows is arranged by: Facility Name, Limits, Jurisdiction, Possible Alternative, Length, Estimated Improvement Cost, Project Type, Air Quality Status, and Length of project.

GVMC 2035 Long Range Transportation Plan Projects

FY 2008 - 2011 STPU (\$32,300,000 Federal Available)											
ROADWAY	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE	FUNDING SOURCES			ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH
					EST STP-U	EST EDF-C	EST LOCAL MATCH				
Rivertown Parkway	Ivanrest	Wilson	City of Grandville	Resurface Existing in 2008	\$470,250		\$279,750	\$750,000	Preservation	Yes	1.00
68th Street	Division	Kalamazoo	Gaines Twp - KCRC	Resurface Existing in 2008	\$470,250		\$279,750	\$750,000	Preservation	Yes	2.00
28th Avenue	Hudsonville CL	Baldwin	Georgetown Twp - OCRC	Reconstruct and Widen from 2 to 5 lanes in 2008	\$1,504,800		\$895,200	\$2,400,000	Widen	No	1.40
Wealthy Street	Division	Lafayette	City of Grand Rapids	Reconstruct Existing in 2008	\$683,430		\$406,570	\$1,090,000	Preservation	Yes	0.30
Kalamazoo Avenue	52nd Street	60th Street	City of Kentwood	Reconstruct and Widen to 4 Lane Boulevard in 2008	\$1,254,000		\$746,000	\$2,000,000	Widen	No	1.00
Wealthy Street	East Grand Rapids CL	Plymouth	City of East Grand Rapids	Resurface Existing in 2008	\$73,735		\$43,865	\$117,600	Preservation	Yes	0.27
Fuller Street	Franklin	Wealthy	City of Grand Rapids	Reconstruct Existing in 2008	\$990,660		\$589,340	\$1,580,000	Preservation	Yes	0.55
Leonard Street	Carpenter	Oakleigh	City of Grand Rapids	Reconstruct Existing in 2008	\$827,640		\$492,360	\$1,320,000	Preservation	Yes	0.39
Covell Street	Lake Michigan Drive	Leonard	City of Grand Rapids	Resurface Existing in 2008	\$470,250		\$279,750	\$750,000	Preservation	Yes	1.00
Patterson Avenue	28th Street	36th Street	Cascade Twp - KCRC	Resurface Existing in 2008	\$438,900		\$261,100	\$700,000	Preservation	Yes	1.00
Breton Road	Lake Street	Hall Street	City of East Grand Rapids	Resurface Existing in 2008	\$56,430		\$33,570	\$90,000	Preservation	Yes	0.39
W. Muskegon Street	West St.	Second St.	City of Cedar Springs	Resurface Existing in 2008	\$89,751		\$46,649	\$136,400	Preservation	Yes	0.46
Jefferson Ave	Cherry	Wealthy	City of Grand Rapids	Reconstruct Existing in 2008	\$460,600		\$239,400	\$700,000	Preservation	Yes	0.25
Patterson Ave	Burton	28th Street	Cascade Twp - KCRC	Resurface Existing in 2008	\$329,000		\$171,000	\$500,000	Preservation	Yes	0.50
Lake Michigan Drive	Fulton St Turnoff	Garfield	City of Grand Rapids	Resurface Existing in 2009	\$128,350		\$41,650	\$170,000	Preservation	Yes	0.27
Division Avenue	Cottage Grove	Home	City of Grand Rapids	Reconstruct Existing in 2009	\$755,000		\$245,000	\$1,000,000	Preservation	Yes	0.30
Lyon Street	Division	Lafayette	City of Grand Rapids	Reconstruct Existing in 2009	\$858,813		\$278,688	\$1,137,500	Preservation	Yes	0.30
Walker Avenue	32' N of CL Leonard St	City Limits	City of Grand Rapids	Resurface Existing in 2009	\$369,950		\$120,050	\$490,000	Preservation	Yes	1.20
Ivanrest Avenue	Rivertown Pkwy	S City Limits	City of Grandville	Resurface Existing in 2009	\$169,875		\$55,125	\$225,000	Preservation	Yes	0.42
60th Street	Division	Eastern	Gaines Twp - KCRC	Resurface Existing in 2009	\$490,750		\$159,250	\$650,000	Preservation	Yes	0.96
68th Street	Plaster Cr.	2700' E of Hanna Lake	Gaines Twp - KCRC	Resurface Existing in 2009	\$490,750		\$159,250	\$650,000	Preservation	Yes	1.09
Hanna Lake Avenue	68th St	Wing Avenue	Gaines Twp - KCRC	Reconstruct Existing/Add Center Turn Lane in 2009	\$604,000		\$196,000	\$800,000	Preservation	Yes	0.50
Eastern Avenue	60th St	68th St	Gaines Twp - KCRC	Resurface Existing in 2009	\$490,750		\$159,250	\$650,000	Preservation	Yes	0.98
52nd St./Kelllogg Woods	Division	Eastern	City of Kentwood	Resurface Existing in 2009	\$286,900		\$93,100	\$380,000	Preservation	Yes	1.51
44th Street	Eastern	Kalamazoo	City of Kentwood - KCRC	Resurface Existing in 2009	\$528,500		\$171,500	\$700,000	Preservation	Yes	1.00
Fillmore St/Cottonwood Dr	48th Avenue	Taylor St	Georgetown Twp - OCRC	Resurface Existing in 2009	\$528,500		\$171,500	\$700,000	Preservation	Yes	4.50
Main Street	South St.	Muskegon St.	City of Cedar Springs	Reconstruct Existing in 2009	\$221,378		\$100,020	\$333,400	Preservation	Yes	0.23
Cascade Road	Burton	Thorncrest	Cascade Twp - KCRC	Resurface Existing in 2009	\$242,360		\$109,500	\$365,000	Preservation	Yes	0.82
Kalamazoo Avenue	44th Street	52nd Street	City of Kentwood	Reconstruct to 4 Lane Blvd in 2009	\$1,925,000		\$870,000	\$2,900,000	Preservation	Yes	0.75
Main Street	Chicago Drive	Kenowa	Georgetown Twp - OCRC	Resurface Existing in 2009	\$86,320		\$39,000	\$130,000	Preservation	Yes	0.30
Kalamazoo Avenue	Burton	Alger	City of Grand Rapids	Reconstruct Existing in 2010	\$979,950		\$430,050	\$1,410,000	Preservation	Yes	0.50
Lakeside Drive	Robinson	Greenwood	City of East Grand Rapids	Reconstruct Existing in 2010	\$771,450		\$338,550	\$1,110,000	Preservation	Yes	0.40
8th Avenue	M-45	Ironwood	Tallmadge Twp - OCRC	Resurface Existing (Standardize Lane Width) in 2010	\$590,750		\$259,250	\$850,000	Preservation	Yes	4.00
3 Mile Road	Bristol	Alpine	City of Walker	Resurface Existing in 2010	\$496,925		\$218,075	\$715,000	Preservation	Yes	0.85
Eastern Avenue	44th Street	52nd Street	City of Kentwood	Resurface Existing in 2010	\$451,750		\$198,250	\$650,000	Preservation	Yes	1.00
Lake Drive	Fulton	Abney	City of Grand Rapids	Reconstruct Existing in 2010	\$611,600		\$268,400	\$880,000	Preservation	Yes	0.31
Spaulding Avenue	Cascade Rd	M-21	Cascade Twp - KCRC	Resurface Existing in 2010	\$468,500		\$213,500	\$700,000	Preservation	Yes	1.42
Van Buren Street	22nd Avenue	44th Street	Georgetown Twp - OCRC	Resurface Existing in 2010	\$364,875		\$160,125	\$525,000	Preservation	Yes	3.00
Scribner Avenue	US-131 Off Ramp	Webster	City of Grand Rapids	Resurface Existing in 2010	\$90,350		\$39,650	\$130,000	Preservation	Yes	0.46
Turner Avenue	Leonard	6th Street	City of Grand Rapids	Resurface Existing in 2010	\$111,200		\$48,800	\$160,000	Preservation	Yes	0.55
Division Avenue	Home	Highland	City of Grand Rapids	Reconstruct Existing in 2010	\$611,600		\$268,400	\$880,000	Preservation	Yes	0.31
Thornapple River/Thornhills Drive	I-96	28th Street	Cascade Twp - KCRC	Resurface Existing in 2010	\$542,534		\$238,091	\$780,625	Preservation	Yes	1.38
Plymouth Avenue	Burton	Boston	City of Grand Rapids	Reconstruct Existing in 2011	\$994,000		\$426,000	\$1,420,000	Preservation	Yes	0.50
Lafayette Avenue	Wealthy	State	City of Grand Rapids	Reconstruct Existing in 2011	\$651,000		\$279,000	\$930,000	Preservation	Yes	0.33
Leonard Street	Nixon	Collingdale	City of Grand Rapids	Reconstruct Existing in 2011	\$1,022,000		\$438,000	\$1,460,000	Preservation	Yes	0.52
Breton Avenue	North CL	Burton	City of Grand Rapids	Reconstruct Existing in 2011	\$210,000		\$90,000	\$300,000	Preservation	Yes	0.25
West River Drive	Jupiter	Rogue River Bridge	Plainfield Twp - KCRC	Reconstruct Existing in 2011 and Add Center Turn Lane	\$1,155,000		\$495,000	\$1,650,000	Preservation	Yes	0.80
Eastern Avenue	52nd Street	60th Street	City of Kentwood	Resurface Existing in 2011	\$455,000		\$195,000	\$650,000	Preservation	Yes	1.00
12th Avenue	Port Sheldon	Baldwin	Georgetown Twp - OCRC	Resurface Existing in 2011 + 3' Paved Shoulder	\$252,000		\$108,000	\$360,000	Preservation	Yes	1.30
8th Avenue	Port Sheldon	44th Street	Georgetown Twp - OCRC	Reconstruct Existing/Add Center Turn Lane in 2011	\$404,685		\$170,315	\$575,000	Preservation	Yes	0.50
24th Avenue	Byron	Ottogon	Jamestown Twp - OCRC	Resurface Existing in 2011	\$360,500		\$154,500	\$515,000	Preservation	Yes	3.00
Bristol Avenue	3 Mile	4 Mile	City of Walker	Resurface Existing in 2011	\$245,000		\$105,000	\$350,000	Preservation	Yes	0.99
1st Street	Lane	Stocking	City of Grand Rapids	Resurface Existing in 2011	\$70,000		\$30,000	\$100,000	Preservation	Yes	0.36
Baldwin Street	Cottonwood Drive	Main Street Curve	Georgetown Twp - OCRC	Needs Further Study after Baldwin Connector	\$32,000		\$8,000	\$40,000	Preservation	Yes	0.16
Forest Hill Avenue	Kentwood North CL	I-96	City of Kentwood	Reconstruct by 2011 (AC 2011, ACC 2013-14)	\$0		\$2,100,000	\$2,100,000	Preservation	Yes	0.91
West River Drive	Rogue River	M-44 (Northland Drive)	Plainfield Twp - KCRC	Reconstruct and Add Center Turn Lane by 2025	\$1,184,280		\$498,414	\$1,682,694	Preservation	Yes	1.49
Planning Studies (\$250,000/yr)		Various Locations		Congestion, Pavement, Safety Management System Support	\$1,000,000		\$250,000	\$1,250,000	Preservation	Yes	
Total					\$30,423,841	\$0	\$15,761,557	\$46,338,219			

FY 2008 - 2011 EDFC (\$7,300,000 EDFC Available)											
ROADWAY	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE	FUNDING SOURCES			ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH
					STP-U	EDF-C	LOCAL MATCH				
East Paris Avenue/Swank Drive	36th Street	M-37	City of Kentwood	Reconstruct and Widen from 2 to 3 lanes in 2008		\$522,750	\$227,250	\$750,000	Widen	No	0.50
Northland Drive	13 Mile Road	14 Mile Road	Algoma Twp - KCRC	Reconstruct and Widen from 2 to 5 lanes in 2008		\$1,394,000	\$606,000	\$2,000,000	Widen	No	0.62
44th Street	Clyde Park Avenue	500' West	City of Wyoming	Widen from 4 to 6 Lanes in 2009		\$343,500	\$156,500	\$500,000	Widen	No	0.10
44th Street	Clyde Park Avenue	SB US-131 Ramps	City of Wyoming	Reconstruct and Widen to accommodate SPU by 2009		\$375,000	\$175,000	\$550,000	Widen	No	0.10
44th Street	SB US-131 Ramps	NB US-131 Ramps	City of Wyoming	Construction of SPU by 2009		\$628,100	\$321,900	\$950,000	Widen	No	0.10
44th Street	NB US-131 Ramps	Clay Avenue	City of Wyoming	Reconstruct and Widen to accommodate SPU by 2009		\$175,000	\$175,000	\$350,000	Widen	No	0.10
10 Mile Road	2700' West of Wolven Ave	Childsdale Avenue	Algoma Twp - KCRC	Reconstruct and Widen to from 2 to 5 lanes in 2011		\$1,400,000	\$600,000	\$2,000,000	Widen	No	0.73
Northland Drive	M-57 (14 Mile)	Indian Lakes Road	Algoma Twp - KCRC	Reconstruct and Add Center Turn Lane by 2011		\$2,047,632	\$542,368	\$2,590,000	Widen	Yes	1.31
Forest Hill Avenue	Kentwood North CL	Cascade	Grand Rapids Twp - KCRC	Reconstruct and Add Center Turn Lane by 2011		\$414,018	\$185,982	\$600,000	Widen	Yes	0.35
Total						\$7,300,000	\$2,990,000	\$10,290,000			

GVMC 2035 Long Range Transportation Plan Projects

FY 2008 - 2011 MDOT											
ROADWAY	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE	Improve/Expand	Preservation	ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH	
I-196/ Baldwin Interchange*	I-196	Baldwin Road	Georgetown Twp/MDOT	Construct new interchange access	\$25,000,000		\$25,000,000	Widen	No	0.10	
US-131	At 44th Street		Wyoming/MDOT	Interchange Improvements	\$2,500,000	\$7,500,000	\$10,000,000	Widen/Preserve	Yes	0.10	
I-196	Grand River/US-131 Junct.	Fuller	MDOT	Add Weave/Merge, Bridges and Roadway Reconstruction	\$5,000,000	\$20,000,000	\$25,000,000	Widen/Preserve	No	1.75	
I-196/I-96 Bridges*	Ottawa/Ionia	I-196/I-96 Junction	MDOT	Rehab and widening of bridges to accommodate condition issues and future traffic		\$24,000,000	\$24,000,000	Preservation	Yes	0.50	
College	I-196		MDOT/Grand Rapids	Add turning lanes to bridges and ramps @ I-196	\$2,000,000	\$6,000,000	\$8,000,000	Widen/Preserve	No	0.10	
I-196	Grand River/US-131 Junct.	Fuller	MDOT	Widen from 2 to 3 lanes in each direction	\$20,000,000		\$20,000,000	Widen	No	1.75	
Fuller	at I-196		MDOT/Grand Rapids	Add turning lanes to bridges and ramps @ I-196	\$4,000,000	\$6,000,000	\$10,000,000	Widen/Preserve	Yes	0.10	
Total					\$58,500,000	\$63,500,000	\$122,000,000				
* Project costs are estimates. Final costs will be determined upon final design. Funding is committed for these project through construction.											
FY 2008 - 2011 Transit											
PROJECT	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE	FUNDING SOURCE		ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH	
					ETA Very Small Starts	LOCAL MATCH					
The Rapid/ITP Bus Rapid Transit System	60th Street	Rapid Central Station	ITP/The Rapid	Construct South Division Ave. Corridor to serve from 60th St. to Wealthy St., Saint Mary's campus, Michigan Hill Medical Corridor, downtown Grand Rapids, and the Rapid Central Station. The system would also include 19 transit stations and 10 hybrid electric low floor buses.	\$29,336,800	\$7,334,200	\$36,671,000	Transit	No	9.87	
Total					\$29,336,800	\$7,334,200	\$36,671,000				
FY 2012 - 2018 STPU (\$56,452,823 Federal Available)											
ROADWAY	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE	STP-U	EDF-C	LOCAL MATCH	ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH
32nd Street	GR/KW CL	Bretton Avenue	City of Kentwood	Reconstruct and Add Center Turn Lane by 2018	\$315,840		\$78,960	\$394,800	Preservation	Yes	0.25
32nd Street	Bretton Avenue	Shaffer Avenue	City of Kentwood	Reconstruct and Add Center Turn Lane by 2018	\$1,263,360		\$315,840	\$1,579,200	Preservation	Yes	1.00
Kenowa Avenue	Curve	Tyler/36th Street	City of Grandville	Reconstruct and Add Center Turn Lane by 2018	\$225,600		\$56,400	\$282,000	Preservation	Yes	0.16
44th Street	West CL	Byron Center Avenue	City of Wyoming	Reconstruct and Widen to 6 Lane Blvd by 2018	\$1,534,080		\$383,520	\$1,917,600	Widen	No	0.48
Port Sheldon Street**	48th Avenue	40th Avenue	Georgetown Twp - OCRC	Reconstruct and Widen to 5 lanes by 2018	\$1,410,000		\$1,410,000	\$2,820,000	Widen	No	1.00
28th Avenue**	Baldwin Street	Bauer Road	Georgetown Twp - OCRC	Reconstruct and Widen to 5 lanes by 2018	\$1,410,000		\$1,410,000	\$2,820,000	Widen	No	1.00
48th Avenue**	Fillmore Street	M-45 (Lake Michigan Drive)	Allendale Twp - OCRC	Reconstruct and Widen to 4 Lane Blvd by 2018	\$1,974,000		\$1,974,000	\$3,948,000	Widen	No	1.00
Division Avenue	54th Street	60th Street	City of Wyoming	Reconstruct from 4-Lanes to 4-Lane Divided by 2014	\$149,521		\$1,530,479	\$1,680,000	Preservation	Yes	0.76
Forest Hill Avenue	Kentwood North CL	I-96	City of Kentwood	Reconstruct by 2011 (AC 2011, ACC 2013-14)	\$967,636		\$0	\$967,636	Preservation	Yes	0.91
68th Street	Clyde Park	Burlingame	Byron Twp - KCRC	Resurface by 2018	\$350,000		\$150,000	\$500,000	Preservation	Yes	1.00
TSM, TDM, Transit Options		Various Locations		Projects selected through the GVMC Congestion Management Sys.	\$2,707,200		\$676,800	\$3,384,000	Preservation	Yes	
Planning Studies (\$250,000/yr)		Various Locations		Congestion, Pavement, Safety Management System Support	\$1,974,000		\$493,500	\$2,467,500	Preservation	Yes	
Safety Projects (\$250,000/yr)		Various Locations		Projects selected through the GVMC Safety Management Sys.	\$1,974,000		\$493,500	\$2,467,500	Preservation	Yes	
ITS Projects (\$350,000/yr)		Various Locations		Projects selected through the GVMC ITS/Traffic Operations Comm.	\$2,763,600		\$690,900	\$3,454,500	Preservation	Yes	
Preservation Projects*		Various Locations		Projects selected through the GVMC Pavement Management Sys.	\$36,628,503		\$19,771,497	\$56,400,000	Preservation	Yes	
Total					\$55,647,340	\$0	\$29,435,396	\$85,082,736			
**Programmed at 50%/50% Federal/Local Match											
FY 2012 - 2018 EDFC (\$16,980,873 EDFC Available)											
ROADWAY	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE	STP-U	EDF-C	LOCAL MATCH	ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH
3 Mile Road	Fuller Avenue	GR/GR Twp CL	City of Grand Rapids	Reconstruct and Widen to 4 lanes by 2018		\$1,398,720	\$349,680	\$1,748,400	Widen	No	0.77
Knapp Street	Plainfield Avenue	Diamond Avenue	City of Grand Rapids	Reconstruct and Widen to 4 lanes by 2018		\$1,082,880	\$270,720	\$1,353,600	Widen	No	0.59
Knapp Street	Diamond Avenue	Fuller Avenue	City of Grand Rapids	Reconstruct and Widen to 4 lanes by 2018		\$451,200	\$112,800	\$564,000	Widen	No	0.25
Knapp Street	M-44	Dunnigan Avenue	City of Grand Rapids - KCRC	Reconstruct and Widen to 4 lanes by 2018		\$496,320	\$124,080	\$620,400	Widen	No	0.27
44th Street	Clay Avenue	Buchanan Avenue	City of Wyoming	Reconstruct and Widen to 6 Lane Blvd by 2018		\$1,353,600	\$338,400	\$1,692,000	Widen	No	0.42
44th Street	Buchanan Avenue	Division Avenue	City of Wyoming	Reconstruct and Widen to 6 Lane Blvd by 2018		\$812,160	\$203,040	\$1,015,200	Widen	No	0.26
Forest Hill Ave	Ada Drive	M-21	Grand Rapids Twp - KCRC	Reconstruct and Add Center Turn Lane by 2018		\$1,280,000	\$338,240	\$1,600,000	Widen	No	1.00
Clyde Park Avenue	.10 miles South of 68th St	.10 miles North of 76th St	Byron Twp - KCRC	Widen from 2 to 3 lanes by 2018		\$832,000	\$314,288	\$1,040,000	Widen	No	0.80
Northland Drive	Indian Lake	South Street	Nelson Twp - KCRC	Reconstruct and Add Center Turn Lane by 2018		\$1,600,000	\$400,000	\$2,000,000	Widen	No	0.66
Knapp Street	at Grand River Drive		Ada Twp - KCRC	Add Turn Lanes		\$440,000	\$110,000	\$550,000	Widen	Yes	0.10
ITS	areawide		City of Grand Rapids	ITS Activities		\$109,544	\$27,386	\$136,930	N/A	Yes	0.00
4 Mile Road	Walker Ave	Old Orchard	Alpine Twp - KCRC	Reconstruct and Widen from 2 to 3 lanes by 2018		\$2,188,288	\$547,072	\$2,735,360	Widen	No	1.90
Total					\$0	\$12,044,712	\$3,135,706	\$15,055,890			
FY 2012 - 2018 MDOT											
ROADWAY	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE	Improve/Expand	Preservation	ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH	
I-196*	Fuller	I-96/I-196 Junction	MDOT	Rehabilitation of existing road and bridges		\$20,000,000	\$20,000,000	Preservation	Yes	2.00	
Total						\$20,000,000	\$20,000,000				
* Project costs are estimates. Final costs will be determined upon final design. Funding is committed for these project through construction.											

GVMC 2035 Long Range Transportation Plan Projects

FY 2019 - 2025 STPU (\$60,155,781 Federal Available)											
ROADWAY	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE	FUNDING SOURCES			ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH
					STP-U	EDF-C	LOCAL MATCH				
68th Avenue	M-45 (Lake Michigan Drive)	Warner Street	Allendale Twp - OCRC	Reconstruct and Widen to 5 lanes by 2025	\$3,789,178		\$947,294	\$4,736,472	Widen	No	1.51
68th Avenue*	Warner Street	Leonard Street	Allendale Twp - OCRC	Reconstruct and Widen Roadway & Bridge to 5 lanes by 2025	\$6,855,420		\$6,855,420	\$13,710,840	Widen	No	1.55
Cottonwood Drive	Bauer Road	Fillmore Street	Georgetown Twp - OCRC	Reconstruct and Widen to 5 lanes by 2025	\$3,589,747		\$897,437	\$4,487,184	Widen	No	1.44
Cottonwood Drive	Baldwin Street	Bauer Road	Georgetown Twp - OCRC	Reconstruct and Add Center Turn Lane by 2025	\$1,994,304		\$498,576	\$2,492,880	Preservation	Yes	1.43
Walker Avenue	Sharp Street	Waldorf Street	City of Walker	Reconstruct/Add Center Lane/widen bridge by 2025	\$2,243,592		\$560,898	\$2,804,490	Preservation	Yes	0.17
TSM, TDM, Transit Options		Various Locations		Projects selected through the GVMC Congestion Management Sys.	\$2,991,456		\$747,864	\$3,739,320	Preservation	Yes	
Planning Studies (\$250,000/yr)		Various Locations		Congestion, Pavement, Safety Management System Support	\$2,181,270		\$545,318	\$2,726,588	Preservation	Yes	
Safety Projects (\$250,000/yr)		Various Locations		Projects selected through the GVMC Safety Management Sys.	\$2,181,270		\$545,318	\$2,726,588	Preservation	Yes	
ITS Projects (\$350,000/yr)		Various Locations		Projects selected through the GVMC ITS/Traffic Operations Comm.	\$3,053,778		\$763,445	\$3,817,223	Preservation	Yes	
Preservation Projects**		Various Locations		Projects selected through the GVMC Pavement Management Sys.	\$31,275,766		\$31,046,234	\$62,322,000	Preservation	Yes	
Total					\$60,155,781		\$0	\$43,407,803			
*Project includes bridge improvements and is programmed at 50/50 Match Rate											
**Programmed at 70/30 Match Rate											
FY 2019 - 2025 EDFC (\$18,094,720 EDFC Available)											
ROADWAY	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE	FUNDING SOURCES			ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH
					STP-U	EDF-C	LOCAL MATCH				
Fruit Ridge Avenue	I-96 EB On Ramp	I-96 WB Off Ramp	City of Walker	Widen in conjunction with MDOT		\$897,437	\$224,359	\$1,121,796	Widen	No	0.24
Bretton Avenue	28th Street	Burton Street	City of Grand Rapids	Reconstruct and Add Center Turn Lane by 2025		\$1,495,728	\$373,932	\$1,869,660	Preservation	Yes	1.00
College Avenue	EB I-196 ramps	WB I-196 ramps	City of Grand Rapids	Reconstruct and Realign with ITS by 2025		\$448,718	\$112,180	\$560,898	Preservation	Yes	0.08
College Avenue	Michigan Street	I-196 Ramps	City of Grand Rapids	Reconstruct and Realign with ITS by 2025		\$448,718	\$112,180	\$560,898	Preservation	Yes	0.06
10 Mile Road	Mary Ester Drive	Algoma Avenue	Algoma Twp - KCRC	Reconstruct and Add Center Turn Lane by 2025		\$1,495,728	\$373,932	\$1,869,660	Preservation	Yes	1.18
10 Mile Road	Pine Island Drive	Mary Ester Drive	Algoma Twp - KCRC	Reconstruct and Add Center Turn Lane by 2025		\$1,096,867	\$274,217	\$1,371,084	Preservation	Yes	0.84
10 Mile Road	Division Avenue	Pine Island Drive	Algoma Twp - KCRC	Reconstruct and Add Center Turn Lane by 2025		\$1,196,582	\$299,146	\$1,495,728	Preservation	Yes	0.99
Post Drive	US-131	Pine Island Drive	Plainfield Twp - KCRC	Reconstruct and Add Center Turn Lane by 2025		\$598,291	\$149,573	\$747,864	Preservation	Yes	0.30
52nd Street	Ivanrest Avenue	Byron Center Avenue	City of Wyoming	Reconstruct and Add Center Turn Lane by 2025		\$1,495,728	\$373,932	\$1,869,660	Preservation	Yes	0.90
52nd Street	Byron Center Avenue	Burlingame Avenue	City of Wyoming	Reconstruct and Add Center Turn Lane by 2025		\$1,495,728	\$373,932	\$1,869,660	Preservation	Yes	0.90
52nd Street	Burlingame Avenue	Clyde Park Avenue	City of Wyoming	Reconstruct and Add Center Turn Lane by 2025		\$1,495,728	\$373,932	\$1,869,660	Preservation	Yes	0.90
56th Street	Ivanrest Avenue	Byron Center Avenue	City of Wyoming	Reconstruct and Add Center Turn Lane by 2025		\$1,495,728	\$373,932	\$1,869,660	Preservation	Yes	0.90
3 Mile Road	Walker Avenue	Indian Creek Road	City of Walker	Reconstruct and Widen from 2 to 5 lanes in 2025		\$1,916,568	\$479,142	\$2,395,710	Widen	No	0.61
Total						\$0	\$15,577,550	\$3,894,388			
FY 2019 - 2025 MDOT											
ROADWAY	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE	FUNDING SOURCES		ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH	
					Improve/Expand	Preservation					
I-196	Fuller	I-96/I-196 Junction	MDOT	Widen from 2 to 3 lanes in each direction		\$15,000,000	\$15,000,000	Widen	No	2.00	
M-44/M-37	Knapp	M-21	MDOT	Preseve/Widen Existing Roadway		\$15,000,000	\$15,000,000	Widen/Preserve	No	2.50	
Total						\$30,000,000	\$15,000,000				
FY 2026 - 2035 STPU (\$92,845,240 Federal Available)											
ROADWAY	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE	FUNDING SOURCES			ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH
					STP-U	EDF-C	LOCAL MATCH				
68th Avenue	Pierce Street	M-45 (Lake Michigan Drive)	Allendale Twp - OCRC	Reconstruct and Add Center Turn Lane by 2035	\$1,448,363		\$362,091	\$1,810,454	Preservation	Yes	1.00
68th Avenue	Fillmore Street	Pierce Street	Allendale Twp - OCRC	Reconstruct and Add Center Turn Lane by 2035	\$1,448,363		\$362,091	\$1,810,454	Preservation	Yes	1.01
48th Avenue	Bauer Road	Fillmore Street	Georgetown Twp - OCRC	Reconstruct and Widen to 4 Lane Blvd by 2035	\$6,372,798		\$1,593,200	\$7,965,998	Widen	No	1.51
TSM, TDM, Transit Options		Various Locations		Projects selected through the GVMC Congestion Management Sys.	\$4,634,762		\$1,158,691	\$5,793,453	Preservation	Yes	
Planning Studies (\$250,000/yr)		Various Locations		Congestion, Pavement, Safety Management System Support	\$3,620,908		\$905,227	\$4,526,135	Preservation	Yes	
Safety Projects (\$250,000/yr)		Various Locations		Projects selected through the GVMC Safety Management Sys.	\$3,620,908		\$905,227	\$4,526,135	Preservation	Yes	
ITS Projects (\$350,000/yr)		Various Locations		Projects selected through the GVMC ITS/Traffic Operations Comm.	\$5,069,271		\$1,267,318	\$6,336,589	Preservation	Yes	
Preservation Projects*		Various Locations		Projects selected through the GVMC Pavement Management Sys.	\$66,629,865		\$63,722,830	\$130,352,695	Preservation	Yes	
Total					\$92,845,240		\$0	\$70,276,674			

GVMC 2035 Long Range Transportation Plan Projects

FY 2026 - 2035 EDFC (\$27,927,630 EDFC Available)											
ROADWAY	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE	FUNDING SOURCES			ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH
					STP-U	EDF-C	LOCAL MATCH				
Fruit Ridge Avenue	4 Mile Road	5 Mile Road	Alpine Twp - KCRC	Reconstruct and Add Center Turn Lane by 2035		\$1,506,298	\$376,574	\$1,882,872	Preservation	Yes	1.07
Fruit Ridge Avenue	5 Mile Road	6 Mile Road	Alpine Twp - KCRC	Reconstruct and Add Center Turn Lane by 2035		\$1,390,429	\$347,607	\$1,738,036	Preservation	Yes	1.00
Fruit Ridge Avenue	6 Mile Road	7 Mile Road	Alpine Twp - KCRC	Reconstruct and Add Center Turn Lane by 2035		\$1,390,429	\$347,607	\$1,738,036	Preservation	Yes	1.00
Fruit Ridge Avenue	7 Mile Road	8 Mile Road	Alpine Twp - KCRC	Reconstruct and Add Center Turn Lane by 2035		\$1,448,363	\$362,091	\$1,810,454	Preservation	Yes	1.01
3 Mile Road	Dean Lake Avenue	Leffingwell Avenue	Grand Rapids Twp - KCRC	Reconstruct and Add Center Turn Lane by 2035		\$1,158,691	\$289,673	\$1,448,363	Preservation	Yes	0.75
3 Mile Road	Leffingwell Avenue	M-44 (East Beltline)	Grand Rapids Twp - KCRC	Reconstruct and Add Center Turn Lane by 2035		\$753,149	\$188,287	\$941,436	Preservation	Yes	0.51
Knapp Street	GR/GR Twp CL	Leffingwell Avenue	Grand Rapids Twp - KCRC	Reconstruct and Add Center Turn Lane by 2035		\$869,018	\$217,254	\$1,086,272	Preservation	Yes	0.60
7 Mile Road	Division Avenue	Pine Island Drive	Plainfield Twp - KCRC	Reconstruct and Add Center Turn Lane by 2035		\$1,158,691	\$289,673	\$1,448,363	Preservation	Yes	0.81
Walker Avenue	Northridge Drive	4 Mile Road	City of Walker	Reconstruct and Widen to 5 lanes by 2035		\$1,738,036	\$434,509	\$2,172,545	Widen	No	0.55
76th Street	Burlingame Avenue	Clyde Park Avenue	Byron Twp - KCRC	Reconstruct and Add Center Turn Lane by 2035		\$1,390,429	\$347,607	\$1,738,036	Preservation	Yes	0.90
Knapp Street	East Grand Rapids CL	West of Leffingwell	Grand Rapids Twp - KCRC	Reconstruct and Add Center Turn Lane by 2035		\$695,214	\$173,804	\$869,018	Preservation	Yes	0.47
Burton Street	DeHoop Avenue	Clyde Park Avenue	City of Wyoming	Reconstruct and Add Center Turn Lane by 2035		\$869,018	\$217,254	\$1,086,272	Preservation	Yes	0.70
Burton Street	US-131	Buchanan Avenue	City of Grand Rapids	Reconstruct and Add Center Turn Lane by 2035		\$869,018	\$217,254	\$1,086,272	Preservation	Yes	0.50
Burton Street	Division Avenue	Eastern Avenue	City of Grand Rapids	Reconstruct and Add Center Turn Lane by 2035		\$1,738,036	\$434,509	\$2,172,545	Preservation	Yes	0.94
Burton Street	Plymouth Avenue	Breton Avenue	City of Grand Rapids	Reconstruct and Add Center Turn Lane by 2035		\$1,390,429	\$347,607	\$1,738,036	Preservation	Yes	0.75
Burton Street	Breton Avenue	M-37 (East Beltline)	City of Grand Rapids	Reconstruct and Add Center Turn Lane by 2035		\$2,317,381	\$579,345	\$2,896,727	Preservation	Yes	0.95
Total					\$0	\$20,682,628	\$5,170,657	\$25,853,285			
FY 2026 - 2035 MDOT											
ROADWAY	FROM	TO	JURISDICTION	POSSIBLE ALTERNATIVE		Improve/Expand	Preservation	ESTIMATED TOTAL COST	PROJECT TYPE	AQ ANALYSIS EXEMPT??	LENGTH
I-196	Ottawa	Division	MDOT	Add WB to NB ramp from I-196 to Division from the Ottawa WB offramp		\$15,000,000		\$15,000,000	Widen	No	0.10
I-96	Leonard	Cascade	MDOT	Preseve/Widen Existing Roadway		\$80,000,000	\$50,000,000	\$130,000,000	Widen/Preserve	No	3.75
I-96	at I-196 and M-21		MDOT	Additional Ramps		\$35,000,000		\$35,000,000	Widen	No	0.20
Total						\$130,000,000	\$50,000,000	\$180,000,000			

AIR QUALITY CONFORMITY

This 2035 Long-Range Transportation Plan combined with the projects contained in the Long-Range Transportation Plan of the MPO in Holland (The Macatawa Area Coordinating Council), Muskegon (West Michigan Shoreline Regional Development Commission), and long-range plans in rural Ottawa County must meet budgeted levels for Volatile Organic Compounds and Nitrogen Oxide (NOx) emissions. The spreadsheet below outlines those budget numbers and clearly displays the fact that the plans tested conform to the National Ambient Air Quality Standards.

The entire report on air quality conformity can be found in Appendix F.

VOC	Tons per Day	Tons per Day
Year	Calculated Emissions	Approved Budget
2007	25.975	40.70
2011	19.451	40.70
2018	13.314	40.70
2025	11.306	40.70
2035	12.027	40.70

NOX	Tons per Day	Tons per Day
Year	Calculated Emissions	Approved Budget
2007	38.493	97.87
2011	27.025	97.87
2018	14.194	97.87
2025	10.782	97.87
2035	9.879	97.87

Source: Air Quality Conformity text using Mobile 6 program.

Figure 15 — Air Quality Emissions (Tons per Day)

FINANCIAL ANALYSIS

The following pages are designed to provide expenditure and revenue data for the Grand Rapids Area over the life of the 2035 Long Range Transportation Plan:

ASSUMPTIONS FOR FINANCIAL ESTIMATES

Federal transportation legislation dictates that Long Range Transportation Plans developed by metropolitan areas must be financially constrained in that expenditures must not exceed revenues for the area.

Financial estimates for all categories in the local project section were based on historical levels (contained in the Transportation Improvement Program) and future annual funding estimates provided by MDOT.

As part of the Year of Expenditure Dollars federal requirement 23 CFR 450.322(f)(10)(i.v.) to incorporate inflation into project cost estimates, project costs have been adjusted as of December 11, 2007, and are reflected within the updated “GVMC 2035 Long Range Plan Projects” list. For the fiscal years 2008-2011, local jurisdictions applied inflation individually for their projects based on current consumer price indices. Letters indicating the application of inflation to project costs by local jurisdictions may be found in Appendix L. For the remainder of the 2035 Long Range Transportation Plan, inflation was applied to project cost estimates by GVMC staff. Based on recommendations from the Michigan Department of Transportation, an annual inflation rate of 4% was anticipated for the years 2012-2018 and an annual inflation rate of 3.3% was anticipated for the remainder of the Plan’s duration, 2018-2035. For each range of project years, an average inflation rate was calculated based on the annual inflation rates recommended. The average inflation rate applied to projects between 2012-2018 was calculated to be 12.8%. For 2019-2025 the average inflation rate applied was 10.5%, and for 2026-2035 the average inflation rate applied was 16.2%. For each range of project years the average inflation rate was applied including the compounding factor from the previous time period. In addition to reflecting the inflated project cost estimates in the Long Range Plan Projects list, the inflated project cost estimates were incorporated into the expenditure table, and estimates of both revenues and expenditures are provided through the year 2035.

Federal allocations include the congressionally-designated High Priority Projects Program of the federal transportation legislation, SAFETEA-LU as well as funds distributed at the discretion of the U. S. Secretary of Transportation. These funds are typically provided for a very specific project or use. These projects are usually awarded in conjunction with the passage of federal transportation legislation, which occurs every five to six years.

Grand Rapids is a Transportation Management Area (TMA). TMAs are areas of population greater than 200,000 and have a set aside of federal STP funds. These include the urbanized areas of Ann Arbor, Detroit, Flint, Grand Rapids, Lansing/East Lansing, and parts of South Bend (Niles) and Toledo (City of Monroe) that spill over into Michigan. In Michigan the entire set aside for TMAs is reserved for spending on local jurisdiction facilities.

The format used to provide these estimates has been agreed to in principal by the Michigan Department of Transportation, the Michigan Transportation Planning Association, and the Federal Highway Administration. Local modification is permitted where appropriate with proper justification.

FUNDING SOURCES

Federal Funds

The federal funds that come to the area are financed primarily by the users of the system. Fuel is taxed and receipts are deposited in the Highway Trust Fund and distributed to the States under programs in the federal legislation.

State Funds

At the State level, user fees include a per gallon tax on fuel and a per vehicle registration fee based on either vehicle weight or value. Those fees are deposited in the Michigan Transportation Fund (MTF) and distributed to State accounts and to counties, cities, and villages by the formula as dictated by State Act 51 of 1951.

Local Funds

Act 51 funds account for a high percentage of local transportation funds. Local communities also use general funds, millages, bonds, tax increment financing, and special assessments to fund improvements as well.

In the funding tables contained in this chapter, there are two funding areas/categories that are listed as local funds. Those categories are Operations and Maintenance funds and Non-Operations and Maintenance funds. General estimates were provided by the road implementing agencies in the Grand Rapids area for both funding areas. Operations and Maintenance funds are used for items such as snow plowing, pot hole patching, signage, and other expenses deemed necessary to operate and maintain the overall transportation network. Non Operations and Maintenance funds are used for local road projects or to match other state and federal funds being used for transportation project development. These Non Operation and Maintenance funds are used for projects within the local agency's jurisdiction such as repaving, reconstruction, safety, and bridge projects. These projects are generally not regionally significant, and are not required to be listed specifically in the plan. In the event that these projects are regionally significant, said projects will be included in the MPO planning process and will be included in subsequent Transportation Improvement Programs. The distribution of local funding estimates are based on vehicle miles traveled and on lane miles in the area. There are additional programs available to local units of government other than Operations and Maintenance. Following is a brief description of the programs utilized by local road agencies:

Surface Transportation Program (ST/STP)

STP is used by state and local jurisdictions for road and transit projects. Local projects are eligible for funding from the annual allocation of STP Funds to the Metropolitan Planning Organization (MPO). Road projects must be located on roads functionally classified as a rural major collector or higher. Ten percent of the STP fund is set aside for the Transportation Enhancement fund program. The remaining funds are used statewide or distributed to the MPO for use in the urbanized areas (STPU), rural areas (STPR), and small cities in rural areas with a population of 5,000 to 50,000 people (STP-Small Urban).

STP-Urban (STU)

Projects are selected by the Transportation Programming Study Group (a subcommittee of the Technical Committee) and recommended to the GVMC Technical and Policy Committees with the final stop at the GVMC Board for approval. These projects include resurfacing, capacity improvements, reconstruction, lane widening, new roads, intersection improvements and corridor studies. Transit projects are also eligible for STP funds.

STP-Small Urban Program

The Small Urban Program is funded with a state set aside of federal STP funds for urban areas between 5,000 and 50,000 population. Approximately 50 cities share this program and submit project requests to the MDOIT for their possible selection. The Census defined Urbanized Area for Lowell (located in eastern Kent County) is the only area eligible for these funds in the Grand Rapids metropolitan area.

STP-Rural

Outside of metropolitan areas, the Rural Task Forces decide how to spend the Rural STP and Transportation Economic Development Fund Category D (TEDF-D) programs (TEDF programs are explained in the next section). In the Urbanized areas, STP-Rural projects are programmed through the MPO process. The Rural STP program is created with a state set aside of federal funds. Groups of nearby counties meet together in Rural Task Forces to prioritize their transportation investments.

Functionally classified roads outside the urbanized area boundary are eligible for STP-Rural program funds. Transit providers in the rural area are also eligible for STP-R funds for projects such as bus replacement or rehabilitation; communication and maintenance equipment; operational support equipment and items related to services under the American Disability Act.

In Kent County, the Village of Caledonia, the Village of Sand Lake, the Village of Kent City and the Village of Casnovia are eligible recipients of these road funds. The Interurban Transit Partnership (ITP-The Rapid) selects transit projects in the rural area from the established specialized services committee and the Kent County Road Commission represents townships in rural Kent County. Ottawa County projects are selected by the Ottawa County Rural Task Force. Selected projects that are located within the MPO area must be included in the Grand Valley Metropolitan Council's TIP document.

Transportation Economic Development Fund

The Transportation Economic Development Fund (TEDF) was created through state enabling legislation in 1987 to alleviate transportation related barriers to economic development. The program mission continues to be to enhance the ability of the state to compete in an international economy, to serve as a catalyst for economic growth of the state, and to improve quality of life in the state. The program is divided into five categories. GVMC's metropolitan planning program is most impacted by Category C.

Category A (EDA)	Road Projects related to target industries and redevelopment.
Category C (EDC/EDCF)	Traffic congestion relief in urban counties.
Category D (EDD/EDDF)	Improvements in rural counties to create an all-season network.
Category E	Improvements related to the commercial forest industry.
Category F (EDF/EDFF)	Road improvements in cities and rural counties.

The EDCF program is established in state law with a set aside of state and federal funds for urban county congestion relief. The recipients include Kent, Genesee, Macomb, Oakland, and Wayne counties.

STP-Enhancement (STE)

Ten percent of Michigan's STP funding is set aside for Transportation Enhancement Activities (STE). These monies are designated specifically for the enhancement of the intermodal transportation network on projects such as landscaping, installing bicycle paths, historic preservation and mitigation of storm water run-off. Once these projects are selected they will be amended into the Transportation Improvement Program.

Highway Safety Improvement Program (HSIP)

SAFETEA-LU represents a change in the way Safety funds are distributed as previous legislation (TEA-21) allocated ten percent of STP funds for local safety projects statewide. The Safety program (HSIP), which is now a stand alone core program, allows for items such as upgrading traffic signs and

signals, replacement of guardrail or eliminating the need for guardrail, replacement of bridge railing and approach guardrail, removing roadside obstacles, and small intersection improvements.

Congestion Mitigation/Air Quality (CM/CMG)

CM funds are federal funds which link transportation to the Clean Air Act Amendments. These funds are used to implement transportation control measures which demonstrate emission and/or congestion reductions. Previously, the State of Michigan had received an annual allocation for use in the Grand Rapids, Muskegon and Detroit areas. Changes in the way air quality is measured in Michigan has resulted in 25 counties now being eligible for CM funding.

The types of projects funded in the Grand Rapids area include, but are not limited to, bus replacements, intersection improvements, ridesharing programs and an Ozone Action day awareness program, free bus rides on Ozone Action days, and non-motorized facilities. As part of project selection, the projected volatile organic compounds (VOC's) and nitrogen oxide (NOx) reductions are analyzed. These emissions are the precursors of Ozone which impact the West Michigan region.

Transit Funds

Section 5303 - Metropolitan Planning: These programs provide funding to support cooperative, continuous, and comprehensive planning for making transportation investment decisions in metropolitan areas and state wide. Metropolitan Planning Organizations (MPO) and stated departments of transportation are eligible recipients.

Section 5307 - Urbanized Area Formula: Formula grant program for urbanized areas over 50,000 in population. Funds are apportioned to urbanized areas utilizing a formula based on population, population density, and other factors associated with transit service and ridership.

Section 5309 - Capital Programs (New Starts, Bus & Bus Facilities): Provides discretionary capital assistance for the establishment and improvement of busways systems and upgrading of bus systems (buses, bus related equipment, and facilities).

Section 5310 - Capital: This program provides capital funds for transportation purposes to private, nonprofit corporations and associations, and public agencies for the specific purpose of assisting them in providing transportation services meeting the special needs of elderly persons and persons with disabilities. Public agencies are eligible to receive funding under this program if they have been approved by the state to coordinate services for elderly persons and persons with disabilities, and if they certify to the state that no non-profit corporations or associations are readily available in the area to provide service. Capital expenses may include vehicles, maintenance equipment, computers and communication equipment.

Section 5311 - Nonurbanized Area Formula Program: This is a formula assistance program used to provide federal funding to all legal bodies that provide general public transportation nonurbanized areas of the state. Funds may be used of capital, operating, and administrative assistance

Section 5311 (f) - Intercity Bus Capital Program: MDOT is required to spend a portion of its Section 5311 apportionment "to carry out a program for the development and support of intercity bus transportation." The portion required for intercity bus transportation is not less than 15 percent. The requirement is in effect unless the Governor certifies that Michigan's intercity bus service needs are be-

ing adequately met. Assistance under Section 5311 (f) must support intercity bus service in nonurbanized areas.

Transportation Enhancement program: Enhancement to new or existing transit facilities such as landscaping or the improvement of pedestrian access would qualify for enhancement funds, as would any type of preservation, rehabilitation, and operation of legitimate historic transit facilities.

Congestion Mitigation and Air Quality Improvement Program (CM): Directs funds toward transportation projects in Clean Air Act non-attainment areas for ozone and carbon monoxide.

Urban Area Program: Transportation Management Areas with a population over 200,000 are eligible for transit capital funding through TMA-Surface Transportation Program (ST) and Transportation Economic Development Fund Category C (EDC) federal funds.

Additionally, it should be noted that:

Safety and Enhancement are statewide competitive funding categories. As such, it is impossible to accurately estimate how much funding may come to the area in a single year. As noted previously, historical data was used to make those estimates.

It is assumed that the TEDF Program will continue to exist over the life of this plan, although the program is subject to change based on the action of the State Legislature.

The Long Range Transportation Plan deals with fiscal years, not calendar years.

The Long Range Transportation Plan must list **projects funded with federal funds and those that are regionally significant** regardless of the funding source. All known projects and revenue have been included in the following financial tables. As future projects in programs such as CM, STP-Enhancement, and HSIP are selected for funding, those projects will be amended into the GVMC TIP document.

Projects associated with the revenues and expenditures listed in the tables above are detailed on the pages to follow. Other funding sources available to agencies within the metropolitan planning process include the following:

Local Rail/Highway Crossing Program - The rail crossing program is funded with a set aside of state and federal funds for the purpose of improving safety at rail/highway crossings.

State Park Access Program (SPA) - The SPA program is a state set aside of federal STP funds for the purpose of improving local roads that serve state parks.

Recreational Trails Program (NRT) - The Recreational Trails program is a federal program for the purpose of providing improvements for motorized and non-motorized recreational trail users.

State Trunkline Programs - The state trunkline system is nearly 10,000 miles of the most heavily traveled roads in the state of Michigan. They are all funded from the pool of state and federal funds available to MDOT for the maintenance of the state trunkline system. State trunkline programs include:

Rehabilitate and Reconstruct Program - The Rehabilitate and Reconstruct program's purpose is to improve the pavement condition and ride quality on the system.

Trunkline Bridge Program - The bridge program provides for the inventory, inspection, analysis and emergency repair of trunkline bridges.

Capital Preventive Maintenance (CPM) Program for Highways and Bridges - The CPM program's purpose is to extend the life of pavement and prevent costly repairs in the future.

Capacity Improvements - Capacity improvements include the widening and resurfacing or reconstructing of roads with the purpose of relieving urban congestion and improving level of service along the most important commercial thoroughfares.

New Roads - The new roads program includes construction of new roads on new alignments in order to improve system continuity, relieve congestion, and continue Michigan's economic vitality.

Preliminary Engineering (PE) - PE includes funding for preliminary studies, surveys, drafting, and engineering work necessary to begin the development of road projects.

State Rail/Highway Crossing Program - the rail crossing program is funded with a statutory set aside of state and federal funds for the purpose of improving safety at rail/highway crossings. Projects were not selected in time to be included in the S/TIP and will need to be amended in once they are selected.

REVENUE ESTIMATE METHODOLOGY

The revenue tables listed on the previous pages were constructed using figures derived from the Fiscal Year 2006-2008 Transportation Improvement Plan (TIP), the project lists developed for this Plan, and future revenue projects generate through methodology provided by the Michigan Department of Transportation (MDOT).

The annual average of the three years of the TIP was used as a baseline. That baseline was then projected into the future using methodology provided by MDOT. The methodology includes an annual growth rate through the year 2035 with that amount being adjusted for deflation annually based on the 20 year consumer price index deflation rate. All revenue category information comes directly from the TIP with the exception of the MDOT programs I/C New Roads (Improve Capacity) line item which came from the financial projections provided by the Department and the local funds category estimation which comes from an inflation adjusted MDOT projection.

From here, an average annual rate per category was developed for the time horizons of the years 2006-2007, 2008-2011, 2012-2018, and 2019-2025, 2026-2035. The annual rate was multiplied by the number of years in that time span to arrive at a total amount for that time frame.

2035 GVMC Long Range Plan Revenues						
Federal Highway Programs	Total 06-07	Total 08-11	Total 12-18	Total 19-25	Total 26-35	Total
STP-Urban	\$14,727,508	\$32,300,000	\$56,452,823	\$60,155,781	\$92,845,240	\$256,481,352
TEDF-C	\$5,566,276	\$7,300,000	\$16,980,873	\$18,094,720	\$27,927,630	\$75,869,499
STP-Rural	\$1,068,132	\$2,225,436	\$4,094,314	\$4,362,876	\$6,733,720	\$18,484,478
Small Urban	\$476,134	\$992,016	\$1,821,946	\$1,944,810	\$3,001,650	\$8,236,556
Local Enhancements	\$2,976,914	\$6,202,348	\$11,410,973	\$12,159,462	\$18,767,080	\$51,516,777
Local Safety	\$1,078,232	\$2,246,476	\$4,133,031	\$4,404,134	\$6,797,400	\$18,659,273
Total	\$25,893,196	\$51,266,276	\$94,893,960	\$101,121,783	\$156,072,720	\$429,247,935
MDOT Programs						
I/C New Roads	\$29,167,288	\$58,334,576	\$102,085,508	\$102,085,508	\$145,836,440	\$437,509,320
Preserve	\$98,451,596	\$196,903,192	\$344,580,586	\$344,580,586	\$492,257,980	\$1,476,773,940
Subtotal MDOT	\$127,618,884	\$255,237,768	\$446,666,094	\$446,666,094	\$638,094,420	\$1,914,283,260
Local Funds						
Operations and Maintenance	\$26,687,500	\$55,602,946	\$102,297,323	\$109,007,409	\$168,243,485	\$461,838,663
Other Local Funds	\$80,062,500	\$166,808,838	\$306,891,968	\$327,022,227	\$504,730,455	\$1,385,515,988
Subtotal	\$106,750,000	\$222,411,784	\$409,189,291	\$436,029,636	\$672,973,940	\$1,847,354,651
Total	\$260,262,080	\$528,915,828	\$950,749,345	\$983,817,513	\$1,467,141,080	\$4,190,885,846

EXPENDITURES AND DEMONSTRATION OF FINANCIAL CONSTRAINT

The expenditure information comes from the TIP as well with the exception of projects that were programmed as part of this Plan. Categories including STP-Urban and TEDF-C have the total amount of the planned projects from this document as the number used for total expenditure. The same baseline and projection information was used as well as the breakdown of expenditures over the different time horizons.

2035 GVMC Long Range Plan Expenditures							
Federal Highway Funds		Total 06-07	Total 08-11	Total 12-18	Total 19-25	Total 26-35	Total 06-30
	STP-Urban	\$14,727,508	\$30,423,841	\$55,647,340	\$60,155,781	\$92,845,240	\$253,799,710
	TEDF-C	\$2,783,138	\$7,300,000	\$12,044,712	\$15,577,550	\$20,682,628	\$58,388,028
	STP-Rural	\$1,068,132	\$0	\$0	\$0	\$0	\$1,068,132
	Small Urban	\$476,134	\$0	\$0	\$0	\$0	\$476,134
	Local Enhancements	\$2,976,914	\$0	\$0	\$0	\$0	\$2,976,914
	Local Safety	\$1,078,232	\$0	\$0	\$0	\$0	\$1,078,232
	Subtotal	\$23,110,058	\$37,723,841	\$67,692,052	\$75,733,331	\$113,527,868	\$317,787,150
State Programs							
	I/C New Roads	\$29,167,288	\$58,500,000	\$0	\$30,000,000	\$130,000,000	\$247,667,288
	Preserve	\$98,451,596	\$196,903,192	\$344,580,586	\$344,580,586	\$492,257,980	\$1,476,773,940
	Subtotal	\$127,618,884	\$255,403,192	\$344,580,586	\$374,580,586	\$622,257,980	\$1,724,441,228
Local Programs							
	Operations and Maintenance	\$26,687,500	\$55,602,946	\$102,297,323	\$109,007,409	\$168,243,485	\$461,838,663
	Other Local Funds	\$80,062,500	\$166,808,838	\$306,891,968	\$327,022,227	\$504,730,455	\$1,385,515,988
	Subtotal	\$106,750,000	\$222,411,784	\$409,189,291	\$436,029,636	\$672,973,940	\$1,847,354,651
	Total	\$257,478,942	\$515,538,817	\$821,461,929	\$886,343,553	\$1,408,759,788	\$3,889,583,029

FINANCIAL INFORMATION FOR TRANSIT PROJECTS

To provide more detail about the assumptions and types of projects that will be done over the life of the Plan related to transit and public transportation, a spreadsheet is provided here. The assumptions used to develop the Transit financial estimates are noted at the bottom of the table as footnotes to the main chart.

Transit Revenues																																
Operating	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Total		
Passenger Fares - Fixed Route	\$ 4,205,099	\$ 4,331,252	\$ 4,461,190	\$ 4,595,020	\$ 4,732,876	\$ 4,874,882	\$ 5,021,108	\$ 5,171,741	\$ 5,326,994	\$ 5,486,700	\$ 5,651,301	\$ 5,820,940	\$ 5,995,485	\$ 6,175,330	\$ 6,360,983	\$ 6,553,407	\$ 6,752,949	\$ 6,959,388	\$ 7,176,900	\$ 7,376,667	\$ 7,594,877	\$ 7,822,723	\$ 8,057,405	\$ 8,304,137	\$ 8,544,100	\$ 8,844,343	\$ 9,068,680	\$ 9,340,740	\$ 9,650,362	\$ 100,149,742		
Passenger Fares - Bus Rapid Transit (BRT)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 700,000	\$ 721,000	\$ 742,000	\$ 764,000	\$ 787,000	\$ 811,400	\$ 836,837	\$ 863,912	\$ 892,739	\$ 923,341	\$ 954,747	\$ 986,964	\$ 1,020,974	\$ 1,068,813	\$ 1,127,974	\$ 1,196,813	\$ 1,290,571	\$ 1,423,206	\$ 1,591,703	\$ 1,827,454	\$ 2,144,274	\$ 2,684,276	\$ 3,502,206	\$ 4,798,521	\$ 6,749,608		
Sale of Transportation Services	\$ 4,344,129	\$ 4,467,308	\$ 4,597,319	\$ 4,747,144	\$ 4,902,244	\$ 5,062,813	\$ 5,214,697	\$ 5,371,138	\$ 5,532,272	\$ 5,698,241	\$ 5,865,188	\$ 6,045,264	\$ 6,236,621	\$ 6,443,420	\$ 6,665,823	\$ 6,903,997	\$ 7,008,117	\$ 7,218,361	\$ 7,434,812	\$ 7,657,959	\$ 7,887,698	\$ 8,124,329	\$ 8,368,059	\$ 8,619,100	\$ 8,877,673	\$ 9,144,003	\$ 9,418,324	\$ 9,700,873	\$ 9,991,899	\$ 197,352,926		
Property Tax	\$ 10,062,673	\$ 12,219,262	\$ 12,585,840	\$ 12,963,416	\$ 13,352,318	\$ 13,752,887	\$ 14,165,474	\$ 14,590,438	\$ 15,028,151	\$ 15,478,996	\$ 15,943,363	\$ 16,421,666	\$ 16,914,316	\$ 17,421,746	\$ 17,944,388	\$ 18,482,730	\$ 19,037,212	\$ 19,608,328	\$ 20,196,678	\$ 20,802,474	\$ 21,426,550	\$ 22,069,346	\$ 22,731,427	\$ 23,413,370	\$ 24,115,771	\$ 24,839,244	\$ 25,584,421	\$ 26,351,954	\$ 27,142,512	\$ 534,648,963		
Bus Rapid Transit (BRT) Local Operating Revenue	\$ 5,993,817	\$ 6,505,292	\$ 7,036,862	\$ 7,593,164	\$ 8,175,420	\$ 8,784,012	\$ 9,423,431	\$ 10,094,395	\$ 10,807,533	\$ 11,562,562	\$ 12,360,200	\$ 13,202,190	\$ 14,089,186	\$ 15,021,854	\$ 16,011,871	\$ 17,058,901	\$ 18,172,611	\$ 19,353,683	\$ 20,602,817	\$ 21,929,714	\$ 23,344,185	\$ 24,846,934	\$ 26,446,675	\$ 28,144,130	\$ 29,940,125	\$ 31,834,300	\$ 33,826,387	\$ 35,916,030	\$ 38,102,900	\$ 805,352,571		
State Operating Assistance - Fixed Route	\$ 8,993,817	\$ 9,509,292	\$ 10,230,221	\$ 10,312,149	\$ 10,392,821	\$ 10,472,006	\$ 10,550,266	\$ 10,627,153	\$ 10,703,403	\$ 10,778,714	\$ 10,853,690	\$ 10,928,734	\$ 11,003,350	\$ 11,077,959	\$ 11,152,161	\$ 11,226,363	\$ 11,300,565	\$ 11,374,767	\$ 11,448,969	\$ 11,523,171	\$ 11,597,373	\$ 11,671,575	\$ 11,745,777	\$ 11,819,979	\$ 11,894,181	\$ 11,968,383	\$ 12,042,585	\$ 12,116,787	\$ 12,190,989	\$ 12,265,191	\$ 12,339,393	
State Operating Assistance - Bus Rapid Transit (BRT)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 700,000	\$ 712,500	\$ 724,144	\$ 737,397	\$ 750,301	\$ 763,414	\$ 776,792	\$ 790,386	\$ 804,217	\$ 818,291	\$ 832,611	\$ 847,182	\$ 862,008	\$ 877,093	\$ 892,442	\$ 908,060	\$ 923,961	\$ 940,120	\$ 956,572	\$ 973,312	\$ 990,345	\$ 1,007,676	\$ 1,025,310	\$ 1,043,255	\$ 20,657,711		
Interest, Advertising, and Miscellaneous	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	\$ 470,514	
Operating Expenses - Capitalized	\$ 690,933	\$ -	\$ -	\$ -	\$ -	\$ 373,684	\$ 384,332	\$ 394,762	\$ 404,889	\$ 414,621	\$ 423,992	\$ 432,950	\$ 441,462	\$ 449,494	\$ 457,072	\$ 463,977	\$ 470,361	\$ 476,294	\$ 481,764	\$ 486,816	\$ 491,460	\$ 495,706	\$ 499,595	\$ 503,083	\$ 506,128	\$ 508,781	\$ 511,079	\$ 513,062	\$ 514,783	\$ 516,287	\$ 517,596	
Total Operating Revenues	\$ 28,697,165	\$ 30,997,598	\$ 32,345,984	\$ 33,088,280	\$ 33,960,773	\$ 34,746,686	\$ 35,374,541	\$ 35,968,371	\$ 36,530,198	\$ 37,073,252	\$ 37,593,500	\$ 38,110,725	\$ 38,625,372	\$ 39,137,925	\$ 39,649,927	\$ 40,161,925	\$ 40,673,923	\$ 41,185,921	\$ 41,697,920	\$ 42,209,919	\$ 42,721,918	\$ 43,233,917	\$ 43,745,916	\$ 44,257,915	\$ 44,769,914	\$ 45,281,913	\$ 45,793,912	\$ 46,305,911	\$ 46,817,910	\$ 47,330,909		
Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
5307 Federal Appropriations	\$ 6,277,921	\$ 6,591,816	\$ 6,921,407	\$ 7,268,892	\$ 7,632,394	\$ 8,012,394	\$ 8,404,249	\$ 8,809,349	\$ 9,227,100	\$ 9,657,217	\$ 10,100,200	\$ 10,556,584	\$ 11,026,864	\$ 11,500,544	\$ 11,988,128	\$ 12,480,208	\$ 12,986,384	\$ 13,496,160	\$ 14,009,136	\$ 14,525,912	\$ 15,046,188	\$ 15,569,464	\$ 16,095,240	\$ 16,623,116	\$ 17,152,692	\$ 17,683,468	\$ 18,214,944	\$ 18,747,620	\$ 19,280,896	\$ 319,547,997		
5307 Federal Appropriations less Capitalized Operating	\$ 5,696,588	\$ 6,091,816	\$ 6,321,407	\$ 6,668,892	\$ 7,032,394	\$ 7,404,249	\$ 7,782,100	\$ 8,164,949	\$ 8,552,349	\$ 8,944,749	\$ 9,342,149	\$ 9,744,549	\$ 10,151,949	\$ 10,564,949	\$ 10,982,949	\$ 11,406,949	\$ 11,836,949	\$ 12,266,949	\$ 12,702,949	\$ 13,144,949	\$ 13,592,949	\$ 14,047,949	\$ 14,509,949	\$ 14,978,949	\$ 15,454,949	\$ 15,937,949	\$ 16,428,949	\$ 16,926,949	\$ 17,431,949	\$ 307,960,137		
5309 Federal Discretionary	\$ 4,481,294	\$ 4,605,497	\$ 4,731,544	\$ 4,859,333	\$ 4,988,866	\$ 5,119,153	\$ 5,250,196	\$ 5,381,996	\$ 5,514,553	\$ 5,647,876	\$ 5,781,864	\$ 5,916,516	\$ 6,051,833	\$ 6,197,816	\$ 6,344,464	\$ 6,491,768	\$ 6,639,728	\$ 6,788,344	\$ 6,937,616	\$ 7,087,544	\$ 7,238,128	\$ 7,389,368	\$ 7,541,264	\$ 7,693,816	\$ 7,847,032	\$ 7,999,904	\$ 8,153,432	\$ 8,307,616	\$ 8,462,464	\$ 8,617,984	\$ 137,477,427	
Federal Transit Administration (FTA) Very Small Starts (BRT)	\$ -	\$ 828,000	\$ 992,800	\$ 1,199,200	\$ 1,410,800	\$ 1,612,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Congestion, Mitigation, and Air Quality (CMAQ)	\$ 953,333	\$ 325,000	\$ 341,000	\$ 358,000	\$ 378,000	\$ 396,900	\$ 416,745	\$ 437,862	\$ 459,461	\$ 482,434	\$ 506,556	\$ 531,884	\$ 558,478	\$ 586,402	\$ 615,722	\$ 647,488	\$ 678,634	\$ 712,775	\$ 748,414	\$ 786,838	\$ 825,127	\$ 866,383	\$ 909,702	\$ 955,187	\$ 1,001,947	\$ 1,050,904	\$ 1,101,749	\$ 1,154,036	\$ 1,208,119	\$ 20,018,176		
Local Capital	\$ 185,000	\$ 190,550	\$ 196,387	\$ 202,144	\$ 208,219	\$ 214,466	\$ 220,900	\$ 227,327	\$ 234,362	\$ 241,383	\$ 248,629	\$ 256,003	\$ 263,766	\$ 271,679	\$ 279,829	\$ 288,314	\$ 296,871	\$ 305,777	\$ 314,950	\$ 324,399	\$ 334,131	\$ 344,154	\$ 354,479	\$ 365,114	\$ 376,067	\$ 387,349	\$ 398,969	\$ 410,938	\$ 423,267	\$ 8,365,487		
Local Capital - Bus Rapid Transit (BRT)	\$ -	\$ 200,000	\$ 148,200	\$ 3,929,800	\$ 3,925,400	\$ 15,800,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
Total Capital Revenues	\$ 11,396,605	\$ 25,048,863	\$ 19,775,217	\$ 28,563,136	\$ 27,561,148	\$ 6,855,677	\$ 9,219,913	\$ 6,590,866	\$ 7,454,619	\$ 13,668,453	\$ 11,526,673	\$ 14,897,587	\$ 18,825,153	\$ 17,992,964	\$ 20,855,629	\$ 23,973,338	\$ 16,669,670	\$ 8,860,697	\$ 14,499,971	\$ 9,716,408	\$ 11,189,953	\$ 22,167,831	\$ 18,353,791	\$ 24,258,185	\$ 31,309,264	\$ 29,727,807	\$ 34,785,021	\$ 14,437,728	\$ 26,913,960	\$ 473,841,227		
Transit Expenditures																																
Operating	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Total		
Labor and Fringes - Fixed Route	\$ 15,489,072	\$ 15,917,247	\$ 16,342,130	\$ 16,778,864	\$ 17,227,787	\$ 17,689,252	\$ 18,129,930	\$ 18,593,824	\$ 19,090,409	\$ 19,620,562	\$ 20,184,616	\$ 20,782,994	\$ 21,416,316	\$ 22,085,482	\$ 22,797,876	\$ 23,556,082	\$ 24,362,624	\$ 25,219,044	\$ 26,126,864	\$ 27,086,681	\$ 28,099,927	\$ 29,169,203	\$ 30,296,129	\$ 31,481,308	\$ 32,727,400	\$ 34,034,000	\$ 35,391,600	\$ 36,800,800	\$ 38,262,000	\$ 39,774,800	\$ 600,733,041	
Bus Rapid Transit (BRT)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,400,000	\$ 2,472,000	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	\$ 2,471,998	
Services, Casualty/Liability, & Transfers	\$ 2,208,340	\$ 2,329,472	\$ 2,376,872	\$ 2,363,366	\$ 2,409,842	\$ 2,466,868	\$ 2,506,125	\$ 2,607,248	\$ 2,669,393	\$ 2,712,581	\$ 2,766,832	\$ 2,822,166	\$ 2,878,612	\$ 2,936,185	\$ 2,994,908	\$ 3,054,686	\$ 3,115,903	\$ 3,178,221	\$ 3,241,768	\$ 3,306,621	\$ 3,372,753	\$ 3,440,208	\$ 3,509,012	\$ 3,579,193	\$ 3,650,776	\$ 3,723,792	\$ 3,798,268	\$ 3,874,233	\$ 86,429,988			
Materials, Supplies, Utilities	\$ 4,392,826	\$ 4,528,741	\$ 4,602,243	\$ 4,693,320	\$ 4,717,224	\$ 4,776,243	\$ 4,811,768	\$ 4,869,204	\$ 4,908,588	\$ 4,939,960	\$ 4,973,306	\$ 5,008,462	\$ 5,045,402	\$ 5,084,130	\$ 5,124,558	\$ 5,166,682	\$ 5,210,502	\$ 5,256,026	\$ 5,303,254	\$ 5,352,186	\$ 5,402,822	\$ 5,455,168	\$ 5,509,224	\$ 5,564,990	\$ 5,622,466	\$ 5,681,652	\$ 5,742,558	\$ 5,805,184	\$ 5,869,540	\$ 5,935,636		
Purchased Transportation	\$ 6,136,720	\$ 6,660,697	\$ 6,818,066	\$ 6,979,734	\$ 7,145,831	\$ 7,316,483	\$ 7,462,813	\$ 7,612,609	\$ 7,764,311	\$ 7,919,597	\$ 8,077,989	\$ 8,239,549	\$ 8,404,340	\$ 8,572,426	\$ 8,743,875	\$ 8,918,762	\$ 9,097,127	\$ 9,279,070	\$ 9,464,661	\$ 9,655,944	\$ 9,842,023	\$ 10,043,364	\$ 10,244,843	\$ 10,447,740	\$ 10,650,765	\$ 10,854,900	\$ 11,059,348	\$ 11,311,314	\$ 11,537,357	\$ 262,320,927		
Service Improvements	\$ 103,780	\$ 428,927	\$ 2,496,432	\$ 2,563,807	\$ 2,647,241	\$ 2,767,839	\$ 2,850,874	\$ 2,936,021	\$ 3,024,493	\$ 3,115,227	\$ 3,208,664	\$ 3,304,345	\$ 3,404,009	\$ 3,506,216	\$ 3,611,402	\$ 3,719,744	\$ 3,831,237	\$ 3,942,779	\$ 4,064,665	\$ 4,188,600	\$ 4,312,203	\$ 4,445,569	\$ 4,574,816	\$ 4,709,440	\$ 4,842,064	\$ 4,974,208	\$ 5,106,560	\$ 5,239,466	\$ 5,372,429	\$ 103,724,129		
Total Operating Expenses	\$ 28,330,847	\$ 29,875,093	\$ 32,635,54																													

The 2035 Long Range Transportation Plan accounts for all of the transportation expenditures in the area. The STP-Urban program, STP-Rural program and the preserve program listed under MDOT/State programs are used to preserve the system. The TEDF-C program and the I/C New Roads program under MDOT/State programs are funding sources that are established for expanding the transportation system. The STP-Rural, Small Urban, Local Enhancements, and Local Safety programs have revenue associated with them but no expenditures. The reason for this is that projects in these programs have not been specifically identified yet. Along with the the specific preservation projects that will be undertaken over the next 28 years, projects in these programs will be identified through the local transportation planning process and will be listed in future Transportation Improvement Plans.

Finally, the amount of funds available for operations and maintenance are combined with funds that each community uses to match state and federal grants for transportation projects. These two amounts are combined into a local funds category. Operations and maintenance activities include such things as snow plowing, traffic signal maintenance, signage, pothole repair, and road striping. The amount of expenditures for local funds was based on local input from the implementing agencies in the area. The revenue listed matches those estimates that the local agencies provided.

Here's the funding breakdown:

\$5,970,961,536	Total revenue from federal, state, and local sources
<u>- 461,838,663</u>	Minus Operation and Maintenance costs
5,509,122,873	Available for capital improvement
<u>-4,883,990,694</u>	Minus Anticipated Preservation costs
615,132,179	Available for Improve/Expand Improvements
<u>- 311,396,453</u>	Minus Anticipated Improve/Expand costs
\$ 303,735,726	Balance of unassigned funds

A large majority of the unassigned funds will be used for projects done with funding categories such as STP-Rural, STP-Small Urban, Local Enhancements, and Local Safety. Revenue is presented in the revenue table for these categories but since projects beyond 2007 are not identified, there are no expenditures noted in the expenditure table.

CONCLUSION

The Grand Rapids Area Year 2035 Long Range Transportation Plan is financially constrained. The financial tables and the above funding breakdown indicate that the total revenues for the Plan are more than the total expenditures.

Further, based on the amount of local funds coming to the area and the estimates provided by local agencies of their operation and maintenance budgets over the next 29 years, there are enough dollars to operate and maintain the existing transportation system.

INTERMODAL FOCUS

In order to develop a truly intermodal long range plan, issues related to more than roadways needed to be addressed. TEA-21 dictates that long range transportation plans be multi-modal in nature. It has been common practice throughout the transportation planning profession to concentrate on highways and pay little attention to other modes of transport. GVMC staff has put a process in place that integrates all modes of travel pertinent to the metropolitan area. Modes such as transit, rail, air, and non-motorized are viable means of transportation and, as such, are included in the overall transportation planning effort.

At the recommendation of staff, eight areas were focused on to address the various interests throughout the transportation community. The chart below outlines the various focus areas that were established for the development of the long range plan.

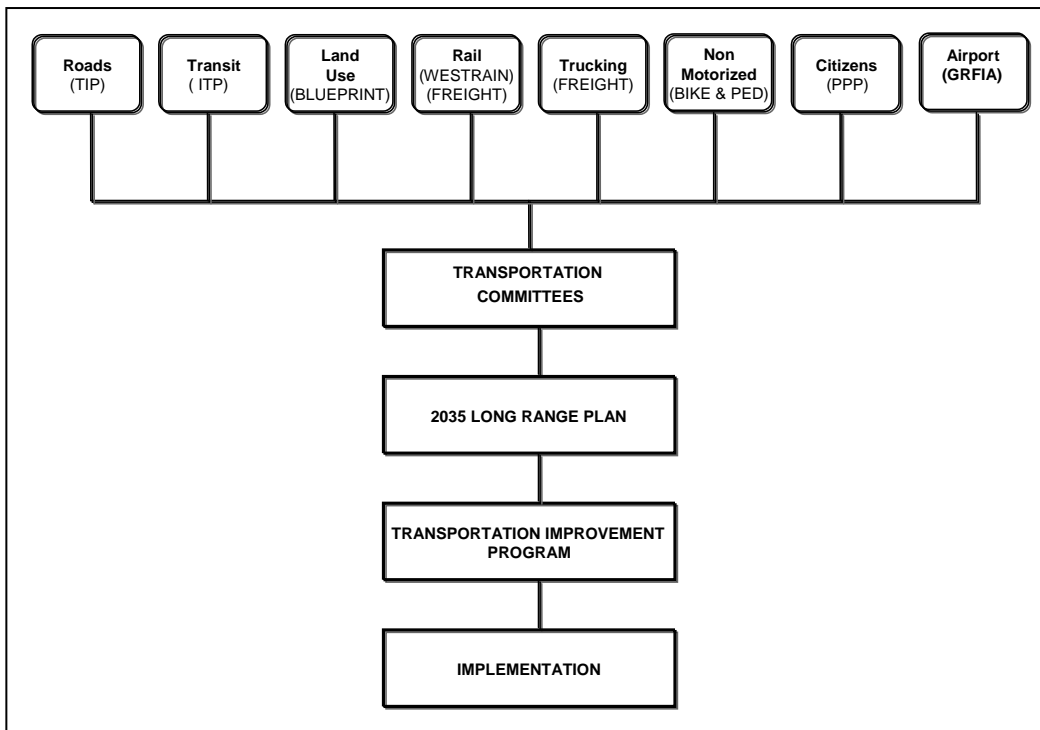


Figure 16 — 2035 Long Range Plan Intermodal Groups Diagram

ROADS

Highway issues for the Long Range Transportation Plan are addressed by the GVMC Technical Committee and a sub-committee of the Technical Committee called the Transportation Programming Study Group. Once the roadway/highway capacity deficiencies were identified, the Technical Committee reviewed the list of deficiencies and suggested possible alternatives. The Technical Committee made recommendations of approval to the GVMC Policy Committee. The Grand Valley Metropolitan

Council Board reviews the roadway/highway deficiencies when the final draft of the Plan is provided to them at the end of the plan development process.

TRANSIT

GVMC staff works very closely with the regional transit provider, ITP-The Rapid to assess long-range transit needs and incorporate those needs into the revised planning process. Projects and programs with a public transportation focus appear in Chapter 5 of this document. Transit programs continue to be an ongoing priority of GVMC and the two agencies meet regularly to identify, discuss, and plan for public transportation needs in the Grand Rapids urbanized area.

LAND USE

Land use issues for the 2035 LRTP were identified through the initial MPO agency meetings that were conducted in the Winter and Spring of 2006. Each agency responsible for land use planning within its jurisdiction was asked to identify land use issues for GVMC staff to focus on as part of the transportation planning process. Through this consultation, GVMC staff also developed the socio-economic data, which is the major data focus for projecting future traffic on the transportation network.

GVMC also has a Land Use department that assisted with the collection and compilation of the socio-economic data. The GVMC Land Use department is also working with the local units of government to formulate a regional land use vision. GVMC transportation staff continues to use the Long Range Transportation Plan as the means to better assess the interrelationship of land use and transportation.

RAIL

Two separate but equally important rail types are analyzed with the 2035 LRTP, passenger rail and freight rail.

Passenger Rail issues are being studied by the WESTRAIN Collaborative. The focus of WESTRAIN is to secure and maintain passenger rail service from Grand Rapids, Michigan to Chicago, Illinois. The WESTRAIN Committee is instrumental in working closely with MDOT and AMTRAK to maintain seven-day per week service on the Pere Marquette line between the two cities. Currently, the WESTRAIN Committee meets on a monthly basis to discuss and implement effective marketing of passenger rail service. Another accomplishment of the WESTRAIN Collaborative is the continuation of minor restoration projects on the AMTRAK station in Grand Rapids.

Freight Rail issues are being studied by staff in partnership with the Michigan Department of Transportation. GVMC and MDOT staff hosted a meeting in March 2006 to discuss MDOT's 5 Year Plan and the GVMC Long Range Transportation Plan. The 100 largest employers and freight interests in West Michigan were invited. Major employers in attendance included Steelcase, General Motors, Gainey Corporation, Meijer's, and S. Abraham & Sons. Business and industry input for this planning process was provided by the meetings staff had with entities such as the area Chambers' of Commerce. The issues raised in those meetings include the freight connectivity of the Grand Rapids area with other smaller urban areas around the state and how many traditional freight rail intensive industries are moving toward other modes to ship their goods.

GVMC and MDOT staffs are also working jointly with The Right Place Program, the major economic development agency for the Grand Rapids area on a regional freight rail study. The study will identify major freight routes in the area and whether those routes have enough capacity to serve future freight volumes. Other freight issues identified by The Right Place members will be analyzed as well.

TRUCKING

The joint meeting with MDOT back in March 2006 provided needed input on trucking issues and roadway freight in the Grand Rapids area. It seems that there is an interesting dichotomy at work relative to this mode of freight movement. While improvements on the area roadways improve trucking efficiency overall, the construction and disruption that takes place to get to those improvements can have a negative short term impact on businesses and industry that relies on roadway freight movements. For the most part, area industry is pleased with the upgrades to the system but is also looking for ways to improve the efficiency of shipping during construction times. Copies of project lists both short term and long term were distributed during the MDOT meeting and appreciated by those in attendance. GVMC staff also provided attendees with contact information for all of the MPO areas in the Michigan. The shippers and industries that work in other regions of the state of Michigan appreciated this information for identifying and collecting similar road development project data elsewhere. There was a consensus that the development of the new M-6 (South Beltline) facility has also proved to be a major positive for area shippers and industry.

NON-MOTORIZED

The GVMC Non-Motorized Transportation Committee, which is made up of governmental and citizen representatives continues to meet. The committee has developed a draft Non-Motorized Transportation Plan for the area which includes a priority list of non-motorized projects/corridors to guide the development of a comprehensive network for the area. The draft has undergone multiple revisions and will be finalized in the months to come.

GVMC staff is also working with MDOT, the local units of government, ITP-The Rapid, and disability advocates along the 28th Street Corridor to develop a corridor wide non-motorized facility project. A grant application will be submitted for over \$1 million to develop sidewalk along those area that each municipality deems to be most important.

CITIZENS

As part of the passage of SAFETEA-LU, fairly significant changes were made to the GVMC Public Involvement process. The Public Involvement Plan was changed to a Public Participation Plan. Certain elements of the Plan were updated to reflect new emphasis areas in the new legislation. Most of the new elements were already being provided for as part of the existing GVMC process including the posting of all relevant transportation planning information on the GVMC website.

GVMC continues to make substantial improvements to the inclusion of the public in the transportation planning process. At its regular Federal certification held in July 2006, GVMC was commended by Federal Highway Administration and Federal Transit Administration on its public participation process.

AIR

Air related issues are addressed in conjunction with the region's largest provider of services, the Gerald R. Ford International Airport (GRFIA). GRFIA staff has seats and voting privileges on both the GVMC Transportation Technical and Policy Committees and participate actively in the transportation planning process. GVMC Transportation staff served as a member of the Airport's Master Plan committee during it's most recent update.

NON-MOTORIZED TRANSPORTATION

OVERVIEW

The Grand Rapids Metropolitan Area has become one of the fastest growing metropolitan areas in the Midwest because of the amenities it offers including aesthetic beauty, high quality of life, strong family values, a diverse economic base, and a reasonable cost of living. The provision of safe and efficient multi-modal transportation facilities are a part of improving the quality of life for an area and many studies have shown that the more transportation options available to a community, the higher the level of quality of life that community enjoys. Bicycle and pedestrian facilities are an integral part of the transportation network and this plan is geared specifically to the non-motorized transportation network for the Grand Rapids Metropolitan Area.

The Non-Motorized Transportation Plan will be a component to the area's Year 2030 Long-Range Transportation Plan. The Long-Range Transportation Plan's purpose is to explore and analyze conditions of all modes of transportation in the area, of which, non-motorized transportation is an integral part. For the purposes of this study, the Grand Rapids Metropolitan Area consists of the Metropolitan Planning Organization (MPO) Study Area served by the Grand Valley Metropolitan Council, which is the federally designated agency to carry out the MPO function. The MPO area includes all of Kent



County and five communities in Southeast Ottawa County. There are also communities that are members of the Grand Valley Metropolitan Council that do not fall in the MPO area that are participating in this study. The needs and wishes of these communities will be included in this document as well.

This plan, when completed, will replace previous area non-motorized planning documents. The Grand Valley Metropolitan Council Bicycle Plan approved in 1996, and the Pedestrian Plan approved in 1997 were used as guides to integrate non-motorized transportation issues into one comprehensive document. It is hoped that this document will be updated in the future consistent with the update of the entire Long-Range Transportation Plan. The Long-Range Transportation Plan is updated on a three-year basis as per federal transportation planning guidelines. This document is being developed to guide long-range non-motorized transportation planning and development in the area. While the scope of the document is twenty-plus years, this document will be reexamined regularly and adjusted to reflect current priorities of area decision-makers.

VISION

The Grand Valley Metropolitan Council Non-Motorized Transportation Plan is designed to be broad in concept and comprehensive in content. The plan advocates an area-wide network of interconnected routes, which will be safe and efficient for non-motorized transportation. The positive impacts of such a network will be far reaching environmentally, socially, and economically for local municipalities and the Grand Rapids area alike, improving the quality of life for residents and the quality of the experience for visitors from outside the immediate area.

NON-MOTORIZED GOALS AND OBJECTIVES

The goal of this plan is fairly simple. It is hoped that this plan will help to guide development of bicycle and pedestrian facilities consistent with the demands for such facilities for those who choose to use that

transportation option. Facilities that are developed should be safe and, where appropriate, connected. Additionally, facilities should be well planned and coordinated to maximize the experience of the user. Further, this project will strive to prioritize facility development and identify funding sources for the development of non-motorized facilities. Based on input from the GVMC Non-Motorized committee, it is hoped that this plan will achieve the following:

- Promote the benefits of non-motorized transportation as a healthy and efficient form of transportation.
- Provide an integrated network of non-motorized facilities for efficient travel.
- Identify breaks in the current network that discourage connectivity.
- Identify projects that will contribute to the connectivity of the non-motorized network. Forward those prioritized projects to area transportation decision makers for funding consideration.
- Encourage the use of safe and consistent construction/design standards for new non-motorized facility development while continuing to maintain current non-motorized facilities according to safe standards. All facilities shall conform to the American with Disabilities Act (ADA).
- Provide a way for non-motorized interests to bring their priorities and concerns to area transportation decision-makers.
- Continue to update the area inventory of existing and planned pedestrian/bicycle facilities.
- Work toward the establishment of a regional non-motorized network that connects all non-motorized facilities and connects those facilities with other modes of transportation.

HISTORY OF NON-MOTORIZED TRANSPORTATION

Transportation is the act of delivering goods or people from location to location. There is a reliance on transportation to achieve many things both from a utilitarian purpose and a recreation purpose. As technology has advanced from foot travel to jets and automobiles, these transportation functions can happen countless ways. Now, when the act of transportation is about to take place, a choice needs to be made regarding what mode of transportation to use. Two non-motorized choices are included in this element of the 2025 Long-Range Transportation Plan for the Grand Valley Metropolitan Council: pedestrian and bicycle.

Pedestrian and bicycle transportation are unique in the 21st Century since they do not involve high technology or limited-resource fuels. They also differ from trains, planes, and automobiles because they rely on the human physique to provide the desired act of transportation. Pedestrian travel, which is walking or running, is the oldest form of traveling between two points, and still used every day around the world. According to the Bicycle Encyclopedia, bicycling evolved from the velocipede during the 1800's, and although rejected by many countries for utilitarian trips, the bicycle still has a strong presence and purpose in transportation. Intriguingly, bicyclists in the United States formed the League of American Wheelman in 1880 and lobbied for the construction of roads. The efforts of this group at the turn of the twentieth century would form the foundation of a national road network that would eventually stretch across the country and be overtaken by the automobile in the early 1900's.

The combustion engine dramatically changed transportation modes as machinery made the delivery of goods and people faster, less expensive, and easier. These changes shifted the emphasis away from human-powered transportation modes. Pedestrian and bicycle transportation gradually switched from a less utilitarian transportation mode to a more recreational transportation mode for most Americans. There is a segment of the population that continues to use non-motorized transportation as a utilitarian mode and whether for health reasons, energy conservation, lack of accessibility to automobiles or other factors, these facilities need to have a plan in place to promote an efficient and connected network.

BENEFITS OF NON-MOTORIZED TRANSPORTATION

Foot and bicycle locomotion deserve attention because they can help combat a number of important issues facing urban America: health problems, regional air quality, economic development, and rising vehicle miles traveled (VMT).

Obesity in Americans continues to increase, and the National Health and Nutritional Examination Survey of Americans from 1988-1994 show that 14% of children and 35% of adults over 20 years of age are now obese; this is a 6% and 9% increase respectively from the 1976-1980 study. Obesity then leads to other health problems such as heart disease, diabetes, certain cancers, and high blood pressure. According to the National Heart, Lung, and Blood Institute, Americans are also overweight, and some studies have shown that up to 55% of the adult population is either now overweight or obese. The United States Surgeon General has recommended at least 30 minutes of moderate exercise every day to overcome weight problems in Americans, according to information published by the Department of Health and Human Services. The Centers for Disease Control handbook, *Promoting Physical Activity Among Adults*, praises the dual benefits of cycling and walking for improving health and serving a transportation function:

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

There are many other sources that advocate walking or bicycling to work, school, church, or for pleasure, as ways that people can incorporate exercise into their daily lives and improve their health.

Regional air quality is a second issue that hovers over West Michigan, since this region has previously been in non-attainment with the United States Environmental Protection Agency for ground-level ozone. Since 1996, Kent and Ottawa counties have been re-classified as maintenance areas, which means they have met air quality standards but must stay in compliance to avoid becoming non-attainment again. The region has worked to reduce emissions and raise public awareness through an Ozone Action! program, but as tens of thousands of people continue to move into the Grand Rapids area, which expands industry, and commute by cars, air quality could quickly degrade.

Breathing poor quality air is not a popular option for most people, and one method of improving air quality is leaving automobiles at home. For example, according to the April 1998 *Consumer’s Report* magazine, a Ford Taurus driven 15,000 miles/year releases 14,085 pounds of CO₂/year, and a Ford Explorer driven 15,000 miles/year releases 18,520 pounds of CO₂/year. If more people walked or rode their bicycles for daily trips, the amount of emissions released into the atmosphere would be reduced by tons.

The third issue is vehicle miles traveled (VMT). This represents the number of miles traveled by a vehicle in a given period of time, such as annually or daily. According to U.S. Department of Transportation figures, annual VMT has increased by 35% between 1960 and 1996. Regionally, VMT is estimated to be 16,000,000 miles every day. With an increase in VMT, people are also spending more time in their vehicles, such that the national average is now in excess of 70 minutes every day according to *Consumer’s Report* magazine. As people drive more miles, air quality is threatened, non-renewable resources are consumed, and road conditions are worsened by increased use both through road quality and traffic congestion. Obviously, if more people use bicycle or pedestrian modes of transportation then fewer people will use automobiles, thus reducing the amount of congestion on our roadways. Once again,

foot-powered transportation helps air quality, preserves fossil fuels, does little or no damage to roads, and reduces congestion. The savings in environmental and construction costs alone make non-motorized modes valuable transportation options.

Vehicle miles traveled also have an influence on air quality, especially during the summer months. The increase in sunlight and higher temperatures is a catalyst for the chemical reaction that triggers the formation of ground-level ozone. A heightened level of ozone affects the health of people and plants, as well as damages some man-made materials like plastics. A reduction in VMT then, especially in the summer when non-motorized transportation is very feasible, can also improve air quality. A recent Federal Highway Administration publication proves the positive impact of bicycle and pedestrian transportation:

“It has been estimated that in the United States since 1991, bicycling and walking were equivalent to between 7.6 and 28.1 billion motor vehicle miles, saving between 370 million and 1.34 billion gallons of gasoline and 4.4 to 16.3 metric tons of exhaust emissions.”

The automobile will continue to be the most convenient mode of travel for the majority of Americans, yet by having this region work toward facilitating non-motorized transportation, bicycle and pedestrian travel can become more prevalent. With expanded use, bicycling and walking would offer significant benefits: improved health, reduced emissions in the natural environment, the preservation of open space/greenways, and the built environment with fewer vehicle miles traveled.

There are other benefits of non-motorized transportation. It is the only option available to those populations that have limited transportation choices due to health or demographic circumstances. The poor, senior citizens, children, and those with health problems are some of the population groups that may not have access to motor vehicles. Non-motorized transportation offers these groups of people a way to get to jobs, shopping, etc.

Bicycle and pedestrian facilities provide a recreation opportunity serving as links from neighborhoods or residential areas to amenities like parks, open spaces, beaches, and other recreational uses. The need for these facilities is founded on earlier information cited denoting the increase in bicycle and pedestrian trips in America.

Non-motorized facilities can have economic benefits as well. Local revenue through tourism, property values, and quality-of-life have all been enhanced as a result of bicycle and pedestrian development. Non-motorized transportation facilities have been used as a centerpiece to lure home buyers to subdivision developments as well as serving as the focal point of chamber-of-commerce advertising campaigns. Also, by promoting compact community development with well maintained pedestrian and bicycle facilities, less money is required for expensive infrastructure such as roads, and water and sewer lines and less land is required thereby preserving important and limited resources.

Obviously, there are a number of factors that support the need and benefits of non-motorized transportation. Why then aren't more people utilizing non-motorized facilities in West Michigan? We'll provide some background on the obstacles to non-motorized transportation later in this report.

MEASURING DEMAND FOR NON-MOTORIZED TRANSPORTATION

As mentioned previously, data in our region that addresses walking or bicycling as a mode of transportation is scarce. According to the National Personal Transportation Survey of 1995, 7.2 percent of all transportation trips are made by walking and 0.7 percent by bicycle. Local information is available in

the 1990 U.S. Census at a county level regarding work trips only. Other non-motorized trips are difficult to measure due to lack of data. People are walking and biking but who are they? Where are people going and what is the purpose of their trips? Related to that, are there amenities available to serve those who prefer to walk? If not, would the availability of amenities encourage more walking trips?

These questions are tough to answer except through anecdotal evidence. Within the Grand Valley Metropolitan Council Transportation Planning Process, comments are received addressing the need for non-motorized facilities in busy commercial and residential areas. The provision of connected non-motorized facilities or an integrated network of facilities has also been cited as a priority in transportation surveys distributed by the Metropolitan Council.

Because of the width and breadth of pedestrian facilities in the Grand Rapids metro area, the pedestrian focus of this plan is a more generalized summary. A hindrance of meaningful pedestrian planning is borne in the fact that there is not much meaningful data available. Most statistics that classify trips into specific categories such as walking have a national focus, not a local one. There is more information prevalent to bicycle data available that will be presented and analyzed including facility type, rider type, etc. More detail of these specifics will appear later in the report.

There are many characteristics of the built environment that have an effect on pedestrian traffic. Pedestrians are not much different than any other mode of transportation in that the preference is a direct, safe, and convenient route with access to practical amenities on well-maintained facilities.

A major hurdle to effective non-motorized planning is the breaking down of barriers that confront non-motorized users.

OBSTACLES TO NON-MOTORIZED TRANSPORTATION

While pedestrian and bicycle transportation has been illustrated as a viable choice, there are a number of deterrents and obstacles to people utilizing non-motorized modes of transportation. Some of these deterrents in Kent and eastern Ottawa counties include the lack of non-motorized facilities, weather, number of users, time/distance, land-use patterns, funding, lack of support facilities, and safety. Probably the largest deterrent to people choosing non-motorized transportation is the lack of adequate facilities. This includes items such as sidewalks, safe intersections, parking lots, bike lanes, multi-use paths, and storage units. A major portion of this plan will be the identification of current, proposed, and needed facilities. The presence of non-motorized facilities is the backbone to a successful non-motorized long-range transportation plan, and a necessary component when overcoming the other obstacles to non-motorized travel in our region.

Living in Michigan poses another hurdle to non-motorized transportation since seasonal weather often makes it difficult or nearly impossible for people to safely or efficiently bicycle or walk from place to place. Cold weather, heat, humidity, rain, wind, and snow all represent obstacles to non-motorized transportation, however non-motorized transportation is a choice. People can elect to bicycle in the warmer months, walk in the winter, or utilize public or private transportation when the weather becomes inclement.

The most common weather issue for non-motorized travel in Michigan is snow but this can be overcome with regular snow removal. Some municipalities in Michigan plow snow from sidewalks and multi-use paths to facilitate non-motorized travel during the winter months. Besides making non-motorized transportation feasible, this also improves the safety and consistency of surfaces for travelers. Therefore, with planning, each jurisdiction can determine what weather-related maintenance initiatives are necessary throughout the year.

Another impediment is the demand for non-motorized modes of transportation. This is a difficult number to determine, partially because there is no easy way to count pedestrians or bicyclists on any given day. It is also impossible to determine if people are walking or bicycling for recreation or utilitarian purpose without conducting personal surveys throughout the urbanized area. Still, according to the 1995 National Personal Transportation Survey data, bicycles are used nationally for 0.9% of all trips in the United States (a 30% increase since 1990). The 2000 Census reports that 0.2% of the workforce in Kent and Ottawa counties uses a bicycle as their primary means of transportation to work. In addition, as reported by the 1995 National Personal Transportation Survey, 5.5% of all trips were by walking and according to 2000 Census data, 2.8% walk to work in Kent and Ottawa counties.

Although the numbers make up a small fraction of the transportation public, facilities are warranted, and it is arguable that with more facilities more people would take advantage of non-motorized transportation modes. This, in fact, may be the non-motorized transportation conundrum. Would there be more non-motorized travel if more facilities were in existence? Would an increase in funding non-motorized facilities be warranted based on the level of current or future use?

Americans are always in a hurry to get from place to place and activity to activity, and the automobile has become the primary tool of efficient transportation. Walking or bicycling is perceived as slow. Therefore, time and distance become obstacles to non-motorized transportation, because people think that walking or bicycling a given distance will take too long. Yet according to the National Personal Transportation Survey, over 64% of all trips made by Americans are less than five miles in length; this includes trips to work, shopping, school, visiting friends, and religious activities. Even more interesting is that 44% of all trips to work are also less than five miles. Furthermore, the national average travel time to work by car is 20.10 minutes, and is 17.7 minutes in Grand Rapids where congestion is not a major problem. This means that a person could walk or bicycle to destinations instead of driving a vehicle, without adding much time to their journey. For example, a person can walk three miles at a moderate pace of 4 mph in 45 minutes, and a bicyclist traveling at 10 mph can cover that length in 18 minutes. Non-motorized transportation is an option that would often only add a few extra minutes, and the benefit of exercise, to the vast majority of short trips.

Land-use patterns are another barrier to non-motorized travel in many communities. Cul-de-sacs, strip developments, parking lots, highways, major arterials, and suburbs are all examples of land-use obstacles; they break up routes and heighten traffic levels for non-motorized travelers. Cul-de-sacs are dead-end roads, strip developments generate congested levels of vehicular traffic, parking lots are an ocean of vehicles, highways limit routes under or over them, major arterials funnel high levels of vehicular traffic, and suburban housing is often separated from employment and social centers. Developers, planners, and government agencies are beginning to evaluate these land-use issues and recognize the value of designing for “walkability.” By “walkability”, the reference is location-efficiency, or having the ability and convenience of using non-motorized modes to get to work, school, or social centers. However, many already developed areas were built without this concept in mind, and are missing non-motorized facilities. Although retrofits/additions can be expensive to a community, these missing links can be developed, and by being included in an original design, or redesign, non-motorized transportation modes become functional options for travel.

The type and density of land use can play a pivotal role in the circulation of pedestrians. Multi-use or mixed-use developments (those that have residential, commercial and office/retail development interspersed or mixed throughout) encourage more walking trips as more destination are located within a reasonable walking distance. Current zoning regulations in most communities group like uses together, houses next to houses, etc. While this increases land use compatibility, it discourages efficient and direct pedestrian trips.

The nature of residential development has changed the landscape of pedestrian circulation as well. Older, traditional neighborhoods, for the most part, employ a grid street system. Densities are higher in these areas, and more connectivity can be maintained from one neighborhood to the next. Newer residential development has brought about more reliance on the cul-de-sac. Most cul-de-sacs streets do not have pedestrian outlets at the end, which causes isolation of that particular developed area.

Communities recognize the cost of non-motorized facilities, which is a common deterrent to adding them to neighborhoods, or industrial and commercial areas. In most cases, funding opportunities for non-motorized projects are severely limited. When road construction projects involve reconstruction or widening, these projects can also fund the addition of non-motorized facilities, but this can create a patchwork of non-motorized facilities that abruptly stop. Community-wide surveying can identify these problem links though, and local ordinances can ensure that they get fixed with road improvement projects or new developments. A second funding challenge is that most bicycle and walking facilities are viewed as recreational, and thus ineligible for transportation money. With proper planning, non-motorized facilities can be shown to serve utilitarian trips and therefore transportation dollars can be allocated to constructing them.

Support facilities for bicycles include a lack of adequate parking. Secure parking is important, especially to those users who are commuting and need to leave their bicycles for long periods of time. Further, places to shower and change would make commuting more attractive and convenient for those who choose to do so. Support facilities are really not necessary for pedestrians, as walking does not pose the same needs as bicycling does.

Safety is a final obstacle. According to the National Safety Council, of the total motor vehicle related deaths from 1990-1995, only 1.9% were bicycle fatalities and 15% were pedestrian fatalities. Any number above zero is a tragedy, yet more people are killed in accidents with other motor vehicles and fixed objects than while walking or bicycling. Safety can be improved to help protect non-motorized travelers from accidents; signage, enforcement, traffic signals, education, crossing medians, marked lanes, and separate paths are all safety enhancing devices. With improved safety features, more people will feel comfortable traveling via a non-motorized mode. These examined obstacles are surmountable with proper planning and some changes in individual behavior, and other barriers can similarly be evaluated.

Often a missing or substandard stretch of sidewalk can mean the difference between a direct route and one which becomes counterproductive. A barrier in a pedestrian trip, especially one mid-block, means backtracking and going around that particular block, or sacrificing safety by proceeding into vehicular traffic. Neither option is very attractive. Local identification of barriers, how to prevent them, and mitigation strategies can mean the difference between encouraging pedestrian transportation as a viable option and discouraging walking.

Trip length plays a role in influencing non-motorized transportation. Based on research regarding casual trips, 80% of Americans are willing to walk 500 feet. As the length of the trip grows longer, the percentage of those willing to walk decreases rapidly. Only 20% will walk 1,000 feet, while 10% percent will walk 2,500 feet. It is generally accepted that 2,000 feet is the accepted length that people will walk to for most types of trips. The 2,000 feet threshold is approximately the equivalent of a ten-minute walk or about three city blocks. Interestingly, the environment of the walk can play a major factor in the length that people will walk. A prime example of this would be a shopper that will park as close as possible to a mall entrance only to walk long distances once inside the mall.

Obviously, a lack of facilities, mainly sidewalks, is an impediment of the system. There are places on major Grand Rapids thoroughfares (28th Street, Plainfield Avenue, and others) that have no sidewalks. Pedestrian traffic is noticeable in these places because you will often find dirt paths where the grass has been worn away by bicyclists and pedestrians. Another impediment to efficient pedestrian movements

is incomplete facilities such as sidewalks that do not continue to another link, or end mid-block. In many areas, traffic signalization does not favor the pedestrian. Often, signalization cycles are too short for the average pedestrian to reasonably cross an intersection, especially in the case of busy roadways. Part of the problem is that these busy roadways, by nature of the traffic volume they serve, are four, five and even six lane facilities. There are other concerns including the existence and/or quality of walkways over highway facilities and interchanges.

BICYCLIST TYPES

A 1994 report by the Federal Highway Administration used the following categories of bicycle user types to assist highway designers in determining the impact of different facility types and roadway conditions on bicyclists:

Advanced or experienced riders are generally using their bicycles as they would a motor vehicle. They are riding for convenience and speed, and want direct access to destinations with a minimum of detour or delay. They are typically comfortable riding with motor vehicle traffic; however, they need sufficient operating space on the traveled way or shoulder to eliminate the need for either themselves or a passing motor vehicle to shift position.

Basic or less confident adult riders may also be using their bicycles for transportation purposes, but prefer to avoid roads with fast and busy motor vehicle traffic unless there is ample roadway width to allow easy overtaking by faster motor vehicles. Thus, basic riders are comfortable riding on neighborhood streets and shared use paths, and prefer designated facilities such as bike lanes or wide shoulder lanes on busier streets.

Children, riding on their own or with their parents, may not travel as fast as their adult counterparts, but still require access to key destinations in their community such as schools, convenience stores, and recreational facilities. Residential streets with low motor vehicle speeds, linked with shared use paths and busier streets with well-defined pavement markings between bicycles and motor vehicles, can accommodate children without encouraging them to ride in the travel lane of major arterials.

One of the challenges of facility design is accounting for all types of users.

NON-MOTORIZED FACILITY TYPE

The American Association of State Highway and Transportation Officials (AASHTO) is considered the source for guidance and standards on the development of bicycle and non-motorized facilities. A summary of facility types, as listed in the AASHTO 1999 *Guide for the Development of Bicycle Facilities*, is provided below. Each type of facility provides different opportunities for the non-motoring public.

SHARED ROADWAY (NO BIKEWAY DESIGNATION)

Most bicycle travel in the United States occurs on streets and highways without bikeway designations. This probably will be true in the future as well. In some instances, a community's existing street system may be fully adequate for efficient bicycle travel, and signing and striping may be unnecessary. In other cases, some streets and highways may be unsuitable for bicycle travel at present, and it would be inappropriate to encourage bicycle travel by designating the routes as bikeways. Finally, some routes may not be considered high bicycle demand corridors, and it would be inappropriate to designate them as bikeways regardless of roadway conditions (e.g., minor residential streets).

Some rural highways are used by touring bicyclists for intercity and recreational travel. In most cases, such routes should only be designated as bikeways where there is a need for enhanced continuity with other bicycle routes. However, the development and maintenance of 4-foot paved shoulder with a 4-

inch edge stripe can significantly improve the safety and convenience of bicyclists and motorists along such routes.

SIGNED SHARED ROADWAY

Signed shared roadways are designated by bike route signs, and serve either to provide continuity to other bicycle facilities, or designate preferred routes through high-demand corridors. As with bike lanes, signing of shared roadways should indicate to bicyclists that particular advantages exist to using these routes compared with alternative routes. This means that responsible agencies have taken actions to assume that these routes are suitable shared routes and will be maintained in a manner consistent with the needs of bicyclists. Signing also serves to advise vehicle drivers that bicycles may be present.

BICYCLE LANE

Bike lanes are established with appropriate pavement markings and signing along streets in corridors where there is significant bicycle demand, and where there are distinct needs that can be served by them. The purpose should be to improve conditions for bicyclist on the streets. Bike lanes are intended to delineate the right of way that is assigned to bicyclists and motorists and to provide for predictable movements by each. Bike lanes also help to increase the total capacities of highways carrying mixed bicycle and motor vehicle traffic. Another important reason for constructing bike lanes is to better accommodate bicyclists where insufficient space exists for comfortable bicycling on existing streets. This may be accomplished by reducing the width of vehicular lanes or prohibiting parking in order to delineate bike lanes. In addition to lane striping, other measures should be taken to ensure that bicycle lanes are effective facilities. In particular, bicycle-safe drainage inlet grates should be used, pavement surfaces should be smooth, and traffic signals should be responsive to bicyclists. Regular maintenance of bicycle lanes should be a top priority, since bicyclists find great difficulty trying to use a lane with potholes, debris, or broken glass.

SHARED USE PATHS

Generally, shared use paths should be used to serve corridors not served by streets and highways, or where wide utility or former railroad right-of-way exists, permitting such facilities to be constructed away from the influence of parallel streets. Shared use paths should offer opportunities not provided by the road system. They can provide a recreational opportunity, or in some instances, can serve as direct commuter routes if cross flow by motor vehicles and pedestrians is minimized. The most common applications are along rivers, ocean fronts, canals, utility rights-of-way, former or active railroad rights-of-way, within college campuses, or within and between parks.

There has been much debate by the Non-Motorized Committee about the type of facilities that should be developed along some of the priority areas identified in this plan. Generally, it has been the policy of GVMC staff to support facility development as a whole and leave the decision about the specific type of facility developed to the unit of government responsible for maintenance and upkeep. As part of the development of this plan, GVMC staff has compiled a resource booklet explaining the advantages and challenges to each type of facility listed here.

NON-MOTORIZED PROJECT LIST

Based on the input of the committee from our past meetings, other lists generated through the plan development process, the following were identified to promote more connectivity of the non-motorized system and to promote better access for transit users.

28th Street	Division to Patterson
28th Street	Wilson to Byron Center
M-6 Trail	Kent Trails to Paul Henry Trail

White Pine Trail	Russell Road to North Kent County Line
Cascade Road	Reeds Lake to Forest Hill
36th Street	Shaffer to Kraft
Port Sheldon/44th Street	Chicago Drive to Kenowa
Rivertown Parkway	Kenowa to Canal
Paul Henry Trail	60th Street to South Kent County Line
4 Mile Extended	Musketawa Trail to Comstock Park/White Pine Trail
Musketawa Extension	Marne through Walker to Richmond Park in Grand Rapids
	Marne to Comstock Park using 4 Mile Road Corridor
Remembrance Road	Leonard to Kinney
Burton Street	Patterson to west of Spaulding
Wilson Avenue	South of Rivertown Mall area to M-6
M-44/Northland	Over the Grand River at Cannonsburg/West River
Eastern Avenue	36th Street to 44th Street
Forest Hill Avenue	Burton to Kentwood City Limits

*Some small pieces along many of these segments have some type of non-motorized access but for the improvement of the overall system, these corridors need continuous facilities.

STUDY RECOMMENDATIONS

Beyond working toward the development of facilities listed on the previous page, there are a number of issues that have been raised throughout the meetings of the Non-Motorized Committee that need to be addressed.

Facility Development/Type

There has been substantial debate about the non-motorized facility type that gets developed in the Grand Rapids area. Currently, there is little being done on the network in the form of bike lanes; communities prefer either a sidewalk facility or off-road facility. It is recommended that GVMC staff work with the Non-Motorized Committee on developing a background report that compares the types of facilities, cost, maintenance, etc.

Future Study

There are a number of corridors that have been identified as strategic for non-motorized users and some of these corridors have deficiencies for non-motorized users. GVMC staff will work to identify and study these corridors as well as identifying possible solutions.

Funding

As part of the identification of non-motorized deficiencies, especially those on a broader corridor level, GVMC staff will work with implementing agencies to identify and pursue funding sources for those deficiencies.

Policy

GVMC staff will work with the non-motorized committee to identify and address policy related issues that hinder the development of non-motorized facilities within the Grand Rapids metro area. Where appropriate, GVMC staff will contact policy makers on behalf of the non-motorized committee to further the agenda of the committee.

Outreach

GVMC staff will work with the non-motorized committee to identify and survey area residents to gauge the interest level and facility type preference of those residents. GVMC staff will work with the non-motorized committee on the development of any and all survey/outreach instruments.

STUDY PROCESS/COMMITTEE MAKEUP

The main focus of this plan is to provide a framework for the encouragement of providing non-motorized facilities for the people of the Grand Valley Metropolitan area. To understand what is needed, we must first look at where the existing non-motorized facilities are located. Secondly, we must look at where non-motorized are being proposed in the future. By looking at current and proposed facilities, areas will be identified that are breaks in the system. This plan will identify those breaks and work with the local units of government in the area to propose projects to better link the system or eliminate the breaks.

The Grand Valley Metropolitan Council (GVMC) has developed a comprehensive non-motorized facility inventory that includes sidewalk facilities on the Federal-Aid eligible roadway network as well as designated bikeway facilities. The maps developed for this report were produced through the GVMC Regional Geographic Information System (REGIS). The approximately 1,400 miles of Federal-Aid eligible roadways in the Grand Rapids Metropolitan Area are, by virtue of their designation, the most strategic roads within the region. These roadways are among the most often traveled in the area and in many cases are direct routes between important destinations. The bikeway data was provided by local units of government either directly as part of this project or through data already available in the REGIS system. Another layer of information provided on the maps is the existence of transit routes. The committee determined that the existence of sidewalks along transit routes was very important to maintaining safe and efficient connections for non-motorized transportation.

A regional map (Appendix A) and a more detailed map of the central urban core (Appendix B) are both provided as appendices of this document. GVMC staff will continue to maintain and update these maps on a regular basis and share those changes with the GVMC Non-Motorized Committee.

Because the level of detail in recording the location of facilities varies from community to community, it is difficult to locate every facility. Conversely, in communities with miles and miles of sidewalks, not all sidewalks are identified on the regional map. The regional map being utilized for this planning process denotes those facilities which are major local or regional (multi-jurisdictional) routes in nature.

A non-motorized committee was formed to help GVMC staff guide the direction of the planning process. Local units of government and members of the Grand Valley Metropolitan Council Transportation Committees were asked to nominate members for the non-motorized transportation committee from their agencies or from other citizen/stakeholder groups. The committee was made up of local bicycle club members, the Michigan Department of Transportation, local environmental advocates, trail advocates/volunteers, professional planners, media representatives, bicycle enthusiasts, and those who rely on non-motorized transportation as their main source of travel. The meetings of this group are open to the general public. Specific meetings were held with many jurisdictions to further identify current and future non-motorized issues. These meetings also served to identify partnership opportunities with neighboring jurisdictions. Previous bicycle and pedestrian planning efforts were analyzed and a general course of action was prescribed by the committee for addressing area priorities.

PUBLIC INVOLVEMENT/NEXT STEPS

Considerable time and effort have been spent collecting data for future planning. It is anticipated that the Non-Motorized Committee will be convened on a regular basis to re-visit the priorities, facilities, and policies contained in this plan.

GVMC staff is relying on the committee to build on the initial work done as part of this process and continue to identify and prioritize future non-motorized facilities for development. The project list developed in this plan will be forwarded to local elected officials and decision-makers for consideration. Funds will be pursued to develop the priorities of the GVMC Non-Motorized Plan. As part of the

transportation planning process, this document will be subjected to the Public Participation processes that the Transportation department of GVMC have set forth in their Public Participation Plan. This will allow for additional input to be provided and for public review of the findings of the GVMC Non-Motorized Committee.

Upon completion, this document will be amended into the GVMC Long Range Transportation Plan. See Appendix J for the Regional Map of Non-Motorized Facilities.

NON-MOTORIZED FUNDING SOURCES

Transportation Enhancement Program - Michigan Department of Transportation

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) established a fund for Transportation Enhancement Activities. Transportation Equity Act for the 21st Century (TEA-21) of 1998 continued this program through the year 2003 and the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) continues this program through the year 2009. Ten percent of the Surface Transportation Fund that the State of Michigan receives is set aside for these activities. Eligible transportation enhancement activities include the funding of bicycle and pedestrian facilities.

Applicants must be an Act 51 Transportation agency (city, village, or county road commission). Non Act 51 agencies must be sponsored by an Act 51 agency.

Applicant must provide at least a 20 percent match.

Michigan Natural Resources Trust Fund - Michigan Department of Natural Resources

Program Objective(s):

The objective is to provide grants to local units of government and to the State for acquisition and development of lands and facilities for outdoor recreation or the protection of Michigan's significant natural resources.

Criteria:

Applications are evaluated on established criteria such as resource protection, water access, and project need. At least 25 percent match on either acquisition or development projects is required from local government applicants. Recommendations are made by the Michigan Natural Resources Trust Fund Board (members are appointed by the Governor) to the State Legislature for final approval. Criteria are spelled out in the "Recreation Grants Selection Process" booklet given to all applicants. There are eleven evaluation criteria:

- Protection and use of significant natural resources.
- Use of inland waters.
- Population served.
- Economic benefits.
- Hunting, fishing and other wildlife-related values.
- Need for proposal.
- Applicant history.
- Site and project quality.
- Special Initiatives of the MNRTF Board (See below).
- Financial need of the applicant.
- Local match contribution.

Past Special Initiatives of the Board have included:

- Acquisition or development of trailways that contribute to an overall State trail system.
- Acquisition of lands open to hunting or development of hunting-related facilities, such as shooting ranges.
- Acquisition of lands that provide for deer habitat with thermal cover.
- Local shooting ranges or State/local shooting range partnerships.
- Acquisition projects that create, establish and protect wildlife/ecological corridors by connecting to and/or buffering existing protected and managed State or local natural areas, forests or game areas.

Eligibility:

Any local of government, including school districts, or any combination of units in which authority is legally constituted to provide recreation. Local units of government, school districts and local authorities must have a DNR-approved recreation plan to be eligible.

Funding:

Development project minimum/maximum grant amount: \$15,000 to \$500,000. No minimum/maximum limits on land acquisition grants. 25% match minimum.

Community Development Block Grant - Department of Housing and Urban Development

Overview:

The Community Development Department implements the federal Community Development Block Grant (CDBG) program in all Kent County communities except Grand Rapids, Cedar Springs, and Wyoming. Funds are distributed from the federal government to the County on a formula basis. The formula considers extent of poverty, population, housing overcrowding, age of housing, and population growth lag in relation to other metropolitan areas.

The Community Development Department awards funding to local projects based on the following requirements: 1) meets a need identified in an established action plan; 2) not less than 70% of funds must be used for activities that benefit low and moderate income persons; and 3) the activity meets one of the CDBG national objectives (i.e., benefits low and moderate income persons, prevention or elimination of slums or blight, or a particular urgency because existing conditions pose a serious and immediate threat to the health or welfare of the community).

The Community Development Department is also responsible for implementing the Shelter Plus Care program, which contracts with non-profit housing corporations to provide rental units as permanent housing for homeless individuals and families.

Goals:

The conservation and expansion of Kent County's housing stock in order to provide a decent home and a suitable living environment for all persons, but principally those of low and moderate income

The provision of a more rational utilization of land and other natural resources and the better arrangement of residential, commercial, industrial, recreational and other needed activity centers

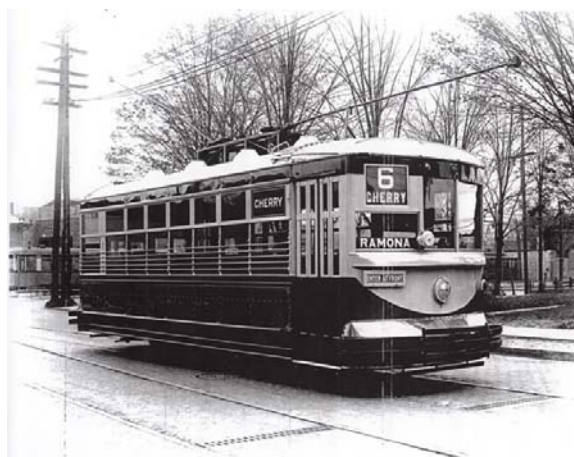
The reduction of the isolation of income groups within communities and geographical areas, and the promotion of an increase in the diversity and vitality of urban and rural communities
The restoration and preservation of properties of special value for historic, architectural or esthetic reasons.

Kent County has used this program on a limited basis for non-motorized facility development in areas where the criteria fits. Grand Rapids, Wyoming, and Cedar Springs have similar programs that are administered at the City level rather than the County level. The same basic regulations would apply.

TRANSIT AND TRANSPORTATION DEMAND MANAGEMENT (TDM)

TRANSIT HISTORY IN GRAND RAPIDS

Grand Rapids has a long history of public transportation dating back over 130 years. The earliest years consisted of horse-drawn carriages that began in the mid-1870s. Public transportation eventually evolved into a comprehensive electric interurban streetcar system beginning in the early 1890s that became the pride of the city and represented the 'glory years' of transit in Grand Rapids. Nevertheless, certain federal, state, and local policies dating back to the end of WWII culminated in the significant and widespread disinvestment of U.S. cities and transit infrastructure. And this became increasingly apparent over time. Consequently, both the



investment in public transportation and corresponding ridership began to decline dramatically. Grand Rapids was no different; the streetcar system was converted to rubber-tired buses by 1935. In order to maintain public transit services that had historically been operated by private companies, the *Grand Rapids Transit Authority* was formed by the City of Grand Rapids in 1963. The *Grand Rapids Transit Authority* leased assets from *Grand Rapids City Coach Lines* (CCL), a private management company, and retained them to manage and operate the transit system. Nevertheless, by the mid-1960s the *Grand Rapids Transit Authority* experienced a significant decline in both passengers and revenues as did most transit systems in the country. By 1968 the City of Grand Rapids began underwriting the area's transit system with payments in order to keep the essential transit services alive. The State of Michigan began offering financial operating assistance to the City for the operation of the transit system 1972 and the Federal government followed suit beginning in 1974.

In July 1978, the *Grand Rapids Area Transit Authority* (GRATA) was created in an effort to provide effective cross-jurisdictional public transportation services. GRATA was a voluntary association of local governments established to provide public transportation services to the cities of East Grand Rapids, Grand Rapids, Grandville, Kentwood, Walker, and Wyoming and the townships of Byron and Gaines. Service was also provided on a contract basis to the townships of Ada, Alpine, Cascade, and Plainfield. GRATA was governed by a Board of Directors. Board members were elected officials or citizens of the community and were appointed by their respective member governments.

In January, 2000, the *Interurban Transit Partnership* (ITP) was formed by the cities of Grand Rapids, East Grand Rapids, Grandville, Kentwood, Walker and Wyoming under Act 196 of the Public Acts of the State of Michigan. The creation of ITP allowed for the expansion of public transportation in the Grand Rapids area. Shortly after incorporating under Act 196, ITP chose the name *The Rapid* to distinguish the services it provides and promote easier identification of a transit service "brand-name". Act 196 allows *The Rapid* to ask voters for a millage election to support the funding of public transportation. On April 11, 2000 a 0.75 mill millage election was successfully passed by a 65% (2 to 1) margin. The result was the implementation of a six-point improvement plan in the six cities beginning in October 2000. This improvement plan included the following:

1. Extended weekday service from 6:15 PM until 11:30 PM on nine (9) fixed-routes and GO! Bus.
2. Improved weekday frequencies on four fixed-routes.
3. The addition of Sunday service from 8:00 AM to 7:00 PM on seven (7) fixed-routes and Go! Bus.
4. The creation of a 44th Street cross-town route in the cities of Grandville, Wyoming, Kentwood, and Grand Rapids.
5. The creation of a residential connector service known as Passenger Adaptive Suburban Service (PASS), utilizing smaller vehicles operating in suburbs to provide curb to curbs service.
6. The provision of funds for business transportation services including matching funds to develop specialized employment transportation for employers with needs beyond regular service hours and routes.

On November 4, 2003 voters in the six-city region passed an increase in the mill-rate for *The Rapid*. The new 0.95 millage rate replaced the pre-existing 0.75 rate approved by voters in 2000. The 0.2 mill increase covered decreased State Operating Assistance and generated revenues that were invested in modest service enhancements. These service improvements included frequency improvements, additional evening service, and additional weekend service.

As a result of continued investment in public transit services, infrastructure, and passenger amenities, *The Rapid* continues to out-pace most transit systems in the United States with a substantial growth in ridership. FY 2006 ridership (7,459,884) has increased 79% (3,287,517) since *The Rapid* was formed in FY 2000 (4,172,367).

DESCRIPTION OF EXISTING SERVICE, TRAVEL DEMAND MANAGEMENT STRATEGIES, AND SPECIAL PROJECTS

The Rapid Specialized Services

The Rapid, in its role as regional coordinator for specialized transportation service, receives an annual allocation from the State of Michigan for Specialized Services Operating Assistance. Specialized Services Operating Assistance funds are used by human service agencies to provide demand response service that is beyond *The Rapid's* service area and/or hours.

The Rapid brings these human service agencies together on a bi-monthly basis to assist them in the coordination of service, to help prevent duplication of service, and to share information.

Six agencies receive funding under this program. Hope Network offers transportation for persons with disabilities. The American Red Cross provides transportation to medical services for seniors and persons with disabilities. The Area Community Service Employment and Training Council (ACSET) offers transportation to seniors and persons with disabilities for their clients at their site in Cedar Springs. Senior Neighbors offers transportation for seniors at their sites in Sparta, Lowell and Grandville. Goodwill offers transportation for persons with disabilities for employment purposes. Community Mental Health provides funding for mental health transportation services throughout Kent County.

Fixed-Route Services

The Rapid currently operates 18 fixed-routes that provides service to the Grand Rapids Area serving the cities of Grand Rapids, East Grand Rapids, Grandville, Kentwood, Walker and Wyoming and the townships of Byron, Gaines, Cascade and Alpine. The *Rapid* fixed-route system is currently a radial system with three cross-town routes; the radial hub for routes is Rapid Central Station in downtown

Grand Rapids. Service frequencies are 15-30 minutes during weekday peak hours (5:30 AM – 8:30 AM and 2:30 PM – 5:30 PM) and 30-60 minutes during off-peak hours.

Grand Rapids Public School Service

The Rapid provides service to Grand Rapids Public School (GRPS) students on its fixed route service. Students who live along The Rapid's existing route structure ride the bus to school using their student passes provided by GRPS.

Aquinas and Calvin College Service

Aquinas College and Calvin College subsidize their student's fare when riding The Rapid. The student pays a reduced fare and the college is billed the difference between the student payment and the full student fare price of 80-cents.

Paratransit Service

The Rapid provides GO!Bus service to seniors and persons with disabilities who meet the Americans with Disabilities Act (ADA) guidelines. This service operates door to door on advance reservations and offers wheelchair lift equipped vehicles. The GO! Bus service area includes the entire fixed-route service area and is also offered by contract to eligible residents of Ada and Cascade townships under contracts with The Rapid.

The Rapid manages and oversees GO!Bus including user eligibility, trip reservations, scheduling, and service monitoring. Trip delivery is competitively procured every three to five years, however the 73 vehicles are provided by The Rapid. The fleet of GO! Bus vehicles include raised top vans, and larger capacity cutaway buses. The current provider of trip delivery for GO! Bus is MV Transportation.

Supportive Housing Program (SHP) and GAP Program

The City of Grand Rapids contracts with The Rapid to provide transportation service for homeless persons participating in the Homeless Assistance programs. The GAP Program is basically for persons in emergency shelters while the SHP Program is for persons in Transitional Housing programs. The Rapid has a contract to provide the following:

1. Mobility assessment, training and coordination.
2. Provide bus tickets and passes.
3. Provide Driver training.
4. Provide Safety-Net transportation outside The Rapid's regular service area and hours.

Community Mental Health

Kent County Community Mental Health Department (CMH) contracts with The Rapid to provide transportation services for persons with mental or developmental disabilities.

Business Transportation Services

The Rapid has provided assistance to individuals and employers in arranging shared ride transportation through the Business Transportation Services since 1990. Business Transportation Services includes rideshare, carpooling, Greenride programs. Cumulatively, The Rapid's rideshare program reduces

16,510,500 miles traveled annually. Furthermore, The Rapid continues to complete outreach to area employers and represents The Rapid at area employer fairs and other events.

The Rideshare program includes carpooling, vanpooling and any other sustainability-based program that helps remove single occupant vehicles from the roads. Currently, The Rapid has twenty-one (21) RapidVan vanpools in operation, with the expectation of adding up to thirty-three vans by the end of FY 2008. The twenty-one vans in operation save 229,572 vehicle miles traveled annually.

The carpool program was enhanced with new GreenRide software in January 2006. GreenRide software is on-line based and provides immediate, confidential carpooling results to registrants. The more user-friendly and comprehensive software has resulted in The Rapid's carpooling program growing to over 1,000 registrants, which is more than double its previous size. The GreenRide program also has an employer component that allows area companies to sign up for a separate portal allowing their employees to only ride with each other. Spectrum Health, Metro Health, and Foremost Insurance are currently in the employer program. The employers pay a \$500 fee to The Rapid annually to help offset website expenses. Employers also pay GreenRide a customization fee for their separate portals.

Guaranteed Ride Home

In January 1996 The Rapid began offering a Guaranteed Ride Home Program to monthly transit pass users. These rides are provided if a bus rider cannot take a normal ride back home due to an emergency such as a personal or family sickness, unexpected overtime, etc.

Travel Training

The Rapid offers the Travel Training Program that teaches individuals with disabilities to ride public transportation independently. The training process includes a series of steps which include close instructor assistance at the beginning with gradual fading assistance as the student demonstrates readiness. Participants generally include persons with developmental disabilities. The training includes route training, landmark identification, appropriate social behavior, safety and emergency training, parent, guardian, and case manager consultation, street crossing, stranger awareness, and follow-up training.

Grand Valley State University Service

The Rapid first entered into contract with Grand Valley State University for the provision of transit route service beginning in August 2000. The services that The Rapid provides are as follows:

- **Campus Connector:** This is a limited-stop fixed-route providing connections between the GVSU Allendale and Downtown Campuses. The Campus Connector route has proved to be so successful that the service frequency has had to be continually upgraded. In FY 2001, the route operated every 30-minutes. Because of overcrowding, the frequency of service has continually been upgraded to the point where, in FY 2006, the frequency of service was improved to every 7-8 minutes. As a result, ridership has increased 470% since FY 2001 (from 123,387 in FY 2001 to 703,099 in FY 2006).
- **GVSU Health Sciences/DASH to the Hill Shuttle:** The former DASH to the Hill route was modified effective in August 2003 to also serve the GVSU Center for Health Sciences Building on Michigan Avenue. Service operated every 4-7 minutes on weekdays. Since FY 2004, the ridership on this route has increased 64% (132,866 in FY 2004 to 217,179 in FY 2006).
- **Off Campus Apartment Shuttle:** This route links students from off site housing in Allendale to the Allendale Campus at 5-minute frequencies on weekdays. Ridership has increased dra-

matically on this route. Since its inception in FY 2001, ridership has increased a remarkable 1,441% (28,664 in FY 2001 to 441,866 in FY 2006).

Intelligent Transportation System (ITS) Project

The Rapid is undertaking a major initiative to implement ITS in the fixed route and paratransit fleet in FY 2007. These technologies are extremely beneficial to customers as well as the transit authority. The ability to walk out to a bus stop minutes before the bus arrives, or knowing exactly how much time you have before a bus transfer takes place is important to customers. Eliminating long wait times at bus stops as well as the fear that a passenger missed a connection provides a tremendous sense of security. With technologies we can produce much more reliable schedules, make sure that paratransit trips are on time, and make sure that the vehicles are safer to travel in. On board monitoring systems ensure that both passengers and drivers are safe and can act as a deterrent of both crime and poor behavior. Systems monitoring means that mechanical problems can be detected before they turn into serious breakdowns or service interruptions. Automatic passenger counters and annunciators make the driver's job easier and ensures better service to the disabled community by complying with the Americans with Disabilities Act.

The Rapid has been actively pursuing funding and has secured grant funding to implement these technologies, recognizing the important benefits and ability to attract customers. The Rapid is implementing the following technologies beginning in FY 2007:

Automatic Passenger Counters (APC); automatically counts passenger boardings and deboardings as required by the Federal Transit Administration. These counters eliminate the need for surveyors to ride buses and complete manual counts. In addition, APCs provide extremely accurate stop-specific and time-specific data.

Schedule Adherence; traffic signal preemption. The ability of log vehicle information at signals, enabling the development of more accurate passenger schedules based on better data. Systems can be implemented to allow fixed route vehicles a green light as they approach a signal.

Automatic Vehicle Location; provides real time vehicle location information, including the location and speed of the vehicle by using Global Positioning Systems (GPS). This allows for improved emergency response time and real-time arrival data for passengers.

Communication System; radio communication system that supports computer aided dispatch (CAD). A communication system that has the capability to allow vehicles to call by route number, driver number, or run number. The system can provide a backup of recorded data such as call time, and recording of the conversation. Emergency buttons can be located near the driver of the vehicle that will transmit data in the event of an emergency. It can immediately transmit bus number, route info, location, and provide a priority display in dispatch and security offices that includes a video and audio display.

Real Time Bus Arrival Departure Information; systems that provide real time arrival and departure information for fixed route. The system can be linked to a web page so that customers can log in and see what time a bus is due to arrive, and its current location. The information can also be available via cell phone, pager, or by PDA, and can be electronically posted and updated at key selected bus stops.

Automatic Annunciators; buses can be equipped to automatically announce major stops, intersections, and transfer points, as required by the Americans with Disabilities Act.

Global Positioning System GPS; allow drivers, especially in the paratransit system to quickly find or be guided to pick up and drop off locations as well as predetermined route guidance.

Automated Driver Log In; drivers can be able to log into the system via the farebox or radio with employee I.D. cards, as well as route cards.

Destination Signage Updates; destination signs can be capable of automatically updating at pre-determined route locations.

On Board Terminals; on board terminals for supervisors and paratransit drivers. On board monitors and keyboards would allow for instantaneous schedule changes and updates as well as pick-up and drop-off updates.

Great Transit Grand Tomorrows (GT)2 Study – Bus Rapid Transit System

The Rapid is conducting the Great Transit Grand Tomorrows Study to explore and develop choices for the future of public transit in the Greater Grand Rapids Metropolitan Area. The Public Transportation Tomorrow's (PTT) Task Force and Advisory Committees have been meeting since 2003 with the purpose of studying potential corridors for major public transportation investments and to develop a Locally Preferred Alternative as required in the Federal Transit Administration New Starts process. After four years of study and review, the PTT Task Force made the following recommendations:

- Endorsement of Bus Rapid Transit (BRT) on the Division Avenue corridor from 60th Street into downtown Grand Rapids and Michigan Hill as the Locally Preferred Alternative (LPA).
- Project endorsement by the Rapid Board and the Grand Valley Metropolitan Council for inclusion in the Grand Valley Long Range Transportation Plan.
- Submittal of an application to the Federal Transit Administration for Very Small Starts funding by July of 2007.

The recommended project on Division Avenue must meet the following federal criteria to be eligible for funding in the Very Small Starts program:

- Must be selected by the region as the Locally Preferred Alternative for a transit investment,
- Must have a minimum of 3,000 riders per day on the existing corridor,
- The investment corridor must have dedicated bus lanes in at least 50% of the corridor during peak hours,
- Have significant stations,
- Low floor vehicles and level boarding,
- Traffic signal priority,
- Vehicle “branding” that identifies the service as unique,
- Cost must be \$3,000,000 or less per mile, exclusive of vehicles,
- Service frequency must be 10 minute peak/15 minute off-peak, and service must operate at least 14 hours per day.

The proposed corridor would serve Division Avenue, Downtown Grand Rapids and Medical Hill. The preliminary capital cost is \$33,600,000 with an annual estimated operating cost of \$2,400,000.

Bus Rapid Transit System Update

Since the original publication of the Long Range Transportation Plan, the Federal Transit Administration (FTA) has announced their approval of the Grand Rapids South Corridor Bus Rapid Transit (BRT) project proposal. The project has been determined by the FTA to meet criteria to advance into project development. Specifically, the project calls for the development of a Bus Rapid Transit system in the South Division Corridor. The project will serve the Division Avenue corridor from 60th Street to

Wealthy Street as well the Saint Mary's campus, Michigan Hill Medical Corridor, downtown Grand Rapids and Rapid Central Station. The project length is 9.87 miles, with 19 transit stations. A total of 10 hybrid electric low floor buses would be required providing a service frequency of 10 minutes during peak and 15 minutes off peak. The total projected cost is estimated to be \$36.671 million (\$29,336,800 million Federal, \$7,334,200 million State/Local). Construction of the BRT system is estimated to begin in 2010 with a target public opening in 2012. With FTA approval, the BRT project has moved from the illustrative list of the 2035 LRTP, and is included as a project.

Comprehensive Operational Analysis (COA):

The Rapid employed the services of Connetics Transportation Inc. for a comprehensive operational analysis (COA) of The Rapid's services beginning in May 2005. The product of the COA is both a phase 1 (near-term) and a phase 2 (short-range) implementation plan.

The Phase 1 plan is designed to provide The Rapid with an efficient base transit system from which to continue to improve service levels and performance in the near future. Phase 1 recommendations address existing system inefficiencies, improve system connectivity, eliminate confusing / out-of-direction travel, eliminate unproductive service, and begin to improve system service levels and performance.

Phase 1 reflects the following service accomplishments:

- Simplification of service patterns on routes.
- Elimination of large one-direction loops on routes.
- Improved efficiencies through interlining.
- Regular scheduled service on Lake Michigan Drive
- Airport service via a 7-day/week radial route through Woodland Mall.
- An expanded weekday evening and weekend transit network.
- Elimination of 45-minute headways and creation of 'clock' headways (e.g., 15, 30, and 60-minute service) at all times.
- Expanded non-CBD transfer opportunities.
- New Service to Lake Michigan Drive/Wilson Avenue Meijer.
- Improved schedule adherence.
- Extensive inter-lining (fusing of routes) to create less transfers and higher efficiencies.

The Phase 2 plan is designed to build upon the phase 1 plan. In addition to new routes, phase 2 continues to expand system area coverage, and places emphasis on improving corridor level service and overall system wide connectivity. In addition to service alignment and service level improvements, transit passenger facility improvements are included to improve system attractiveness and ease of system use.

Phase 2 includes the same system-wide changes previously identified for the phase 1 plan. In addition, phase 2 includes the following recommendations:

- Further elimination of large one-direction loops on routes.
- Further expansion of the weekday evening and weekend transit network.
 - Improved peak and off-peak frequencies
 - Additional evening, Saturday, and Sunday service
- Further expansion of non-CBD transfer opportunities.
- New Service to:
 - 28th Street/I-96 Meijer
 - 68th Street/Kalamazoo Avenue Meijer/Target
 - 11th Street/Walker Avenue area

The Rapid will implement phase 1 on May 7, 2007 and the additional \$241,752 annual operating expense will be folded in The Rapid's existing operating budget. Phase 2 will require an additional \$2,246,219. Consequently, phase 2 cannot be implemented until an additional revenue source is identified. One possibility is a 0.17 increase in the current 0.95 property tax millage to pay for the phase 2 improvements.

RAIL TRANSPORTATION

The Grand Rapids Metropolitan Area is fortunate to have five freight rail companies and one passenger rail option. There are approximately 128 miles of operational track in the metropolitan area. Further, major corridors have been abandoned within the past decade and have been converted for use by non-motorized travel. Descriptions of these facilities have been included in the non-motorized section of this document.

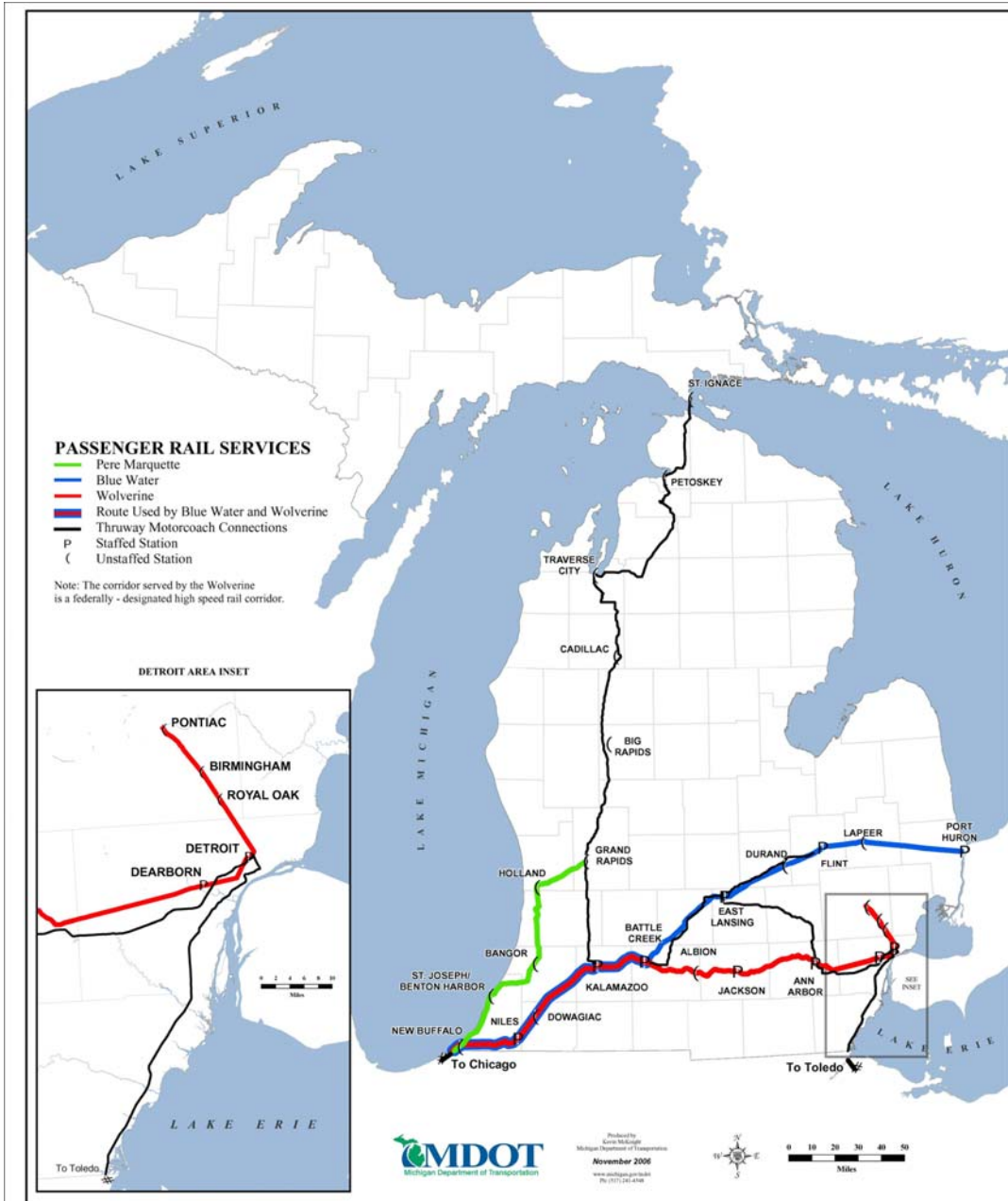
PASSENGER RAIL – AMTRAK PERE MARQUETTE AND WESTRAIN

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. Thirteen 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 (Figure 17).

The Pere Marquette rail line, which runs roundtrip between Grand Rapids and Chicago seven days-a-week, celebrated its 20th anniversary in 2004. It is operated by Amtrak at the request of the state of Michigan, which has provided an operating subsidy for service since Fiscal Year (FY) 2004 of \$7.1 million per year. The operating contract between MDOT and Amtrak for two routes (the Blue Water and the Pere Marquette), however, was renewed for FY 2006-2007, at \$6.2 million, a 12 percent decrease from the previous year's contract. Despite the subsidy decrease, Amtrak routes have experienced increases in ridership and revenues on state supported routes. The Pere Marquette showed a 5.7 percent increase in ridership in 2006 over the previous year, with sales of \$2.6 million, a gain of 20 percent for the period (Figure 18). It is hoped that continued Michigan Department of Transportation funding will provide for a better and more viable national passenger rail system in the longer term.

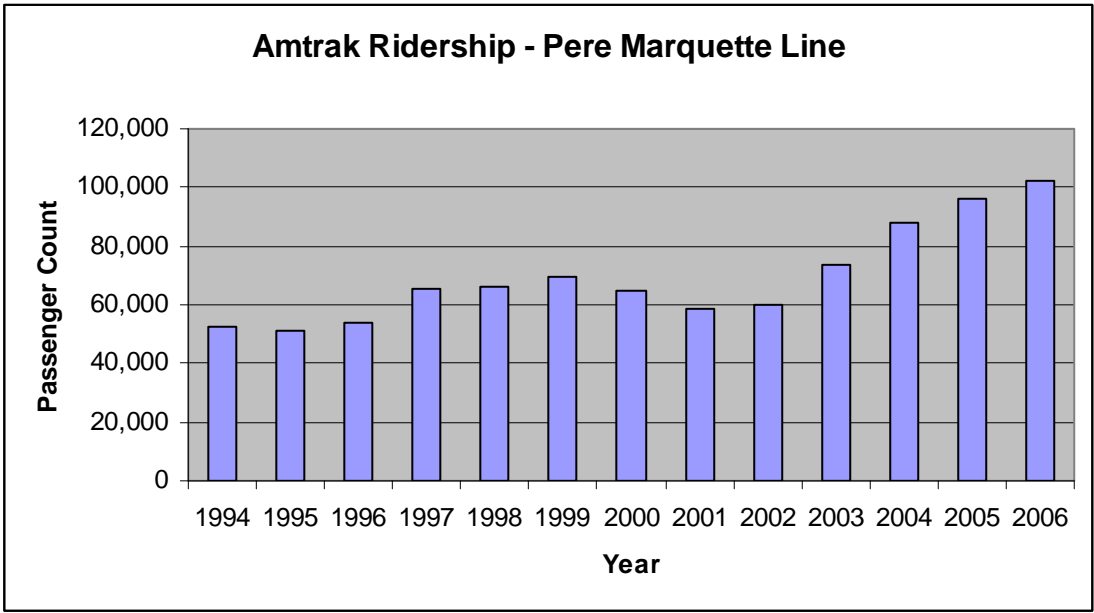
Passenger rail issues are currently being studied by the WESTRAIN Collaborative. The WESTRAIN Collaborative is a group of agencies working to further rail issues in West Michigan. Members include the Michigan Department of Transportation, the Grand Valley Metropolitan Council, the Macatawa Area Coordinating Council, the Grand Rapids Area Chamber of Commerce, the Holland Chamber of Commerce, and the Cornerstone Alliance in St. Joseph. The focus of WESTRAIN is to secure and maintain passenger rail service from Grand Rapids to communities along the Pere Marquette line to Chicago, Illinois and beyond. During AMTRAK budget cuts in 1995, service on the Pere Marquette line serving Chicago was cut to Thursday through Sunday. The WESTRAIN Committee was instrumental in lobbying MDOT and AMTRAK to restore daily service on the Pere Marquette.

The WESTRAIN Collaborative has also worked closely with AMTRAK on a number of initiatives to increase awareness of and traffic on the Pere Marquette rail line. Utilizing special promotions, giveaways, and other marketing strategies, WESTRAIN serves to continue to help attract new riders to the passenger rail experience. Additionally, WESTRAIN has taken the lead on minor renovations to the downtown Grand Rapids Amtrak station.



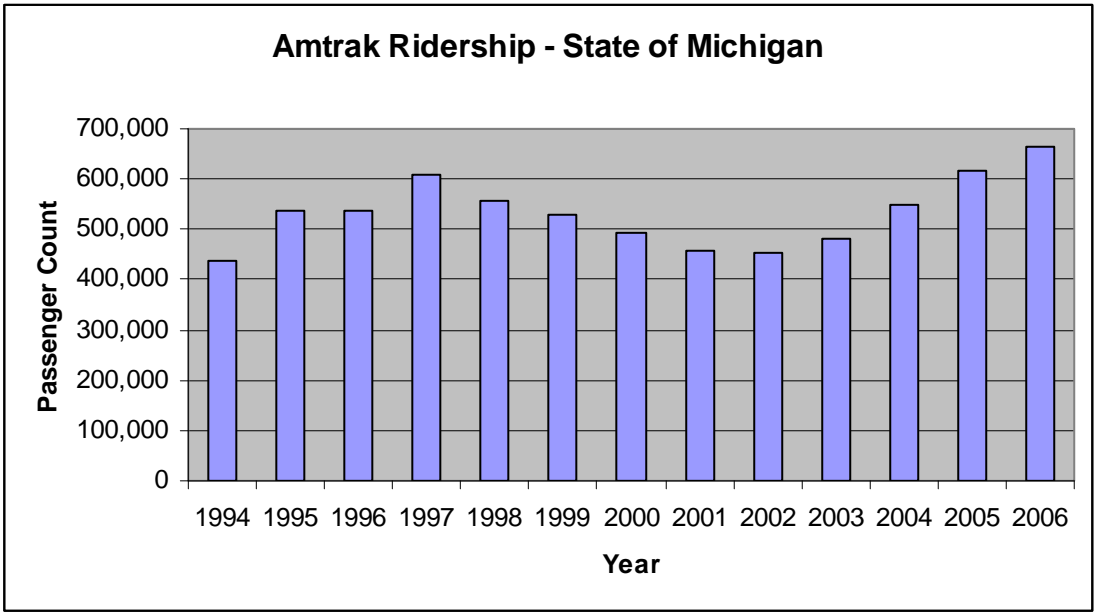
Source: Michigan Department of Transportation

Figure 17— Michigan Statewide Intercity Passenger Rail Routes and Stations



Source: Michigan Department of Transportation

Figure 18 — AMTRAK Ridership Pere Marquette Line 1994-2006



Source: Michigan Department of Transportation

Figure 19 — AMTRAK Ridership State of Michigan 1994-2006

MIDWEST REGIONAL RAIL INITIATIVE

The Midwest Regional Rail Initiative (MWRRI) is a cooperative effort between Amtrak, the Federal Railroad Administration, 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, MWRRI 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 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.

These efficiencies would be achieved through state-of-the-art train communication and control systems, highway/railroad grade crossing safety enhancements, rehabilitation of existing and construction of new track and sidings. In addition to a travel time reductions, the system would feature additional frequencies -- as many as 17 daily roundtrips between Chicago and Milwaukee (including Amtrak's current long-distance trains).

Over 63 new trainsets would provide passengers with modern and spacious facilities and offer on-board amenities for business and leisure travelers. Ridership on the entire system is projected to skyrocket from the current 1.5 million passengers per year to 13.6 million passengers annually in 2025. The total capital investment for the MWRRS, including infrastructure and rolling stock, is estimated to be \$7.7 billion (in 2002 dollars). 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.



*Indiana DOT is evaluating additional passenger rail service to South Bend and to Louisville.
 **In Missouri, current restrictions limit train speeds to 79 mph.

Source: Michigan Department of Transportation

Figure 20 — Proposed Midwest Regional Rail Initiative (MWRRI) System

The funding 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 will 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 State of Michigan would contribute \$873 million for infrastructure and \$234 million for train equipment. As technologies have emerged and priorities have changed, a second initiative has surfaced that is specifically focusing on the feasibility of high speed rail.

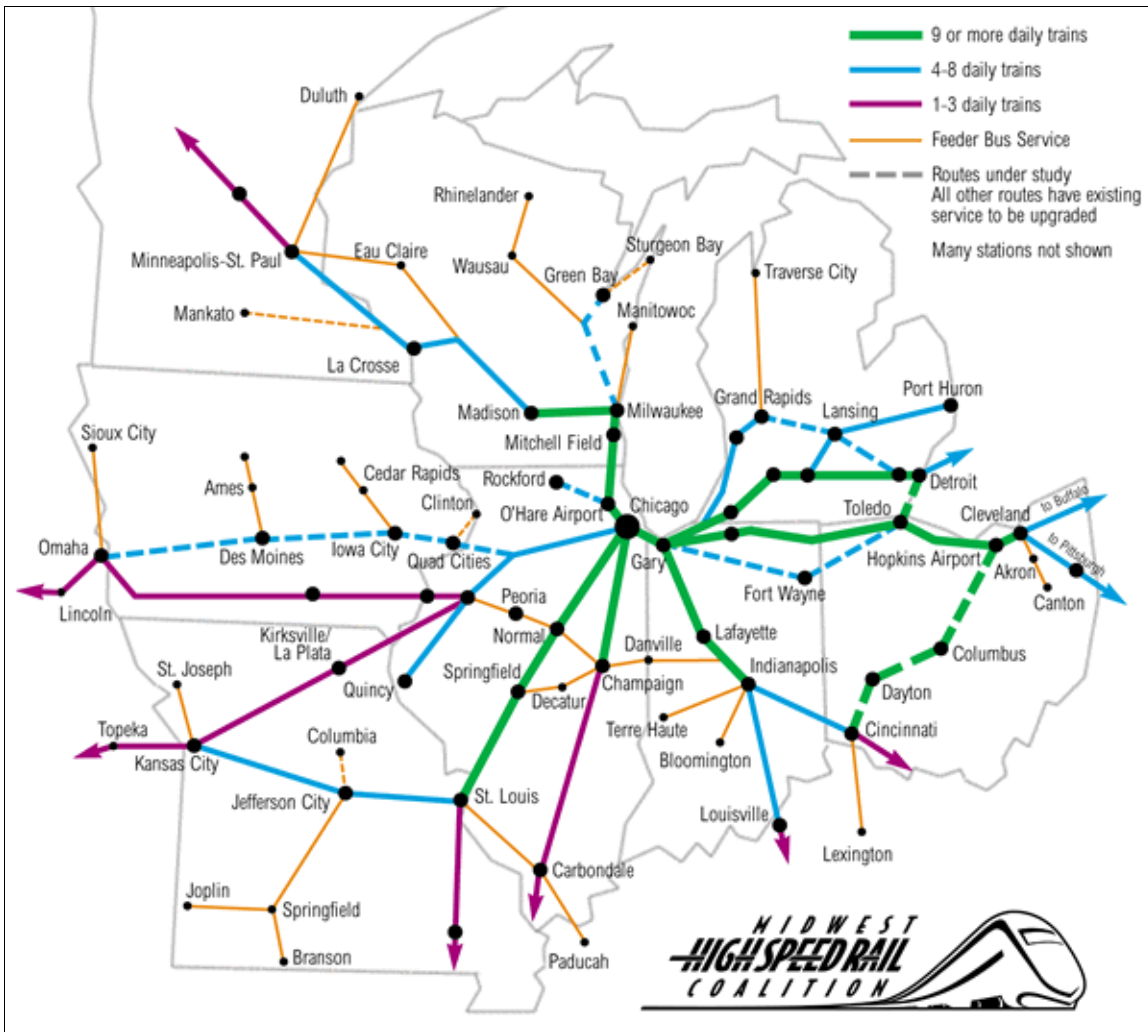


Figure 21 — Midwest High Speed Rail Coalition Map

MIDWEST HIGH SPEED RAIL COALITION VISION FOR A MIDWEST NETWORK

The above map shows the vision of the Midwest High Speed Rail Coalition. This group of nearly 1700 members including individuals, chambers of commerce, municipalities, and corporations throughout the Midwest, works in conjunction with the Midwest Regional Rail Initiative to promote high speed rail service. Key to the success of an advanced rail network are: frequent service, convenient schedules, and competitive travel times. An initial system based on the Midwest Regional Rail Initiative would serve all primary and secondary population centers, including over 200 cities with directly served airports. Additionally, well integrated bus connections, in coordination with Greyhound, will extend the reach of the system. Trains would travel up to 110 mph on primary corridors. Frequencies and speeds could be increased as the network gains ridership.

GRAND RAPIDS PASSENGER RAIL IMPROVEMENTS

On a local level, there have been some improvements to the infrastructure for Grand Rapids rail passengers. Those improvements have provided a benefit to area residents using passenger rail.

Through a \$150,000 grant from the Michigan Department of Transportation, the WESTRAIN Collaborative was able to design and completely refurbish the Market Street AMTRAK Station in the mid 1990s.

More recently, the City of Grand Rapids was able to secure a Congestion Mitigation Air Quality grant for the purposes of expanding parking at the Grand Rapids station site in 2003. Inadequate existing parking has been substantially improved especially during the peak train travel times.

In 2007 the WESTRAIN Collaborative, in conjunction with AMTRAK and the City of Grand Rapids, will complete minor renovations to the Market Street AMTRAK station. A \$50,000 grant from the Michigan Department of Transportation has provided funds to update the exterior of the station, including the addition of a secure flagpole, new pavement and striping, increased outdoor seating, new paint, new security fencing for the propane tank, new security cameras and lighting, and a new clock in the building's cupola. These minor improvements are important maintenance for the Pere Marquette line facility which saw over 100,000 passengers in 2006.

RAIL AND TRUCK FREIGHT/SHIPPING

The Grand Valley Metropolitan Council (GVMC) interfaces with rail and truck freight/shipping interests through the Participation Plan mailing list, and by meeting with the area's largest employers/shippers through MDOT meetings that are specifically geared toward the freight community. The Participation Plan list has a number of companies on it that rely on shipping via rail and truck. Through meetings and input from these sources, a list of priorities emerged from the 2030 Long Range Plan including:

- The expedited completion of the M-6 roadway.
- The extension of US-131 south to the Indiana/Michigan border
- Improved access to the Gerald R. Ford International Airport
- Improved rail and roadway access to smaller urban areas in Michigan such as Grand Haven, Battle Creek, and Mount Pleasant
- Bridge improvements along I-196 and US-131
- Improved maintenance of existing traffic during construction times and completing more construction activities during off-peak hours.

Since the last plan was completed in 2004, the M-6 Corridor through the southern part of Kent County was completed and is now open to traffic. When the construction timeline for the project was initially announced, completion was slated for 2008. Thanks to changes in priorities at the state level and expedited construction, the roadway opened in the Fall of 2005.

The extension of US-131 south of Kalamazoo and the Michigan/Indiana state border has generated substantial discussion recently. MDOT originally studied this corridor and selected a no-build option. After considerable input from stakeholders, MDOT has reconsidered the no-build option and is performing an environmental assessment (EA) on the corridor. Improvements will be made based on the recommendations of the EA which will be completed by 2010.

Additionally, access to the Gerald R. Ford International Airport has been improved through the completion of the 36th Street interchange at 36th Street and I-96 and the extension of 36th Street that ties in with the interchange and local road network. This project was completed in the Fall of 2006 at a cost of \$35 million and provides a more direct access to the airport and the many industries and employers surrounding the airport property.

The other items mentioned above are still a priority with area freight stakeholders. The issue of bridge replacement on I-196 is being addressed through projects that were recently amended into this document by MDOT. The mainline and bridges of I-196 will be expanded/improved on an incremental basis over the next 25 years with most of the bridge improvements happening in the earliest stages of the project.

The difficulty in securing freight data has led GVMC staff to explore other options for interfacing with the freight community. In March 2006, GVMC staff was invited by MDOT, Grand Region staff to co-host a meeting specifically geared to the largest employers in West Michigan. MDOT rolled out its Five Year Plan and GVMC used the opportunity to explain the transportation planning process and to establish contacts for some of the larger employers in the Grand Rapids area. This meeting allowed for continued communication with the employers in attendance. GVMC staff was also able to share project information for the local federal aid network to assist those shippers in planning for future routes and detours. GVMC staff also shared contact information for other MPO organizations in the State of Michigan so that other local road programs could be obtained by the shippers throughout Michigan.

Most recently, GVMC staff is working with The Right Place Program, an economic development organization in Grand Rapids, and the MDOT Grand Region on a region-wide rail freight study. MDOT was able to obtain State Planning and Research (SPR) funds to conduct this study. The study, slated to be kicked off in 2007, will provide an accurate inventory of rail freight infrastructure in West Michigan and hopefully will provide information on the level and type of rail freight activity that originates, travels through, or terminates in the region.

GVMC staff will continue to work with area rail/truck freight interests and consider the issues and priorities put forward by those groups and incorporate those items into the transportation planning process. GVMC also intends to work with State and Federal partners to improve the level of analysis that takes place related to freight levels within the Grand Rapids area.

AIR TRANSPORTATION

The following sections outline operations at the Gerald R. Ford International Airport (GFIA), formerly known as the Kent County International Airport:

HISTORY

In the late 1950's due to urban encroachment by development, local officials decided to relocate the Kent County Airport from its site south of Grand Rapids, to a new site in Cascade Township. With financial backing of a taxpayer approved millage and bond issue, the new Kent County Airport was constructed on the 1,800 acre site and opened in 1963. The bonds were retired in the early 1970's and today the airport is self sufficient.

The new airport provided a 6,600 foot east-west runway complete with Instrument Landing System (ILS), and a 3,400 foot north-south runway (18-36). The 1970's saw construction of a parallel general aviation Runway 8L-26R. Two subsequent runway extensions have brought the main east-west runway to 10,000 feet. At 10,000 feet long the east-west runway is capable of handling planes of any size.

In 1999, the Kent County Board of Commissioners took action renaming the Kent County International Airport to the Gerald R. Ford International Airport. This was done to honor Grand Rapids resident, longtime airport supporter and the 36th President of the United States, Gerald R. Ford.

In the year 2000, the airport completed a \$50 million major renovation of the passenger terminal building. In 2002, the airport opened a 1,000-space express shuttle parking lot, and became the first airport in the nation to screen 100% of checked baggage for explosives using new explosive detection machines. 2003 marked the 40th anniversary of the airport at its current location. The celebration began with Passenger Appreciation Days during the busy spring break season, continued with the Flyby 5K Run, Walk & Airport Expo in June. A bronze bust of President Gerald R. Ford's likeness was unveiled in July, followed by the Plane Pull Challenge of Michigan in August, and wrapped up with an airport-wide employee appreciation luncheon in October.

AIRFIELD CONFIGURATION AND INFORMATION

Currently the GFIA makes use of three runways. The primary runway (8R-26L) is 10,000 feet long. The other runways are 8L-26R which is 5,000 feet long, and 17-35 which is 8,500 feet long. The primary east-west runway, 8R-26L, was completely reconstructed in 2001. The project took approximately nine months and was completed in less time than originally projected. The cost of the project was \$32 million.

There is enough concrete used at the airport to build a two-lane road (10 inches thick) from Grand Rapids to the Mackinac Bridge. Additionally, there are 1,550,000 square yards of pavement on the airfield.

There are 2,000 acres of grass to mow around the airfield. This is the equivalent of 1,515 football fields - including the end zones! In an "average winter" the airport staff removes 83,700,000 cubic feet of snow from the airfield. That's enough to fill 20,000 Olympic-sized swimming pools!

PASSENGER AIR TRANSPORTATION

In 2004, the Gerald R. Ford International Airport (GFIA) posted another year of record passenger volume, exceeding 2 million passengers for the first time in its history (2,150,125). While the total passen-

gers for 2005 were off the record 2004 levels, GFIA still carries over 2 million passengers which, as of 2005, ranks it as the 88th busiest commercial airport in the United States and the second busiest airport in the State of Michigan.

Gerald R. Ford International Airport is served by eight passenger airlines with 120 daily scheduled non-stop flights to and from 16 major market destinations.

AIRPORT PROPERTY INFORMATION

The airport 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. There is over 12 miles of fence surrounding the perimeter of the airport property. That's enough to stretch from the airport to downtown Grand Rapids. The airport's passenger terminal building is just over 240,850 square feet; with over 170,000 square feet open to the public. There are two concourses and 12 gates in the passenger terminal building. The airport also provides approximately 4,750 public parking spaces.

AIR FREIGHT/SHIPPING TRANSPORTATION INFORMATION

On October 5, 1999, a dedication ceremony welcomed the new 47-acre Air Cargo and Trade Center. The facility triples GFIA's cargo handling capabilities with 160,000 square feet of warehouse, processing, and office space surrounded by 680,000 square feet of aircraft ramp space, 14 aircraft parking positions, and 61 truck bays.

A current robust level of air cargo activity, coupled with ten-year projections of six to eight percent annual growth in freight handled by the airport, made the facility necessary to keep pace with area needs. The \$28 million project was funded from airport reserves, a grant from the Michigan Bureau of Aeronautics, and private financing.

Currently, there are four cargo airlines located at Gerald R. Ford International which handle approximately 237,000 pounds of air cargo each day or more than 118 tons per day. More than 86 million pounds of air cargo passed through Gerald R. Ford International Airport in 2005 and the amount of cargo handled by the airport continues to steadily increase on an annual basis.

RECENT AND FUTURE ACTIVITIES

The Airport Gateway was recently overhauled in 2004 thanks in part to a Transportation Enhancement grant secured through the Grand Valley Metropolitan Council, the Michigan Department of Transportation, and the U.S. Department of Transportation. Changes to the gateway include additional overhead directional signage, new trees and shrubbery, and native plants and grasses that represent West Michigan's natural environment. The airport added 750 additional spaces to its express shuttle parking lot in 2004 as well to complete the "facelift".

A new Cell Phone Lot was opened to the public in October 2006. The lot is designed as a convenient, safe and legal way for those motorists waiting for passengers to arrive. Motorists can wait just outside the airport entrance while waiting for their passengers to arrive and contact them via cell phone. Motorists can avoid continuously circling the interior airport loop or paying to park in the airport parking areas. The lot has 15 spots and a 30-minute time limit.

A new parking structure will be coming to Airport property with construction slated to begin in 2007 and lasting two years. The new structure will have approximately 4900 parking stalls, for a net increase

of 3900 stalls. The structure will be a ground level and three upper levels on the west and a ground level and two upper levels on the east, because of control tower to airfield pavement line of sight restrictions, with a footprint of approximately 1200 feet by 350 feet. There will be 2 pedestrian bridges from the structure to the terminal building, with both escalators and elevators at the terminal to access the ticketing level. A canopy will extend from above the upper level of the structure to above the terminal roof, approximately 600 feet long. The structure will have a terra cotta paneling system and glass enclosed stair/elevator cores. An entry/welcome plaza will be constructed prior to the structure entries, along with roadway and utility improvements. The project is expected to cost about \$120,000,000.

GENERAL AIRPORT INFORMATION

- Gerald R. Ford International Airport is managed and operated by the Kent County Department of Aeronautics. The Kent County Aeronautics Board is a six-member body appointed by the Kent County Board of Commissioners with responsibility for policy setting and general oversight of the airport.
- More than 2,000 people work at the airport, the majority being employed by airport tenants.
- Replacement value of the airport, its property, and facilities is estimated at \$550,000,000.
- The airport has its own police, fire, and maintenance departments.
- The airport generates over \$880 million annually in economic activity throughout its West Michigan 13-county service area.
- 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.

SAFETY MANAGEMENT SYSTEM

The Safety Management System functions to help improve the overall safety of the transportation network in the Grand Rapids urbanized area. There are a number of developments that GVMC has been involved in recently to increase the planning and consideration of traffic safety issues in the Grand Rapids area.

SAFETY FORUM

The Grand Valley Traffic Safety Committee (TSC) was formed in 2005 through the involvement of the Grand Valley Metropolitan Council (GVMC). There are currently nine Traffic Safety Committees in the State of Michigan sponsored by the Office of Highway Safety Planning and AAA Michigan. The Grand Valley Traffic Safety Committee 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.

WAYNE STATE UNIVERSITY STUDY

Beginning in October 2004, the Office of Highway Safety Planning sponsored a traffic and safety services project for the Wayne State University-Transportation Research Group (WSU-TRG) to perform a comprehensive crash analysis at a site-specific level within GVMC. The purpose of this study is to conduct a review of the traffic conditions and crash characteristics of approximately 30 high crash locations within the MPO boundary, to identify operational and driver behavior issues that may be affecting safety and to develop potential mitigation measures to reduce the crash risk at the selected locations. The study includes implementation, staging and evaluation plans for assessing future changes in crash patterns attributable to the safety improvements.

As a part of this study, a total of 68 intersections were analyzed to determine the crash and injury characteristics for a four-year period (2000 through 2003). Based on this review, 32 intersections were identified as having a 'high' to 'moderate' crash experience and were included in the detailed site-specific analysis. The majority of these intersections were located in the vicinity of Grand Rapids.

In order to provide comprehensive traffic safety and engineering services for the GVMC MPO, this study consisted of three main activities, which encompassed a variety of sub-tasks and are as follows:

1. Investigation of the crash characteristics at the MPO level to determine the annual crash trends using charts, graphs and Geographic Information System (GIS) maps to identify predominant patterns in crashes among the geographic areas (cities/townships) within the Grand Valley Metropolitan Council. The crash data for this analysis was obtained by querying the Michigan State Police's (MSP) computerized Statewide Traffic Crash Database for the years 1997 to 2003.
2. Identification of crash experience at candidate sites and the selection of intersections for detailed analysis based on the most recent traffic crash data for two years (2003- 2004).
3. Detailed intersection and corridor analyses based on a systematic approach to review physical, traffic and crash characteristics, and to identify safety and operational deficiencies, as well as driver behavioral issues in order to develop mitigation strategies. The following methodology was used in this approach:

- Conducted on-site investigations to collect intersection geometry, lane use and designation, adjacent land uses and driveways, traffic control devices and all relevant measurements within an approximate 150-foot radius of the intersections. The distances were obtained using digital measuring wheels.
- Reviewed traffic characteristics by collecting manual turning/through movement counts during a ‘typical’ weekday (Tuesday, Wednesday, Thursday) PM peak period (4:00 to 6:00 PM) using a one or two-person team, depending on the intersection size and volume of traffic the intersection carried.
- Evaluated the intersections’ capacity/level of service (LOS) using the most recent version of the Highway Capacity Software (HCS), which applies the techniques described in the *Highway Capacity Manual*, published by the Transportation Research Board in 2000.
- Analyzed traffic crash data for the selected high crash locations using data obtained from the Michigan State Police for the years 2003 and 2004 (downloaded UD-10 traffic crash reports from MSP website). In order to compile the crash reports for the study intersections, the images on the website were carefully reviewed, sorted and printed. The number of crashes resulting from the UD-10 reports and the number contained in the Statewide Traffic Crash Database were compared for each intersection by year as a check for accuracy. The hardcopy UD-10 reports were then used to prepare pattern/summary tables and also to prepare collision diagrams.
- Analyzed traffic crash data to identify driver behavioral issues related to alcohol use, seatbelt use, speeding, and red light running. Recommendations for enforcement and educational-type safety measures were made based on this analysis.
- Using the results of the detailed traffic crash analysis, operational analysis, and analysis of crashes related to driver behavioral issues, safety-related issues were identified at a corridor and intersection-specific level. Safety improvements were then developed, based on the predominant crash types, identified safety deficiencies and probable cause of crashes, as outlined in various publications [*Highway Safety Improvements Program (HSIP) Procedural Guide* (DOT-FH-11-9679), Federal Highway Administration, 1981; National Cooperative Highway Research Program (NCHRP) Report 457, *Evaluating Intersection Improvements: An Engineering Study Guide*, Transportation Research Board, National Research Council, 2001; *Manual on Identification, Analysis and Correction of High-Crash Locations*, 3rd Edition, Missouri Department of Transportation Technology Transfer Assistance Program , 1999]. It should be noted that the crash causation analysis focused on identifying specific crash types that could be mitigated by the installation of a countermeasure, known as a ‘correctable’ crash. For example, if a crash analysis reveals a predominance of left-turn head-on crashes, a countermeasure such as the installation of a left turn lane and/or left turn signal is expected to correct the crash problem. However, if a crash occurs due to driver distraction, such as stopping at a green signal to read a map (or any other type of distraction), there is nothing an agency can do to correct this type of crash. Thus, this study focused on identifying correctable crashes, determining the probable causes and selecting well-known countermeasures to mitigate the crash problems.

The results of the Wayne State Study will help to identify next steps for local implementing agencies to address transportation safety concerns on the Grand Rapids area’s roadway network and identify a methodology for future safety study of other intersections or corridors in the area.

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

In June 2002, GVMC Staff developed the Grand Rapids Area Regional ITS Architecture. The development of consistent standards for ITS development nationwide is paramount to the Federal Highway Administration ITS Program. The regional architecture must conform to the standards set forth by the federal government to ensure consistency and proper planning.

The work with the regional architecture serves to build on what was previously done with MDOT through the use of CMAQ funding and the implementation of the previous ITS plan. Variable message signs and closed circuit cameras were constructed at strategic locations along US-131 as part of this undertaking. It is hoped that the development of the new regional architecture will continue to build on the ITS efforts that are already in place and provide for additional ITS implementation.

The development of the architecture was broken into 2 phases or “tiers”. The objectives of Tier I are to help local transportation professionals understand the need for local ITS integration, understand the need for a regional architecture, understand the process by which a regional architecture is developed, understand the role of the National Architecture in the process of developing a regional architecture, identify the actions necessary to prepare for the final stages of regional architecture development, define the boundaries and deployment timeline, and identify a “Champion” who will lead the effort to develop and finalize the regional architecture.

The Grand Valley Metropolitan Council as the Metropolitan Planning Organization (MPO) for the urbanized area, will maintain the regional architecture and serve as the champion for ITS implementation in the region. GVMC will coordinate planning activities and certify that federally funded ITS projects or federally funded projects that contain ITS elements are included in the Grand Rapids Area Regional ITS Architecture and adhere to all applicable standards. All projects in the Grand Rapids Area Regional ITS Architecture plan will be included in the region’s Long Range Transportation Plan (LRTP) as illustrative projects. When funding is secured for a specific project, that project will be moved out of the illustrative section of the LRTP and implemented through the MPO’s project selection process.

The Grand Rapids Area Regional ITS Architecture timeline was set by the area ITS committee at ten years. That timeline should be considered a “rolling” timeline. As new technology and programs become feasible for use in the area, GVMC, through the ITS/Traffic Operations Committee, can/will amend the Regional Architecture to include those elements. If something has been deemed inappropriate for implementation today, it is completely possible that in the coming years, new technologies and local desires will make them feasible for implementation.

Fortunately, significant benefits can be realized by the strategic application of selected technologies. These technologies will lay the foundation for the complete Intelligent Transportation System that will ultimately be implemented throughout the MPO region.

ALTERNATIVE FUELS

The Grand Valley Metropolitan Council is working hard to stay abreast to energy changes and advancements as they relate to transportation and transportation infrastructure. As alternative fuel technology evolves our staff will continue to evaluate the applicability to plans and development projects. It is our goal to incorporate those technologies into our planning process that reduce our dependence on foreign oil as well as reduce the emission of gases that contribute to global warming, particulate matter, and chemicals that combine to form ground level ozone.

Three different emerging technologies of particular interest are: ethanol, biodiesel, and hydrogen fuels.

ETHANOL

Ethanol is fuel produced by fermenting and distilling starch crops to simple sugars and then into alcohol. Corn, barely, wheat, sugar as well as “cellulosic biomass” such as trees, grasses (switchgrass in particular), potatoes, molasses, and corn stover can all be used to produce ethanol. Currently 90% of the ethanol made in the U.S. is made from field corn.

Like biodiesel, ethanol can be blended with petroleum based fuel, or gasoline, in different increments. For example, E85 (a blend of 85% ethanol and 15% gasoline) qualifies as an alternative fuel under the Energy Policy Act of 1992 (EPAct), and vehicles that run on E85 are considered flexible fuel vehicles (FFVs). A blend of 10% ethanol, 90% gasoline (E10), while not considered an alternative fuel at such a low concentration, can be used in all gasoline vehicles, and in fact ethanol is currently added to gasoline to increase octane and improve emissions in many states.

As of 2005, approximately 5 million FFVs have been sold in the United States, although many buyers are unaware that they can refuel with E85. In fact, the Michigan Department of Agriculture estimates that nearly 225,000 FFVs exist in Michigan as of early 2006. Fueling stations that provide E85 are primarily located in the Midwest, with more than 900 public E85 stations operating across the country. E85 fueling equipment differs slightly but is of similar cost to gasoline fuel equipment, and in some cases it may be possible to convert existing petroleum equipment to handle E85.

When compared with gasoline-fueled vehicles, the majority of E85 vehicles produce lower carbon monoxide and carbon dioxide emissions, as well as lower levels of hydrocarbons. While a gallon of ethanol contains about 66% of the energy of a gallon of gasoline, in actual use drivers generally experience a fuel economy reduction of 15% relative to gasoline. Despite the lower energy output per gallon, ethanol produced from cellulosic biomass yields at least 25% more energy than is used growing, harvesting, and distilling the ethanol. As technology converting biomass into ethanol improves, estimates of a 71-75% reduction in fossil energy use and a 68-91% reduction in emissions is anticipated with the use of E85 by 2010.

On August 5, 2005, President Bush signed into law the 2005 Energy Policy Act, which includes a 7.5 billion gallon renewable fuels standard by 2012. This mandates the use of ethanol (and biodiesel) into the American fuel supply, and as of July 1, 2006, U.S. production of ethanol surpassed the 4.5 billion gallon mark. The state of Michigan has opened three commercial ethanol plants, the first being the Michigan Ethanol LLC in Caro, Michigan producing over 40 million gallons per year, much of which is produced with corn from Michigan corn growers. Three other Michigan ethanol plants are under construction and each is expected to produce 50 million gallons of ethanol annually. These plants represent a significant investment in the state economy.

Michigan Ethanol Retail Fueling Sites

Lenawee Farm Bureau Oil Coop 4021 S Adrian Hwy Adrian, MI 49221 517-265-6222	Meijer Gas #45 217 E. US 223 Adrian, MI 49221 (517) 266-2129	Meijer Gas Station #64 3145 Ann Arbor-Saline Rd Ann Arbor, MI 48103 734-997-3929	North Star USA (West Stadium Sunoco) 2275 W Stadium Blvd Ann Arbor, MI 48103 734-761-4105
Wesco 21380 Perry Ave Big Rapids, MI 49307 231-592-4960	Corrigan Sunoco 602 E. Grand River Ave Brighton, MI 48116 810-229-6323	J & H Family Stores 460 76th St Byron Center, MI 49315 616-455-3600	Mobil 44350 Warren Rd Canton, MI 48187 734-414-0712
Meijer Gas # 109 1703 Haggerty Rd Commerce, MI 48390 248-926-3129	Citgo 8438 Telegraph Rd Dearborn Heights, MI 48127	Sunoco Gas 21435 W 8 Mile Rd Detroit, MI 48219 313-535-9400	Meijer Gas #44 2474 W. Hill Rd. Flint, MI 48507 (810) 766-8329
J & H Family Stores 460 76th St Grand Rapids, MI 49509 616-455-3600	Meijer Gas # 158 1999 East Beltline Ave NE Grand Rapids, MI 49503 616-447-1529	Sunnybrook Mobil 4380 Kenowa Ave Grandville, MI 49418 616-457-5830	Peterson Oil 6360 Greenville Rd Greenville, MI 48838 616-754-3254
Meijer Gas #47 746 E. 16th St Holland, MI 49423 (616) 355-4829	Meijer Gas #30 2777 Airport Rd Jackson, MI 49202 (517) 783-0029	Pacific Pride 1939 Cooper St Jackson, MI 49202 517-787-1210	Bob & Kay's Auto Wash 5680 Stadium Dr Kalamazoo, MI 49009 269-372-3900
Blodgett Shell 1700 S. Waverly Rd Lansing, MI 48917	Vehicle & Travel Services Fuel Station 6951 Crowner Dr Lansing, MI 48913 517-322-5000	Angeli's Fuel Xpress 1401 8th Ave Menominee, MI 49858 906-863-5575	Mussers Service, LLC 106 S Main St Nashville, MI 49073 517-852-9446
Meijer Gas #54 20401 Haggerty Rd Northville, MI 48167 (248) 449-5729	Cooperative Elevator Co. 7212 E Michigan Avenue Pigeon, MI 48755 989-453-4514	Pettysville Junction 9190 Pettysville Rd Pinckney, MI 48169 734-878-3050	Cooperative Elevator Co. 4644 Ruth Rd Ruth, MI 48470 989-864-3391
Citgo 29009 Northwestern Hwy Southfield, MI 48034 248-799-9610	Meijer Gas # 55 36500 Van Dyke Ave Sterling Heights, MI 48312 586-274-1629	Meijer Gas #35 14640 Pardee Rd Taylor, MI 48180 (734) 374-4229	Meijer Gas #237 29585 Mound Rd Warren, MI 48092 586-573-2929
Meijer Gas #36 5500 Clyde Park Ave Wyoming, MI 49509 (616) 530-7129			

BIODIESEL

Biodiesel (fatty acid alkyl esters) is a diesel fuel replacement made from natural, renewable sources such as vegetable oils and animal fats, which reduce emissions. Biodiesel works very similarly to petroleum diesel in compression-ignition engines, and blends of up to 20% biodiesel, B20, (mixed with petroleum diesel) can be used in nearly all existing diesel equipment, including storage and distribution infrastructure. Blends up to B20 biodiesel do not require modifications to engines and can provide the same payload capacity as regular diesel. Higher blends of biodiesel (100% biodiesel or B100) may also be used with little or no modification in engines built since 1994, however B100 is poorly suited to low temperature conditions.

The Environmental Protection Agency (EPA) has registered biodiesel as a fuel and fuel additive. B100 has been officially designated as an alternative fuel by the Department of Energy (DOE) and the U.S. Department of Transportation (DOT).

Biodiesel fuel significantly reduces the emission of unburned hydrocarbons, carbon monoxide, particulate matter, nitrogen oxides and other chemicals, with the reductions increasing as the amount of biodiesel blended increases. Additionally, the exhaust emissions of sulfur oxides and sulfates (major components of acid rain) from biodiesel are essentially eliminated compared to diesel. The use of biodiesel reduces unburned hydrocarbons and nitrogen oxides, which are known ozone or smog forming precursors. Based on EPA engine emissions testing, the overall ozone (smog) forming potential of the hydrocarbon exhaust emissions from biodiesel is nearly 50 percent less than that measured for regular diesel fuel. According to the U.S. Department of Energy, B100 reduces carbon dioxide (a major contributor to global climate change) emissions by more than 75% over petroleum diesel, while a blend of 20% biodiesel reduces carbon dioxide emissions by 15%.

According to the Michigan Department of Agriculture, biodiesel is currently imported primarily from Illinois, Ohio, Minnesota and Kentucky. In August 2006, the first commercial biodiesel plant opened in Gladstone, Michigan by "Ag Solutions, Inc" and is expected to produce at least 5 million gallons per year and may be expanded. Michigan has several other commercial plants presently under construction and are these plants are expected to open over the next 12 months. Currently, Michigan uses over 1 billion gallons of diesel fuel annually.

Michigan Biodiesel Retail Fueling Sites

Admiral Petroleum Co 1309 E. Center Rd. Ithaca, MI 48847 989-875-8752	Adventure EZ Mart 3003 Whitehall Rd. Muskegon, MI 49455 (231) 766-3563	Al Parsch Oil & Propane Co. 5923 W. Imlay City Rd Imlay City, MI 48444 810-724-6425	Atlas Oil Company 29330 Wixom Rd Wixom, MI 48393 313-220-7783
Atlas Oil Company 649 W Main St Stockbridge, MI 49285 517-851-9129	Atlas Oil Company 24344 Ecorse Rd Taylor, MI 48180 313-295-1693	Berrien Co. Farm Bureau Oil Company M140 & M62 Eau Claire, MI 49111 (269) 461-4222	Boland Tire Breckenridge 120 S. Pine St. St. Louis, MI 48880 989-842-5855
C. Barron & Sons 3251 Lewis Ave Ida, MI 48140 734-269-6018	C.A. Murphy Oil Co. 1100 N. Clay St Sturgis, MI 49091 (269) 651-3744	C.A. Murphy Oil/ Snappy Food Mart 1159 N. Nottawa Sturgis, MI 49093 269-651-3744	Carleton BP Service Station 974 Will Carleton Rd Carleton, MI 48117 734-639-1014
Cass Street Card Lock 2925 Cass Rd	Cedar River State Harbor N8262 Old Miled Ln	Chapp & Bushey Oil Co. 37333 South Huron Rd.	Chums Corners 365 US-31 South

Traverse City, MI 49684	Cedar River, MI 49887 906-864-1040	New Boston, MI 48164 734-941-1610	Traverse City, MI 49684
Cooperative Elevator Co. 7211 E. Michigan Ave. Pigeon, MI 48755 989-550-0212	Cooperative Elevator Co., Ruth 4644 Ruth Rd. Ruth, MI 48470 (989) 864-3391	Crystal Flash Energy 1754 Alpine Ave Grand Rapids, MI 49504 616-365-0570	Deerfield BP Station 185 Carey St. Deerfield, MI 49238 517-447-3830
Ellsworth Farmers Exchange 6927 Center St Ellsworth, MI 49729 (231) 588-2300	Energy Plus 24 - North Central Co-op 510 Florence Rd. Constantine, MI 49042 574-533-4131	Hirschman Oil Supply 9773 Saginaw St Reese, MI 48757 800-251-5440	Hoffies Inc 2982 W Beecher Rd Adrian, MI 49221 517-265-1946
Ida BP Station 3251 Lewis Ave. Ida, MI 48140 734-269-6018	K & M Grocery 201 W Chicago St Jonesville, MI 49250 517-849-2221	K & M Grocery 201 W Chicago St Jonesville, MI 49250 517-849-2221	Lemmen Oil Company 13 E. Randall St Coopersville, MI 49404 616-837-6531
Lemmen Shell 610 Whitehall Rd North Muskegon, MI 49445 616-837-6531	Lemmen Shell 2628 Henry St Muskegon, MI 49441 616-837-6531	Lemmen Shell 127 68th Ave. Coopersville, MI 49404 616-837-6531	M-46 Truck Stop 19504 Edgar Rd Howard City, MI 49329 616-534-2181
Maybee Marathon 7595 Blue Bush Rd. Maybee, MI 48159 734-587-2282	Meijer Fueling Station 3145 Ann Arbor-Saline Rd Ann Arbor, MI 48103 734-997-3929	Meijer Fueling Stations 3995 Carpenter Rd Ypsilanti, MI 48197 734-677-7129	Mobil Station US-131 & 76th St SW Byron Center, MI 49315 616-534-2181
Mussers Service 106 S. Main St. Nashville, MI 49073 517-852-9446	North Dixie BP Station 3251 Dixie Hwy. Monroe, MI 48161	Pacific Pride 2500 84th St. Zeeland, MI 49464	Pacific Pride 2400 Turner Ave NW Grand Rapids, MI 49544 800-654-4244
Plowman Gas & Oil Co. 108 W. Third St. Perry, MI 48872 517-625-7200	R & N Fast Track Inc. 24344 Ecorse Rd. Taylor, MI 48180	Scharfs Service & Fuel Oil 6650 E. 10 Mile Rd. Center Line, MI 48015 586-757-2708	Schluckebier Oil & Propane 343 N. Franklin Frankenmuth, MI 48734 989-652-9821
Snappy Food Mart 1159 N. Ottawa Sturgis, MI 49093 269-651-3744	Stechschulte Gas and Oil Company Inc. 917 E. Main St Owosso, MI 48867 989-723-8831	Stockbridge Fast Track LLC 649 W. Main St Stockbridge, MI 49285	Swan Fuel Service, Inc. 1615 E. Mason St. Dansville, MI 48819 517-623-6006
Tri-County Oil Company 1724 W Michigan Ave. Clinton, MI 49236 517-456-4519	Van Manen Petroleum Group O-305 Lake Michigan Dr Grand Rapids, MI 49504 800-654-4244	Wacker Oil/G.E. Wacker, Inc. 9050 Michigan St/M-52 Manchester, MI 48158 734-428-8366	West Michigan BioDiesel 13479 Mason Dr. Grant, MI 49327 231-343-4516

HYDROGEN

Hydrogen as an alternative fuel is still being researched and tested for use in vehicles, however, it may very well play an important role in meeting our future transportation demands. Hydrogen is the simplest element, made of only one proton and one electron, and each molecule is made up of two atoms. Hydrogen is abundant on earth, but it is almost always found combined with other elements such as oxygen to form water. It is best described as an energy carrier instead of an energy source, that can be produced using nearly every type of domestic energy source available from nuclear to solar and wind energy. Essentially, energy from another source like electricity (usually made from burning coal) is used to separate the hydrogen from other elements (like oxygen) and this gas is then used as a fuel. Hydrogen can be used as fuel directly in combustion engines not that much different from gasoline engines, however storing hydrogen in a gas tank is more difficult because it takes up a great deal more space.

There are obviously a number of challenges to introducing hydrogen as a motor fuel, challenges that the Department of Energy is striving to resolve. Experts agree, however, that it will probably be approximately 10-20 years before hydrogen vehicles and the infrastructure to support them will begin to make an impact.

SOURCES

Michigan Dept. of Agriculture: <http://www.michigan.gov/mda/>

Michigan Dept. of Transportation: <http://www.michigan.gov/mdot/>

National Biodiesel Board: <http://www.nbb.org/resources/faqs/default.shtm>

Transportation Technology R&D Center. Effects of Fuel Ethanol Use on Fuel-Cycle Energy and Greenhouse Gas Emissions. U.S. Dept. of Energy

U.S. Department of Energy: <http://www.eere.energy.gov/>

FINAL PRESENTATIONS AND APPROVALS

Once all of the products are in place, the plan goes through a final phase of public involvement and approvals. The Plan will be presented and acted upon through the local committee structure. Once approved locally, the draft document is forwarded to the Federal Highway Administration and U.S. Environmental Protection Agency for final approval.

FINAL DOCUMENT PREPARATION

Upon receipt of all necessary approvals, staff began the process of the preparation of a final document. MPO Staff decided that the final document should possess the ability to be amended easily. This is due in large part to segments of the plan being constantly updated as various plans and projects need to be amended into the document. This should make the plan easier to implement and manage over the course of its life.

Once approved, the Plan will be incorporated into the Grand Valley Metropolitan Council webpage and be available there for viewing.

If you have questions about this document or the long range planning process, please contact:

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