



# GRAND VALLEY METROPOLITAN COUNCIL NON-MOTORIZED TRANSPORTATION PLAN

May, 2014



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PREPARED BY THE



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## Credits

The GVMC Non-Motorized Transportation Plan update was primarily assembled and edited in winter 2013-2014 by Michael Zonyk, GVMC Transportation Planner, with input, suggestions and guidance from the entire GVMC Transportation staff as well as the GVMC Non-Motorized Transportation Committee and the general public.

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**The GVMC Non-Motorized Transportation Committee**—for their leadership and patience throughout the planning process.

**John Luton**—for providing several bicycle facility images used within this document.

**Cover photograph:** Pedestrian/Bicycle Footpath on the M-37/Alpine Ave North of I-96 in Alpine Township. Photo used to reflect existing need and latent demand for additional infrastructure improvements. Photo courtesy and ©Copyright Sue Becker. Used by Permission.

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## Introduction

### Purpose of the Plan

The Grand Valley Metropolitan Council is the federally designated Metropolitan Planning Organization (MPO) for all of Kent County and five communities in eastern Ottawa County—Allendale, Tallmadge, Georgetown, and Jamestown townships and the City of Hudsonville. In this capacity, the GVMC must maintain a Metropolitan Transportation Plan (MTP) and Transportation Improvement Program (TIP) to facilitate collaboration between local jurisdictions and determine investment priorities for federal transportation funds. Map 1 depicts the MPO planning boundary and Urban Area.

Metropolitan areas, those areas with populations of more than 50,000, are required to plan for the “development and integrated management and operation of transportation facilities (including accessible pedestrian walkways and bicycle transportation facilities) that will function as an intermodal transportation system...” (23 U.S.C 134(c)(2) and 135(a)(2)) (see Appendix D for 23 U.S.C.). Indeed, 23 U.S.C. 217 calls for the planning for bicyclists and pedestrians to be an integral part of the ongoing transportation planning process, and that projects and programs identified in the planning process should be implemented:

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

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

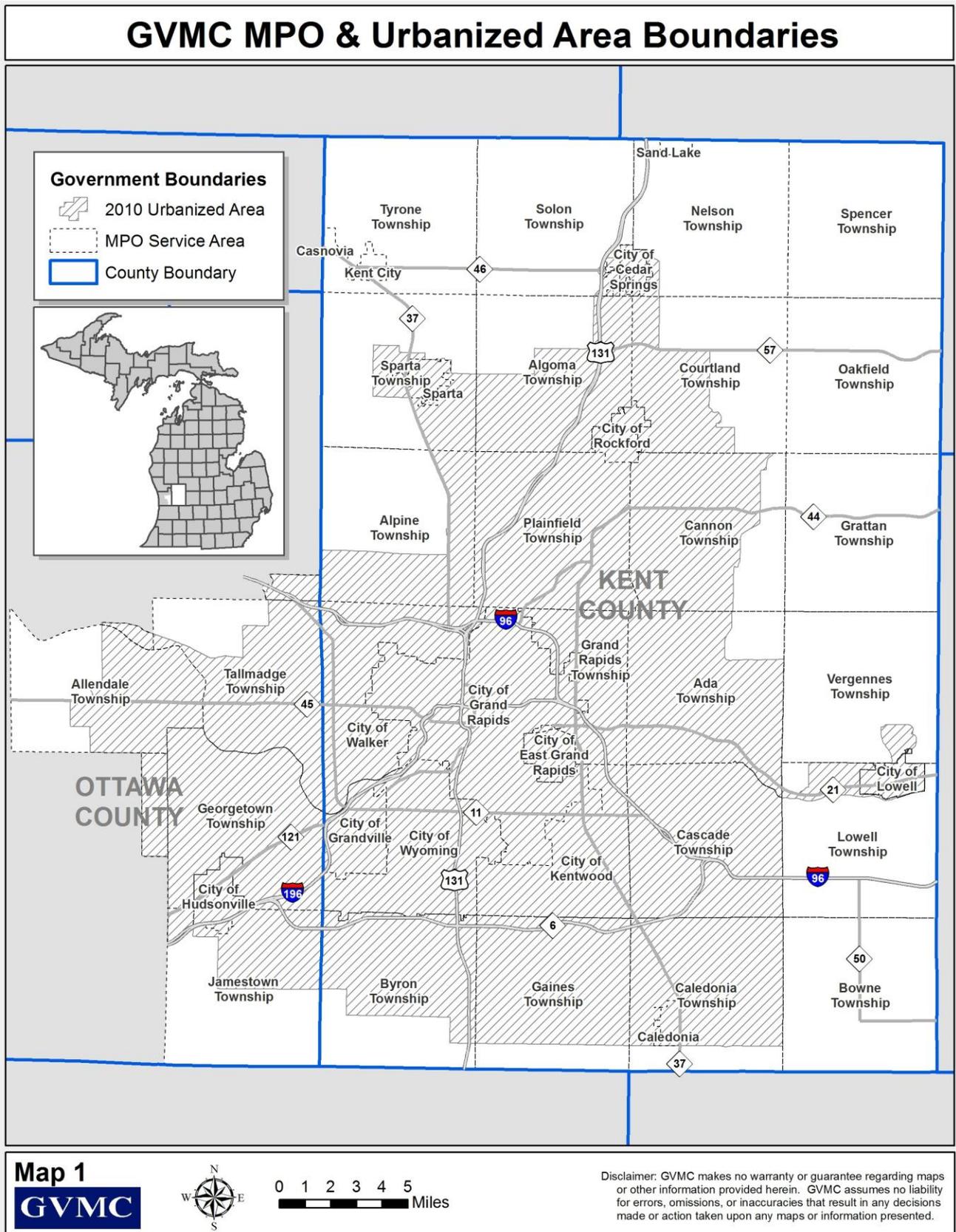
“Transportation plans and projects shall provide due consideration for safety and contiguous routes for bicyclists and pedestrians.”

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

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

The Non-Motorized element of the MTP contains information about existing non-motorized facilities as well as recommended projects and funding for improving pedestrian and bicycle accessibility. The primary focus being threefold: to identify regionally significant projects, to enhance cooperation and coordination between jurisdictions for non-motorized facility development, and to address some of the challenges to non-motorized transportation facility development.

Map 1 – GVMC MPO and Urbanized Area



### Plan History

The Grand Valley Metropolitan Council originally developed a Bicycle Plan and Pedestrian Plan approved in 1996 and 1997 respectively. These plans were used as guides to integrate non-motorized transportation issues into one comprehensive document. In 2006 and 2009, Draft Non-Motorized Transportation Plans were completed with the guidance of the GVMC Non-Motorized Transportation Committee. While these documents were never formally adopted; several of the identified projects were successfully completed.

In 2009 a Non-Motorized Transportation Plan element of the Metropolitan Transportation Plan (MTP) was developed in conjunction with the Rails-to-Trails 2010 Campaign effort which encouraged lawmakers to better fund non-motorized projects in the next federal transportation bill. This document is an update of the 2009 plan and will serve as an element to the 2040 MTP and also as a revised inventory of the region's existing and proposed non-motorized improvement projects.

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## Plan Organization

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

This Plan document is split into four sections:

### Existing Non-Motorized Transportation Network

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

### Non-Motorized Transportation Improvements

The GVMC Non-Motorized Transportation Committee worked to develop a selection methodology and project list in order to provide a basis for future investment.

### Non-Motorized Transportation Funding Options

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

### Study Recommendations

In addition to funding options for non-motorized facilities, there exist related policy decisions that may enhance the accessibility and development of pedestrian and bicycle transportation options.

## Benefits of Non-Motorized Transportation



Transportation is the act of delivering goods or people from location to location. Non-motorized transportation consists of pedestrian (ex. walking and running) and bicycle travel, and is the oldest form of transportation—physically moving from location to location with “human” power. As technology has changed, an increasing array of options for movement of people and goods have presented themselves and non-motorized or “active” transportation has simply become one of many options.

Interestingly, according to the Bicycle Encyclopedia, bicycling evolved from the velocipede during the 1800s and it still has a strong presence and purpose in transportation. In fact, bicyclists in the United States formed the League of American Wheelman (LAW) in 1880 and lobbied for the construction of roads. Michigan’s own Horatio “Good Roads” Earle is quoted: “I often hear now-a-days, the automobile instigated good roads; that the automobile is the parent of good roads. Well, the truth is, the bicycle is the father of the good roads movement in this country.” The efforts of the LAW 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 1900s.



Source: GVMC Staff

### Transportation and Accessibility Options

Non-motorized facilities give people the option to walk, bike, or use public transit if they choose. With more than 50% of older Americans who do not drive staying home on a given day because they lack transportation options, a comprehensive non-motorized network is crucial to the mobility of some segments of the population.<sup>1</sup> In fact, the U.S. Census Bureau projects that by 2025, the portion of the population over the age of 65 will increase by 8%, totaling 62 million persons. As these individuals age, many will give up driving for safety’s sake, so nearly 20% of the population will rely



Source: Dan Burden, pedbikeimages.org

<sup>1</sup> Complete Streets: Improve Mobility for Older Americans, 2007

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upon alternative forms of transportation, particularly walking.<sup>2</sup>

Beyond the aging populace, there is a social equity component to the provision of alternate forms of transportation. According to the National Household Transportation Survey, urban households without cars bicycle to work nearly three-and-a-half times more than households with one car.<sup>3</sup> There are fewer recreational facilities such as parks and trails available in areas where low-income or minority populations live, while the demand for such free facilities may be greater.<sup>4</sup> The disabled community is also in dire need of pedestrian accommodation. A study in Houston found that three out of five disabled and elderly Americans do not have sidewalks between their home and the nearest bus stop. Fewer than 10% of this segment of the population use public transportation, even though 50% live less than two blocks from the nearest bus stop.<sup>5</sup> If additional non-motorized connections to transit stops are provided, the accessibility options for disabled and elderly populations would be expanded. A more complete non-motorized network will increase the viability of pedestrian and bicycle transportation as options and provide a mode for those that are unable or unwilling to use motorized vehicles.

### Supports Transit



Source: ITP/The Rapid

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

### Air Quality

Regional air quality is an issue for West Michigan, especially as the region has previously been in “non-attainment” with the Environmental Protection Agency (EPA) for ground-level ozone pollution. The majority of this ozone pollution is caused by motor vehicles, which account for 72% of nitrogen oxides and 52% of reactive hydrocarbons, which are principal components of ozone smog.<sup>6</sup> Poor air quality due to motorized vehicle emissions contributes to respiratory problems, especially for the very young and elderly. Since 1996, Kent and eastern Ottawa counties have been considered in “attainment” for air quality, according to the EPA, which monitors levels of various pollutants at stations across West Mich-

For simple steps you can take to improve West Michigan's Air Quality, visit the **West Michigan Clean Air Coalition** website:

[www.wmcac.org](http://www.wmcac.org)

<sup>2</sup> Complete Streets: Improve Mobility for Older Americans, 2007

<sup>3</sup> NHTS, 2001

<sup>4</sup> American Journal of Health Promotion, March/April 2007

<sup>5</sup> International Journal of Aging and Human Development, 1998

<sup>6</sup> 30 Simple Energy Things You Can Do to Save the Earth, 1990

igan. But as ozone air quality standards become more stringent and as additional pollutants, such as particulate matter smaller than 2.5 microns (PM<sub>2.5</sub>), are included in air quality analyses, maintaining attainment status will become more difficult.

An additional environmental concern that relates to air quality is global warming and continued greenhouse gas emissions, of which car exhaust—CO<sub>2</sub> particularly—is a major contributor. About 28% of U.S. greenhouse gas emissions come from the burning of fossil fuel for cars, trucks, ships, trains, and planes.<sup>7</sup> Leaving your car at home just two days a week will reduce greenhouse gas emissions by an average of two tons per year. We can reduce greenhouse gas emissions, reduce our dependence on oil, save money, and improve regional air quality by using alternative forms of transportation such as bicycling and walking.

Each gallon of gas burned produces 19.6 pounds of CO<sub>2</sub>, nearly a pound per mile driving on average. Automobiles, the fastest growing source of greenhouse gas emissions, are responsible for about 20 percent of the CO<sub>2</sub> emissions in the U.S. —<http://www.epa.gov/oms/climate>



Source: John Luton

## Economic

### Reduced Congestion

Traffic congestion creates an annual \$121 billion cost to the U.S. economy in the form of 5.5 billion lost hours and 2.9 billion gallons of wasted fuel. In Grand Rapids, the estimated annual cost per traveler for traffic congestion is \$501 every year.<sup>8</sup> While some trips are not suited to non-motorized transportation, many trips could be diverted to this mode, and it doesn't take large reductions in driving to see dramatic improvements in traffic congestion. In 2012, total vehicle miles traveled (VMT) in the United States rose 1.9% compared to 2011. Every private automobile that is removed from the road reduces the traffic congestion.

<sup>7</sup> <http://epa.gov/climatechange/ghgemissions/sources.html>

<sup>8</sup> <http://mobility.tamu.edu/ums/report/>

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### Cost Savings

According to the American Automobile Association (AAA), owning and operating a new sedan in 2012 costs an average of 59.6 cents per mile, or \$8,946 per year, when driving 15,000 miles annually.<sup>8</sup> The cost of ownership accounts for more than 15% of a typical household's income.<sup>9</sup> In contrast, the cost of operating a bicycle for a year is \$155.<sup>10</sup>

Aside from the personal cost savings of non-motorized options, building and maintaining non-motorized infrastructure is also less expensive. In West Michigan, constructing about 1 mile of M-6 urban freeway cost an average of \$25-35 million dollars. Comparatively, the M-6 trail in the same corridor cost about \$340,000.

In Michigan, one mile of 4-foot wide concrete sidewalk costs approximately \$63,400 while one mile of 10-foot wide asphalt shared-use path costs about \$160,000. Materials for installing a bicycle lane on both sides of the street \$1,700 per mile and four-foot wide asphalt wide shoulders on existing roads run about \$100,000 per mile.<sup>11</sup> The inclusion of bike lanes and shared use paths in the initial development and redevelopment of the road networks could save money in the long run by avoiding expensive retrofitting of these facilities later.



Source: Dan Burden, pedbikeimages.org

### Economic Development

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



Source: GVMC Staff

to the bicycle industry, as well as property value, tourism, and the overall quality of life of communities. The U.S. bicycle industry generated \$6 billion in sales in 2010 and approximately 4,200 specialty bike dealers do business across the nation.<sup>12</sup> These independent shops are community hubs, providing personalized service, sponsoring local events, and spearheading efforts to build bike facilities. In 2009, American consumers bought 2.6 million bicycles compared to 2.5 million cars and trucks.<sup>13</sup>

Non-motorized transportation facilities have been used as a centerpiece to attract home buyers. According to the Bureau of

Transportation Statistics, 79.1 million, or 38%, of all Americans feel the availability of bikeways, walk-

<sup>9</sup> Consumer Expenditure Survey, Bureau of Labor Statistic, 2010

<sup>10</sup> The League of American Bicyclists, 2011

<sup>11</sup> Michigan Department of Transportation, Bureau of Transportation Planning, Bicycle & Pedestrian Coordinator

<sup>12</sup> National Bicycle Dealers Association. <http://nbda.com/articles/industry-overview-2010-pg34.htm>

<sup>13</sup> <http://www.energyboom.com/us-bike-sales-higher-car-sales-2009>

ing paths, and sidewalks for getting to work, shopping, and recreation is very important in choosing where to live.<sup>14</sup> These housing preferences are translated to property values. Real estate market research has consistently shown that people are willing to pay more for homes and property within close proximity to recreational parks and facilities. Research done for the 23 mile long Capital Connector Trail in Ingham County, Michigan revealed that trails are one of the top amenities considered when purchasing a home. A 2005 study of home sales near two rail-trails in Massachusetts showed that homes near the trails sold at 99.3% of the list price, while homes further away from the trails sold at 98.1% of the list price. The study also showed that homes near the trails sold in 29.3 days while homes further away from the trails sold in 50.4 days. A 2011 study of the Little Miami Scenic Trail in Cincinnati revealed that homeowners were willing to pay a \$9,000 premium to be located one thousand feet closer to the trail.<sup>15</sup> In fact, it is not uncommon in some western U.S. communities to see "Trail Front Property" advertised in the same way "Lake Front Property" is advertised in Michigan.

With over 1,300 designated mountain bike and bicycle trails, a great deal of tourism in the State of Michigan is derived from the value of our trail systems. While the focus of this planning document is



Source: GVMC Staff

bicycle transportation, recreational use of non-motorized facilities in our state is an important revenue generator for tourism.<sup>16</sup> Above all, non-motorized options promote the connections that offer access to the jobs and shopping that make a community more attractive to both business and prospective employees.

### Health

In 2012, 31.1 % of the Michigan population was considered obese, according to the Centers for Disease Control and Prevention.<sup>17</sup> Obesity is expensive, in terms of health care costs, and it is preventable

for the most part. Health care costs in 2008 dollars associated with obesity alone were estimated at \$147 billion.<sup>18</sup> Land use and transportation planning that encourages and supports physical activity can battle the inactivity associated with obesity and help lower these costs.<sup>19</sup> By offering non-motorized transportation options, physical activity can be incorporated into everyday activities. With fewer and fewer Americans achieving the minimal exercise goals, the provision of a system of transportation that not only connects them with destinations but also is a means of achieving a healthier lifestyle is paramount. In fact, an estimated 32% to 35% of all deaths

<sup>14</sup> Bureau of Transportation Statistics, 2000

<sup>15</sup> University of Cincinnati, <http://www.uc.edu/news/NR.aspx?id=14300>

<sup>16</sup> <http://www.michigan.org/News/Detail.aspx?ContentId=588D02B3-E6B6-4566-B22B-CF1CFDEA152F>

<sup>17</sup> <http://www.cdc.gov/obesity/data/adult.html>

<sup>18</sup> <http://www.cdc.gov/obesity/adult/causes/index.html>

<sup>19</sup> Active Living Leadership; New online calculator estimates financial cost of physical inactivity, Bioteck Week, 2004

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in the United States attributable to coronary heart disease, colon cancer, and diabetes could have been prevented if all persons were highly active.<sup>20</sup>

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.”

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

The American Community Survey estimated that in 2012, 91,536 people indicated that they walked to work in Michigan.  
—*U.S. Census Bureau, 2012 American Community Survey*

### Quality of Life

The benefits of a comprehensive non-motorized transportation system go beyond the direct benefits to users of the system to the public as a whole. In addition to the air quality, health, and economic benefits, an improved non-motorized system reduces water and noise pollution associated with automobile use by shifting short trips from automobiles to pedestrian options. Also, more non-motorized transportation options could reduce the need for parking spaces, improve safety for current users—especially the young, old, and disabled, foster community connection and interaction, and reduce our dependence on fossil fuels. Non-motorized transportation, in addition to being an alternative to the automobile, indirectly enhances the quality of life for a community.

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## Challenges to Non-Motorized Transportation

While pedestrian and bicycle trips are a viable option, a number of challengers deter people from utilizing non-motorized modes of transportation.

### Cross Jurisdictional Cooperation

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

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<sup>20</sup> Centers for Disease Control and Prevention, 2007

- Cities, Villages, Towns, Transportation, Engineering, and Parks and Recreation Departments
- Kent and Ottawa County Road Commissions
- Kent County Parks Department
- Michigan Department of Transportation
- Michigan Department of Natural Resources
- Michigan Department of Labor and Economic Development
- Michigan State Police
- Michigan's Universities and Colleges
- Non-profit Organizations and Advocacy Groups such as:
  - Michigan Trails and Greenways Alliance
  - West Michigan Strategic Alliance
  - Friends of the White Pine Trail
  - League of Michigan Bicyclists
  - Disability Advocates
  - Michigan Mountain Bicycling Association

There is three to four times more bike commuting in cities with the most combined path and lane mileage compared to those cities with the least.

—*Ralph Buehler and John Fucher, journal Transportation, March 2012*

### Coordination Among Multiple Users

Another major impediment to planning for non-motorized transportation is the lack of unified public sentiment for a particular form of facility. Bicycle enthusiasts, the disabled community, rails-to-trails advocates, and others each petition for “their” type of non-motorized facility. Indeed, those in favor of bicycle lanes are generally opposed to spending limited financial resources on shared-use paths or sidewalks. Those who rely on sidewalks for mobility, on the other hand, cannot justify preferential spending on either bicycle lanes or the perceived more recreational shared-use paths while there remains a decidedly incomplete sidewalk network for accessing destinations and transit.

The non-motorized advocacy community lacks a single voice, a single organization, and for this reason there is competition not just between road advocates and non-motorized groups but between non-motorized groups. The variety of non-motorized forms demanded by different groups can be daunting to municipalities as they choose where to prioritize limited resources. The divided non-motorized lobby weakens its overall impact and ability to secure transportation dollars for projects.

### Lack of Adequate Facilities

Perhaps the principal deterrent to the public choosing non-motorized transportation is the lack of adequate facilities. This includes such facilities as sidewalks, safe intersections, transit accessibility, bicycle lanes, bicycle parking and storage, and shared-use paths. In particular, bridge crossings in key areas, especially over and beneath freeways and other limited-access thoroughfares, are a significant impediment. Many bridges were constructed during the 1950s and ‘60s and are not yet in need of replacement. However, they do not offer the width, shoulder, or railings necessary for pedestrians and bicyclists to traverse safely and create bottlenecks in an otherwise strong non-motorized network. An excellent example is the Burton Street overpass at I-96 in Cascade Township.

### Seasonal Weather

Living in Michigan poses another hurdle to non-motorized transportation as seasonal weather may hamper bicycling and pedestrian commutes. However, people can and do elect to bicycle and walk throughout the year. Municipalities can make non-motorized options more appealing with regular snow plowing and other weather-related maintenance initiatives.

Approximately 28% of walking trips are one mile or less, 40% are 2 miles or less, and 50% are 3 miles or less.

—2009 National Household Travel Survey

### Demand

The American Community Survey 5-year estimate (2007-2011) reports that 0.5% of the workforce in Kent County and 0.4% of commuters in Ottawa County use a bicycle as their primary means of transportation to work. In Kent County, 1.7% of commuters walked to work and in Ottawa County slightly more, 2.5%, walked.

Planners have traditionally relied on anecdotal evidence to prove bicycle facilities are needed within specific roadway corridors. In the case of a typical urban street with heavy traffic and relatively high travel speeds, planners argue that demand is not accurately reflected by the number of bicyclists currently riding within the road right-of-way. They maintain that due to the cycling conditions, there exists a pent up, or latent, travel demand within the corridor. However, when

Nationally, biking and walking make up 3.36% of all commuting trips.

—2007-2011 ACS 5-yr American Comm. Survey

challenged to quantify this latent demand, many planners are at a loss as to how to respond. Some have relied on the “if you build it they will come” philosophy—one which requires a leap of faith that many policymakers are not ready to take. Increasingly, competition among projects for priority within the transportation improvement program requires a quantitative basis to demonstrate that all projects, including non-motorized projects, are essential and can reach measurable objectives.

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

### Time and Distance

Time and distance are also perceived as a challenge to non-motorized transportation. Yet according to the National Personal Transportation Survey, over 64% of all trips made by Americans are less than five miles in length. 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 24.3 minutes, and in Kent County where congestion is not a major problem, it is still 19.9 minutes.<sup>21</sup> The short distances to work indicate that a person could walk or bicycle to destinations instead of driving a vehicle without adding significant time to their journey. For example, a person can walk three miles at a moderate pace of four miles-per-hour in 45 minutes and a bicyclist traveling at 10 mph can cover that distance in 18 minutes. Non-

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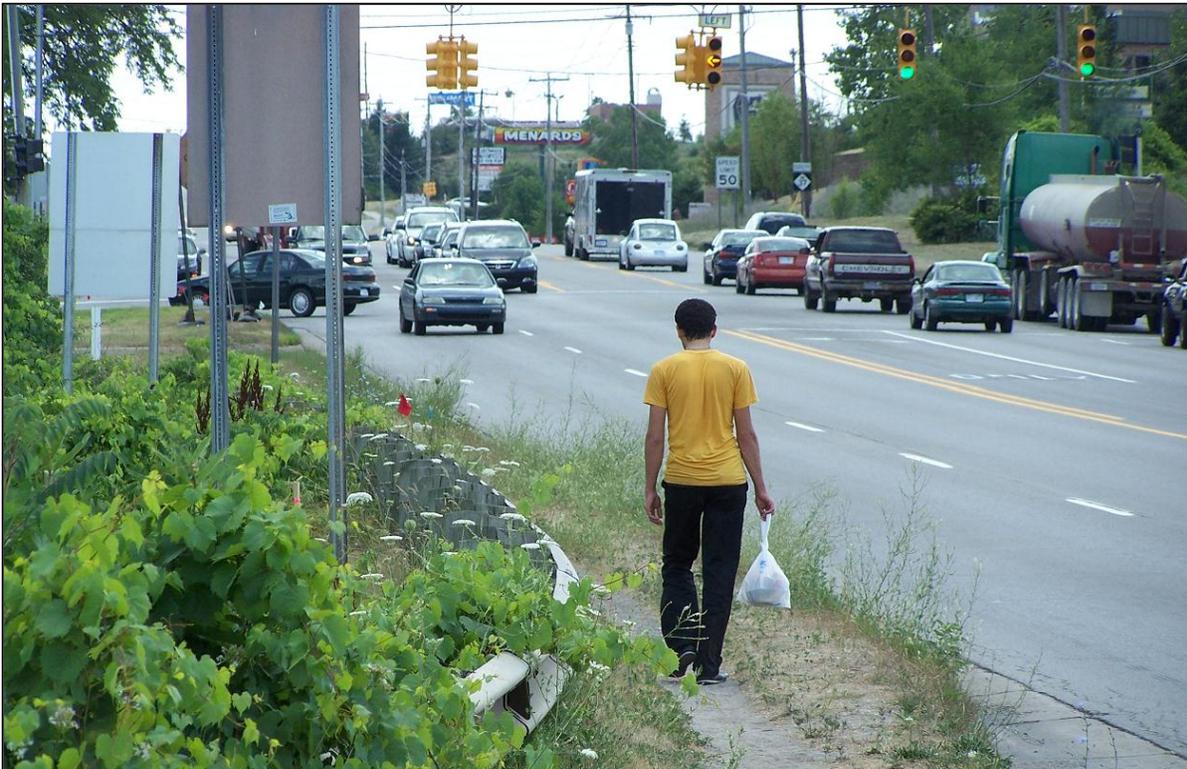
<sup>21</sup> 2010 U.S. Census, Mean Travel Time to Work

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

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

If residences are located on large lots and separated from commerce, employment, and social institutions, the distances of most trips will be too long for walking to be practical. Developers, planners, and government agencies are beginning to evaluate these land-use issues and recognize the value of designing for “walkability.” “Walkability” is the idea of location-efficiency, or having the ability and convenience of using non-motorized modes to get to work, school, or social centers. For example, older, traditional neighborhoods, for the most part, employ a grid street system. Densities are higher in these areas, and more connectivity is maintained from one neighborhood to the next through a grid pattern of interconnected routes.



Source: Sue Becker, Alpine Township - Alpine Avenue

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

### Funding

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

There has been a recent revision to the Non-Motorized funding policy prompted by changes from the MAP-21 legislation. The new legislation introduced the Transportation Alternatives Program (TAP) which allows for the spending of funds at the MPO level that used to be available through the highly competitive state coordinated Transportation Enhancements (TE) grant program. Since this spending power has been brought to the local units of government through the MPO, it’s advantageous to coordinate this spending through its organized committees. As such, the non-motorized committee has called for a funding policy that highlights the targeted use of Transportation Alternatives Program (TAP) funds and Congestion Mitigation and Air Quality (CMAQ) funds specifically. The TAP program has many eligible activities identified for funding in MAP-21, but provides the most flexibility for funding bicycle and pedestrian projects. Since other funding options have been limited in the past for use on Non-Motorized improvements, the TAP funds are the best funding tool for implementing projects identified in the Non-Motorized Plan. Pertaining to TAP funds the Non-Motorized Committee has pushed for the following stated amendment: *“A target of one-half of the allocated funds to the MPO for the Transportation Alternatives Program shall be used on bicycle and pedestrian related facility improvements.”*

CMAQ funds have also been identified by the Non-Motorized Committee as a focused funding source for facility improvements in the recent amendment to the funding policy. This amendment states that, *“All CMAQ funded non-motorized projects shall be addressed on a case by case basis to prove high use, mode shift, and connectivity and score well using the scoring criteria set forth in the Non-Motorized Plan. For the use of CMAQ funds all projects must demonstrate emission reduction and alleviate congestion.”*

The scoring criteria will later be introduced in the Transportation Improvements portion of this document. Since no formal monetary targets for fund use have been identified or adopted in the funding policy, our Non-Motorized Committee must continue to push for using these fund sources on future non-motorized improvements.



Source: GVMC Staff

### Safety

Nationally in 2011, 16% of the 32,367 traffic fatalities were bicyclists or pedestrians.<sup>22</sup> In Michigan, bicyclists or pedestrians accounted for 18% of the 870 traffic fatalities in 2012. From 2003 to 2012(10 years), 92 people were killed in incidents between bicyclists or pedestrians and motor vehicles within the Grand Valley Metropolitan Council MPO region.<sup>23</sup> It is clear, safety is extremely important with regard to the development of non-motorized facilities. Transportation safety can be improved to help protect non-motorized travelers from accidents through the addition of signage, enforcement, traffic signals, education, crossing medians, marked lanes, separate paths and other measures. By improving the safety features of our non-motorized network, not only will current users be protected, it will also make non-motorized options more desirable, attracting more trips to these modes. See Appendix B for more information about pedestrian and bicycle incidents within our MPO boundaries.



Source: GVMC Staff

Recently, the City of Grand Rapids was awarded a Transportation Enhancement safety education grant of nearly \$500,000 to study, develop, implement, and evaluate a bicycle education project over a three year period (2013-2016) in greater Grand Rapids. The target audiences are bicyclists and motorists. The project has three main goals: 1) provide education and training on the operation of a bicycle in traffic; 2) increase the knowledge of the responsibilities to the bicyclists and motorists; and 3) promote a share the road culture.<sup>24</sup> The outcome of this project will hopefully serve as a national model and allow other municipalities to use the results to implement safety and educational components from the study. It's initiatives like these that will help improve safety for pedestrian and bicycle travel on the transportation system and reduce incidents and accidents rates among motorists.

## Maintenance

Among the many sources of funding available for non-motorized transportation there is a marked lack of money for ongoing maintenance of facilities. Along with feasibility studies and engineering, regular maintenance cannot be paid for with the primary funding source for many non-motorized facilities, transportation alternatives grants. While some communities may be supportive of constructing pedestrian and bicycle resources, they are deterred by the ongoing maintenance costs associated with these facilities. Refer to Appendix C for recommended treatments related to non-motorized travel.

<sup>22</sup> National Highway Traffic Safety Administration, Traffic Safety Facts - 2011 Data

<sup>23</sup> Michigan Traffic Crash Facts website: [www.michigantrafficcrashfacts.org](http://www.michigantrafficcrashfacts.org)

<sup>24</sup> Michigan Department of Transportation Grant Summary

### Liability

Local jurisdictions are often hesitant to include bicycle lanes, in particular, within their non-motorized transportation plans and street improvements due to the perceived threat of legal action. Within the last decade, court decisions have increasingly protected the liability of road agencies and individual employee liability. The Michigan highway exemption from the *Wilson v. Alpena County Road Commission* case in 2006 states "...each governmental agency shall maintain the highway in reasonable repair so that it is reasonably safe and convenient for public travel." This means municipalities and road commissions are required to repair and maintain only; there is no general duty to make roads "safe," and there is no liability for whatever form or design a facility might take. In fact, by offering dedicated bicycle lanes, municipalities are not only free from liability for the design, but they are arguably providing a safer means of travel for both bicyclists and motorists. Of course it is always advisable for communities to ensure that every non-motorized facility is designed and constructed per the 2012 AASHTO Guide for the Development of Bicycle Facilities.

## Existing Non-Motorized Transportation Network

The greater Grand Rapids metropolitan area has a variety of non-motorized resources. Indeed, all existing non-motorized facilities amount to roughly 1,000 miles total. This non-motorized infrastructure was constructed primarily by local municipalities with the help of the Kent County Road Commission (KCRC), Ottawa County Road Commission (OCRC), Michigan Department of Transportation (MDOT), and Michigan Department of Natural Resources (DNR). There are several forms of non-motorized routes differentiating themselves by user type and by the land use densities nearby. In order to understand the mapped resources throughout this plan it is critical to make distinctions between the different types of non-motorized facilities.

### Non-Motorized Facility Types & Definitions

American Association of State Highway and Transportation Officials (AASHTO) publications are 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 2012 Guide for the Development of Bicycle Facilities and the 2004 Guide for the Planning, Design, and Operation of Pedestrian Facilities, is provided in italics below. Each type of facility provides different opportunities for the non-motoring public.

#### Sidewalks (Off Street Pedestrian)

*A sidewalk is a paved pathway paralleling a highway, road, or street and is intended for pedestrians.* Sidewalks are typically four to five feet wide and made from concrete but may be up to eight feet wide and made of other materials, depending on their location.

Sidewalks are most common in areas of higher land use densities, for example downtown Grand Rapids. The disabled population has a particular dependence on sidewalk resources as consistent, smooth routes to transit stops and other destinations. Bicyclists generally do not use sidewalks and for good reason. Driveways and other sidewalk intersections are dangerous for bicyclists as motor vehicles many not expect their crossing, particularly if they are riding against the flow of traffic. Indeed, it is against the law to ride a bicycle on sidewalks in downtown Grand Rapids if you are over the age of fifteen.<sup>25</sup>



Source: GVMC Staff

Safe, convenient, accessible pedestrian sidewalks and access is important along all streets used for pedestrian access to schools, parks, shopping areas, and transit stops. Generally, pedestrian traffic and those using wheelchairs should be separated from vehicle traffic.

Where complete separation of pedestrians from vehicles and bicycles is not possible, potential hazards can be minimized by using techniques such as special paving, pavement marking, signs, striping, bulbouts, refuge islands, traffic calming features, landscaping, lighting, or other means that clearly delineate pedestrian areas.

Some effective pedestrian safety measures may increase motor vehicle travel time and have a slight negative impact on motor vehicle level of service (LOS). A rebalancing of the transportation system

<sup>25</sup> City of Grand Rapids Ordinance, Article 8. Bicycles – Sec. 10.132.Sidewalks and Bicycle Trails

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where pedestrian accessibility and safety are of special concern may include changes in the priority that motor vehicle level of service is given in design and decision-making.

Sidewalk width is specified by each jurisdiction's design standards. However, both the Federal Highway Administration (FHWA) and the Institute of Transportation Engineers (ITE) recommend a minimum width of five feet for a sidewalk, which allows two people to pass comfortably or walk side-by-side. A buffer zone of four to six feet is desirable for separating pedestrians from the street. Parked cars or bicycle lanes can provide a buffer zone as well. Sidewalks should be constructed in accordance with the Americans with Disabilities (ADA) Accessibility Guidelines and special care given to assuring safe negotiation by those in wheelchairs.

### Shared Use Paths (Off Street Bike/Pedestrian – Signage Preferred)

*Shared use paths are a bikeway physically separated from motor vehicle traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users. Most shared use paths are designed for two-way travel. should offer opportunities not provided by the road system.*

Shared use paths are wider than sidewalks and, as their name suggests, they are shared by a variety of users from bicyclists to joggers and parents pushing strollers. These facilities are physically separated from motorized traffic by an open space or barrier and are located either within the road right-of-way parallel to the roadway or within an independent right-of-way. Shared use paths are more typical in suburban and rural areas where the distances to destinations are longer.



Source: GVMC Staff

To accommodate a variety of users, shared-use paths are typically between 8 and 12 feet wide with a soft two to four-foot shoulder on each side consisting of crushed gravel or mowed grass. AASHTO recommends a minimum paved or improved surface width of 10 feet. No signs or obstructions should be placed within 2 feet of the path on either side bringing the total minimum right-of-way requirement to 14 feet. A minimum width of 14 feet should be carried through on all structures (bridges and boardwalks). In order to qualify for Transportation Alternative Program funds in Michigan, shared use paths must conform to the AASHTO guidelines.

Rail-trails or greenways are considered a type of shared use path that make use of abandoned railroad rights-of-way. In West Michigan, the 25 mile long Musketawa Trail is an excellent example of a rail-trail, as is the longest rail-trail in Michigan, the 92 mile Frederik Meijer White Pine Trail.

### Sidepath (On Street Bike/Ped – Signage Preferred)

*A shared use path located immediately adjacent and parallel to a roadway.*

When existing road right-of-way corridors provide the only suitable path for bike travel, sidepaths are desirable as they provide an element of separation from motor vehicles. Sidepaths should be considered where the adjacent roadway has relatively high-volume and high-speed motor vehicle traffic that might discourage bicyclists. Sidepaths are typically constructed with asphalt and are wider than sidewalks. AASHTO recommends that the design should follow that of shared-use paths and that there be a separation of greater than 5 feet on heavy traffic roads.

There are potential conflicts introduced for bicyclists using sidepaths that users should be aware of. Some of these conflicts include: an increased number of intersections and driveways, unexpected speeds of bicyclists at intersections, motorists may block the sidepath crossing to get an unobstructed view of traffic, sharing the path with pedestrians as sidepaths are designed for urban areas, unexpected ending points putting bicyclists in the path of opposing traffic as sidepaths commonly follow one side of the road. Wrong-way travel by bicyclists is a common factor in bicycle-automobile crashes.

While other bikeways may be more suitable for the accommodation of bicycle traffic, the sidepath can function along short sections, or on longer sections where there are few street or driveway crossings.

### **Bicycle Lanes (On Street Bike – Striped and Marked with Signage Preferred)**

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

Bicycle lanes are established with appropriate pavement markings and signing to delineate the right-of-way assigned to bicyclists and to provide more predictable movements by both bicyclists and motorists. Bike lanes are usually paired one-way facilities located on both sides of streets with moderate to heavy traffic volumes. Bicycle lane design at intersections must be treated carefully to minimize conflicts between bicycle and automobile movements.

A dedicated lane for bicyclists decreases the chance of either motorists or bicyclists being slowed by the other. Bike lanes do, however, restrict the cyclist to a relatively narrow section of the roadway and channels them to the far right of through traffic, posing a potential hazard for left turning movements of both bicyclists and motor vehicles. Standard bicycle lane widths should be six feet; five feet is the minimum width adjacent to curbs and four feet is the minimum width when no curb exists. Dedicated bike lanes must be accompanied by both pavement markings and bike lane signs (R3-17). In addition to the standard R3-17 bike lane sign it is recommended to use additional directional, starting, and ending designation signage for more clarity to users.

Bicycle lanes are one of the most useful alternatives for experienced bicyclists; however some users will be uncomfortable with this type of facility due to traffic congestion and other concerns. These different



Source: GVMC Staff



Source: GVMC Staff

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bicyclist types are defined in a 1994 report by the Federal Highway Administration.<sup>26</sup> Categories of bicycle user types are defined to assist highway designers in determining the impact of different facility types and roadway conditions on bicyclists:

**A – 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.

**B – 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.

**C – 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.

### Bicycle Routes (On Street Bike – Must be Signed)

*Bicycle Routes are roadways or bikeways designated by the jurisdiction having authority, either with a unique route designation or with Bike Route signs, along with bicycle guide signs may provide directional and distance information. Signs that provide directional, distance, and destination information for bicyclists do not necessarily establish a bicycle route.*

Bicycle routes are preferred bikeways within the existing roadway. These routes may be signed or unsigned. For the purposes of this planning document, roads that are physically signed with the green bike route sign (D11-1) or the yellow share the road sign (W11-1), were considered signed bicycle routes or signed shared roadways. Signage as suggested by AASHTO guides should also include directional arrows or way-point guidance between connecting facilities as illustrated in the image above.

Ideally, bike routes should be located on roads and shared use paths with favorable conditions for bicycling, including those with bicycle facilities, low motor vehicle volumes, low traffic speeds, or enough width for shoulders or appropriate lane sharing.

Roadways that have paved shoulders of four-feet or greater are distinguished as having a “wide shoulder” possibly suitable for bicycle travel. It is important to note that the Grand Valley Metropolitan Council does not endorse those roads with “wide shoulders” as bicycle routes per say; however the



<sup>26</sup> Selecting Roadway Design Treatments to Accommodate Bicycles Publication No. FHWA-RD-92-073 Federal Highway Administration, 1994

roadway is noted in this document as having facilities that lend themselves to bicycle travel and might be considered unsigned shared roadways.

### Shared Lanes (On Street Bike – Must be Marked and Signage Preferred)

*Shared lanes are designated as a lane of traveled way that is open to both bicycle and motor vehicle travel.*

There are only a select few roadways within the MPO boundaries that have the distinction of being marked shared lanes, primarily in the City of Grand Rapids. However, many municipalities and the road commissions have built roads to standards that are suitable for bicycle travel even though they may not be explicitly signed or marked as such.

Pavement markings called “sharrows” are used to indicate shared lane routes and guide bicyclists to the safest location for travel through traffic. These markings are useful for indicating that a road is shared with motorists, but not wide enough to accommodate both a traffic lane and a dedicated bicycle lane. In combination with sharrows, “share the road” signs are also used to advise motorists of possible bike travel. Share the road signs have been used exclusively in the MPO for designating shared lanes until recently. Trends and studies have shown that a combination of the chevron sign on the pavement and accompanied street signage is the safest solution for notifying motorists of bike travel. In the 2012 AASHTO Guide for the Development of Bicycle Facilities it identifies the proper use and design for marked shared lanes.



Source: Todd Boulanger, bikeportland.com

The use of and popularity nationwide of using sharrows to expand bicycle infrastructure is increasing, especially for urban municipalities that do not have the existing roadway rights-of-way to accommodate a five-foot striped bicycle lane.

### Shared Roadways (On Street Bike - Unsigned)

*Shared roadways are those that are open to both bicycle and motor vehicle travel.*

*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.*

Shared roadways are open to both bicycle and motor vehicle travel and may be an existing roadway, a street with wide curb (outside) lanes, or a road with paved shoulders. Shared roadways typically have no bikeway designation or route marker, but are designed and constructed under the assumption that they may be used by bicyclists. Similar to shared roadways, are shared lanes. Shared lanes are wide nearest to the curb (wider than a standard 12-foot lane) and therefore provide additional space so the lane may be shared between bicyclists and motor vehicles. If the lanes become too wide however, mo-

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torists may mistake the space and assume parallel parking is allowed constricting travel for both bicyclists and motorists.

This plan includes maps depicting bicycle routes where the roadway is signed with bicycle route markers. The maps also depict “wide shoulders” as those stretches of roadway that have four foot or greater paved shoulders divided by a striped line. Four feet is the minimum width recommended by AASHTO for bicycle travel where there is no curb; however, where there is curb and gutter, AASHTO recommends a five foot wide paved shoulder for bicyclists. While paved shoulders are not explicitly dedicated for bicycle travel, they are a practical alternative for non-motorized users. To the right is an image of a wide shoulder appropriate for bicycle travel.

Retrofitting bicycle facilities without roadway widening proves cost effective and it greatly increases facility options for cyclists. It’s roads like these that could most easily be converted to bike lanes without reducing the number of travel lanes for motorists.

### Bicycle Centers and Staging Areas

In addition to sidewalks/sidepaths, shared use paths, bicycle lanes, signed shared roadways, and wide shoulders, there are auxiliary facilities that increase the convenience and effectiveness of non-motorized transportation. Bicycle centers may offer indoor bicycle parking facilities, lockers, showers, snack bars, bicycle repair and rentals, and other amenities intended to encourage bicycling. A premiere example of a bicycle center is the McDonald Bicycle Center in Chicago’s Millennium Park.

Non-motorized staging areas typically have designated motorized vehicle parking areas for accessing non-motorized networks. For example, the White Pine Trail has several access points that include parking areas for users.

### Pedestrian Bridges, Underpasses, and Refuge Islands

Occasionally there are significant crossings in a non-motorized network over railroads, water features, or other roads and interstates, which can present major impediments to the system. While many obstacles can be overcome on existing road or bridge facilities, some older road bridge structures do not contain adequate shoulders or dedicated pedestrian areas for crossing. These narrow crossings may be unsafe for pedestrians and bicyclists who attempt to cross with motorized traffic and are often viewed as gaps in a non-motorized network, especially where competing facilities exist on either side of the bridge or intersection.

There are several options for creating pedestrian access around obstacles like rivers and roads. Generally the most ideal alternative is enhancing the current road bridge structure or Intersection to include pedestrian access, for example the Northland Drive Bridge over the Grand River in Plainfield Charter Township. If bridge modification is unavailable or if the crossing does not follow an existing roadway, a dedicated pedestrian bridge can be constructed. It is important to note that the Michigan Department of Transportation takes into consideration pedestrian access in their bridge development and replacement plans, and as older road facilities are updated, road bridge access for pedestrians is a priority. Other options are pedestrian tunnels or underpasses, which involve ramps leading down to a below-



Source: GVMC Staff

grade passageway. Underpasses can prove costly due to challenges for height clearance, utility relocation, lighting, and drainage. Refuge Islands are also becoming popular for Jurisdictions in our area and are helpful to both pedestrians and cyclists. They allow for a safe median point for the user to take refuge at between direction lanes of travel. The City of Granville recently used 2013 TAP funds to install a refuge island on Wilson Avenue to accommodate the shared-use path crossing of Buck Creek Trail.

Several GVMC members have identified local bridge crossings, refuge islands, and underpasses where a dedicated pedestrian crossing or bridge modification for pedestrians would complete a gap in the non-motorized network, increasing the attractiveness and safety for non-motorized travel. Since midblock locations account for more than 70% of pedestrian fatalities<sup>27</sup>, facility improvements like these have been identified in this plan with high value and priority.

## Other Trending Facility Types

### Bicycle Boulevard

*A street segment, or series of contiguous street segments, that has been modified to accommodate through bicycle traffic and minimize through motor traffic.*

Boulevards take advantage of using local streets with low traffic volumes to allow for the sharing of roadways and safe navigation of bicyclists. Boulevards focus on design elements to accommodate bicyclists that include traffic calming features, wayfinding signs, shared-lane markings, and crossing improvements. The objective is to provide continuity over a distance typical of the average urban trip of 2-5 miles with minimal constraints from motorists.

### Cycle Track

*A cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. A cycle track is physically separated from motor traffic and distinct from the sidewalk.*<sup>28</sup>

The National Association of City Transportation Officials (NACTO) recognizes three types of cycle tracks. One-way cycle tracks are street level designated lanes separated from traffic by a barrier that allow the flow of bicycle movement in a single direction. Raised cycle tracks are raised from traffic and they allow for one or two way bicycle traffic. Finally, two-way cycle tracks are separated from motor traffic and allow for bicycle movement in both directions on one side of the road.

These have recently been gaining exposure because they can offer a higher level of security than bike lanes from motorists. They are separated from the road, pedestrians, and parking lanes by a physical barrier.

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<sup>27</sup> [http://safety.fhwa.dot.gov/provencountermeasures/fhwa\\_sa\\_12\\_011.htm](http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_011.htm)

<sup>28</sup> <http://nacto.org/cities-for-cycling/design-guide/cycle-tracks/>

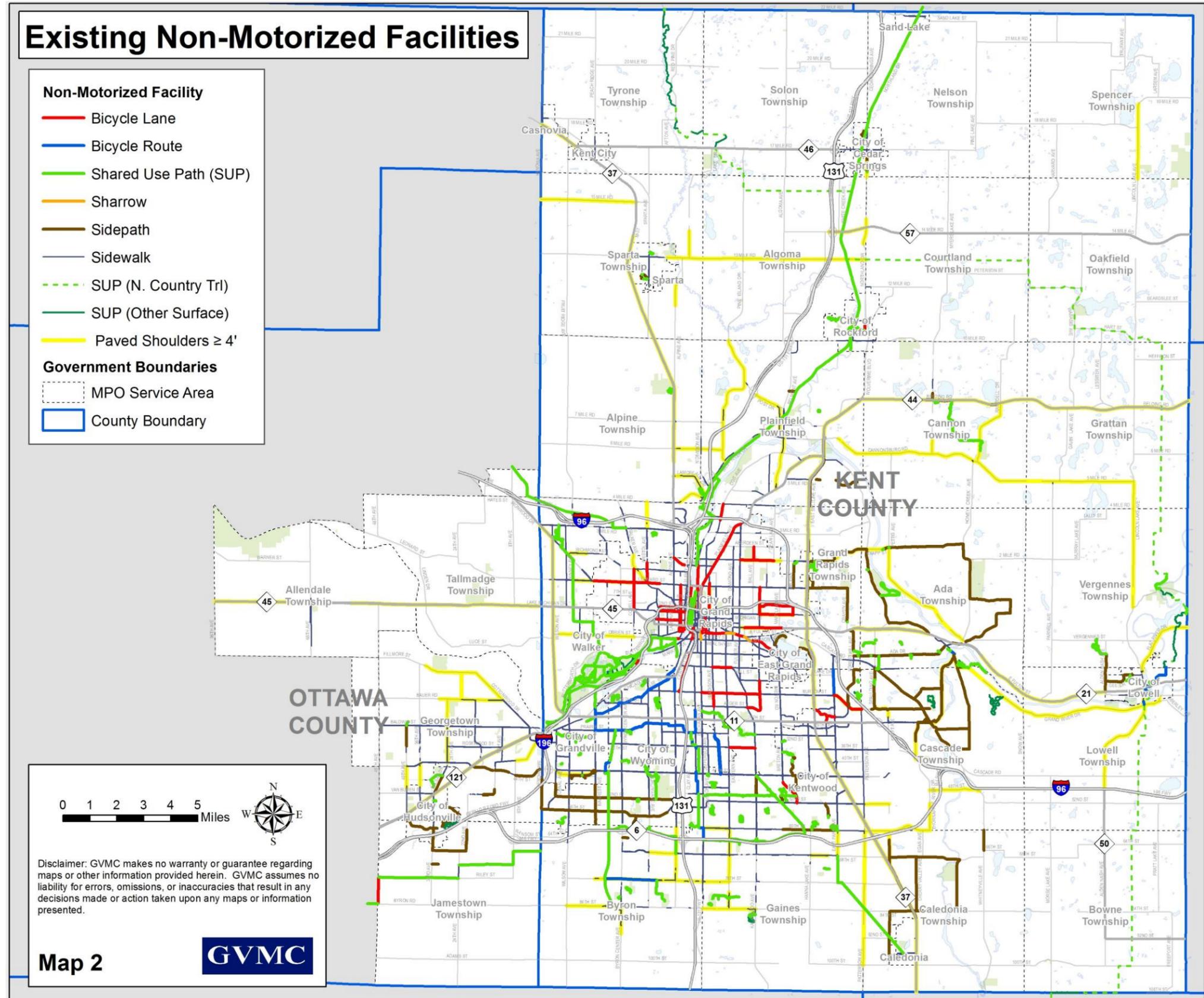
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## Existing Non-Motorized Facilities

The Grand Valley Metropolitan Council (GVMC) has developed a comprehensive non-motorized facility inventory that includes sidewalk facilities along the Federal-Aid eligible roadway network, shared use paths, sidepaths, signed shared roadways or bicycle routes, sharrows and lanes, as well as Federal-Aid eligible roads with four foot or greater wide paved shoulders. The maps developed were produced by the GVMC Transportation Department with data collected from local units of government, the GVMC Regional Geographic Information System (REGIS), the State of Michigan Center for Geographic Information (CGI), the Michigan State Police Office of Highway Safety Planning (OHSP), the Kent County Road Commission (KCRC), the Kent County Parks and Recreation Department, the Ottawa County GIS Department, the Michigan Department of Transportation (MDOT), and the United States Census Bureau. The approximately 1,600 miles of Federal-Aid eligible roadways within the GVMC MPO area are, by virtue of their designation, the most strategic roads within the region. These roadways are among the most often traveled in the area and are often the most direct routes between important destinations. The GVMC MPO is responsible for planning for these Federal-Aid eligible roadways.

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

Map 2 – Existing Non-Motorized Facilities



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The following chart helps to break down each the type of existing facility by community or jurisdiction. Two features on the previous map have not been included in the summation of totals for existing facilities. These are four-foot or greater paved shoulders and portions of the North Country Trail. These two facilities are not formally signed and are not recognized by the MPO as existing facility mileage.

It is important to note that the Kent County Parks and Ottawa County Parks departments and the State of Michigan maintain many miles of non-motorized facilities that reside within the regions local municipal boundaries. Therefore, the following table has been summarized below by the Jurisdiction the facility physically falls within.

Total Miles of Existing Facilities by Jurisdiction	Pedestrian and Bicycle Facility Types						Total Miles
	Sidewalk	Shared Use Path	Sidepath	Bike Lane	Bicycle Route	Sharrows	
Ada Township	6.4	6.55	19.04	0	0.25	0	32.24
Algoma Township	0	4.75	0	0	0	0	4.75
Allendale Township	8.37	0	2.81	0	0	0	11.18
Alpine Township	4.05	1	1.15	0	0	0	6.2
Bowne Township	0	1	0	0	0	0	1
Byron Township	14.06	8.24	0.21	0	2.55	0	25.06
Caledonia Township	1.64	2.22	14.83	0	0	0	18.69
Cannon Township	0.43	3.15	1.27	0.04	0	0	4.89
Cascade Township	5.84	5.77	18.24	0	0	0	29.85
City of Cedar Springs	3.95	1.4	0.58	0	0	0	5.93
City of East Grand Rapids	17.82	.15	0.63	0.77	0	0	19.4
City of Grand Rapids	238.67	17.47	0.52	37.55	0	1.34	295.55
City of Grandville	29.09	7.74	1.88	0	3.11	0	41.82
City of Hudsonville	12.77	4.09	3.92	0	0	0	20.78
City of Kentwood	79.12	13.9	7.09	2.19	0.97	0	103.27
City of Lowell	7.72	0.48	1.24	0	1.63	0	11.07
City of Rockford	4.83	4.4	0	0.59	0	0	9.82
City of Walker	34.14	26.48	0	0	0	0	60.62
City of Wyoming	89.42	14.43	11.21	0	17.07	0	132.13
Courtland Township	0.13	0	0	0	0	0	0.13
Gaines Township	15.09	10.9	0	0	0	0	25.99
Georgetown Township	36.98	0.15	4.79	0	0	0	41.92
Grand Rapids Township	7.48	1.72	10.15	0	0	0	19.35
Grattan Township	0.04	0	0	0	0	0	0.04
Jamestown Township	0.98	6.9	2.03	0.98	0	0	10.89
Lowell Township	0.56	0	0.87	0	0	0	1.43
Nelson Township	1.44	4.06	0.25	0	0	0	5.75
Oakfield Township	0	0	0	0	0	0	0
Plainfield Township	21.98	9.84	4.34	0	0	0	36.16
Solon Township	0.19	0.77	0	0	0	0	0.96
Sparta Township	3.78	0	0	0	0	0	3.78
Spencer Township	0	0	0	0	0	0	0

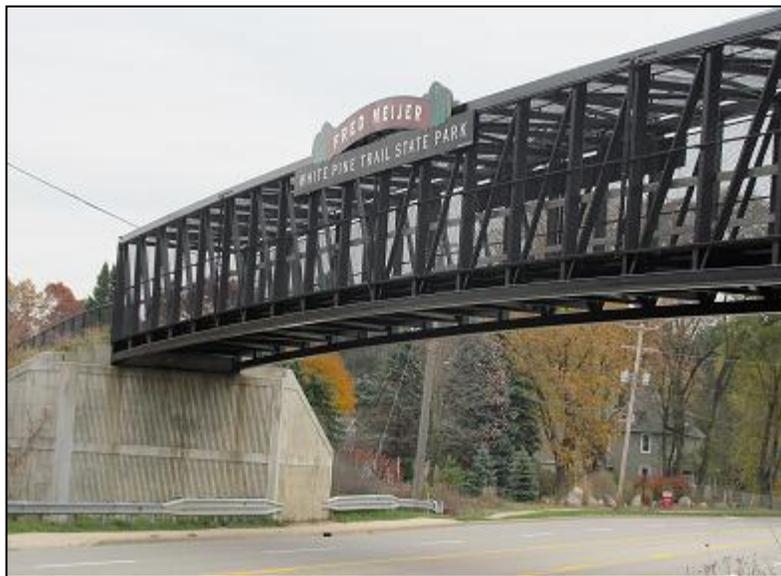
Tallmadge Township	.13	0	0	0	0	0	.13
Tyrone Township	2.87	6	0	0	0	0	8.87
Vergennes Township	0	6.54	0.52	0	0	0	7.06
Village of Caledonia	0	0.14	0	0	0	0	0.14
Village of Casnovia	0	0	0	0	0	0	0
Village of Kent City	0	0	0	0	0	0	0
Village of Sand Lake	0	0.65	0	0	0	0	0.65
Village of Sparta	0.34	0.61	0.38	0	0	0	1.33
Wright Township	0	1.27	0	0	0	0	1.27
<b>TOTAL MILES</b>	<b>650.31</b>	<b>172.8</b>	<b>107.95</b>	<b>42.12</b>	<b>25.58</b>	<b>1.34</b>	<b>1000.05</b>

NOTE: Existing mileage recorded by organization does not include roughly 240 miles of existing four-foot or greater paved shoulders throughout the MPO area.

Figure 1 – Summary of Existing Facilities by Community

In summary, the MPO contains 1,000 miles of non-motorized facilities. The existing infrastructure is a tremendous resource for our community and represents millions of dollars of investment in non-motorized transportation, the majority of which was locally planned and funded.

In general, most local jurisdictions now require new developments, both retail and residential, to provide sidewalks as part of their site-plan review process and zoning ordinances. Unfortunately older developments and subdivisions were not required to provide pedestrian links and therefore the current sidewalk network is patchy and intermittent. With regard to federal transportation funds and sidewalks, the GVMC Policy Committee has traditionally restricted the use of federal funding for sidewalks to only those road reconstruction projects where the existing sidewalk is removed. For example, if a roadway to be widened or reconstructed already features sidewalks alongside it, federal money may be used to rebuild the sidewalks as part of the project. However, the GVMC Committees primarily restricts spending federal dollars for new sidewalk facility construction, a restriction that the federal government does not place on Surface Transportation Program funds. The construction of new sidewalks along reconstruct federal-aid road projects are evaluated on a case by case basis at the MPO level and must meet multiple criteria, including being a need defined by this plan.



Source: GVMC Staff

Of the over 172 miles of shared-use path available, the Frederik Meijer White Pine Trail State Park, the Fredrick Meijer Pioneer Trail , the Paul B. Henry Thornapple Trail, and the M-6 Trail stand out as significant infrastructure investments. The Frederik Meijer White Pine Trail is the longest rail-trail in Michigan, stretching 92 miles from Comstock Park at North Park Street all the way to Cadillac. The

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Paul B. Henry Thornapple Trail is another rail-trail running through three counties beginning at the Grand Rapids-Kentwood city limit and ending in Vermontville in Eaton County. The second phase of the M-6 Trail was completed in 2008 and connects the Paul B. Henry Thornapple Trail at Wing Avenue and 60th Street west to the Kent Trails north of Byron Center.

In 2006, the cities of East Grand Rapids and Grand Rapids began working together to connect the Reeds Lake non-motorized trail in East Grand Rapids to the juncture of Kent Trails and other trails near John Ball Park Zoo in the City of Grand Rapids. Using bicycle lanes, sharrows and some sidewalks the



Source: GVMC – East Grand Rapids

selected route connects the central city with other neighborhoods and includes two difficult intersections and complicated on-street parking situations. This facility is nearly fully developed pending some planned or funded future projects. When complete it will offer an exclusive bicycle lane in a highly demanded corridor.

The City of Wyoming features some of the only signed shared roadway or signed bicycle routes within the MPO boundaries, however there are approximately 240 miles of four-foot or greater paved shoulders in Kent County that can and do often serve as unsigned bicy-

cle facilities for area residents.

In 2010 the City of Grand Rapids began a plan to add bicycle lanes on city streets where possible and restriping and installing signs as part of its plan to create an urban bike network. After nearly 33 miles of bicycle facilities added by the end of 2013, another 26 miles are planned in the 2014 construction season. This initiative will complete some much needed bike connections and promote cooperation and coordination of developing facilities between surrounding jurisdictions.

### Measuring Demand for Non-Motorized Transportation

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

*Destinations* - Some of the major attractions for non-motorized travelers include retail areas, schools, colleges and universities, major employment centers, libraries, parks, and transit stops. See Map 6 for a graphic estimation of the location of some of these popular destinations.

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

*Demographics and Population Density.* Young (less than 18), elderly, and low-income people tend to rely more on non-motorized modes for transportation. In Kent County, the American Community Survey for 2012 estimates that a little over 25% of the population is less than 18 years old and over 23% of population is over 55 years old. These demographics indicate a significant share of the population that would be more likely to utilize non-motorized forms of transportation. Additionally, according to the 2010 Census, persons in low-income households are more likely to walk to work than persons of other income categories.

The population identified from the U.S. Census for the entire GVMC MPO area is 694,677 people. For a graphic illustration of the population densities see Map 3 where each dot represents 40 people.

*Land use* - Walking and bicycling for transportation tend to increase with density (i.e., the number of residents and businesses in a given area) because higher densities mean that destinations are closer together and these transportation modes become more efficient.

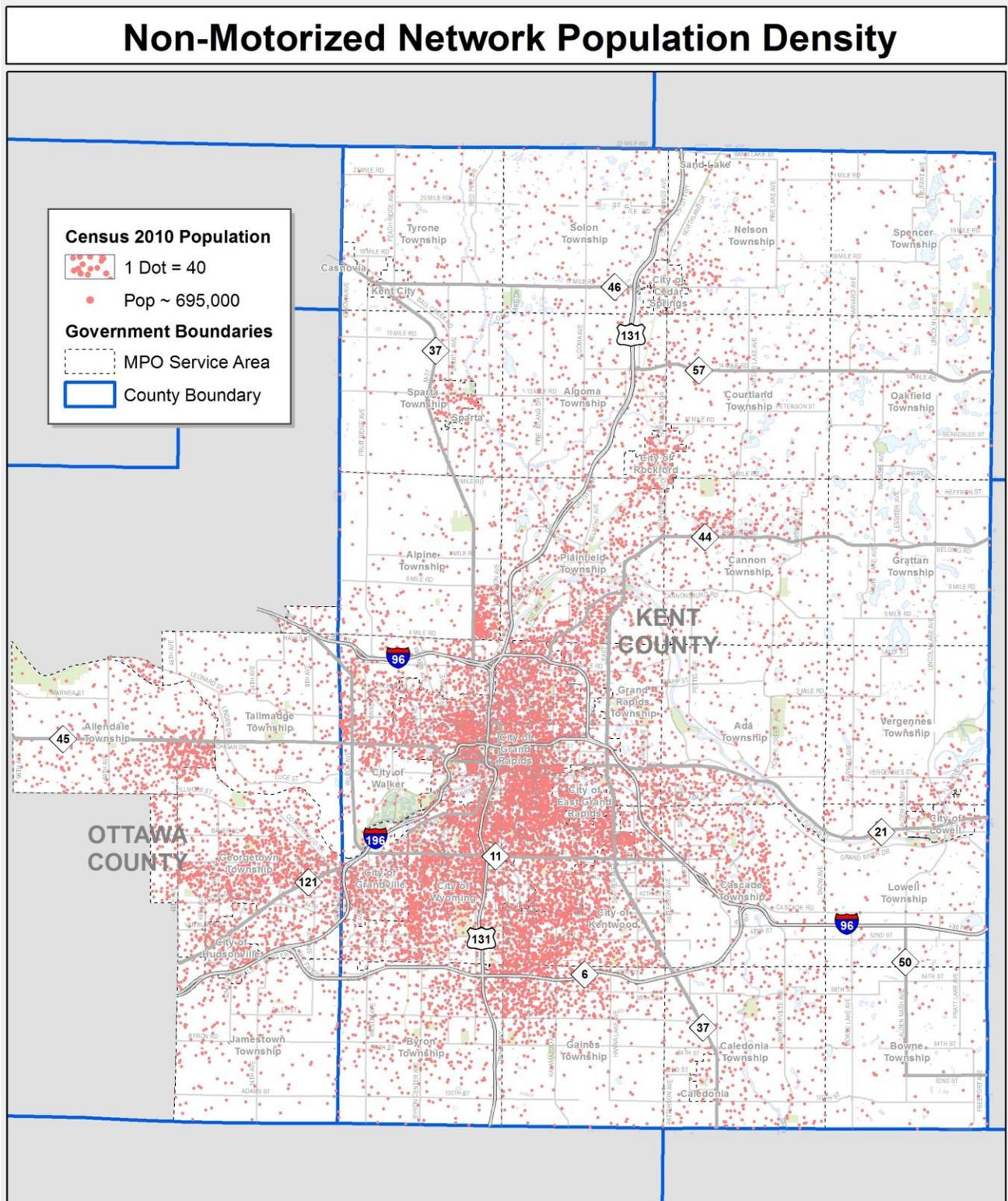
Not surprisingly, within the GVMC MPO, the City of Grand Rapids has the greatest population. The higher population density of the city provides a larger number of users for non-motorized modes of travel. Additionally, the distances between destinations are shorter. For transportation planning purposes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

Community	2010 Census Population
Jamestown Township	7,034
Georgetown Township	46,985
Allendale Township	20,708
Tallmadge Township	7,575
City of Hudsonville	7,116
Kent County	602,622
MPO Total Population	694,677



Source: GVMC Staff

Map 3 – Non-Motorized Network Population Density



**Map 3**  
**GVMC**

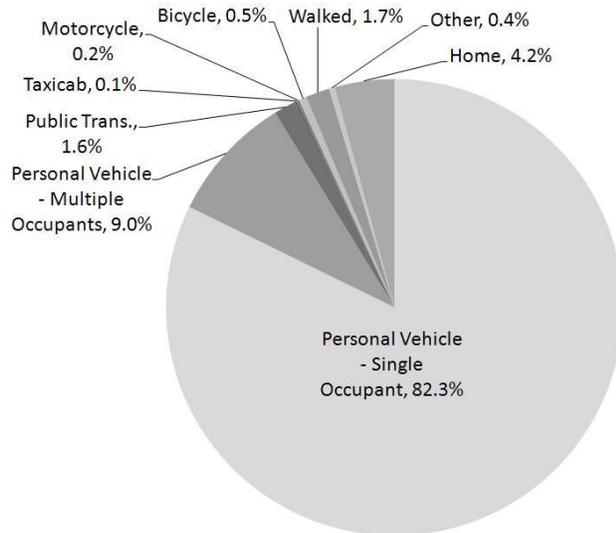


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With increased population density, it makes sense that non-motorized transportation becomes a more viable option. However, data for our region to support the assumption that individuals are making a non-motorized mode choice for trips is scarce. Unlike traffic counts for motor vehicles, it is difficult to monitor pedestrian movements without specialized equipment or real-time observation. For these reasons most agencies rely on self-reported data about what modes of transportation they use most frequently.

Other than demographic information from the U.S. Census, the source used to estimate non-motorized transportation use in our area is the American Community Survey (ACS). The ACS is an ongoing statistical survey that samples a small percentage of population each year. The ACS 2011 5-year survey estimates that approximately 3.3% of the nation’s trips are pedestrian and bicycle combined. For the City of Grand Rapids, the ACS reported that approximately 3.8% of the workforce walked or biked to work with the majority of this figure coming from pedestrians similar to that of national estimates. The percentage of walking/bicycling trips is slightly lower for Kent County and for the State of Michigan as a whole. Figure 2 shows the proportion of trips by mode for Kent County.



Source: ACS 5 Year (2007-2011) Kent County

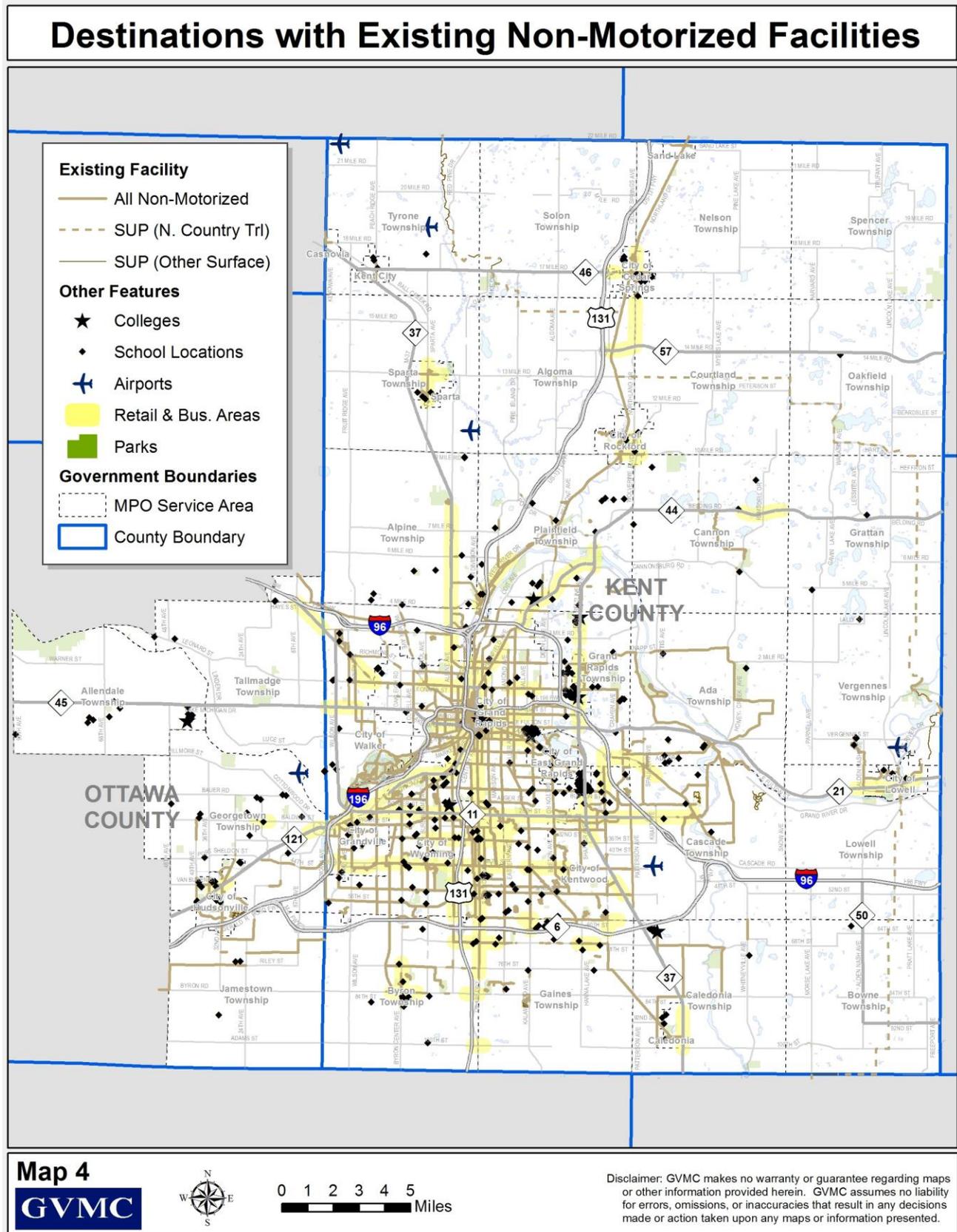
Figure 2 – Proportion of Trips by Mode

Another rather unfortunate indicator of non-motorized facilities are in demand is pedestrian/bicycle incident data. See Appendix B for more information and maps of traffic incidents involving pedestrians and bicyclists in the MPO area. Additionally, Appendix A provides detail about the existing and proposed non-motorized facilities and their proximity to Rapid bus routes.

Anecdotal evidence from the Grand Valley Metropolitan Council’s planning processes has found enthusiasm for more non-motorized facilities in our area. Comments from individuals, disability groups, trail and bike advocacy groups and from municipal transportation planners all point to additional demand for non-motorized facilities, particularly in busy commercial areas. Past survey data collected by the GVMC also point to the provision of connected non-motorized facilities in an integrated network as a public priority. In summary, while pedestrian and bicycle demand are not quantified in the same way as vehicular demand, there is evidence for demand from a variety of sources.

It is important to note that the focus of this plan is more generalized due to the large scale and scope of the MPO boundaries and the lack of the same kinds of explicit demand and deficiency data available for vehicular travel. For non-motorized transportation planning purposes, popular destinations and demographic factors along with existing non-motorized facilities were used to help identify those areas that are likely to be significant destinations. Map 4 helps to illustrate those network destinations for non-motorized travelers. As the non-motorized project lists were developed, the GVMC made the assumption that our area municipalities have a good understanding of local non-motorized demand beyond the demographic and incident-based data collected, and that this perceived demand is reflected in the projects suggested to the MPO.

Map 4 – Network Destinations with Existing Non-Motorized Facilities



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## Existing Policy Context

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

### Federal

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

Federal transportation policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation, and quality of life — transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes.

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

The purpose of this policy statement is to reflect the DOT's support for the development of fully integrated active transportation networks. The establishment of well-connected walking and bicycling networks is an important component for livable communities, and their design should be a part of Federal-aid project developments. Walking and bicycling foster safer, more livable, family-friendly communities; promote physical activity and health; and reduce vehicle emissions and fuel use. Legislation and regulations exist that require inclusion of bicycle and pedestrian policies and projects into transportation plans and project development. Accordingly, transportation agencies should plan, fund, and implement improvements to their walking and bicycling networks, including linkages to transit. In addition, DOT encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities, and utilize universal design characteristics when appropriate. Transportation programs and facilities should accommodate people of all ages and abilities, including people too young to drive, people who cannot drive, and people who choose not to drive.

### State

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

Act 51 of the Michigan Public Acts of 1951 is the state law that distributes the primary state sources of transportation funding in Michigan. The formulas in the act distribute approximately \$1.7 billion per year in state transportation revenues from the Michigan Transportation Fund to the state Department of Transportation, county road commissions, and cities and villages for maintenance and construction of roads and support of transit systems. Section 10k states that of the funds allocated from the Michigan Transportation Fund to the State Trunkline Fund and to the counties, cities, and villages, a reasonable

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amount but not less than 1% of those funds shall be expended for the construction or improvement of non-motorized transportation services and facilities. This money can be used for adding sidewalks, paving shoulders for bicyclists and other facility development or redevelopment/repair.

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

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

On July 26, 2012 the STC approved a Complete Streets policy that "...provides guidance to MDOT for the planning, design, and construction or reconstruction of roadways or other transportation in a manner that promotes complete streets as defined by the law, and that is sensitive to the surrounding context."<sup>29</sup> The Public Act 135 of 2010 defines complete streets as "...roadways planned, designed, and constructed to provide appropriate access to all legal users in a manner that promotes safe and efficient movement of people and goods whether by car, truck, transit, assistive device, foot, or bicycle."<sup>29</sup> The policy on complete streets is intended to supplement the policy for CSS.

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

### Local

The GVMC 2035 Long Range Transportation Plan (LRTP) lays out non-motorized transportation goals for our region. LRTP Goal 1d states: "The transportation system should encourage the multiple and safe use of transportation rights-of-way by different modes, including non-motorized transportation." The 2035 LRTP also stresses accessibility through non-motorized transportation. It states an MPO goal to "encourage better walk and bicycle access within our local communities." While these LRTP goals carry over the federal and state level themes of non-motorized transportation encouragement, the GVMC does not have a specific policy laid out for non-motorized transportation. The lack of policy at the local level hinders dedicated investment in these modes of transportation. With the pending implementation of a Complete Streets policy at the state level however, it is expected that local entities will be pushed to adopt similar policies to implement for their infrastructure improvement strategies.

In 2011 the City of Grand Rapids adopted a complete streets resolution assuring that future transportation projects consider all user groups, including pedestrians, cyclists, transit riders, people in wheelchairs and motor vehicles. This is a result of the City, local Bicycle coalitions, and the public getting involved and is a stepping stone to ultimately adopting a comprehensive Complete Streets Policy Ordinance.

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<sup>29</sup> [http://www.michigan.gov/documents/mdot/MDOT\\_CS\\_Policy\\_390790\\_7.pdf](http://www.michigan.gov/documents/mdot/MDOT_CS_Policy_390790_7.pdf)

## Non-Motorized Transportation Improvements

The primary focus of the non-motorized portion of the Metropolitan Transportation Plan is threefold: to identify regionally significant priority projects, to enhance cooperation and coordination between jurisdictions for facility development, and thirdly, to address some of the challenges to non-motorized transportation facility development. Similar to both the Metropolitan Transportation Plan (MTP) and the Transportation Improvement Program (TIP), the Grand Valley Metropolitan Council Non-Motorized Transportation Committee worked together to identify priority non-motorized projects for our MPO area.

### Committee Makeup

A Non-Motorized Transportation Committee was formed to help guide GVMC staff and direct the planning process. Representatives from local units of government, members of the Grand Valley Metropolitan Council Transportation Committees, as well as other advocacy groups, concerned citizens, and other stakeholders were invited to be members of the committee. Other members include local bicycle club members, the Michigan Department of Transportation, Disability Advocates, local environmental advocates, trail advocates and volunteers, professional planners, media representatives, bicycle enthusiasts, and those who rely on non-motorized transportation as their primary mode of travel. All meetings of this group are open to the general public.

In addition to providing GVMC staff with the latest information and maps of non-motorized facilities and local proposals, meetings served to identify partnership opportunities with neighboring jurisdictions and provide opportunities for coordination of resources and plans. Through the Non-Motorized Transportation Committee, previous bicycle and pedestrian planning efforts were analyzed, network deficiencies were selected, and a general course of action was prescribed for addressing area priorities.

**The GVMC Non-Motorized Transportation Committee Members by Agency**

<u>First Name</u>	<u>Last Name</u>	<u>Agency</u>	<u>First Name</u>	<u>Last Name</u>	<u>Agency</u>
Jim	Ferro	Ada Township	Suzanne	Schulz	City of Grand Rapids
Julie	Sjogren	Algoma Township	Jay	Steffen	City of Grand Rapids
Jerry	Alkema	Allendale Township	Chris	Zull	City of Grand Rapids
Alex	Arends	Alpine Township	Ken	Krombeen	City of Grandville
Sue	Thomas	Alpine Township	Dan	Strikwerda	City of Hudsonville
Audry	Nevins	Byron Township	Tim	Bradshaw	City of Kentwood
Bonnie	Blackledge	Cannon Township	Steve	Kepley	City of Kentwood
Sandra	Otey	Cascade Township	Joe	Pung	City of Kentwood
Christine	Burns	City of Cedar Springs	Terry	Schweitzer	City of Kentwood
Steven	Patrick	City of Coopersville	Charlie	Ziesemer	City of Kentwood
Brian	Donovan	City of East Grand Rapids	Mark	Howe	City of Lowell
Joe	Slonecki	City of East Grand Rapids	Phil	Vincent	City of Rockford
Rick	Devries	City of Grand Rapids	Michael	Young	City of Rockford
Dale	Fitz	City of Grand Rapids	Scott	Connors	City of Walker
Peter	Lewak	City of Grand Rapids	Travis	Mabry	City of Walker
Carissa	McQuiston	City of Grand Rapids	Darrel	Schmalzel	City of Walker

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<u>First Name</u>	<u>Last Name</u>	<u>Agency</u>	<u>First Name</u>	<u>Last Name</u>	<u>Agency</u>
Tim	Cochran	City of Wyoming	Thomas	Tilma	Greater GR Bicycle Coalition
Russ	Henckel	City of Wyoming	Nick	Monoyios	ITP-The Rapid
Rebecca	Rembrandt	City of Wyoming	Conrad	Venema	ITP-The Rapid
Brett	Boncher	Courtland Township	Ken	Bergwerff	Jamestown Township
Dave	Bulkowski	Disability Adv. of Kent County	Roger	Sebine	Kent County Parks
Richard	Granse	Friends of the White Pine Trail	Tim	Haagsma	Kent County Road Commission
David	Heyboer	Friends of the White Pine Trail	Rick	Sprague	Kent County Road Commission
Jeff	Gritter	Gaines Township	Steve	Warren	Kent County Road Commission
Don	Hilton Sr.	Gaines Township	Karen	Dunnam	League of American Wheelman
Denny	Bishop	Georgetown Township	Dennis	Kent	MDOT
Dan	Carlton	Georgetown Township	Steve	Redmond	MDOT
Dale	Mohr	Georgetown Township	Mark	Knudson	Ottawa County
Howard	Meyerson	Grand Rapids Press	Rick	Solle	Plainfield Township
Mike	Devries	Grand Rapids Township	Jay	Spencer	Plainfield Township
Joshua	Duggan	Greater GR Bicycle Coalition	Gregory	Ransford	Tallmadge Township
Jay	Fowler	Greater GR Bicycle Coalition	Rick	Chapla	The Right Place
Joshua	Leffingwell	Greater GR Bicycle Coalition	Norm	Sevensma	West Michigan Env. Action Council
Ted	Lott	Greater GR Bicycle Coalition	Dave	Bee	West Michigan Regional Planning
Scott	Steiner	Greater GR Bicycle Coalition	Dennis	Kneibel	West Michigan Trails & Greenways

## Plan Vision, Goals, and Performance Measures

To provide direction and fundamental goals for project selection, the vision and goals are a result of collaboration with our committee members reviewing previous iterations of the GVMC Non-Motorized plan dating back to 1996. The plan goals below have been identified with objectives, that following the implementation of performance-based planning, will be used to score the progress and outcome of this plans implementation in the future.

### Plan Vision

It is the vision of the Grand Valley Metropolitan Council (GVMC) Non-Motorized Transportation element of the Metropolitan Transportation Plan (MTP) that an area-wide network of interconnected, convenient, safe, and efficient non-motorized routes may become an integral mode of travel for area residents.

### Plan Goals & Objectives

#### Facility Development:

- Preserve the function of the existing non-motorized transportation system.
- Identify projects which will contribute to a continuous, coordinated, and safe regional non-motorized network of bicycle and pedestrian facilities and will provide access to employment, shopping, schools, transit, and other destinations.
- Encourage local, county, and state roadway agencies fully consider the needs of pedestrians and cyclists in all projects.
- Continue to research and identify funding sources for the development of non-motorized facilities.

**Safety:**

- Reduce the number of bicycle and pedestrian accidents, injuries, and fatalities.
- Encourage the use of safe and consistent construction/design standards for new non-motorized facilities that conform to the Americans with Disabilities Act (ADA).

**Coordination and Cooperation:**

- Support locally determined bicycle and pedestrian program implementation efforts.
- Plan and coordinate facility development between jurisdictions to maximize resources.
- Cooperate among various interest groups and municipalities to equitably prioritize facility development.

**Education and Encouragement:**

- Work with GVMC members and advocacy groups to promote public awareness, acceptance, and utilization of non-motorized transportation modes.

**Performance Measures**

Performance measures are a key feature with MAP-21 and is an outcome based program for states to invest resources in projects that collectively will make progress towards the achievement of national goals. The performance measures are built upon the plan goals and objectives and will allow us to review the success or our plan objectives. Unfortunately for non-motorized, measuring opportunities are limited. In the following table there has been provided an action plans if no performance measure exists for the objective.

Goal	Objective	Performance Measure
1) Facility Development	1a) Preserve the function of the existing non-motorized transportation system.	Development/update of the NM Plan every 4 years prior to the development of the MTP.
	1b) Identify projects which will contribute to a continuous, coordinated and safe regional non-motorized network of bicycle and pedestrian facilities and will provide access to employment shopping, schools, transit, and other destinations.	Develop and utilize a project selection and/or prioritization process that specifically considers accessibility and connectivity between facilities and across modes, given the new MAP-21 Transportation Alternatives program.
	1c) Encourage local, county, and state roadway agencies to fully consider the needs of pedestrians and cyclists in all projects.	Provide proximity reports to member agencies that have projects in the TIP that would align well with projects needed from the Non-Motorized plan.

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	1d) Continue to research and identify funding sources for the development of non-motorized facilities.	Update and report annually to our member agencies on any changes to available funding opportunities.
2) Safety	2a) Reduce the number of bicycle and pedestrian accidents, injuries, and fatalities.	Evaluate injury and fatality rates across the MPO area to target specific locations in an effort to reduce crashes 10% by 2020.
	2b) Encourage the use of safe and consistent construction/design standards for new non-motorized facilities that conform to the American with Disabilities Act (ADA).	Promote the use of AASHTO documents and make them available for check out through the MPO. Provide announcements of newly available resources or changes in laws that influence federal or state requirements.
3) Coordination and Cooperation	3a) Support locally determined bicycle and pedestrian program implementation efforts.	Coordinate priorities with jurisdictions that have adopted local non-motorized or recreation plans. Provide MPO support to secure any available funding opportunities.
	3b) Provide opportunities for cross-jurisdictional project coordination and stakeholder involvement.	Provide an MPO sponsored yearly meeting for jurisdiction planners and engineers to meet and discuss intended transportation and bike/ped. improvements to encourage cross-jurisdictional project coordination.
	3c) Cooperate among various interest groups and municipalities to equitably prioritize facility development.	The non-motorized committee will be called on to help plan and prioritize improvements that go to the TPSSG committee for TIP programming.
4) Education and Encouragement	4a) Work with GVMC members and advocacy groups to promote public awareness, acceptance, and utilization of non-motorized transportation modes.	Present information to the public regarding newly scheduled projects, major trail ceremonies, training opportunities, and upcoming events.

Figure 3 – Performance Measures

## Study Process and Project Evaluation Criteria

To understand what non-motorized projects are especially important for our area, the Non-Motorized Transportation Committee began by examining where existing non-motorized facilities are located. Next, proposed and funded projects were mapped alongside the existing facilities to find breaks in the system. Parallel to the identification of system deficiencies, the Non-Motorized Transportation Committee developed project evaluation criteria.

In June 2008, GVMC staff requested that the Non-Motorized Committee collect project suggestions from all the MPO jurisdictions in a combined effort to develop the non-motorized plan and as part of the Rails-to-Trails 2010 Campaign for Active Transportation process. Through this effort, basic evaluation criteria for reviewing projects was agreed upon, and each jurisdiction took it upon themselves to examine all of their desired projects, screen each project according to the evaluation system, and refine their local list of projects accordingly. The review process developed used a system of tiers to review projects based on their level of performance.

In July 2013, the Non-Motorized committee reviewed the tier system and created a new evaluation process for projects submitted for inclusion into the Non-Motorized Plan. The new priority process involves the rating of five major components outlined below. Each factor has the possibility of 1 to 3 points awarded relating to low, medium, and high, with a minimum of 5 and maximum of 15 points awarded for each project. The hope is that the projects that score the highest by the MPO will also be the priority by its member agencies for funding them. You will notice that the rating system was designed to have minimal personal influence by the rater, and that the physical location of the project primarily determined each project score. The five rating factors are as follows along with the methodology for determining their scores.

### Priority Rating System

1. **Mode Shift:** There will be measurable changes in bicycling, walking trips, or transit ridership based on the geographic proximity to trip attractors, trip generators and transit bus stops.

**Methodology:** Three points are awarded for each project that would display a measurable likelihood of mode shift, with a minimum award of one point. Each project is awarded a point for being in close proximity to trip attractors, trip generators, and transit.

For measuring trip attractors, Claritas 2011 employment statistics were used to determine what projects are close to retail, education services, health care, arts, entertainment, recreation, and food services. Point employment values are aggregated using a point density analysis in GIS that calculates a magnitude per unit area from point features that fall within a neighborhood around each cell. In other words, the higher concentration of services within a specified distance from any given location, the greater the value is. This calculation was used because a picture can be painted for the whole MPO area. Projects located in an area with moderate to high attractors were awarded a point.

Trip generators are traditionally factors of population and can represent the possibility of latent demand. Census block centroids are used to create a point density analysis for population in GIS to find the highest concentration of people, using a similar methodology to that which was used to determine trip attractors. Projects located in an area with moderate to high generators are awarded a point.

Although  $\frac{1}{4}$  mile is the standard for the average distance people are willing to walk to a bus stop it cannot be seen as a hard boundary. For the purpose of giving each project a rating based on transit, this distance is used to define whether the project receives a point for transit. Projects

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that may bridge a gap for bus access and/or be in close proximity to a bus stop are awarded a point.

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

**Methodology:** Three points are awarded for each project that can be seen as bridging a gap or removing a current barrier that exists, with a minimum of one point. A point was awarded if existing facilities were found on both sides of the proposed project. If the project is a small piece of a proposed alignment and connected by proposed facilities on either side as part of a larger connector to existing facilities it would still be awarded a point for this rule. Another point award occurred if the facility being proposed services both bikers and pedestrians if nothing currently exists for either mode along the proposed facility/street alignment. A final point was awarded if the proposed project allowed for the continuous flow of travel for either bikers or pedestrians.

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

**Methodology:** Three points are awarded for each project that address safety based on the following characteristics, with a minimum rating of one point. A point density GIS analysis was created using safety statistics provided from the State of Michigan Police Division. This provided a measure of crash rate and severity over the past ten years. If the project falls in an area of moderate to high accidents it receives two points. If a project falls in an area of low accidents it receives one point. Any project identified within a half mile of a past pedestrian or bicycle related fatality was awarded a final point.

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

**Methodology:** Three points are awarded based on the regional impact of the project proposed, with a minimum award of one point. If the project is a connection that bridges a gap for a populous from a localized system to access a more regional network that extends into other jurisdictions, it is awarded a point. If the project allows for the continuous flow of a travel between jurisdictions it is awarded another point. If the project has been identified as a multi-jurisdictional need and has formally received such support, it is awarded a final point.

5. **High Use/Social Equity:** The project should satisfy local demand and expand the existing usage for pedestrians and/or bikers. It should provide transportation for the disadvantaged and underserved communities that traditionally fall in areas of high density.

**Methodology:** Three points are awarded for each project that serves a population center within an environmental justice area, with a minimum award of one point. Using GIS analysis from the 2010 census blocks, the projects that are in moderate areas of density were awarded two points. If the project is found to be in an area of low population density the project was awarded one point. Disadvantaged and underserved communities are those areas that have a statistically high occurrence of any particular race or poverty status. These are known as Environmental Justice areas are used in planning to give special attention to areas that may be unfairly burdened or left out of the public notification process during the Transportation Improvement Program (TIP) planning process. If a project falls inside an Environmental Justice area, as defined by the Metropolitan Planning Organization, it received a final point.

This scoring system is to be used as a guide to show what the MPO's priorities might be for funding proposed projects with federal dollars in the future. Each project is listed in the project list with its derived rating based on the priority components presented. The full list of projects with priority ratings,

not constrained by any dollar amount, will be presented in tabular format in the following section. Figure 4 provides a visual example of the priority system and how it was used to evaluate projects from the needs list.

Project Name	Jurisdiction	Scoring Criteria - 3 points Possible*					Total Points
		Mode Shift	Connectivity/ Continuity	Safety/ ADA	Regional vs. Local Facility	High Use/ Social Equity	
North Connector	KCRC	3	2	2	1	3	11
South Connector	GR	2	1	2	1	3	9
East Connector	Kentwood	2	2	2	2	3	11
West Connector	Wyoming	3	3	2	3	3	14

\*Points are awarded on a High, Medium, and Low Scale from 3 to 1 based on the criteria in the rating system methodology.

Figure 4 – Scoring Criteria Example

## Non-Motorized Transportation Improvement Project List

The Non-Motorized Transportation Improvement Project List developed far exceeds the historic levels of funding non-motorized transportation receives within this MPO area. Indeed, the levels of funding provided for non-motorized modes of transportation are inconsistent over time and vary with competition between projects for grant funds. Projects are more often than not paid for with local funds entirely and do not rely upon federal transportation dollars. Unlike the Metropolitan Transportation Plan projects for which federal funds are used and which must be financially constrained, the list of non-motorized projects is broad in scope and summarizes all of the projects in the region unbound by projected funding levels.

The project list contained within this document brings together the desires of transportation agencies, communities, and the public for all future non-motorized improvements. It is a living document that will be updated as the desires of the communities and their residents evolve. The list contains individually requested projects as well as mileage for projects previously identified by communities and recorded in our geographic database. It should be noted that the projects previously identified as project needs prior to this plan have been included for proposed mileage, but are not represented in the formal table of current jurisdictional identified needs with the cost estimates in the table below. It should also be noted that some projects in the list have already been approved for funding, but have been included in this needs list below to show the complete list of needed improvements.

2014 NON-MOTORIZED PLAN ELEMENT

Proposed Projects by Jurisdiction	Project Name	Project Scope	Facility Type	Length (Miles)	Priority (5-15)	Cost (Funded)
Ada Township	Honey Creek Trail (Ada-Cannon Conn.)	Knapp St to 4 Mile Rd	Sidewalk	1.4	7	\$654,000
Ada Township	Knapp St Bridge	Across the Grand River	Pedestrian Bridge	n/a	8	\$1,770,000
Ada Township	Spaulding Ave/Fulton St/Carl Dr	Ada Dr to Grand River Dr	Sidewalk	1.61	12	\$820,000
Algoma Township	Pine Island Dr Bridge	Over the Rogue River	Pedestrian Bridge	n/a	6	\$247,210
Allendale Township	68th Avenue Trail	Lake Michigan Dr to North Bank Trail & Green Way Trail	Sidewalk	3	6	\$450,000
Alpine Township	4 Mile Rd Sidewalk	Yorkland Dr to Yorkview Dr	Sidewalk	0.32	13	\$44,400
Alpine Township	M-37 Sidewalks	Lamoreaux Dr to North of York Creek	Sidewalk	0.18	14	\$175,000
Byron Township	68th Street Trail	Kenowa Avenue to Byron Center Avenue - Connecting Fred Meijer Kenowa Trail to Kent Trails and Byron Center Avenue	Shared Use Path	3	10	\$2,900,000
Byron Township	84th Street Sidewalk	Burlingame to Byron Commerce Drive, connecting Downtown Byron to Douglas Walker Park to Tanger Outlet Mall	Sidewalk	1.4	7	\$375,000
Byron Township	Burlingame Avenue Sidewalk	Planters Row Drive to 76th Street	Sidewalk	1.6	7	\$492,000
Byron Township	Douglas Walker Park Trail	Whistlestop Park to Douglas Walker Park	Sidewalk	1	7	\$320,000
Byron Township	Fred Meijer M-6 Trail Phase IV	Division Avenue to 68th Street along M-6 and Clay Avenue	Shared Use Path	1.2	13	\$1,600,000
Byron Township	Whistlestop Park Trail (76th St Trail)	Kent Trail to Whistlestop Park - Connecting Kent Trail to Bicentennial Park and Whistlestop Park	Sidewalk	0.9	7	\$470,000
Byron/Georgetown/Jamestown	Kenowa Ave - Pioneer Trail Connector	Connect Existing Trail at 68th St & Kenowa along Kenowa Ave to 56th St	Sidewalk	1.5	9	\$1,000,000
Caledonia Township	Cherry Valley Ave	84th St to 92nd St	Sidewalk	1.06	10	\$202,740
Caledonia Township	Paul Henry Trail Connection	Main St to 180th St	Shared Use Path/Bike Lanes	1.96	8	\$278,924
Caledonia Township	Village Loop	92nd to Main St	Shared Use Path/Bike Routes	2.06	8	\$169,395
Cannon Township	Honey Creek Trail (Ada-Cannon Conn.)	4 Mile Rd to Cannonsburg Rd	Sidewalk	1.76	7	\$1,700,000
Cannon Township	Townshend Park	Ramsdell Dr to Cannonsburg Rd	Shared Use Path	0.52	7	\$457,652
Cascade Township	Burton St Bridge	Pedestrian Path across I-96 Overpass	Pedestrian Bridge	n/a	11	\$2,000,000
Cascade Township	Burton St Trail	Patterson Ave to Spaulding Ave	Sidewalk	0.35	11	\$150,000
City of East Grand Rapids	Reeds Lake Trail Bridge & Boardwalk	Lakeside Dr to Reeds Lake Blvd (North Arm)	Boardwalk	0.11	12	\$435,995
City of Grand Rapids	28th St	Kalamazoo Ave to Patterson Ave	Sidewalk	2.7	15	\$750,000
City of Grand Rapids	3 Mile Rd	Fuller Ave to East City Limits	Paved Shoulder	0.75	11	\$140,000
City of Grand Rapids	3 Mile Rd	Monroe Ave to Coit Ave	Sidewalk (South Side)	0.3	12	\$106,600
City of Grand Rapids	Ball Ave	Leonard St to Knapp St	Bike Lane	1	15	\$53,000
City of Grand Rapids	Covell Ave	O'Brien St to Lake Michigan Dr	Bike Lane/Paved Shoulder	1	13	\$53,000
City of Grand Rapids	Crescent St Corridor Phase II	Division Ave & Crescent St Intersection to Ottawa Ave	Pedestrian Improvements	0.05	14	\$1,540,000
City of Grand Rapids	Crescent St Corridor Phase III	Ottawa Ave to Monroe Ave	Pedestrian Improvements	0.11	14	\$2,040,000
City of Grand Rapids	Dean Lake Ave	Knapp St to Aberdeen St	Paved Shoulder	0.5	11	\$36,000
City of Grand Rapids	Division Ave/Newberry St	Stair Improvements	Streetscaping/Stairs/Ramps	n/a	13	\$905,000
City of Grand Rapids	Grand River Edges (East)	US-131 to Wealthy St with connection to Oxford St Trail and Kent Trails	Shared Use Path	0.14	13	\$500,000
City of Grand Rapids	Grand River Edges (East)	Fulton St South to US-131	Shared Use Path	0.42	13	\$500,000
City of Grand Rapids	Grand River Edges (East) Phase III	Leonard St to Ann St	Shared Use Path	0.75	15	\$6,000,000
City of Grand Rapids	Grand River Walkway (East)	Canal St Park to Leonard St and East to Monroe Ave	Shared Use Path	0.23	14	\$304,615
City of Grand Rapids	Grand River Walkway (West)	West bank of the River under and around Fulton St	Shared Use Path	0.78	15	\$1,750,000
City of Grand Rapids	I-196/Hastings Streetscape and Gateways	College Ave to Division Ave	Streetscaping/Gateways	0.5	14	\$3,727,550
City of Grand Rapids	Lake Michigan Dr	Maynard Ave to Collindale Ave	Sidewalk - South Side	0.48	13	\$140,000
City of Grand Rapids	Lyon St Bikeway	Bicycle Track Diamond to Division, Bicycle lanes/sharrows from Grand River to Division & Diamond to Plymouth	Bicycle Track, Bike Lane, Sharrow	2.52	13	\$670,000
City of Grand Rapids	Maryland Ave	Fulton St to Michigan St	Paved Shoulder	0.5	13	\$31,500
City of Grand Rapids	Maryland Ave	Michigan St to Leonard St	Sidewalk (East Side)	1	13	\$325,000
City of Grand Rapids	O'Brien St	Covell Ave to Butterworth Ave	Paved Shoulder	0.52	11	\$35,000
City of Grand Rapids	Paul Henry Trail Extension	44th St to 36th St	Shared Use Path	1.45	15	\$950,000
City of Grand Rapids	Perkins Ave	Leonard St to Knapp St	Bike Lane/Paved Shoulder	1	15	\$53,000
City of Grand Rapids	Plainfield Ave	I-96 to 390' N of Salemo Dr	Sidewalk	1	14	\$275,000
City of Grand Rapids	Plainfield Ave	3 Mile Rd to I-96	Sidewalk	0.75	14	\$396,000
City of Grand Rapids	Plaster Creek Trail	Buchanan Ave to Burton St	Shared Use Path	1.04	14	\$330,000

GRAND VALLEY METROPOLITAN COUNCIL

Proposed Projects by Jurisdiction	Project Name	Project Scope	Facility Type	Length (Miles)	Priority (8-18)	Cost (Funded)
City of Grand Rapids	Plaster Creek Trail	West to Plaster Creek Blvd and up to Division Ave	Shared Use Path	0.28	14	\$181,523
City of Grand Rapids	Plaster Creek Trail	Planning Study Only East of Kalamazoo Ave and west of Division Ave	Shared Use Path Planning Study	n/a	n/a	\$50,000
City of Grand Rapids	Richmond St	Acadia Dr to Elmridge Dr	Sidewalk	0.4	11	\$300,000
City of Grand Rapids	Richmond St	Elmridge Ave to Oakleigh Ave	Bike Lane/Paved Shoulder	0.77	10	\$140,000
City of Grand Rapids	Richmond St	Oakleigh Ave to covell Ave	Bike Lane/Paved Shoulder	0.5	11	\$31,500
City of Grand Rapids	Richmond St	Covell Ave to Bristol Ave	Bike Lane	0.5	13	\$31,500
City of Grand Rapids	Richmond St	Bristol Ave to Garfield Ave	Bike Lane	0.5	14	\$31,500
City of Grand Rapids	Richmond St	Garfield Ave to Alpine Ave	Bike Lane	0.5	14	\$31,500
City of Grand Rapids	Seward Ave to Grand Walk, Musketawa, White Pine	Planning Study Only	Shared Use Path Planning Study	n/a	n/a	\$25,000
City of Grand Rapids	Walker Ave & Stocking Ave Bikeway	Bridge St to North City Limits	Bike Lanes/Sharrows,/Widening	2.88	12	\$426,708
City of Hudsonville	32 <sup>nd</sup> Avenue	I-196 wb ramp to Corporate Grove Dr	Paved Shoulder/Sidepath	0.37	11	\$40,000
City of Hudsonville	32nd Avenue, west side	Allen Street to Veteran's Park	Sidepath	0.13	11	\$105,000
City of Hudsonville	40th Ave	Glenview Ct to New Holland St	Sidepath	0.53	7	\$175,000
City of Hudsonville	Buttermilk Creek Pathway	New Holland St to 32nd Ave	Shared Use Path	0.63	10	\$140,000
City of Hudsonville	Buttermilk Creek Pathway	32nd Ave to Prospect St	Shared Use Path	0.17	11	\$100,000
City of Hudsonville	Buttermilk Creek Pathway	Prospect St to Oak St	Shared Use Path	0.29	11	\$1,000,000
City of Hudsonville	Chicago Drive, south side	40th Ave to 32nd Ave	Sidepath	1.07	10	\$583,000
City of Kentwood	28 <sup>th</sup> St Sidewalk	South Side-Patterson to Shaffer	Sidewalk	1.24	15	\$375,000
City of Kentwood	28 <sup>th</sup> St Sidewalk	North Side-East Paris to Patterson	Sidewalk	0.76	15	\$375,000
City of Kentwood	52 <sup>nd</sup> Street corridor Trail	Bailey's Grove Drive to East Paris	Bike Lanes/Sharrows	0.42	10	\$10,000
City of Kentwood	52 <sup>nd</sup> Street corridor Trail	East Paris to Broadmoor	Bike Lanes/Sharrows	0.63	10	\$15,000
City of Kentwood	52 <sup>nd</sup> Street corridor Trail	Broadmoor to Patterson	Bike Lanes/Sharrows	0.38	7	\$10,000
City of Kentwood	Ada, Cascade, GR Township and Kentwood Trail Conn	Hall Street to Spaulding Avenue	Sharrows/Sidewalk/Shared Use Path	0.53	13	\$170,000
City of Kentwood	Bretton Trail	52 <sup>nd</sup> to 60 <sup>th</sup> Streets	Shared Use Path	0.56	13	\$132,000
City of Kentwood	Calvin College Trail	East Paris to W. City Limits	Shared Use Path	0.5	11	\$40,000
City of Kentwood	Division Ave	54 <sup>th</sup> to 60th	Bike Lanes	0.75	14	\$160,000
City of Kentwood	Division Ave	44 <sup>th</sup> to N City Limits	Bike Lanes/Shared Lanes	0.25	13	\$10,000
City of Kentwood	Division Ave	48 <sup>th</sup> to 44 <sup>th</sup>	Bike Lanes/Shared Lanes	0.5	14	\$15,000
City of Kentwood	Division Ave	54 <sup>th</sup> to 48 <sup>th</sup>	Bike Lanes/Shared Lanes	0.75	13	\$25,000
City of Kentwood	Eastern Avenue Trail	44 <sup>th</sup> to 60 <sup>th</sup> Streets	Bike Lanes/shared lanes	0.78	14	\$60,000
City of Kentwood	East-West Trail	Lamberts Park through Fisheries Park	Shared Use Path	0.77	12	\$300,000
City of Kentwood	East-West Trail Connector	Fisheries Park to 52 <sup>nd</sup> Street - Wildflower Creek Sub.	Sharrows	0.27	11	\$10,000
City of Kentwood	East-West Trail Connector	400 blk 48 <sup>th</sup> St south to East-West Trail along Heyboer Drain	Shared Use Path	0.25	14	\$40,000
City of Kentwood	East-West Trail Crossing	5000 Block of Division	Refuge Island	n/a	14	\$30,000
City of Kentwood	East-West Trail- Lamberts Park	Walma Avenue, 2600 feet East	Shared Use Path	0.57	13	\$65,000
City of Kentwood	Forest Creek Drive/ Cons. Energy Trail	East Paris to Patterson	Shared Use Path	1	12	\$200,000
City of Kentwood	Forest Hill Trail Bridge	At I-96	Pedestrian Bridge	n/a	14	\$2,000,000
City of Kentwood	Lake Eastbrook Boulevard	28 <sup>th</sup> to 32 <sup>nd</sup>	Bike Lanes	0.5	15	\$65,000
City of Kentwood	Non-Motorized Crack Seal	10 Miles of Existing Facilities	Maint. on Sidepath/Shared Use Path	10	n/a	\$20,000
City of Kentwood	Patterson Avenue Trail - I	28 <sup>th</sup> St to Burton Street	Side Path	0.48	14	\$66,000
City of Kentwood	Patterson Avenue Trail - II	36 <sup>th</sup> Street to 28 <sup>th</sup> Street	Side Path	1	14	\$132,000
City of Kentwood	Patterson Avenue Trail - III	44 <sup>th</sup> St to 36 <sup>th</sup> Street	Side Path	1	10	\$132,000
City of Kentwood	Patterson Avenue Trail - IV	52 <sup>nd</sup> St to 44 <sup>th</sup> St	Side Path	1	9	\$132,000
City of Kentwood	Patterson Trail Crossing	28 <sup>th</sup> Street	Refuge Island	n/a	15	\$60,000
City of Kentwood	Pinetree Ave	60th St to Gentian Dr	Sidewalk	0.67	14	\$80,000
City of Kentwood	Plaster Creek Trail	Bretton to West City Limits	Shared Use Path	0.43	14	\$85,000
City of Kentwood	Plaster Creek Trail	Shaffer to Stanaback Park	Shared Use Path	0.84	11	\$85,000
City of Kentwood	Plaster Creek Trail	Paris Park Dr Extended to 52 <sup>nd</sup> Street	Shared Use Path	0.88	12	\$250,000

2014 NON-MOTORIZED PLAN ELEMENT

Proposed Projects by Jurisdiction	Project Name	Project Scope	Facility Type	Length (Miles)	Priority (5-15)	Cost (Funded)
City of Kentwood	Plaster Creek Trail	44 <sup>th</sup> St to Shaffer	Shared Use Path	1.31	12	\$250,000
City of Kentwood	Plaster Creek Trail	44 <sup>th</sup> To 52 <sup>nd</sup> Streets	Shared Use Path	1.03	11	\$250,000
City of Kentwood	Ridgebrook Dr/Brookcross Dr	60th St to Brookcross/Ridgebrook to Christie	Sidewalk	0.96	14	\$90,000
City of Kentwood	Ridgemoor Trail	28 <sup>th</sup> Street to N City Limits	Bike Lanes/Shared Lanes/Sidewalk	0.32	13	\$80,000
City of Kentwood	Saddleback Trail	32 <sup>nd</sup> St to Plaster Creek Trail via Shaffer	Bike Lane	0.72	13	\$30,000
City of Kentwood	Saddleback Trail	East Paris to Shaffer along 32 <sup>nd</sup> St	Side Path	1	13	\$132,000
City of Kentwood	Saddleback Trail	Woodland Creek Apartments to East Paris	Shared Use Path	0.63	14	\$96,000
City of Kentwood	Saddleback Trail	Patterson to Woodland Creek Apartments	Shared Use Path	0.84	14	\$132,000
City of Kentwood	Shaffer Trail	32 <sup>nd</sup> to 44 <sup>th</sup> Streets	Bike Lanes/Shared Lanes	1.5	11	\$45,000
City of Kentwood	Stauffer Trail	44 <sup>th</sup> To 52 <sup>nd</sup> Streets	Bike Lanes/Shared Lanes	1.3	12	\$45,000
City of Lowell/Vergennes Township	Fred Meijer Flat River Valley Rail Trail I	Railroad Corridor From Foreman Road North and East to the County Line	Shared Use Path	8.46	8	\$800,000
City of Lowell/Lowell Township	Fred Meijer Flat River Valley Rail Trail II	Railroad Corridor from Jackson St East to the County Line	Shared Use Path	1	8	\$200,000
City of Lowell	Fred Meijer River Valley Trail Connector	Connecting Flat River Valley Rail Trails through the City of Lowell	Shared Use Path/Bike Lane/Bike Route	2	11	\$2,000,000
City of Rockford	Rum Creek Shelter	201 Northland Dr	Pedestrian Shelter	n/a	10	\$16,804
City of Walker	Fred Meijer Pioneer / Standale Trail Connector	.25 Miles W of Kinney along 3 Mile Rd to Fred Meijer Pioneer Trail	Shared Use Path	2	10	\$630,000
City of Walker	Lake Michigan Dr Tunnel	Fredrick Meijer Standale Trail & Lake Michigan Dr	Pedestrian Bridge - Tunnel	n/a	14	\$1,670,000
City of Walker	Remembrance Rd & Leonard St	Remembrance from Walker Village Dr to Fred Meijer Standale Trail, Leonard St from Fred Meijer Standale Trail to Remembrance Rd	Bike Lanes	1.31	11	\$20,000
City of Walker	Remembrance Rd	Walker Village Dr to Fred Meijer Standale Trail	Sidewalk	0.85	14	\$200,000
City of Walker	Standale Trail Crossings	Crossings for Remembrance and Leonard along the Standale Trail	Crossing Signals	n/a	13	\$50,000
City of Wyoming	Buck Creek Trail/Kent Trail Connection	Byron Center Ave to Kent Trails	Shared Use Path/Refuge Island	0.72	14	\$560,000
City of Wyoming	Frog Hollow/M-6 Trail Connection	Frog Hollow park to the M-6 Trail	Shared Use Path	0.1	13	\$82,000
City of Wyoming	Interurban Trail & Kentwood Trail Connector	From Interurban Trail Just South of 50th St to Kentwood Trail due East	Shared Use Path/Refuge Island	0.16	14	\$72,800
City of Wyoming	Widen & Resurface Interurban Trail	Along the Interurban Trail	Shared Use Path/Bike Route/Sharrows	4.55	15	\$540,000
Courtland Township	Myers Lake Trail	10 Mile Rd to 12 Mile Rd	Sidepath	2.5	11	\$685,014
Gaines Township	Brewer Park/Prairie Wolf Park Connector	Connection between the two parks	Shared Use Path	0.36	5	\$150,000
Gaines Township	Dutton Spur to Paul Henry Trail	From Dutton / 68th St to Existing trail	Shared Use Path	1.06	8	\$175,000
Gaines Township	Paul Henry Trail (East Paris Ave)	60th St to 68th St	Sidepath	0.91	13	\$329,835
Gaines Township	Township Trail (Electric Transmission ROW)	Gaines Township population Center to the Dutton Spur connecting to the Paul Henry Trail	Shared Use Path	2.46	10	\$500,000
Georgetown/Hudsonville/Jamestown	Barry St & 22nd Ave to Van Buren Ave Connection	Connect trails in Jamestown Township and Georgetown Township Allong 22nd Ave to the City Hudsonville Trail on Barry	Sidepath	1.6	10	\$600,000
Grand Rapids Township	3 Mile Road/East Beltline Ave	Leffingwell to East Beltline/3 Mile to 1800' North of Knapp St	Sidepath	1.08	14	\$710,000
Jamestown Township	24th Ave Shoulder	Quincy St to Greenly St	Paved shoulder	0.5	10	\$21,120
Jamestown Township	24th Ave Sidepath	Quincy St to Greenly St	Sidepath	0.5	10	\$120,000
Jamestown Township	24th Ave sidewalks	Outback St to Riley St	Sidewalk	0.82	6	\$200,000
Jamestown Township	32nd Ave connector	Riley to Quincy	Paved shoulder	1	7	\$42,240
Jamestown Township	Angling Rd connector	Quincy, Angling Rd, Jackson, 8th Ave, Barry St, to Kenowa Ave	Paved Shoulder	3.75	7	\$169,000
Jamestown Township	Greenly St connector	Sun Ridge Dr to 24th Ave	Sidepath	0.75	9	\$95,000
Jamestown Township	Riley St sidewalks	Cobblestone to 24th Ave	Sidewalk	0.55	6	\$150,000
Kent County Parks	Fred Meijer Pioneer Trail Sidewalk	Walker Ave to Alpine Ave	Sidewalk	1.78	14	\$190,000
Tallmadge Township	Lake Michigan Ave Sidewalk	1st Avenue to 3rd Avenue	Sidewalk	0.23	6	\$50,000
Village of Sand Lake	Lake St Streetscape	5th St to White Pine Trail	Streetscaping/Sidewalk/Sidepath	0.13	7	\$350,000
<b>Total Cost</b>						<b>\$89,393,625</b>

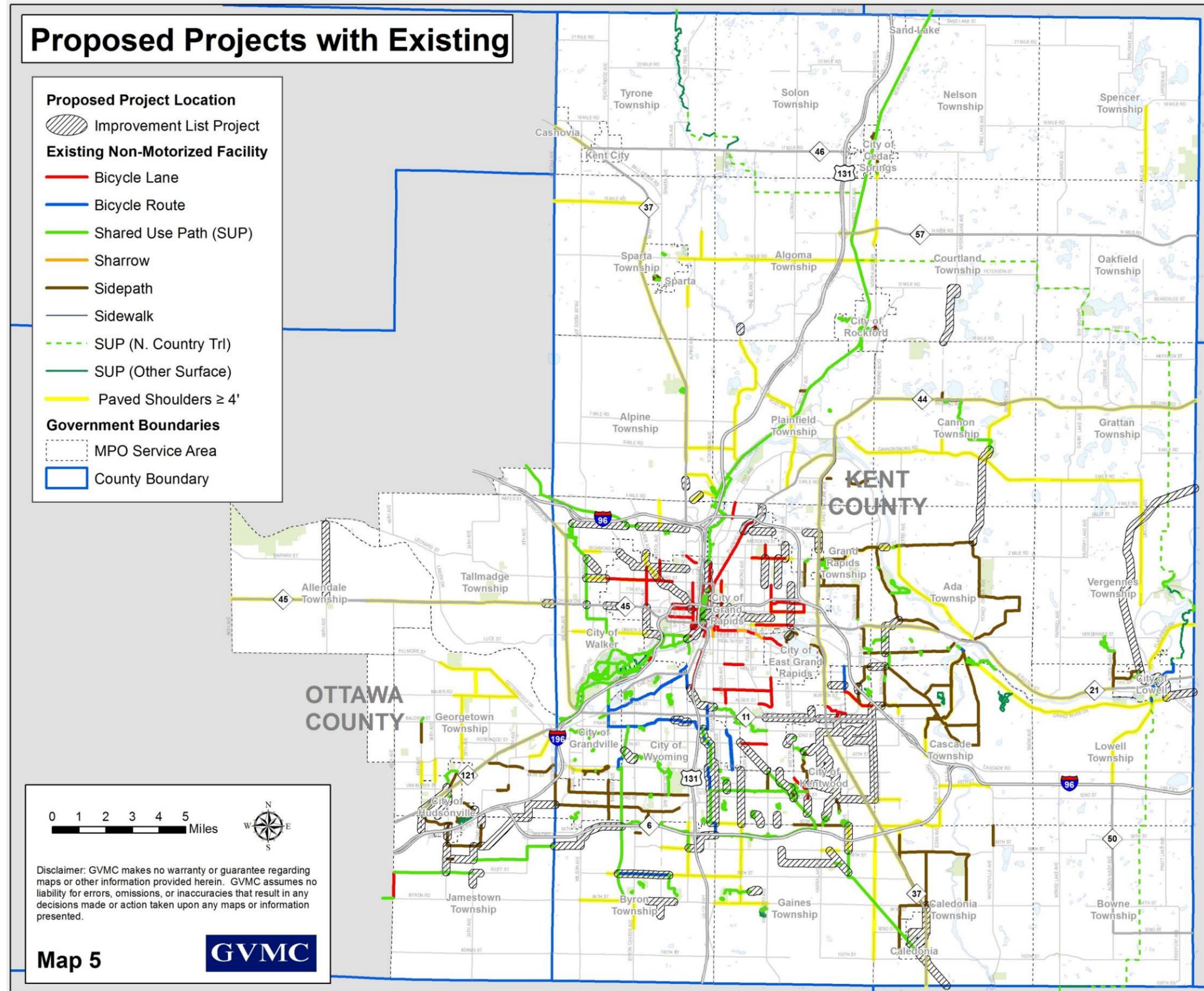
Figure 5 – Non-Motorized Transportation Improvement Project List

The total cost to implement roughly 132 miles of the Non-Motorized Transportation Improvement Projects is estimated at \$59,393,625. Based on historical federal/state funding for non-motorized facilities in the GVMC MPO, it is estimated that at little more than \$1 million of Transportation Alternatives Program funds are spent in the area on non-motorized projects every year. Given the number and expense of projects and projected funding levels, it will take decades for the non-motorized project list to be completed. The total to implement the projects list does not include maintenance estimates which are the responsibility of the facilities owner and can be a great expense. Fortunately many local communities are constructing non-motorized facilities entirely with local funds and keeping maintenance in mind as their residents increasingly demand transportation options.

The Geographic Information System (GIS) spatial database inventory stores the approximate locations of the projects from the proposed Improvement list above. It also stores any project that had been previously proposed in past plans by any and all Jurisdictions. Since these projects were not formally proposed for this plan, they will only be listed as part of the total mileage for total proposed projects. With this said though, that actual cost of proposed projects is likely much greater than presented in the table above. The project list above is derived from Jurisdictions that actively participated in the update of this plan. The total proposed mileage summarized by Jurisdiction will follow Map 5.

Map 5 on the following page depicts all of the non-motorized projects listed from the Improvement list. Project types include sidewalks, shared-use paths, pedestrian bridges, bicycle lanes, bicycle routes, and roads with four-foot or greater wide shoulders.

Map 5 – Proposed Non-Motorized Projects



Total Miles of Proposed Facilities by Jurisdiction	Pedestrian and Bicycle Facility Types						Total Miles
	Sidewalk	Shared Use Path	Sidepath	Bike Lane	Bicycle Routes/ Paved Shoulders	Sharrow	
Ada Township	0.53	0	4.37	0	0	0	5.26
Algoma Township	0	0	0	0	0	0	0
Allendale Township	1.47	11.43	3.78	0	0	0	16.68
Alpine Township	0.49	0	0	0	0	0	0.49
Bowne Township	0	0	0	0	0	0	0
Byron Township	1.5	4.37	3.41	0	0	0	9.28
Caledonia Township	0	1.96	15.41	0	0	0	17.37
Cannon Township	0	0.77	6.82	0	0	0	7.59
Cascade Township	.72	1.07	6.03	0	0	0	7.82
City of Cedar Springs	0	0	0	0	0	0	0
City of East Grand Rapids	0	0.11	0	4.65	0.75	0.26	5.77
City of Grand Rapids	6.26	15.22	3.6	73.31	36.67	0.47	135.53
City of Grandville	0.8	.61	1.52	0.58	0.65	0	4.16
City of Hudsonville	0	3.65	1.72	0	0	0	4.84
City of Kentwood	4.64	10.28	8.72	10.28	0	0.27	34.19
City of Lowell	0	.46	.53	1	0	0	1.99
City of Rockford	0	0	0.85	0	0	0	0.85
City of Walker	1.36	6.91	1.78	2.38	0	0	10.68
City of Wyoming	0	6	6.72	0	3.07	0	15.79
Courtland Township	0	1.75	3.89	0	0	0	5.64
Gaines Township	0	4.43	6.29	0	0	0	10.72
Georgetown Township	0	12.41	7.15	2	0	0	21.56
Grand Rapids Township	0.12	0	12.97	1	0	0	14.09
Grattan Township	0	0	0	0	0	0	0
Jamestown Township	1.37	0	1.61	3.24	0	0	6.22
Lowell Township	0	1	9.77	0	0	0	10.77
Nelson Township	0	0	0	0	0	0	0
Oakfield Township	0	0	0	0	0	0	0
Plainfield Township	39.87	8.87	9.95	0	0	0	58.69
Solon Township	0	0	0	0	0	0	0
Sparta Township	0	0	0	0	0	0	0
Spencer Township	0	0	0	0	0	0	0
Tallmadge Township	.46	5.39	0	0	0	0	5.85
Tyrone Township	0	0	0	0	0	0	0
Vergennes Township	0	9.78	0	0	0	0	10.41
Village of Caledonia	0	1.15	0	0	0.91	0	2.06
Village of Casnovia	0	0	0	0	0	0	0
Village of Kent City	0	0	0	0	0	0	0

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Village of Sand Lake	0	0	0	0	0	0	0
Village of Sparta	0	0	0	0	0	0	0
Wright Township	0	0	0	0	0	0	0
<b>TOTAL MILES</b>	<b>59.59</b>	<b>107.62</b>	<b>116.36</b>	<b>98.44</b>	<b>42.05</b>	<b>1</b>	<b>425.59</b>

NOTE: Any proposed project submitted for proposed four-foot or greater paved shoulders has been summarized and included with Bicycle Routes. These totals come from the spatial database inventory stored in the Regional Geographic Information System (REGIS).

Figure 6 – Summary of Proposed Facilities by Community

It is evident when comparing mileage between the needs list to the current GIS inventory of proposed projects in Figure 5, that many projects were either not formally submitted, or the current inventory in the does not accurately portray the needs in each community. One of the major difficulties in coordinating a multi-jurisdictional plan is receiving equal participation amongst the regions communities. Without sufficient guaranteed funding to implement local recreation and trail plans for the area’s Metropolitan Planning Organization (MPO) members, this may continue to be a struggle in future Non-Motorized Plans.

The next portion of the plan presents the available funding sources that the MPO and local communities can take advantage of when finding ways to implement non-motorized projects.

## Non-Motorized Transportation Funding Options

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

The funding category most often used in the past within the GVMC MPO area besides locally raised money was Transportation Enhancement (TE) funds. Ten percent of a state’s Surface Transportation Fund, the largest transportation fund available for improvements of every sort, was set aside as TE funds. Within the State of Michigan, municipalities often along with sponsoring agencies like the Kent County Road Commission, applied for competitively awarded TE funds at the State level. Recently, the Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) transportation bill has changed the way of thinking with the creation of Transportation Alternatives Program (TAP). 50% of the funds are still available at the state level for competitive grants, but with the introduction of the TAP, 50% of the spending power has been brought to the MPO level for programming non-motorized type projects in coordination with the TIP development. There are several categories of eligibility for TAP funds, many of which specifically related to non-motorized transportation. Another funding source that the MPO had recently taken advantage of was that of High Priority Projects (HPP). The M-6 trail, which is approximately 9.7 miles long runs East-West in the South Beltline (M-6) freeway right-of-way, was constructed in part with HPP funds, as were portions of the Pioneer Trail Connection. This funding source has since been discontinued, but should be recognized as a major source for funding past projects. The following chart summarizes some of the major sources of funding received for non-motorized projects in our MPO area.

Funding Source:	Transportation Enhancement (TE)	High Priority Projects (HPP)	Transportation Alternatives Program (TAP)	Other (CMAQ, SRS, STP, ARA)
2014 (funded)	\$0	\$320,000	\$1,554,700	\$0
2013	\$1,687,000	\$540,000	\$668,000	\$371,000
2012	\$945,000	\$100,000	\$0	\$1,787,000
2011	\$1,644,000	\$1,280,000	\$0	\$169,000
2010	\$1,140,000	\$418,600	\$0	\$1,400,000

Figure 7 – Recent Funding for GVMC Non-Motorized Projects

Below is a list of all of the Transportation Enhancement, Transportation Alternatives, High Priority Projects, and Others within the MPO from recent years collected from the Michigan Department of Transportation. The dates that the projects were awarded and the dates of construction may vary, but the following chart provides some detailed information about the type of investments being made in our area. Many of these projects are streetscaping projects. Streetscaping is the improvement of pedestrian por-

## 2014 NON-MOTORIZED PLAN ELEMENT

tion of streets and often includes the addition of benches, lighting, plantings, and trees. These streetscaping projects enhance pedestrian transportation in urban areas. Other Projects include the construction of shared-use paths, restoring historic brick streets and pedestrian areas, pedestrian bridges, and even wetland improvements.

Fiscal Year	Agency	Project Name	Limits	Project Description	Fund Source	Federal Cost
2010	Walker	Frederik Meijer Standale Trail	Maynard Ave, Consumers Energy ROW, Remembrance Rd, Butterworth Dr to the west of Kinney Ave	4 miles HMA trail, timber boardwalks and other trail amenities	TE	\$850,000
2010	KCRC	M-6 NM Trail Phase III	Kent Trails to Paul Henry Trail	Construct Trail and bridges	HPP	\$418,608
2010	KCRC	84th Street	Woodhaven Dr to Byron Center Ave	Streetscape and beautification	TE	\$289,896
2010	MDOT	M-11/ 28th Street	Division to Kalamazoo	Add Sidewalks	ARRA	\$1,400,000
<b>TOTAL</b>						<b>\$2,959,000</b>
2011	Grand Rapids	Grand River Edges Rail-Trail Acquisition	East Bank of the Grand River from Monroe Avenue to Ann Street	Acquisition of abandoned rail corridor for future non-motorized connection	TE	\$1,183,500
2011	Kentwood	Non-motorized Trail/Forest Hill Avenue	North City Limits to Whirlaway Court	Construct a 10' wide asphalt non-motorized trail	CMAQ	\$168,600
2011	Lowell	Lowell Area Trailway	Along Foreman Road, Alden Nash Road and Vergennes Road in the City of Lowell, Lowell Township and Vergennes Township	Approximately 10,000' of 10' wide non-motorized trail along with boardwalks, observation decks, interpretive signage, landscaping, benches, trash receptacles	TE	\$273,318
2011	KCRC	Musketawa Trail to White Pine Trail Connector Phase I	8th Avenue to Peach Ridge Avenue	Construct a 10' wide asphalt non-motorized trail	HPP	\$1,280,000
2011	KCRC	Paul Henry Non-Motorized Trail	76th Street to 68th Street	Construct a 10' wide asphalt non-motorized trail	TE	\$186,692
<b>TOTAL</b>						<b>\$3,092,000</b>
2012	Grand Rapids	Burton Street	Division Avenue to Eastern Avenue	Resurface - with lane reconfiguration, continuous center turn lane and bike lanes	STP	\$568,716
2012	Grand Rapids	Burton Street	Eastern Avenue to Plymouth Avenue	Resurface - with lane reconfiguration, continuous center turn lane and bike lanes	STP	\$736,590
2012	Grand Rapids	Ball Avenue	Leonard Street and Michigan Street	Traffic and pedestrian signal upgrades	STP	\$160,000
2012	Grandville	Chicago Drive SW	From Division to Ottawa	Streetscape Improvements	TE	\$945,170

**GRAND VALLEY METROPOLITAN COUNCIL**

2012	KCRC	Musketawa Trail to White Pine Trail Connector Phase III	Peach Ridge Avenue to Walker Avenue	Construct a 10' wide asphalt non-motorized trail	HPP	\$100,000
2012	MDOT/KCRC	Musketawa Trail	DNR Recreation Trails	East Musketawa Trailhead construction	NRTP	\$100,000
2012	Kentwood	48th Street	Meadowlawn Elementary School	Bike/ped safety improvements – Project moved to 2014	SRS	\$221,240
<b>TOTAL</b>						<b>\$2,832,000</b>
2013	Kentwood	912 Silverleaf Street	Glenwood Elementary School	Bike/ped safety improvements – Project moved to 2014	SRS	\$124,130
2013	Grand Rapids	Bicycle Safety Education	Regionwide	Study, development and implementation of a bicycle safety education project	TE	\$390,000
2013	Grand Rapids	Seward Avenue Bikeway	Wealthy Street to Riverside Park Trail	Construction of a bikeway along Seward Avenue	TE	\$447,568
2013	Grand Rapids	Streetscape along Ionia Ave., Logan St. and McConnell St.	Ionia Avenue from Buckley Street to Wealthy Street, Logan Street from US-131 to Division Avenue and McConnell Street from Ionia Avenue to Division Avenue	Streetscaping to include: ADA ramps, sidewalk, brick accents on sidewalk, ornamental street lighting, benches, bike racks, bike lane striping, bike signage, landscaping, trees and tree grates.	TE	\$497,797
2013	Grand Rapids	Cherry Street	Jefferson Avenue to Hollister Aenu	Construct a bike route connection and historic brick rehab	TE	\$351,686
2013	KCRC	Musketawa Trail to White Pine Trail Connector Phase II	Alpine Avenue to North Park Street	Construct a 10' wide asphalt non-motorized trail	HPP	\$540,000
2013	Kentwood	East-West Trail	Kalamazoo Avenue to Paul Henry Thornapple Trail	Construction of a 10' wide bituminous non-motorized path located in a Consumers Power right-of-way.	CMAQ	\$246,640
2013	Kentwood	East-West Trail	Kalamazoo Avenue to Paul Henry Thornapple Trail	Construction of a 10' wide bituminous non-motorized path located in a Consumers Power right-of-way.	TAP	\$164,730
2013	Grandville	Wilson Ave	Buck Creek to 100' south of Macrace St.	Pedestrian Refuge Island	TAP	\$118,400
2013	KCRC	Knapp St	Knapp Valley Dr. to Grd Rvr Dr, Gr Twp & Ada Twp	Knapp St. trail connection	TAP	\$385,200
<b>TOTAL</b>						<b>\$3,266,000</b>

Figure 8 – Funded Projects from 2010 to 2013

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

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## Federal Highway Administration Funding Sources

### National Highway Performance Program

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



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

*Purpose:* The NHPP provides funding for construction and maintenance projects located on the National Highway System (NHS). The NHS system includes the entire Interstate system and all other highways classified as principal arterials.

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

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

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

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

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

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

*Contact Information:* Darrell Robinson – Transportation Planner, Grand Valley Metropolitan Council (616)776-7609

### Surface Transportation Program

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

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

*Eligible Projects:*

- Highway and bridge construction and rehabilitation
- De-icing of bridges and tunnels
- Federal-aid bridge repair
- Congestion pricing and travel demand management
- Off-system bridge repair
- Development of state asset management plan
- Transit capital projects
- Carpool projects and fringe and corridor parking
- *Bicycle, pedestrian, and recreational trails*
- Electric and natural gas vehicle infrastructure
- Construction of ferry boats and terminals
- Intelligent transportation systems
- Environmental mitigation
- Border infrastructure projects

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

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

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

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

*Contact Information:* Darrell Robinson – Transportation Planner, Grand Valley Metropolitan Council (616)776-7609

### **Highway Safety Improvement Program (HSIP)**

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

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

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

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

## 2014 NON-MOTORIZED PLAN ELEMENT

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

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

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

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

*Contact Information:* Lynnette Firman, P.E. - Safety Engineer, Michigan Department of Transportation (517)335-2224

### Congestion Mitigation and Air Quality Improvement Program

The Congestion Mitigation and Air Quality Improvement (CMAQ) Program assists areas designated as non-attainment or maintenance under the Clean Air Act Amendments of 1990 to achieve and maintain healthful levels of air quality by funding transportation projects and programs. Since 1996, Kent and eastern Ottawa counties have been considered in “attainment” for air quality by the Environmental Protection Agency (EPA).

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

*Eligible Projects:*

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

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

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

*Funding:* MAP-21 made it available for states to transfer up to 50 % of CMAQ program funds into other programs for other uses, compared to 20 % from before. \$2.2 B (Federal Total, MAP-21)  
*Project Application/Selection:* Projects are selected through the Metropolitan Planning Organization during the Transportation Improvement Plan (TIP) programming period.

*Contact Information:* Darrell Robinson – Transportation Planner, Grand Valley Metropolitan Council (616)776-7609

## National Highway Traffic Safety Administration Funding Source

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

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

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



*Eligible Projects:* Under MAP-21, states are required to have a highway safety program that is approved by the Secretary. Funds can be spent in accordance with national guidelines for programs that:

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

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

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

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

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

*Contact Information:* Spencer Simmons – Fiscal Manager, Office of Highway Safety Planning (517) 241-2584

### Transportation Alternatives program (TAP)

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

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

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

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

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

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

*Funding:* Transportation Alternatives (TA) funding will be awarded through a competitive grant process established and run by the states along with the Metropolitan Planning Organizations (MPO's) that represent over 200,000 in population. Half of the money allocated for TAP will go to the States and half will be programmed by the MPO. The State has the right to transfer half of their share to fund other unrelated projects. A portion of funding equal to the former Recreation Trails Program will be set aside for recreational trails projects and be available at the state level for grant availability unless the state opts out and includes this slice in the TA funds. All approved TAP projects are required to become part of the Transportation Improvement Program (TIP). \$0.808 B (Federal Total, MAP-21 (\$668 K for MPO in 2014))

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

*Contact Information:* Darrell Robinson – Transportation Planner, Grand Valley Metropolitan Council (616)776-7609

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## State of Michigan Funding Sources

### Michigan Department of Transportation

**Michigan Transportation Fund Act 51 – Section 10k**

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



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

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

1. Transportation purposes as provided in this act include provisions for facilities and services for non-motorized transportation including bicycling.
2. Allocates not less than 1% from the Michigan transportation fund for construction or improvement of non-motorized transportation services and facilities.
3. Improvements which facilitate non-motorized transportation shall be considered to be a qualified non-motorized facility for the purposes of this section.
4. Units of government need not meet the provisions of this section annually, provided the requirements are met, averaged over a period of 10 years.

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

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

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

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

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

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

## 2014 NON-MOTORIZED PLAN ELEMENT

*Contact Information:* Mary Cumberworth – Accountant, Michigan Department of Transportation  
(517) 241-2584

### Michigan Department of Natural Resources

#### Michigan Natural Resources Trust Fund

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



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

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

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

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

*Funding:* Applications are evaluated using criteria established by the MNRTF Board of Trustees. Recommendations are made by the MNRTF Board of Trustees to the Governor, which are forwarded to the Michigan legislature for final approval and appropriation. Development project minimums and maximums are \$15 to \$300 thousand dollars. No minimum/maximum limits exist on land acquisition grants. Governor Snyder signed a bill on March 28, 2013, approving \$23.5 million in MNRTF grant appropriations funding 76 recreation development projects and land acquisitions for 2012 grant submissions. Out of this, Ottawa County received \$94 thousand for Land Development and \$581 thousand for Land Acquisition.

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

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

*Contact Information:* Shamika Askew-Storay – Grant Coordinator, Michigan Department of Natural Resources (517) 241-3128

## Michigan Department of Housing and Urban Development

### Community Development Block Grants

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.

*Purpose:* Develop viable communities by providing decent housing and suitable living environment by expanding economic opportunities, principally for persons of low- and moderate- income.

*Eligible Activities:* Communities receiving CDBG funds from the State may use the funds for many kinds of community development activities including, but not limited to:

- Acquisition of property for public purposes
- Construction or reconstruction of streets, water and sewer facilities, neighborhood centers, *recreation facilities*, and other public works
- Demolition
- Rehabilitation of public and private buildings
- Public services
- Planning activities
- Assistance to nonprofit entities for community development activities
- Assistance to private, for profit entities to carry out economic development activities

*Eligible Recipients:* The Kent County Community Development department through contacts with non-profit service agencies and development partners administers the local initiative on behalf of the Michigan Department of Housing and Urban Development (HUD). All cities, townships, and villages in Kent County are currently participating in the County's CDBG program and including the Western half of the Village of Casnovia, which is located in Muskegon County. The cities of Grand Rapids and Wyoming are participating jurisdictions but are entitlement communities aside from Kent County. They have a similar program that is administered at the municipal level rather than the county level but with the same basic regulations.

*Match:* No match money is necessary to receive the funds, but the entitlement community has the ability to define match requirements for specific eligible activities for its members.

*Funding:* HUD distributes funds to each State based on a statutory formula which takes into account population, poverty, incidence of overcrowded housing, and age of housing. All funds are distributed by States to units of local government. In the Kent County's draft action plan for its 2013-2014 entitlement there will be an estimated \$1.5 million for grants.

## 2014 NON-MOTORIZED PLAN ELEMENT

*Project Selection/Application:* Based on the statutory formula the State distributes money to the entitlement communities and respectively to local units of government. Projects are decided by the Consortium members or Entitlement communities.

*Contact Information:* Monique Pierre – Community Development Manager, Kent County Community Development (616) 632-7422

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## Non-Profit Organization Funding Sources

### West Michigan Trails & Greenways Coalition (WMT&GC)

The West Michigan Trails & Greenways Coalition (WMT&GC) is a non-profit group of donors, organizations and volunteers dedicated to developing non-motorized trails and greenways into a linked system connecting wilderness areas, parks, historic landmarks and cultural sites throughout West Michigan. Their vision is to develop a regional trails and greenways network to connect communities with each other and to the natural areas, parks, historic landmarks, cultural venues, and civic destinations throughout the region.

Formed in May, 2000, some of WMT&GC activities include:

- addressing over 585 miles of regional connections
- providing a forum for local trail groups
- establishing networking opportunities with partners
- assisting “friends” groups with funding assistance for local projects

*Purpose:* The purpose of WMTGC’s grant funds are to provide ancillary funding and/or match funding for regional non-motorized trail projects in the 17-county WMTGC service area. Funds are designated primarily for trail/connector construction, land/easement purchase, trail safety & amenities, and construction engineering.

*Eligible Activities:* Trail projects that are eligible for WMTGC funding include the following:

- Match-funding & Leveraging of Funds
- Trail Construction (bricks & mortar and construction engineering)
- Trail & Trail Head Signage
- Key-Connectors (linking primary regional trails)
- Trail Lighting
- Trail Shelters & Amenities (i.e., benches, etc.)
- Land and/or Easement Purchases related directly to a trail project (finishing projects)

*Eligible Recipients:* Local and regional trail “friends” groups, regional cities & communities, local & regional government entities, and natural resource agencies.

*Match:* WMTGC requires a 1:1 match for any grant requests.

*Funding:* Funds from WMTGC, if approved, are granted on a 1:1 match condition, with matching funds to be from locally-raised money, in-kind matches, secured pledges, and other funding avenues. Matches for the full amount requested must be secured *prior* to the distribution of any approved funds from WMTGC. Grant Funds may not be matched by government funds (i.e., MDOT/DNR, etc.). Funds are disbursed on a reimbursement basis.

**Grant Funds Available:** Funding requests to WMTGC are limited to no more than \$50,000. Any applicant may have only one (1) open grant account at a time. Applications are scrutinized for detail, feasibility, and purpose, with no large grant sum issued to any one trail project.

**Funding Fine Points:**



**WEST MICHIGAN  
TRAILS & GREENWAYS  
COALITION**

1. Funds are not granted for
  - design engineering
  - maintenance
  - funding campaigns
  - other ancillary items
2. No grants are issued to individuals.
3. All projects must meet AASHTO standards and be ADA compliant.
4. Application deadlines for review are September and March.

*Application Process:* Anyone wishing to apply for a funding grant from West Michigan Trails & Greenways Coalition (WMTGC) for trail-related projects should review these guidelines: Complete an “Application Cover Sheet” & submit it with application.

1. Submit a separate letter of application/inquiry, along with the application. It should be brief yet detailed, and clearly outline your request. This letter will be reviewed by the Board of Directors.
2. Include the names of other agencies to which you have applied, the amount of each application, and the status of each application (i.e., “approved,” “denied,” “pending,” etc).
3. Include a detailed budget, breaking down costs & construction phases.
4. Include plans for other fundraising opportunities/avenues.
5. Include documents indicating secured match requirements.
6. State the intended specific use of funds requested.
7. Include project budget, photos, maps, etc.

*Contact Information:* Katie Santee, Executive Director - West Michigan Trails & Greenways Coalition (616)485-7805 or [director@wmtrails.org](mailto:director@wmtrails.org).

### **American Hiking Society National Trails Fund**

The National Trails Fund, sponsored by the American Hiking Society, provides support to grass-root non-profit organizations working toward establishing, protecting, and maintaining foot trails in America. Grants help give local organizations the resources they need to secure access, volunteers, tools, and materials to protect America’s public trails.



*Purpose:* A privately funded, national grants program dedicated to building and protecting hiking trails.

#### *Eligible Activities:*

- Multi-purpose human-powered trail uses that have hikers as the primary constituency
- Acquisition of trails and trail corridors and the costs associated with acquiring conservation easements
- Projects that will result in visible and substantial ease of access, improved hiker safety and/or avoidance of environmental damage
- Projects that promote constituency building surrounding specific trail projects – including volunteer recruitment and support

*Eligible Recipients:* Applicants must be a 501(c)(3) nonprofit organization and must submit their IRS designations. An applicant must be a current member of American Hiking Society’s Alliance of Hiking Organizations to be eligible. Grants will not be awarded to religious organizations for religious purposes, private foundations or political causes.

*Match:* There is no match required for a grant funds to be awarded.

*Funding:* Award amounts range from \$500 to \$5,000.

*Project Selection/Application:* Visit [www.AmericanHiking.org/NTF](http://www.AmericanHiking.org/NTF) to apply for the National Trails fund. Applications must be submitted in December and are awarded in May.

*Contact Information:* American Hiking Society - (301) 565-6704

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### **Other Miscellaneous Funding Sources**

#### **Millage**

A millage is a tax on property owners based on the value of their home. Millages are use-specific and approved by a vote of the residents. Millages can be utilized to hire staff, engineers, and construction firms, provide maintenance to facilities, or form the basis of a bond issue to provide capital for the construction of non-motorized facilities. For example, in November 2006, Ada Township residents approved a dedicated millage for a period of 15 years to be used exclusively for expansion, operation, and maintenance of the township's non-motorized trail system.

#### **Special Assessment**

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

#### **General Funds**

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

#### **Private Sources**

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

#### **Foundations**

Community and private foundations may also provide an important funding source for non-motorized transportation development. For example, MDOT Transportation Enhancement grants will pay for the construction of shared-use path but not for any feasibility studies or engineering work. Foundations can play an important part in filling the gaps left by other funds. Other facility amenities such as picnic grounds or boardwalks may also be paid in part with grants from foundations.

## Study Recommendations

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

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### Local Plan Coordination

GVMC staff does its best to coordinate projects that meet the needs of local communities with the hopes that the projects selected will have a regional impact. It's the policy of GVMC to only use the MPO's allocated federal funds for pedestrian or bicycle improvement projects that have been submitted for inclusion into the Non-Motorized Plan. It's the hope of GVMC that the projected needs at the local level are all accounted for and listed as part of the improvement list of projects within. With this in mind though, the best route to take for a member of the public to see what their community has specifically planned for pedestrian or non-motorized facility construction is to view their local Jurisdiction's plan if available. It is imperative that locally defined projects be coordinated with federal aid road construction when possible to save on construction costs. Listed below are the a few bike or recreation plans that exist throughout the metropolitan planning area. The plans identified below are great examples of Jurisdictions working locally to fill missing gaps for bicyclist and pedestrians, and enhance recreational opportunities in their communities. The list below is *not* a comprehensive list for the MPO area.

City of Grand Rapids: On Street Network Bikeway Map, Amendment to Master Plan in May, 2013

City of East Grand Rapids: Community Parks and Recreation Plan, Adopted in December, 2011

City of Kentwood: Non-Motorized Facilities Plan under Development, Projected Adoption in 2014

City of Walker: Sidewalk Grid Inventory Identifying gaps in the Network, Analysis in April, 2014

City of Wyoming: Community Recreation Plan, Adopted in December, 2012

Kent County: Parks, Trails and Natural Areas Master Plan, Adopted in January, 2014

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## Land Use Planning Concepts that Encourage Non-Motorized Transportation

### Subdivision Ordinances and Site Plan Review

Many governments have some implicit ordinance standards that provide for pedestrian facilities. Specific language in ordinances about pedestrian access and circulation for new developments or redevelopments could help divert some of the financial burden of providing non-motorized facilities from governments to developers. The provision of sidewalks, shared-use paths, or even bike lane rights-of-way could be a condition of development. This way the physical placement of these facilities could be planned for and a municipality could ensure continuity to the system as it is developed.

### Mixed Use and Transit Oriented Development

Many local planning agencies have incorporated mixed-use zoning ordinances and codes into their municipal ordinances. The concept of mixed-use zoning is to enable development that combines different land use types (such as residential and commercial) into a pre-defined area. This variety of uses can allow shorter trips to be made by individuals, thus decreasing automobile demand. These areas vary in size—from a single parcel to an entire neighborhood—and in how they accommodate pedestrian and bicycle travel.



Source: wikipedia.com

### Development Density

The density of residential and employment development greatly influences pedestrian and bicycle travel. Generally, the higher the density of development, the shorter the distance individuals must travel for certain types of trips. This in turn increases the attractiveness of making trips by walking or bicycling.

### Complete Streets

In 2000, the Federal Highway Administration (FHWA) provided the following guidance: “Bicycling and walking facilities will be incorporated into all new transportation projects unless exceptional circumstances exist.” To provide these “complete streets,” communities have been evaluating their roads; often adopting a complete street policy to ensure the entire right-of-way is routinely designed and operated to enable safe access for all users.



In 2010, the USDOT issued a policy statement on bicycle and pedestrian accommodation, declaring its support for their inclusion in federal-aid transportation projects and encouraging community organizations, public transportation agencies, and state and local governments to adopt similar policies.

Following this, the State of Michigan issued Public Act 135 of 2010 which “requires the development of a complete streets policy to promote safe and efficient travel for all legal users of the transportation network under the jurisdiction of the Michigan Department of Transportation (MDOT).

In July, 2012, the MDOT adopted a complete streets policy that provides guidance on complete streets with an implementation target for December 31, 2013.

In our region, the City of Grand Rapids adopted a Complete Streets Resolution in March, 2011. Their resolution affirms that bicycling and walking accommodations using the latest design standards should be a routine part of the City's planning, design, construction, maintenance, and operating activities, and that they will be included in the everyday operation of the transportation system.

A complete street is one that works for all travel modes, including motorists, transit, bicyclists, pedestrians and wheelchairs. A complete street policy is aimed at producing roads that are safe and convenient for all users. The process of creating complete streets is leading planners and engineers across the country to approach street design in fundamentally new ways—incorporating non-motorized elements during road improvements instead of retrofitting a roadway later. There is no prescription for complete streets and the cost of complete street policies is often daunting. But more and more engineers understand that integrating access for bicyclists, pedestrians, and disabled people right from the start actually minimizes costs. The Complete Streets movement represents a convergence of several existing trends such as multi-modalism and walkability, and may help to improve accessibility for all modes of transportation.



## Education and Encouragement

Programs to encourage walking and bicycling can greatly change

Source: [livingstreets.com](http://livingstreets.com)

travel habits. Publicity campaigns, signs and maps, and changes in policies regarding parking and employee incentives are all resources. Both the public and the private sector can participate in these programs. Local governments can offer incentives or recognition to employees that encourage the use of alternative modes of transportation, while employers can offer their own incentives for employees to take advantage of alternative modes for commuting. Police departments can offer training to motorists, bicyclists, and pedestrians as part of an awareness campaign.

A local example of publicity for non-motorized transportation is the City of Grand Rapids' "Bike Grand Rapids" map. Republished in 2012, the map is a tool for bikers to identify the safest and most direct routes around the city. This is a product of support and commitment from the Greater Grand Rapids Bicycle Coalition with backing and data resources provided from local government agencies.

The Michigan Department of Transportation (MDOT) has also recently been offering educational courses for local agencies to participate in, called "Training Wheels". It consists of two hours of classroom instruction on the AASHTO Guide for the Development of Bicycle Facilities, followed by an on-road, on bike portion. The class shows communities how to integrate bike facilities into existing infrastructure to make bicycling safe and convenient, providing alternate transportation that makes roads more complete for everyone.

MDOT also offers other resources including Maps and Brochures to educate the public as well as promoting publications and news from regional biking organizations. One popular publication that has received great attention is called "What Every Michigan Bicyclist Must Know". It was published by the League of Michigan Bicyclists and is meant to help bicyclists use Michigan's roads and trails safely and



enjoyably. MDOT has followed suite in creating a similar publication called “What Every Michigan Driver should know about Bicycle Lanes”. The idea is to inform motorists and bicyclists about current laws and safety tips to help them navigate the roadways responsibly.

Statewide, the Governor’s Council on Physical Fitness presented The Michigan Health and Wellness 4 x 4 Plan, in 2012. This plan highlights the need for every Michigander to adopt health as a personal core value. It describes the approach that the State of Michigan will undertake in addressing wellness and obesity and what tools it can use to attain this goal. All of these programs are working to create healthy, walkable, sustainable communities. There is increasing understanding that by encouraging pedestrian and bicycle transportation citizens can improve their physical well-being. The shorter distances required for non-motorized trips to be practical also have implications for zoning and the separation of land uses. Non-motorized transportation is yet another example of how land use decisions affect what form of transportation we take and vice-versa.

### National Design Guidance Documents

While most non-motorized plans provide detailed diagrams and text describing the recommended facility forms from turning radii to street furnishings, it seems more appropriate to leave these case specific decisions to local planners and engineers. There are several sources of information related to bicycle and pedestrian facility development with which local government officials and staff may find useful. Specifically, it is recommended that the American Association of State Highway and Transportation Officials (AASHTO) and the Manual on Uniform Traffic Control Devices (MUTCD) references are relied upon when making design decisions for facility development, especially when projects rely on state or federal funding. The Federal Highway Administration (FHWA) also supports taking a flexible approach to bicycle and facility design and identifies additional resources from the National Association of City Officials (NACTO) and the Institute of Transportation Engineers (ITE). Dimensional standards and related guidance for the construction and maintenance of non-motorized facilities may be found in the following sources.

#### **Federal Highway Administration (FHWA)**

[www.fhwa.dot.gov](http://www.fhwa.dot.gov)

#### *Selecting Roadway Design Treatments to Accommodate Bicyclists*

This document was published by the Federal Highway Administration in 1994 (FHWA-RD-92-073) and provides a model planning process for identifying a network of routes on which bicycle facilities should be provided to accommodate bicyclists of moderate ability. It includes the descriptions of types of bicyclists and facility design treatments. It further brings this information together in a set of tables which suggests the appropriate facility and dimensions taking into account bicyclists type; urban section with and without parking; rural section; average annual daily traffic volume; sight distance; operating speed; and presence of trucks, buses and RVs.

#### *Manual for Uniform Traffic Control Devices (MUTCD), 2009*

The MUTCD is a “standards” document published by the federal government as a guideline for state and local projects, especially where federal funding is involved. The Federal Highway Administration publishes the MUTCD containing national design, application, and placement standards for traffic control devices such as signs, signals and pavement markings. It is their intent to promote the safe and efficient movement of traffic on the nation’s streets through uniform devices throughout the country. State transportation agencies will normally adopt these standards at some point in time as well as updates that take place periodically.

Other relevant sources from FHWA on Design Guidance can be found at the following website:

[http://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/guidance/design\\_guidance/](http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design_guidance/)

### **American Association of State Highway and Transportation Officials (AASHTO)**

[www.transportation.org](http://www.transportation.org)

*AASHTO Guide for the Development of Bicycle Facilities, 2012*

The 2012 update of the Guide by the American Association of State Highway and Transportation Officials (AASHTO) is its fourth edition. The AASHTO Guide also presents a planning process to determine an appropriate network of facilities for a community. More important, it contains the latest design guidelines for the various types of bicycle facility treatments including widths, grades, clearance, bridges, drainage, pavement structure, intersections and crossings, lighting and pavement markings. The AASHTO Guide is the recommended reference for bicycle facilities for Michigan, Ohio, and Indiana Departments of Transportation. In order for Transportation Enhancement projects to be funded through the State, all facility designs must meet AASHTO standards.

*AASHTO Guide for the Planning, Design and Operation of Pedestrian Facilities, 2004*

This document is used to provide guidance on the planning, design, and operation of pedestrian facilities along streets and highways. It identifies measures to accommodate pedestrians on various roadway types. While the AASHTO Guide is the most authoritative source for this information, it is likely that the implementation of local projects will encounter situations not specifically covered in the guide.

### **National Association of City Transportation Officials (NACTO)**

[www.nacto.org](http://www.nacto.org)

*NACTO Urban Bikeway Design Guide, 2012*

This document was designed to provide cities with solutions that can help create complete streets that are safe and enjoyable for bicyclists. The designs were developed by cities with extensive bicycle facility implementation success, for cities. They put together bikeway planning professionals from NACTO member cities, as well as traffic engineers, planners, and academics with experience in urban bikeway applications.

*NACTO Urban Street Design Guide, 2013*

This guide charts the principles and practices of the nation's foremost engineers, planners, and designers working in cities today. This guide offers a blueprint for designing 21<sup>st</sup> century streets and unveils the toolbox and the tactics cities use to make streets safer, more livable, and more economically vibrant.

### **Institute of Transportation Engineers (ITE)**

[www.ite.org](http://www.ite.org)

- *Improving the Pedestrian Environment Through Innovative Transportation Design, 2005*
- *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities: An ITE Proposed Recommended Practice, 2005*

## Plan Conclusion

### Future Efforts

The Grand Valley Metropolitan Council will continue to encourage pedestrian and bicycle travel as an alternative mode of transportation. We will also seek to leverage federal dollars from the available funding sources and implement proposed projects presented in this plan necessary to fill gaps in the non-motorized network. Future products and activities could include the following:

### Future Products

- Update this map and the underlying inventory of bicycle and pedestrian facilities on a regular basis.
- Develop online mapping applications for viewing and distributing this information.
- Maintain a bicycle and pedestrian planning page within the GVMC website with news, maps, events, and information with regional significance.

### Future Activities

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

Walking and bicycling are important elements of an integrated, intermodal transportation system. Constructing sidewalks, striping bike lanes, building shared-use paths and sidepaths, installing bicycle parking at transit stops, educating children to ride and walk safely, and installing curb cuts and ramps for wheelchairs, all contribute to our national transportation goals of safety, mobility, economic growth, enhancement of communities and the natural environment.

# APPENDICES

## Appendix A – Non-Motorized Access and Transit

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

The map that follows depicts The Rapid's current bus routes along with existing and proposed non-motorized facilities in our region. As communities assembled non-motorized transportation projects for this document, one of the evaluation criteria was whether the proposed facility made connections to other modes of transportation, particularly transit.

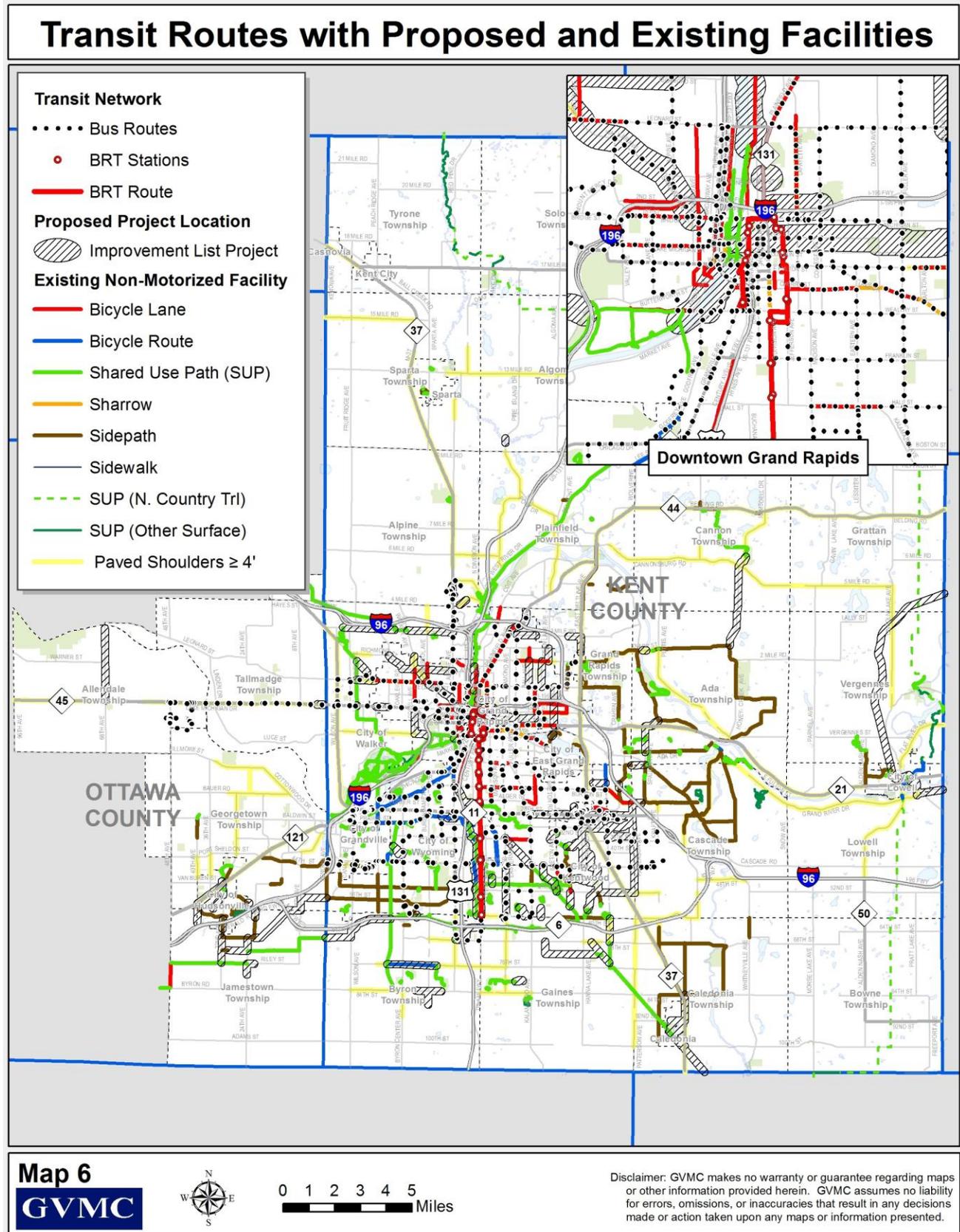
Commonalities between the proposed bicycle and pedestrian projects and existing bus routes indicate multiple opportunities for connections between the two modes that would ultimately complement each other and increase accessibility and mobility for area residents. Of the projects proposed in the proposed Improvements List, 46% of those projects are within ¼ mile of an existing transit bus route.

The Interurban Transit Partnership (ITP)/The Rapid has worked to streamline connections between bicycles and public transportation. All of their buses are equipped with double-loading bike racks on the front. Most two-wheeled bicycles, including children's bikes, will fit on these special racks. Unfortunately the same multimodal connections do not yet apply to the area's train service. The Pere Marquette Amtrak train service out of Grand Rapids does not offer bike baggage check-in or storage, although many Amtrak routes do. Additionally, for \$3.00 per month, a bicyclist who commutes to downtown Grand Rapids can store their bicycle in any of the seven parking ramps maintained by the City of Grand Rapids Parking Services Department: DeVos Place, Louis Campau, Pearl-Ionia, Cherry-Commerce, Government Center, Ottawa-Fulton, and Monroe Center.



Source: ITP/The Rapid

Map 6 – ITP/The Rapid Route Map with Existing and Proposed Non-Motorized Facilities



## Appendix B – Safety

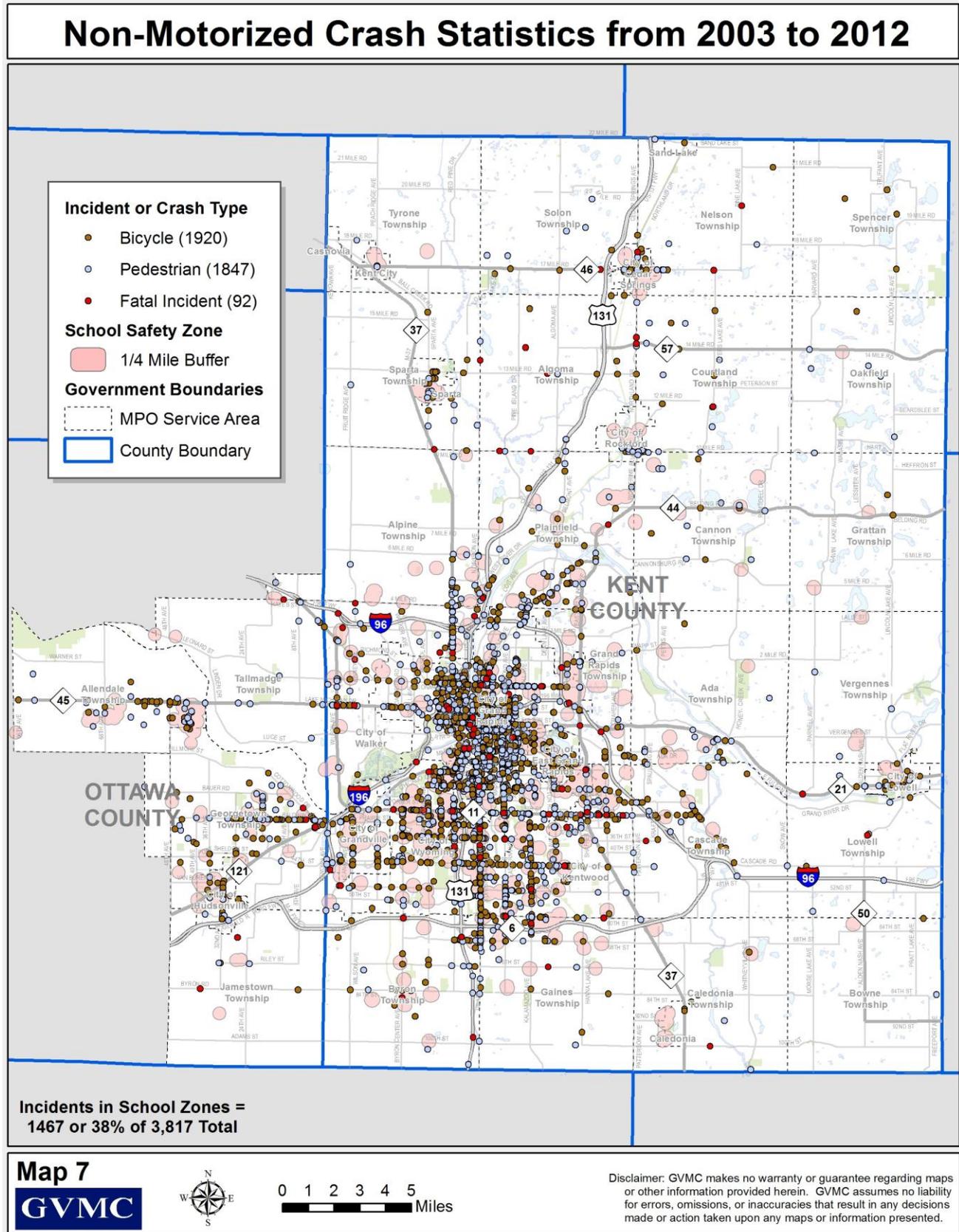
User safety is one of the principal goals of transportation planning. To address the concern for bicycle and pedestrian incidents with automobiles within our MPO boundaries, data was analyzed from the Michigan State Police Office of Highway Safety Planning (OHSP). Pedestrian and bicycle incident and fatality data from 2003 to 2012 was collected and mapped. This map also shows ¼ mile shaded areas around each school within the MPO area and those incidents falling inside those boundaries.

In review of the Non-Motorized Crash Data map, it is evident pedestrian and bicycle incidents occur throughout the MPO area. Many of these incidents occur in areas lacking facilities. Statistics indicate people will bicycle or walk, as they deem necessary, regardless of whether the proper facilities are in place to accommodate them. Indeed, of the pedestrians killed in the State of Michigan in 2012, 23 percent were killed while crossing streets other than at intersections, or not in crosswalks. Additionally, many incidents occur where streets have been engineered to increase vehicular capacity. With increased capacity for automobiles comes a lower level of service for other modes of travel. Put simply, each additional turn lane or through lane makes crossing a given intersection by foot or bicycle more difficult. Thus, design tradeoffs between modes are especially important to consider at intersections.

According to the Fatality Analysis Reporting System through the National Highway Traffic Safety Administration, in 2011 Michigan ranked #19 out of the 50 states for the pedestrian fatality rate per 100,000 people, leaving plenty of room for pedestrian and bicycle safety improvement.

Of special importance are those pedestrian and bicycle incidents occurring near schools. Within MPO boundaries, of the 3,817 incidents between pedestrians/bicyclists and automobiles from 2003 to 2012, 1,467 or 38%, were ¼ mile or less from a school. There were 23 fatalities within ¼ mile of schools in our MPO area during that same timeframe. In 2011, the OHSP reported that of the 138 pedestrians killed that year, 15.2 percent were under the age of 21 and 31.2 percent were 55 and older. Children under the age of 16 accounted for 8 percent of the bicycle deaths. While programs like Safe Routes to School are increasing available funds for non-motorized access to schools, it rests with the community to develop the routes and the means for children to safely travel to school.

Map 7 – Non-Motorized Crash Data



## Appendix C – Maintenance

### NM Facility Maintenance Tips

It is not enough to simply build facilities for non-motorized travel. A non-motorized facility plan should include maintenance policies. It should identify the agencies responsible for maintaining facilities, the maintenance standards that are to be applied, how users should report maintenance needs, and special activities such as snow clearing and litter cleanup. The Victoria Transport Policy Institute<sup>30</sup> has laid out nicely their best practices for non-motorized facility maintenance and is presented below.

### Trail and Path Maintenance

- *Establish a maintenance policy and plan* – Establish written procedures that specify maintenance standards, schedule, quality control, and follow-up that will be used for pedestrian facilities, based on “current best practices.”
- *Repairs* – Inspect trails and paths regularly for surface irregularities, such as potholes and cracks, and damage to signage and lighting. Repair potentially hazardous conditions quickly.
- *Cleaning* – Maintain a high standard of cleanliness. Provide adequate garbage cans and regular garbage pickup.
- *Establish a citizen reporting system* – Encourage citizens to report pedestrian and bicycle facility maintenance needs, garbage and graffiti, and other problems. Publicize a particular telephone number and email address for submitting information.
- *Sweeping* – Establish a seasonal sweeping schedule. In curbed areas sweepings should be picked up, on open shoulders, debris can be swept onto gravel shoulders. In the fall, provide extra sweepings to pick up fallen leaves.
- *Vegetation* – Vegetation may impede sight lines, or roots may break up the travel surface. Vegetation should be cut back to ensure adequate sight lines, and intrusive tree roots may be cut back to keep the walkway surface smooth and level.
- *Drainage* – Malfunctioning drainage systems may cause accumulations of water at pedestrian crossings.
- *Snow Removal* – Snow and ice can make pedestrian travel slow and hazardous. Snow should be removed from sidewalks to ensure safe passage of pedestrian facilities.
- *Animal control* – Establish guidelines for pet behavior. Indicate where dogs must be leashed and where they may run free. Require dog owners to remove droppings, and provide adequate garbage cans. Some communities even maintain a supply of plastic bags along trails, to help dog owners perform this service.
- *Street Markings* – bike lane and crosswalk markings may become difficult to see over time. These should be inspected regularly and retraced when necessary.
- *Utility Cuts* – Poorly performed sidewalk cuts for utilities may leave an interrupted surface for pedestrians. Cuts in sidewalk should be back filled with concrete to the sidewalk grade – so the result is as smooth as a new sidewalk.

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<sup>30</sup> <http://www.vtpi.org/tdm/tdm108.htm>

- *Volunteers and Sponsorships* – where funding is limited, volunteers and sponsors can help patrol, clean and maintain public trails and related facilities.

### Roadway Maintenance

What may be an adequate pavement surface for automobiles (with four wide, low-pressure tires) can be hazardous for cyclists (two, high-pressure tires). Small rocks, branches, and other debris can deflect a wheel, minor ridges in the pavement can cause spills, and potholes can cause wheel rims to bend. Wet leaves are slippery and cause cyclists to fall. Gravel blown off the travel land by traffic accumulates in the area where bicyclists ride. Broken glass can easily puncture tires. Below are some types of targeted maintenance.

- *Surface Repairs* – Inspect bikeways and road shoulders regularly for surface irregularities, such as potholes, pavement gaps or ridges. Such hazards should be repaired quickly.
- *Sweeping* - Establish a sweeping schedule. Sweeping road shoulders of accumulated sand and gravel in the springtime, and fallen leaves in the autumn where they accumulate. Sweepings should be picked up rather than just pushed aside in areas with curbs. Driveway approaches may be paved to reduce loose gravel on paved roadway shoulders.
- *Pavement Overlays* – Where new pavement is installed, extend the overlay to the edge of the roadway. If this is not possible, ensure that no ridge remains at the edge of the road shoulder or bike lane. Do not leave a ridge within the bike travel area. Drain grates should be within 6 millimetres of the pavement height to create a smooth travel surface. Special attention should be given to ensure that utility covers and other road hardware are flush with new pavement.
- *Rail Crossings* – Rail crossings can be hazardous to cyclists, particularly if they are at an oblique angle. Warning signs and extra space at the road shoulder can allow cyclists to cross at a 90° angle. A special smooth concrete apron or rubber flange may be justified at some crossings.
- *Vegetation* – Vegetation may impede sight lines, or roots may break up the travel surface. Vegetation should be cut back to ensure adequate sight lines, and invasive tree roots may be cut back to preserve the travel surface.
- *Street Markings* – bike lane markings signal loop indicators may become hard to see over time. These should be inspected regularly and retraced when necessary.
- *Snow removal* – Road plowing should extend into the lane space used by cyclists. Spot salting intersections often creates a hazardous icy patch just past the melted intersection. Trails that get significant winter cycling should be plowed unless they are relegated to ski/snowshoe users.
- *Roadway Markings* – Whenever roadway markings are used, traction or non-skid paint should be used to avoid the markings becoming slippery in wet weather.

## Appendix D – Americans with Disabilities Act of 1990 and Non-Motorized Transportation

The Americans with Disabilities Act of 1990 (ADA) is a landmark law recognizing and protecting the civil rights of people with disabilities. Title I of the ADA prohibits discrimination in employment on the basis of disability. Title III of the ADA prohibits discrimination on the basis of disability in the provision of goods, services, facilities, and accommodations by private entities that provide public accommodations or operate commercial facilities. But it is Title II of the ADA which prohibits discrimination on the basis of disability in the provision of services, programs, and activities by state and local governments, which is most relevant with regard to non-motorized transportation planning. As public entities covered under Title II of the ADA, transportation agencies are required and have a major responsibility to implement accessibility in their facilities and programs.

Under the ADA, services and facilities must be accessible to be nondiscriminatory, and the requirements for new construction and alterations are much more stringent than those for existing facilities. Sidewalks and trails, whether new or existing, are subject to the requirements of the ADA.

Within many state and local governments, it is difficult for pedestrian projects to compete with the priorities that have been placed on automobile travel. For example our MPO, like many others, does not systematically require or fund sidewalk installations on new federal-aid roadway projects. However, our MPO process does ensure that if during road reconstruction a sidewalk is removed, federal dollars may be used to replace that sidewalk. Unfortunately, without local policies at either the MPO or city level that encourage sidewalk construction, it will be difficult to develop an adequate sidewalk network.

Since Title II Implementing Regulations for the ADA requires all newly constructed and altered facilities (including sidewalks) to be readily accessible to people with disabilities, transportation agencies are responsible for developing a transition plan for existing deficient sidewalk networks. A plan for bringing intersections and other pedestrian facilities into compliance may be integrated into the transportation element of a city's capital improvement program or master plan. Another method for local government to meet ADA requirements for pedestrian access includes enforcing accessible sidewalk design guidelines during the design and site-plan review stages of new developments.

In addition to improving existing facilities and ensuring new facilities meet local standards for sidewalk design, maintenance of sidewalk facilities is also important. While some local governments take responsibility for sidewalk maintenance, others hold property owners accountable. To ensure conformity with ADA requirements, it is recommended that sidewalk maintenance be the responsibility of the local government and be held to similar maintenance schedules as roads.

For more information about ADA guidelines visit: [www.michigan.gov/disabilityresources](http://www.michigan.gov/disabilityresources) or [www.ada.gov](http://www.ada.gov)

## Appendix E – Title 23 United States Code

### Title 23 United States Code

#### §217. Bicycle transportation and pedestrian walkways

- a. **Use Of STP And Congestion Mitigation Program Funds.** Subject to project approval by the Secretary, a State may obligate funds apportioned to it under sections 104(b)(2) and 104(b)(3) of this title for construction of pedestrian walkways and bicycle transportation facilities and for carrying out non-construction projects related to safe bicycle use.
- b. **Use Of National Highway Performance Program Funds.** Subject to project approval by the Secretary, a State may obligate funds apportioned to it under section 104(b)(1) of this title for construction of pedestrian walkways and bicycle transportation facilities on land adjacent to any highway on the National Highway System.
- c. **Use Of Federal Lands Highway Funds.** Funds authorized for forest highways, forest development roads and trails, public lands development roads and trails, park roads, parkways, Indian reservation roads, and public lands highways shall be available, at the discretion of the department charged with the administration of such funds, for the construction of pedestrian walkways and bicycle transportation facilities.
- d. **State Bicycle And Pedestrian Coordinators.** Each State receiving an apportionment under sections 104(b)(2) and 104(b)(3) of this title shall use such amount of the apportionment as may be necessary to fund in the State department of transportation a position of bicycle and pedestrian coordinator for promoting and facilitating the increased use of non-motorized modes of transportation, including developing facilities for the use of pedestrians and bicyclists and public education, promotional, and safety programs for using such facilities.
- e. **Bridges.** In any case where a highway bridge deck being replaced or rehabilitated with Federal financial participation is located on a highway on which bicycles are permitted to operate at each end of such bridge, and the Secretary determines that the safe accommodation of bicycles can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations.
- f. **Federal Share.** For all purposes of this title, construction of a pedestrian walkway and a bicycle transportation facility shall be deemed to be a highway project and the Federal share payable on account of such construction shall be determined in accordance with section 120(b).
- g. **Planning and Design.**
  - a. **In General.** Bicyclists and pedestrians shall be given due consideration in the comprehensive transportation plans developed by each metropolitan planning organization and State in accordance with sections 134 and 135, respectively. Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities, except where bicycle and pedestrian use are not permitted.
  - b. **Safety considerations.** Transportation plans and projects shall provide due consideration for safety and contiguous routes for bicyclists and pedestrians. Safety considerations shall include the installation, where appropriate, and maintenance of audible traffic signals and audible signs at street crossings.
- h. **Use Of Motorized Vehicles.** Motorized vehicles may not be permitted on trails and pedestrian walkways under this section, except for:

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- a. maintenance purposes;
- b. when snow conditions and State or local regulations permit, snowmobiles;
- c. motorized wheelchairs;
- d. when State or local regulations permit, electric bicycles; and
- e. such other circumstances as the Secretary deems appropriate. [See the Framework for Considering Motorized Use on Non-Motorized Trails and Pedestrian Walkways]

**Transportation Purpose.** No bicycle project may be carried out under this section unless the Secretary has determined that such bicycle project will be principally for transportation, rather than recreation, purposes.

**Definitions.** In this section, the following definitions apply:

**Bicycle transportation facility.** The term ‘bicycle transportation facility’ means a new or improved lane, path, or shoulder for use by bicyclists and a traffic control device, shelter, or parking facility for bicycles.

**Electric bicycle.** The term ‘electric bicycle’ means any bicycle or tricycle with a low-powered electric motor weighing under 100 pounds, with a top motor-powered speed not in excess of 20 miles per hour.

**Pedestrian.** The term ‘pedestrian’ means any person traveling by foot and any mobility impaired person using a wheelchair.

**Wheelchair.** The term ‘wheelchair’ means a mobility aid, usable indoors, and designed for and used by individuals with mobility impairments, whether operated manually or motorized.

**See also:** Bicycle and Pedestrian Legislation in Title 23 United States Code (U.S.C.).

## Appendix F – Acronyms and Glossary of Terms

**AASHTO: American Association of State and Highway Transportation Officials** - a nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia, and Puerto Rico. It represents all five transportation modes: air, highways, public transportation, rail, and water. Its primary goal is to foster the development, operation, and maintenance of an integrated national transportation system.

**ACCESS** - The ability to enter or leave a residence, business, or parcel of land from a roadway by way of a connecting driveway. Alternatively it means the opportunity to reach a given point within a certain time frame, or without being impeded by physical, social, or economic barriers.

**ACCESS MANAGEMENT** - Limiting the ability of traffic to enter, leave, or cross thoroughfares; regulating the spacing and design of driveways, medians, intersections, and traffic signals to promote the efficient flow of through traffic.

**ACCESSIBILITY** - The ability to reach destinations, activities, and services.

**ADA: Americans with Disabilities Act** - A set of guidelines passed in 1990 to assure a minimum level of accessibility to buildings and facilities for individuals with disabilities; Title III of the legislation deals with public accommodations.

**ADT: Average Daily Traffic** - The average number of vehicles passing a specific point on a roadway during 24 hour period.

**ARTERIAL** - A controlled access highway designed for through traffic (longer trips, higher volume and speed); arterials are typically on a continuous route and are often divided; the right-of-way is usually 120 feet.

**BICYCLE BOULEVARD** - A street segment, or series of contiguous street segments, that has been modified to accommodate through bicycle traffic and minimize through motor traffic.

**BICYCLE CENTER** – Bicycle Centers offer indoor bicycle parking facilities, lockers, showers, snack bars, bicycle repair and rentals, and other amenities intended to encourage bicycling.

**BICYCLE LANE** - Portion of the street designated by striping, signing, or pavement markings for preferential or exclusive use by bicyclists. Bike lanes are established with appropriate pavement markings and signing to delineate the right of way assigned to bicyclists and motorists, and to provide more predictable movements by each. Bike lanes are usually paired one-way facilities located on both sides of streets with moderate to heavy traffic volumes. Steeply sloped streets can have bike lanes on one side for climbing, while it may not be necessary to stripe lanes on the downhill side because bicycle speeds approach motor vehicles on these sections. The minimum width of a bike lane is 4 feet in most areas, or 5 feet when adjacent to on-street parking or if measured from the curb face. Bicycle lane design at intersections must be treated carefully to minimize conflicts between bicycle and auto movements.

**BICYCLE ROUTE** – Bicycle Routes are roadways or bikeways designated by the jurisdiction having authority, either with a unique route designation or with bike route signs, along with bicycle guide signs may provide directional and distance information.

**BOULEVARD** - A wide street, usually with a median or promenade, lined with trees.

**BRT: Bus Rapid Transit** - A transportation system that, through improvements to infrastructure, vehicles and scheduling, uses buses to provide a service that is of similar quality to light-rail systems.

**BUFFER** - Portion of the roadway between the curb or edge of the pavement and the sidewalk; used to separate pedestrians and vehicles. Buffers often include landscaping, trees, or utility poles.

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**BULBOUT** - An extension of the sidewalk or curb line into the parking lane to reduce the effective street width. Also known as curb bulb-outs or neckdowns, curb extensions significantly improve pedestrian crossings by reducing the pedestrian crossing distance, visually and physically narrowing the roadway, improving the ability of pedestrians and motorists to see each other, and reducing the time that pedestrians are in the street. Curb extensions are only appropriate where there is an on-street parking lane. Curb extensions should not extend more than 6 feet from the curb, and must not extend into travel lanes, bicycle lanes or shoulders. The turning needs of larger vehicles, such as school buses, need to be considered in curb extension design.

**CAAA: Clean Air Act of 1990 and Amendments** - Federal legislation that sets standards for air quality levels.

**CMAQ: Congestion Mitigation and Air Quality Improvement Program** - Program which directs funding to projects that contribute to meeting national air quality standards.

**COLLECTOR** - A two- to four-lane roadway providing mobility and access. Collector streets can be found in residential neighborhoods, commercial and industrial areas, and central business districts. Collectors usually have minimal access control, and the right-of-way is typically 80 feet. Collectors are designed to move traffic from local roads to secondary arterials.

**CONTROLLED INTERSECTION** - Intersection with a traffic light or other traffic control device.

**CORRIDOR** - Transportation pathway allowing movement between activity centers; a corridor may encompass single or multiple transportation routes and facilities, adjacent land uses, and the connecting street network.

**CROSSWALK** - Marked portion of the street designated for pedestrian crossing, either mid-block or at an intersection. The most common markings are double parallel lines, ladder, and zebra stripes.

**CURB EXTENSION** - An extension of the sidewalk or curb line into the parking lane to reduce the effective street width. Also known as curb bulb-outs or neckdowns, curb extensions significantly improve pedestrian crossings by reducing the pedestrian crossing distance, visually and physically narrowing the roadway, improving the ability of pedestrians and motorists to see each other, and reducing the time that pedestrians are in the street. Curb extensions are only appropriate where there is an on-street parking lane. Curb extensions should not extend more than 6 feet from the curb, and must not extend into travel lanes, bicycle lanes or shoulders. The turning needs of larger vehicles, such as school buses, need to be considered in curb extension design.

**CYCLE TRACK** - A cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. A cycle track is physically separated from motor traffic and distinct from the sidewalk.

**DENSITY** - The number of dwelling units, buildings, or persons per unit of land, usually per acre (expressed as du/ac).

**EASEMENT** - Contractual agreement allowing temporary or permanent access through and/or use of a property.

**EPA: Environmental Protection Agency** - Federal source agency of environmental and air quality regulations affecting transportation.

**EXPRESSWAY** - A divided highway, typically with a 150-200 foot right-of-way, with full or partial access control and interchanges at selected public roads. Expressways may also have at-grade intersections spaced at 1500-2000 foot intervals.

**FHWA: Federal Highway Administration** - Federal agency within the United States Department of Transportation that deals with roadway and highway issues.

**FREEWAY** - A divided highway for through traffic with full access control and interchanges at selected public roads.

**FTA: Federal Transit Administration** - Federal agency within the United States Department of Transportation that deals with transit issues.

**FUNCTIONAL CLASSIFICATION** - A system for classifying streets and highways based on the nature of service they are intended to provide.

**FY: Fiscal Year** - Year in which public and private agencies use for conducting business; it usually differs from the calendar year. Most State and Federal agencies use an October 1 through September 30 fiscal year.

**GIS: Geographic Information System** - Computer mapping capabilities used to provide information.

**GREENWAY** - A protected open-space area following a natural or man-made linear feature; greenways are often used for recreation, transportation, conservation, and to link amenities.

**GVMC: Grand Valley Metropolitan Council** - Agency that serves as the Metropolitan Planning Organization (MPO) for the Grand Rapids area. The Council is made up of members, all local units of government, that want to work cooperatively on issues that have a multi-jurisdictional or regional scope. Those issues include transportation, the environment, economics, and those with social impact.

**INFRASTRUCTURE** - The built facilities required to serve a community's development and operational needs, e.g. roads, water, and sewer systems.

**INTERSECTION** - The area where two or more roadways join or cross including the roadway and roadside facilities.

**IITE: Institute of Transportation Engineers** - An international association of transportation professionals that supports transportation-related education, research, professional development, public awareness programs, and facilitates the exchange of professional information.

**ITP: Interurban Transit Partnership** - Agency responsible for providing public transportation and transit service in the Grand Rapids area, also known as The Rapid.

**KCRC: Kent County Road Commission** - Agency responsible for road maintenance and construction in townships, villages, and other unincorporated parts of Kent County.

**LAND USE** - The way in which a parcel of land is used or occupied, i.e. the types of buildings or activities, and/or the purpose for which it is designed, arranged, intended, or maintained.

**LOCAL STREET** - Primary role is providing access to adjacent properties; local streets have low levels of mobility and serve residential, commercial, and industrial areas.

**LOS: Level of Service** - A qualitative rating system used to describe the adequacy of the road network at a specific intersection or street segment, based on factors including travel time, freedom to maneuver, driver comfort, and interruptions; LOS A is used to describe the best traffic conditions while LOS F denotes gridlock. LOS can also be used to describe transit and bicycle/pedestrian networks.

**MAP-21** – The Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) is a funding and authorization bill that governs United States federal surface transportation funding. It was passed in congress on June 29, 2012 by President Barack Obama.

**MAJOR THOROUGHFARE** - Major, multimodal streets in urban areas (arterials and collectors) which are designed to complement and support adjacent land uses.

**MDEQ: Michigan Department of Environmental Quality** - State agency dedicated to environmental improvements and policies that impact public health and natural resources such as air quality, water quality, and waste management.

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**MDOT: Michigan Department of Transportation** - State agency responsible for monitoring and improving the transportation system in Michigan.

**MIXED-USE ZONING** - Zoning allowing several types of uses (e.g. residential, commercial, office, and/or retail) within a single building or development. The uses can be mixed vertically, with different uses stacked in a single building, or horizontally, with different uses adjacent to or near each other.

**MOBILITY** - Movement of people or goods within the transportation system.

**MODE** - Form of transportation, such as automobile, transit, bicycle, and walking.

**MPO: Metropolitan Planning Organization** - A federally required planning entity responsible for transportation planning and project selection in its region; every urbanized area with a population over 50,000 should have an MPO, designated by the governor. The Grand Valley Metro Council (GVMC) is the MPO for the Grand Rapids area.

**MSA: Metropolitan Statistical Area** - U.S. Census determination which delineates the boundaries of the Metropolitan area.

**MTP: Metropolitan Transportation Plan** - A document that provides a strategy and methodology for an area's long-range transportation needs. The Plan must have at least a twenty-year window and must be updated every four years.

**MULTIMODAL** - A system or corridor providing a range of transportation options including walking, bicycling, driving, and transit.

**MUTCD: Manual on Uniform Traffic Control Devices** - The MUTCD defines the standards used for the installation and maintenance of traffic control devices (signs, signals, and pavement markings) nationwide; the manual is published by the Federal Highway Administration.

**ON-STREET PARKING** - Space for parking cars within the street right-of-way; on-street parking can improve access to nearby land uses, create a buffer between pedestrians and vehicles, and help reduce traffic speeds by narrowing the perceived right-of-way.

**PEDESTRIAN-ORIENTED** - A built environment that emphasizes and is conducive to walking between destinations. A pedestrian-friendly environment may include sidewalks, buffers, street trees, benches, fountains, transit stops, pedestrian-oriented signs and lighting, public art, and buildings that are visually interesting with high levels of transparency and articulation.

**ROAD DIET** - Narrowing a roadway by reducing the number of lanes or lane width; a traffic calming strategy used to reduce vehicle speeds. Road diets are often conversions of four-lane undivided roads into three lanes (two through lanes and a center two-way left turn lane (TWLTL). The ROW of the fourth lane may be used for bicycle lanes, sidewalks, and/or on-street parking.

**ROADWAY** - A thoroughfare at least twenty feet in width that has been dedicated to the public for transportation use; a section of the right-of-way that has been designed, improved, surfaced, or is typically used for motor vehicle travel.

**ROUNDBABOUT** - A traffic calming device in which vehicles follow a circular path around a central island; upon approaching the roundabout, vehicles are expected to yield to traffic already in the circle.

**ROW: Rights-of-Way** - Public strip of land on which streets, sidewalks, alleys, transit and railroad lines, and public utilities are built.

**SAFE ROUTES TO SCHOOL** - Programs designed to encourage and enable children to safely walk and bike to school. These programs often include education, encouragement and enforcement efforts in conjunction with a variety of site-specific engineering measures designed to improve safety for bicycling and walking. See [www.saferoutesinfo.org](http://www.saferoutesinfo.org) and <http://safety.fhwa.dot.gov/saferoutes/> for more information.

**SAFETEA-LU: Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy For Users** – was a funding and authorization bill that governed United States federal surface transportation spending. It was signed into law by President George W. Bush on August 10, 2005. It expired in 2009 but was renewed several times after expiration until replaced by MAP-21 in 2012.

**SHARED LANE** - A wide outside/curb or shared lane (WCL) is the lane nearest the curb and is wider than a standard (12-foot) lane, providing additional space so that the lane may be shared more comfortably by motor vehicles and bicycles. These lanes should be about 14 feet wide, as lanes wider than 15 feet can encourage the operation of two motor vehicles side by side. If lanes become too wide, some motorists may also assume parallel parking is allowed, constricting the travel lane for bikes.

**SHARED ROADWAY** - A roadway that is open to both bicycle and motor vehicle travel - may be an existing roadway, street with wide curb/outside lanes, or road with paved shoulders. Shared roadways typically have no bikeway designation, but should be designed and constructed under the assumption that they will be used by bicyclists.

**SHARED USE PATH** - A path physically separated from motorized vehicular traffic by an open space or barrier located either within the highway right-of-way or within an independent right-of-way. Shared use paths may be used by pedestrians, bicyclists, skaters, wheelchair users, runners, and other non-motorized users.

**SHARROW** - A chevron-style roadway lane marking that indicates that the lane is shared by bicyclists and other vehicles. Sharrows are used when the road lane is not wide enough to accommodate both a traffic lane and a dedicated bicycle lane.

**SHOULDER** - The portion of the roadway to the right of the rightmost travel lane, excluding curbs, buffers, and sidewalks; shoulders can be paved, gravel, dirt, or grass, and serve a number of different purposes, (bicycle and pedestrian travel, structural roadway support, space for emergency vehicles to pass, stopped/disabled vehicle pull-off, space for vehicles to slow and turn right) typically dictated by their width and composition.

**SIDEPATH** - A type of multi-use path running adjacent and parallel to a roadway, like an extra wide sidewalk. Sidepaths have special design challenges, as motor vehicles may not expect bikes to be entering an intersection from outside the travel lanes. AASHTO discourages two-way paths located immediately adjacent to roadways due to the operational and safety issues that can occur. Sidepaths should not be considered a substitute for street improvements even when the path is located adjacent to a highway, as many bicyclists find these paths less convenient than on-street facilities, particularly for utilitarian trips.

**SIDEWALK** - A paved pathway paralleling a highway, road, or street that is intended for pedestrians. Most sidewalks are separated from the curb by trees, grass, landscaping, lights, or other streetscape elements and are most common in areas of higher land use densities.

**SIGNED SHARED ROADWAY** - A shared roadway that has been designated with signing as a preferred route for bicycle use to provide continuity to other bicycle facilities, or to designate preferred routes through high-demand corridors.

**STAGING AREA** – Areas that typically have designated motorized vehicle parking for accessing non-motorized networks.

**STPU: Surface Transportation Program-Urban** - Federal funding category geared specifically to urbanized areas.

**STREETSCAPE** - The elements within and along the street right-of-way that define its appearance, identity, and functionality, including adjacent buildings and land uses, street furniture, landscaping, trees, sidewalks, and pavement treatments, among others.

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**TEDF: Transportation Economic Development Funds** - This program has different lettered categories A through F that provide competitive statewide funding for roadways of different types that serve economic development purposes.

**TIP: Transportation Improvement Program** - A short-term, three-year program of transportation projects which are expected to be federally funded; these projects are drawn from and should be consistent with the Metropolitan Transportation Plan.

**TMA: Transportation Management Area** - An MPO with over 200,000 in population. All transportation plans for these areas must be based on a continuing and comprehensive planning process carried out by the MPO in cooperation with the States and transit operators.

**TOD: Transit Oriented Development** - Development in which land uses are designed and sited to maximize transit ridership and the use of alternative forms of transportation; TOD's are typically also mixed-use developments.

**TRAFFIC CALMING** - Transportation techniques, facilities, or programs designed to slow the movement of motor vehicles. Traffic calming typically involves changes in street alignment, installation of barriers and other physical measures to reduce traffic speeds and/or cut-through volumes in the interest of safety, livability, and other public interests. Physical treatments may include speed tables, raised crosswalks, textured pavement, roundabouts, curb extensions, partial roadway closures, diagonal diverters and median barriers.

**TRANSIT** - Passenger transportation service provided to the general public along established routes with fixed or variable schedules at published fares.

**TRANSIT DEPENDENT** - Persons who must rely on public transit or paratransit for most or all of their transportation needs.

**URBANIZED AREA** - An area which contains a city of 50,000 or more in population plus adjacent surrounding areas having a density of at least 1,000 people per square mile as determined by the U.S. Census.

**USDOT: United States Department Of Transportation** - The principal direct federal funding and regulating agency for transportation facilities and programs.

**VMT: Vehicle Miles Traveled** - The number of vehicle miles traveled within a specified geographic area during a given period of time; one vehicle traveling one mile constitutes one vehicle mile, regardless of its size or the number of passengers.

**WIDE OUTSIDE LANE** - A wide outside/curb or shared lane (WCL) is the lane nearest the curb and is wider than a standard (12-foot) lane, providing additional space so that the lane may be shared more comfortably by motor vehicles and bicycles. These lanes should be about 14 feet wide, as lanes wider than 15 feet can encourage the operation of two motor vehicles side by side. If lanes become too wide, some motorists may also assume parallel parking is allowed, constricting the travel lane for bikes.

**WMCAC: West Michigan Clean Air Coalition** - A partnership of business, academia, government, industry, and the non-profit sector in Kent, Ottawa, and Muskegon counties working together to achieve cleaner air in the region.

**ZONING** - Classification system based on permitted and prohibited land uses, densities, and intensities used to promote land use compatibility.